



PRODUCT OVERVIEW CABLE AND PIPE SEALING SYSTEMS SHIPBUILDING/OFFSHORE





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® : ACTIFOAM, AQUASTOP, BEEBLOCK, BEEBOND, BEELE, BEESEAL, CONDUCTON, CRUSHER,

CRUSHNOF, CSD, CSD THE SIMPLE SEAL SYSTEM, DRIFIL, DYNATITE, FIRAQUA, FIRSTO, FIWA, LEAXEAL, MULTI-ALL-MIX, NOFIRNO, profiles NOFIRNO gaskets, RAPID TRANSIT SYSTEM, RIACNOF, RISE, RISWAT, \$, SLIPSIL, flanges SLIPSIL plugs, ULEPSI and YFESTOS are registered trade marks of

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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.





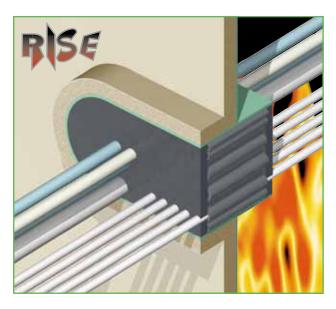


Our development, test and production facilities are among the most advanced in the world. The factory is equipped with state of the art machines, which are tailor made to the requirements of our company. We work to a high-level ISO system, with unmatched involvement. Continuous investment in design technologies, 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.



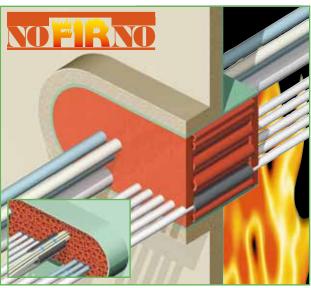


BEELE PRODUCT OVERVIEW MARINE APPLICATIONS - ELECTRICAL



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 shippards 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 I5 bar (220 psi).
- Ideal solution for the columns of offshore rias 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 shippards worldwide for more than 2 decades!

NOFIRNO®

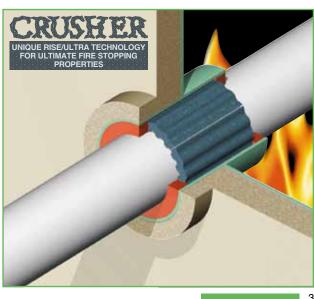
- Approved for harshest fire ratings for pipe penetrations (A, H and Jet Fire class).
- Allows substantial movement of the ducted pipe within the conduit.
- High pressure ratings designed for gas and/or watertight penetrations.
- Prevents corrosion inside the penetration.
- Longest service life and best 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-I2O AND JET FIRE TESTED

FIWA & NOFIRNO LOW FLAME SPREAD ACC. TO IMO A.653(I6)

APPROVED WATERTIGHT UP TO 2.5 - 4 BAR

APPROVED GAS TIGHT UP TO I 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

passed

Determination of the oxygen index 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

passed

(+212 °F / ambient / -40°F) Naval Engineering Standard 510: Issue 2, Draft B: Shock (100 g_n) and vibration test (5-350 Hz)

passed

combined with 1 bar leak test afterwards Naval Engineering Standard 814:

Shock test, acceleration level 8378/s/s in two directions combined with 6.9 bar leak test afterwards

sealant is a determining factor for successful mechanical testing. NOFIRNÓ® sealant has improved mechanical properties so that NOFIRNO® can also be classed for these passed

nitially some of these tests have been carried out with the regular RISE® system. The

Naval Engineering Standard 510: Issue 2, Draft B: Leak test after a one hour fire test

General classification

Helium gas leak test up to 1 bar

passed

Nordtest method NT ELEC 030, modified for conducted attenuation passed

Sound damping test According to EN ISO 717-1:1996 20-100 dB

Rapid rise fire test, shock, vibration and water pressure

70 dB

According to Mil-P-24705 of the US Navy Dynamic cycling test

passed

Displacement 10 mm, 100,000 cycles, frequency 0.5 Hz Shock and vibration tests in 3 axis and pressure tests

passed

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

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.

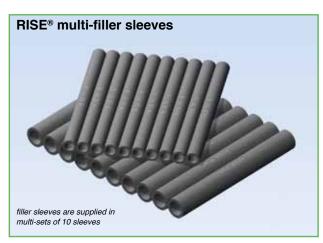












DIOT®			-1	
RISE®	cable		sleeve	article
cable sleeve	diameter		length	number
12/6	5 - 7		140	80.0051
14/8	7 - 9		140	80.0052
16/10	9 - 11		140	80.0053
18/12	11 - 13	,	140	80.0054
20/14	13 - 15	ш	140	80.0055
22/16	15 - 17	s in	140	80.0056
27/19	17 - 21	sion	140	80.0057
31/23	21 - 25	all dimensions in mm	140	80.0058
35/27	25 - 29	dir	140	80.0059
39/31	29 - 33	ä	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	8	160	80.0103
20/14 22/16	13 - 15 15 - 17	all dimensions in mm	160 160	80.0104 80.0105
27/19	17 - 21	ns i	160	80.0106
31/23	21 - 25	nsio	160	80.0107
35/27	25 - 29	ime	160	80.0107
39/31	29 - 33	p e	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	E .	210	80.0204
22/16	15 - 17	all dimensions in mm	210	80.0205
27/19	17 - 21	sior	210	80.0206
31/23	21 - 25	пеп	210	80.0207
35/27	25 - 29	ij	210	80.0208
39/31	29 - 33	a	210	80.0209
46/36 52/42	33 - 39 30 - 45		210 210	80.0210
52/42 58/48	39 - 45 45 - 51		210	80.0211 80.0212
56/46 64/54	45 - 51 51 - 57		210	80.0212
70/60	51 - 57 57 - 63		210	80.0213
70/00	37 - 03		210	00.0214

RISE® filler sleeve		sleeve length	article number
18/12 single		140	80.0323
18/12 multi		140	80.0324
18/12 single	2	160	80.0313
18/12 multi	ji d	160	80.0314
18/12 single	ıs ir	210	80.0303
18/12 multi*	all dimensions in mm	210	80.0304
27/19 single	dim	140	80.0326
27/19 multi	all	140	80.0327
27/19 single		160	80.0316
27/19 multi		160	80.0317
27/19 single		210	80.0306
27/19 multi*	* not available yet	210	80.0307





PRODUCT INFORMATION SEALANT

01) colour dark grey specific gravity $1.30 \pm 0.03 \text{ g/cm}^3$ 02) 03) curing of top layer 0.5 - 1 hour depending on

temperature and air humidity service temperature -50 °C up to +160 °C 04)

1.15 MPa 05) tensile strength

elongation at break 125% 06) 07) hardness 35 Shore A 08) elastic deformation approx. 25%

UV, Ozone, arctic conditions 09) resistance

more than 20 years 10) ageing supplied in 310 ml cartridges 11) 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

02) specific gravity

03) curing of top layer

04) service temperature

05) tensile strength 06) elongation at break

07) hardness

(80 elastic deformation

09) resistance

10) ageing

11) supplied in

storage 12)

13)

red brown

1.40 ± 0.03 g/cm³

0.5 - 1 hour depending on temperature and air humidity

-50 °C up to +180 °C

1.5 MPa

200% 45 Shore A

approx. 50%

UV, Ozone, arctic conditions

more than 20 years 310 ml cartridges to be stored cool and dry

min/max temperature =

+5/+30° C

storage life guaranteed 6 months; when

applied later than 6 months after date of manufacturing, curing and adhesive properties have to be checked before application



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

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

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



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).

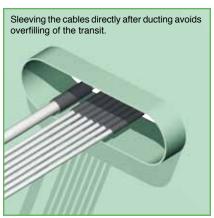
CONDUCTON® flexible rubber fullfils the criteria for use on board of UK Navy vessels for EMP/EMI penetrations.







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.



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.



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.



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.



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.



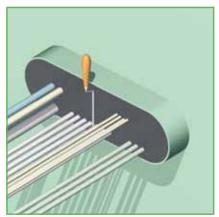
6) The conduit should be overfilled with FIWA® sealant, because some sealant will be pushed between and into the empty filler sleeves during further finishing. This will contribute to obtain higher tightness ratings.



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.

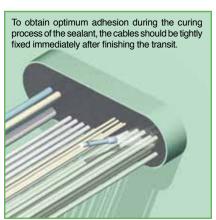
This is essential to obtain an effective gas and water tightness.



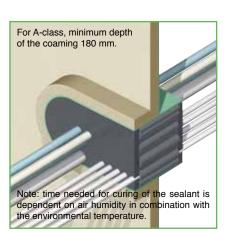




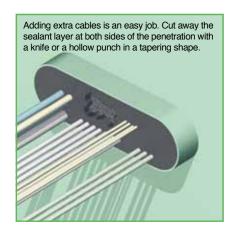
10) The surface can be smoothed by hand. Just wet the hands thoroughly with soap and water. No dirty hands when working with FIWA® and a very neat surface is the result.

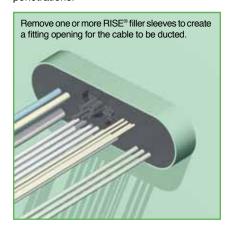


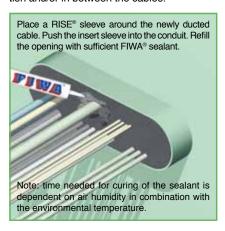
11) After smoothing is finished, a last check should be taken to ensure sufficient sealant has been applied in between the cables (especially for transits with larger amounts of cables). This is most important for water and gas tight penetrations.



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.







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!*

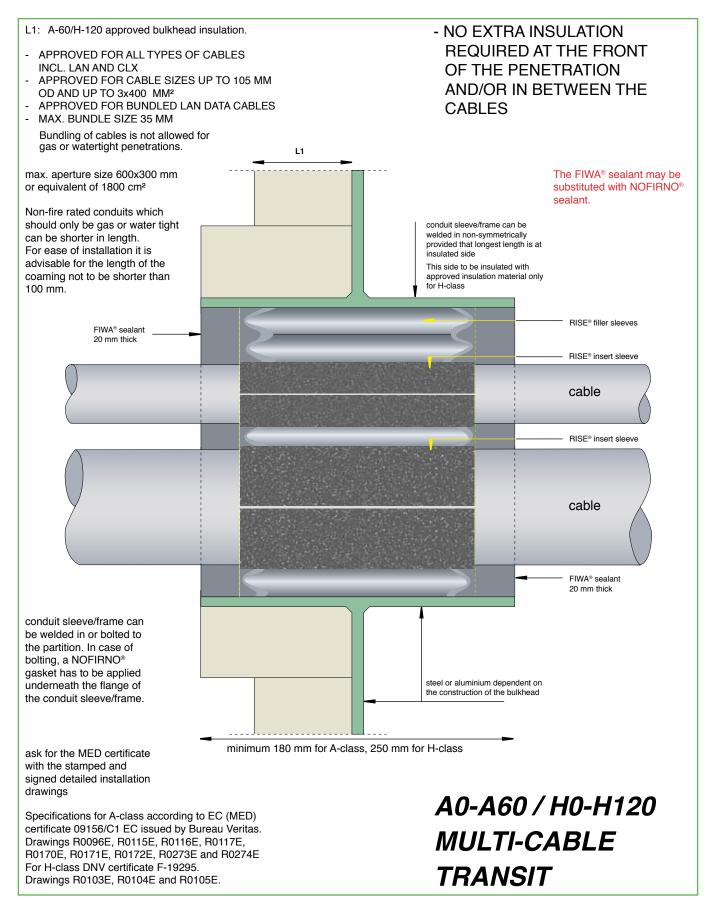


ask for the MED certificate with the stamped and signed detailed installation drawings













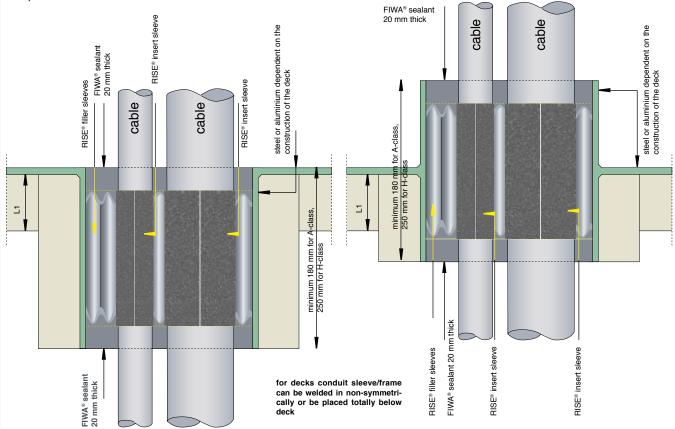
L1: A-60/H-120 approved deck insulation.

- 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.

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

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



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

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.

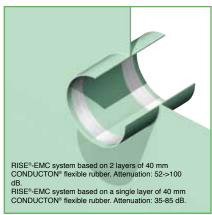
ask for the MED certificate with the stamped and signed detailed installation drawings

Specifications for A-class according to EC (MED) certificate 09156/C1 EC issued by Bureau Veritas. Drawings R0096E, R0115E, R0116E, R0117E, R0170E, R0171E, R0172E, R0273E and R0274E For H-class DNV certificate F-19295. Drawings R0103E, R0104E and R0105E.

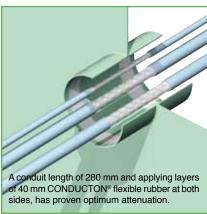
A0-A60 / H0-H120 **MULTI-CABLE TRANSIT**



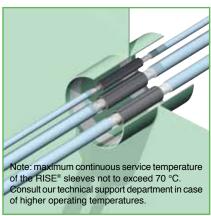




1) At the place where the CONDUCTON® flexible compound is to be applied, the penetration should be bare steel without primer and thoroughly cleaned to ensure effective connection to earth.



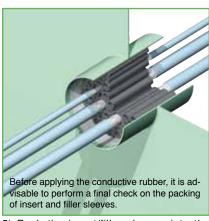
2) Remove the cable sheathing over a length that is 40 mm shorter than the length of the penetration, in such a way that he front face of the exposed braiding is situated about 20 mm inside the conduit at both sides.



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.







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.



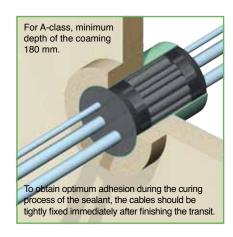
11) To smooth the surface of the FIWA® sealant layer, a cloth is sprayed with water. This prevents the sealant from sticking to the cloth. Note: do not use soap water!

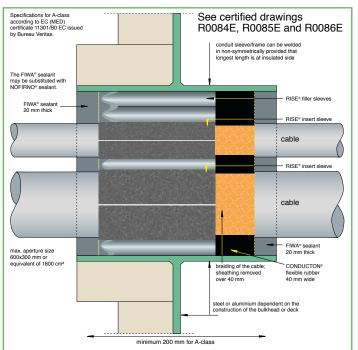


12) The cloth is then used to press down the sealant layer. People with sensitive skin should use gloves when working with FIWA®. Please refer to the Safety Data Sheet for more information.











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













RISE®	cable		sleeve	article
cable sleeve	diameter		length	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	ш	140	80.0055
22/16	15 - 17	in 8	140	80.0056
27/19	17 - 21	ions	140	80.0057
31/23	21 - 25	all dimensions in mm	140	80.0058
35/27	25 - 29	dii	140	80.0059
39/31	29 - 33	lle	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	μ	160	80.0103
20/14	13 - 15	all dimensions in mm	160	80.0104
22/16	15 - 17 17 - 21	ii sr	160	80.0105
27/19 31/23		ioisi	160 160	80.0106 80.0107
35/27	21 - 25 25 - 29	meı	160	80.0107
39/31	25 - 29 29 - 33	ij Ji	160	80.0108
46/36	33 - 39	a	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	
14/8	5 - 7 7 - 9		210	80.0200 80.0201
16/10	7 - 9 9 - 11		210	80.0201
18/12	11 - 13		210	80.0202
20/14	13 - 15	Æ	210	80.0204
22/16	15 - 17	in	210	80.0205
27/19	17 - 21	suc	210	80.0206
31/23	21 - 25	all dimensions in mm	210	80.0207
35/27	25 - 29	lime	210	80.0208
39/31	29 - 33	all c	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	2	210	80.5004
18/12 multi	Ē	210	80.5054
27/19 single	all dimensions in mm	140	80.5012
27/19 multi	sio	140	80.5062
27/19 single	Jeu	160	80.5013
27/19 multi	ij	160	80.5063
27/19 single	3//6	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





PRODUCT INFORMATION SEALANT

01) colour02) specific gravity

03) curing of top layer

04) service temperature

05) tensile strength

06) elongation at break ISO 37 50%07) elongation at shear >150

08) hardness

09) elastic deformation

10) resistance

11) ageing

12) supplied in

13) storage

14) storage life

red brown

 $1.40 \pm 0.03 \text{ g/cm}^3$

0.5 - 1 hour depending on temperature and air humidity

-50 °C up to +180 °C

1.5 MPa 50%

>150% 45 Shore A approx. 50%

UV, Ozone, arctic conditions

more than 20 years 310 ml cartridges

to be stored cool and dry min/max temperature =

+5/+30° C

guaranteed 6 months; when applied later than 6 months after date of manufacturing, curing and adhesive properties have to be checked before

application



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

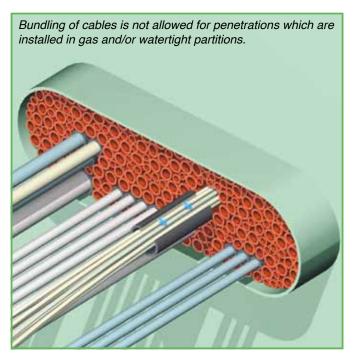
After applying the sealant, it can be smoothed by means of a wet cloth or by hand. Because the sealant adheres very tightly, the cloth and hands should be wetted with water before use to prevent sealant from sticking to them.

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.

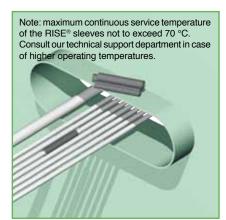
The NOFIRNO® system has been subjected to A-0, H-0 and even Jet Fires without being severely affected. Due to the superb behaviour of our various systems, the NOFIRNO® sealing system can be easily combined with RISE® and RISE®/ULTRA for the so-called MULTI-ALL-MIX® system for ducting all types of pipes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







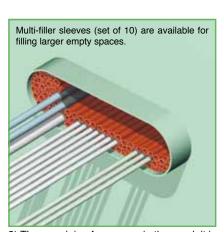




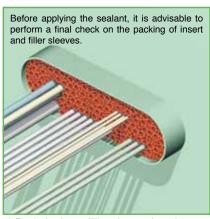
1) The cables can be ducted through the conduit sleeve/frame in random order. It is most important that they are not pulled too tight so as not to hamper their separation when RISE® insert sleeves are inserted.



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.



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.



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.



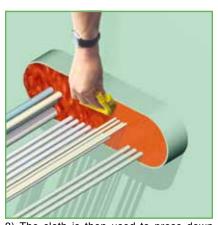
5) A 20 mm thick layer of NOFIRNO® sealant is applied at each side of the conduit. Clean and dry the conduit opening and the cables thoroughly, and remove any dirt, rust or oil residues before applying the sealant.



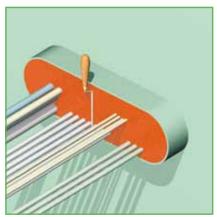
6) The conduit should be overfilled with NOFIRNO® sealant, because some sealant will be pushed between and into the empty filler sleeves during further finishing. This will contribute to obtain higher tightness ratings.



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.





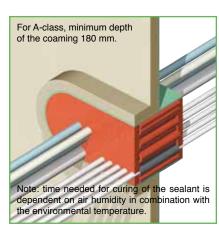


10) The surface can be smoothed by hand. Just wet the hands thoroughly with soap and water. No dirty hands when working with NO-FIRNO® and a very neat surface is the result.

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.



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.







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 $^{\circ}$ C), making the NOFIRNO® sealing system suitable for steam lines.
- 3) NOFIRNO $^{\circ}$ stays flexible at temperatures of -50 $^{\circ}$ 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.

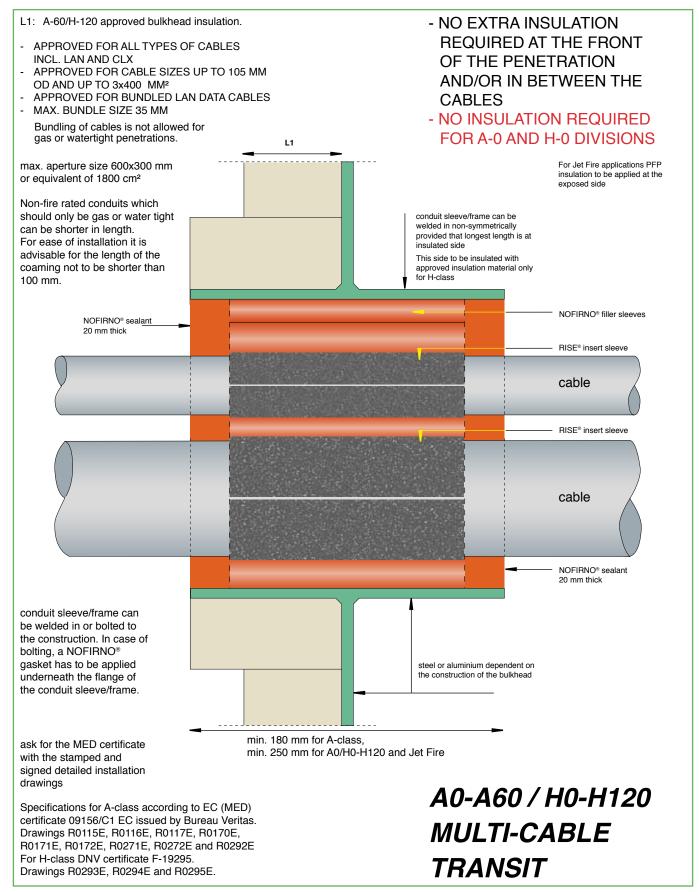


ask for the MED certificate with the stamped and signed detailed installation drawings











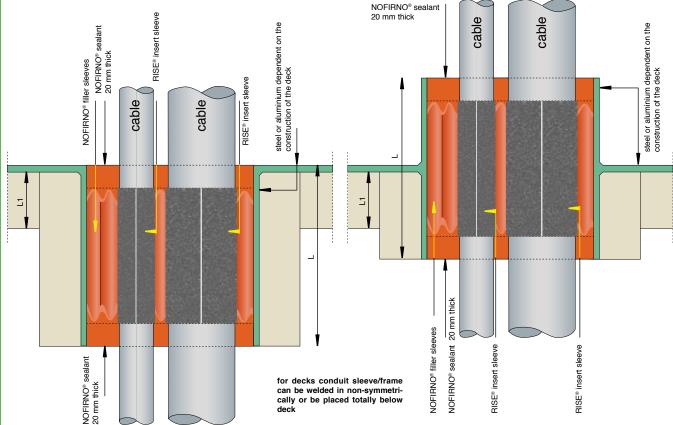


L1: A-60/H-120 approved deck insulation.

- 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.

- 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

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



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/C1 EC issued by Bureau Veritas. Drawings R0115E, R0116E, R0117E, R0170E, R0171E, R0172E, R0271E, R0272E and R0292E For H-class DNV certificate F-19295. Drawings R0293E, R0294E and R0295E.

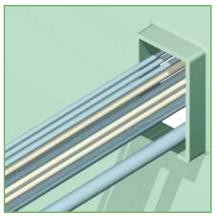
Non-fire rated conduits which should only be gas or water tight can be shorter in length. For ease of installation it is advisable for the length of the coaming not to be shorter than 100 mm.

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

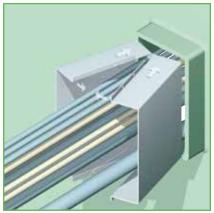




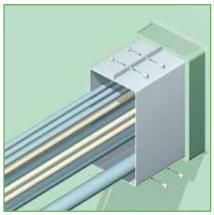
RISE® EXTEND-A-FRAMES FOR UPGRADING EXISTING BLOCK SYSTEM INSTALLATIONS



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.

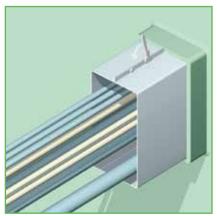


2) Position the two halves of the EXTEND-A-FRAME around the bundle of cables, then push the EXTEND-A-FRAME into the transit frame. The fitting must be very tight for stability reasons.

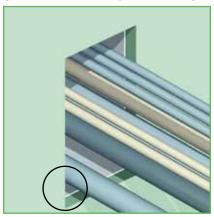


3) The flanges on the top and bottom of the EXTEND-A-FRAME must be firmly seated against the transit frame. Install the bolts and nuts on the top and bottom flanges. Tighten the bolts on top and bottom flanges.

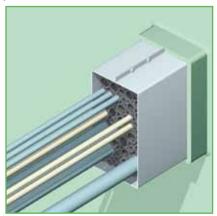
RISE®/EXTENDER instantly doubles the usable space inside any block system transit frame!



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.

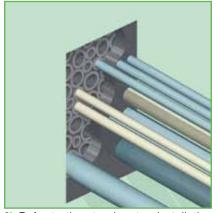


6) Place a RISE® insert sleeve around each cable. Any empty space is filled with RISE® filler sleeves. Note: EXTEND-A-FRAMES can also be used with the NOFIRNO® system.

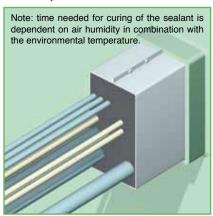
Eliminates the need for cutting new penetrations in valuable bulkhead/deck space!



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.

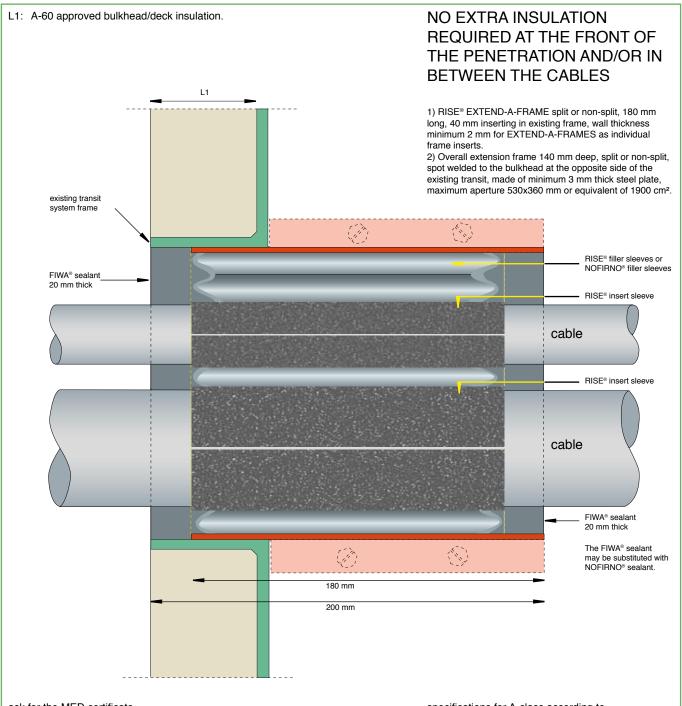


9) For optimum stability, the EXTEND-A-FRAME can be spot welded or bolted to the existing frame. For larger frame configurations, an option is to install a frame around the existing transit frame spot welded to the deck or bulkhead.





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



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

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.

specifications for A-class according to EC (MED) certificate 09156/C1 EC issued by Bureau Veritas. Drawings R0066E, R0067E, R0101E and R0102E

A0-A60 MULTI-CABLE TRANSIT









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.

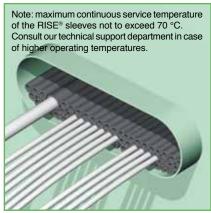
On both sides of the penetration, a layer of NOFIRNO® (non-fire consumable, non-intumescent, non-ageing) sealant is applied. Only halogen free components.

RISE®	cable		sleeve	article
cable sleeve	diameter		length	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	шш	140	80.0055
22/16	15 - 17	i.	140	80.0056
27/19	17 - 21	ions	140	80.0057
31/23	21 - 25	ens	140	80.0058
35/27	25 - 29	all dimensions in mm	140	80.0059
39/31	29 - 33	all	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	all dimensions in mm	160	80.0104
22/16	15 - 17	s in	160	80.0105
27/19	17 - 21	sion	160	80.0106
31/23	21 - 25	nen	160	80.0107
35/27	25 - 29	di	160	80.0108
39/31	29 - 33	al	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	u	210	80.0203
20/14	13 - 15	Ē	210	80.0204
22/16	15 - 17	i St	210	80.0205
27/19	17 - 21	sior	210	80.0206
31/23	21 - 25	all dimensions in mm	210	80.0207
35/27	25 - 29	ll dir	210	80.0208
39/31	29 - 33	ā	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

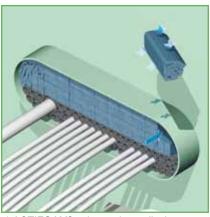
ACTIFOAM® filler sheets	sheet length	article number				
300x140x10	140	83.2510				
300x140x25	_ 140	83.2513				
300x160x10	₹ 160	83.2520				
300x160x25	160 160	83.2523				
600x140x25	140	83.2563				
600x160x25	160 160 140 160	83.2573				
600x140x25 (slits 50 mm)	140	83.2592				
600x160x25 (slits 50 mm)	160	83.2593				
ACTIFOAM						



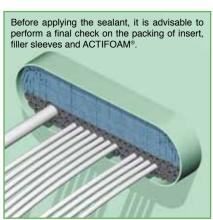




1) After the cables have been ducted, RISE® insert sleeves are applied around each cable. The set of sleeved cables is leveled with RISE® filler sleeves for ease of installation of the ACTIFOAM® filling.

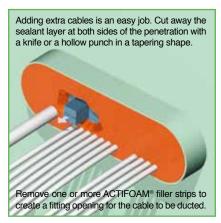


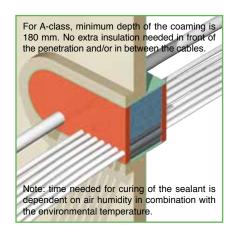
2) ACTIFOAM® strips and pre-slit sheets are used to fill the larger remaining space in the conduit opening. Use is made of ACTIFOAM® pre-slit rubber sheets 300x140x10 mm (slits 10x10 mm) and 600x140x25 mm (slits 25x25 or 25x50 mm).

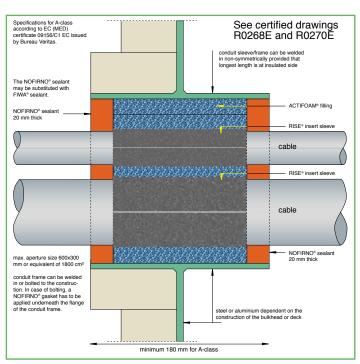


3) To obtain appropriate sealing, the 10 mm pre-slit sheets should be tightly rolled to leave a minimum of air gaps. Furthermore, the ACTIFOAM® filling should fit tightly in the conduit to obtain sufficient stability.











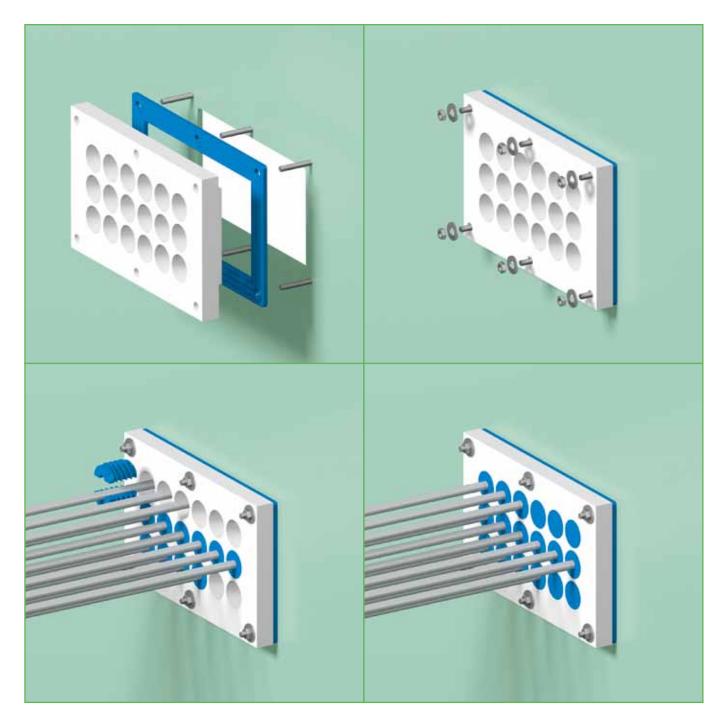
ask for the MED certificate with the stamped and signed detailed installation drawings







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

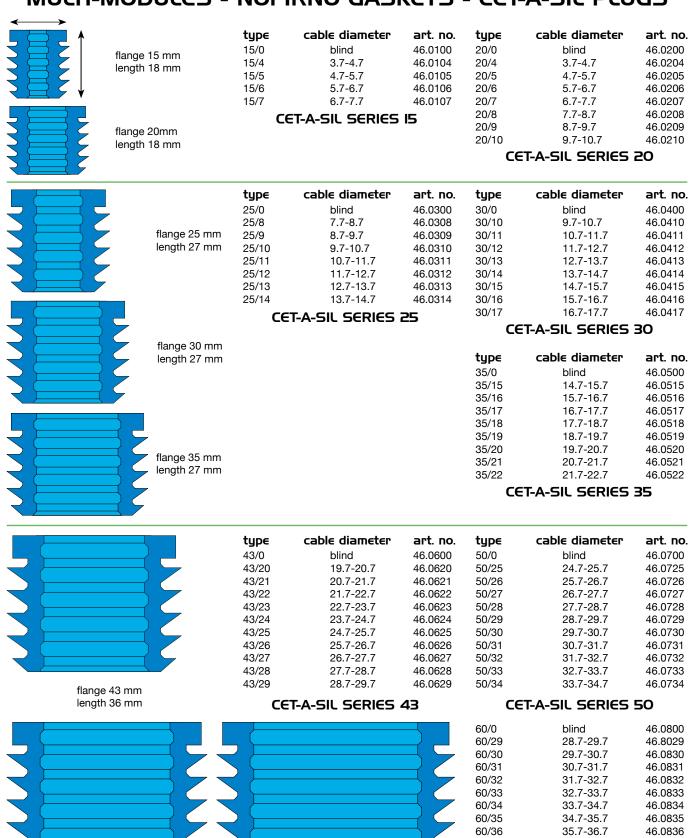


flange 50 mm

length 36 mm



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



flange 60 mm

length 36 mm

46.0837

46.0838

46.0839

46.0840

60/37

60/38

60/39

60/40

36.7-37.7

37.7-38.7

38.7-39.7

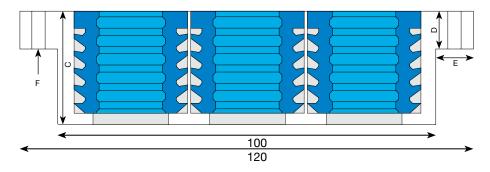
39.7-40.7

CET-A-SIL SERIES 60



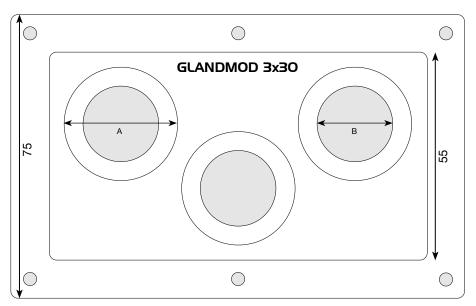


GLANDMOD - MULTI-GLAND SYSTEM MULTI-MODULES - NOFIRNO GASKETS - CET-A-SIL PLUGS



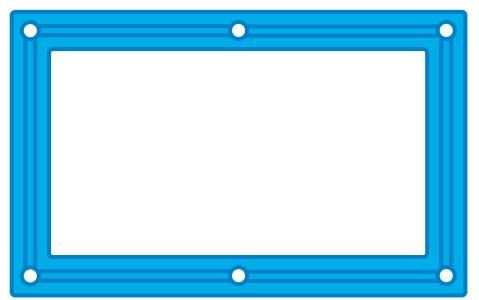
GLANDMOD SERIES OI: outer dimensions I20x75 mm recessed dimensions I00x55 mm

TYPE	Α	В	C	D	€	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	cc	onduit		-	olug		cable
	O	o∈ning	js	9	5€ri	ES	siz€
14x15	14	1		-	15		3.7-7.7
8x20	0			-	20		3.7-9.7
	8			-			3.1-9.1
5x25	5				25		7.7-14.7



GLANDMOD SERIES 02: outer dimensions 230xl30 mm recessed dimensions 200xl00 mm

TYPE	Α	В	C	D	E	F	art. no.
18x30	30	20	30	10	15	М6	60.9310
IIx35	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	cc	ondui	it	pl	ug		cable
	o	o∈nin	ıgs	S	eries	5 :	size
18x30	18	3		30)		9.7-17.7
llx35	11			35	5		14.7-22.7
8x43	8			43	3		19.7-28.7
5x50	5			50)	:	24.7-34.7



NOFIRNO GASKET SERIES OI profiled, thickness overall 5 mm, width IO mm dimensions outside I20x75 mm dimensions inside I00x55 mm art. nr. 5I.930I

NOFIRNO GASKET SERIES O2 profiled, thickness overall 5 mm, width I5 mm dimensions outside 230xI30 mm dimensions inside 200xI00 mm art. nr. 5I.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







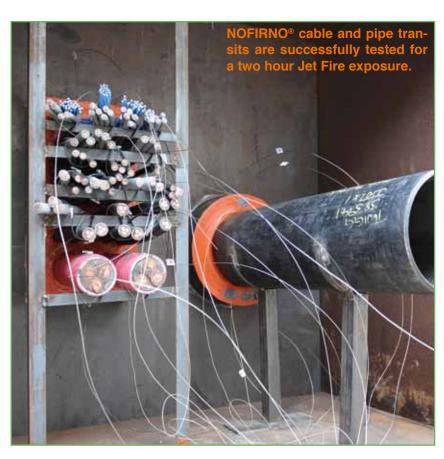


TO ISO 22899-1:2007 AND ISO/CD 22899-2

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.

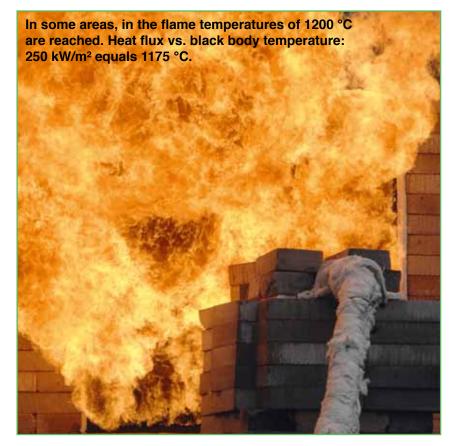
A fire protection material or system intended to withstand a conventional building fire for a specified period may not perform adequately in an extreme event scenario. Products that have demonstrated the ability to withstand a jet fire can be used to protect buildings more sensitive to extreme fires".



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.















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	80.5052
18/12 multi		140	80.5052
18/12 multi		160	80.5003
18/12 single		160	80.5053
18/12 single		210	80.5004
18/12 multi 27/19 multi 27/19 single 27/19 multi 27/19 single 27/19 multi 27/19 single 27/19 multi 27/19 single 27/19 multi	all dimensions in mm	210 60 110 110 140 140 160 210 210	80.5054 80.5060 80.5011 80.5061 80.5012 80.5062 80.5013 80.5063 80.5014 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



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
- 02) specific gravity
- 03) curing of top layer
- 04) service temperature
- 05) tensile strength
- 06) elongation at break ISO 37 50% 07) elongation at shear
- 08) hardness
- 09) elastic deformation
- 10) resistance
- 11) ageing
- supplied in 12)
- 13) storage
- 14) storage life

red brown

 $1.40 \pm 0.03 \text{ g/cm}^3$

0.5 - 1 hour depending on temperature and air humidity

-50 °C up to +180 °C

1.5 MPa

>150%

45 Shore A

approx. 50%

UV, Ozone, arctic conditions

more than 20 years

310 ml cartridges

to be stored cool and dry

min/max temperature =

+5/+30° C

guaranteed 6 months; when applied later than 6 months after date of manufacturing, curing and adhesive properties

have to be checked before

application



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

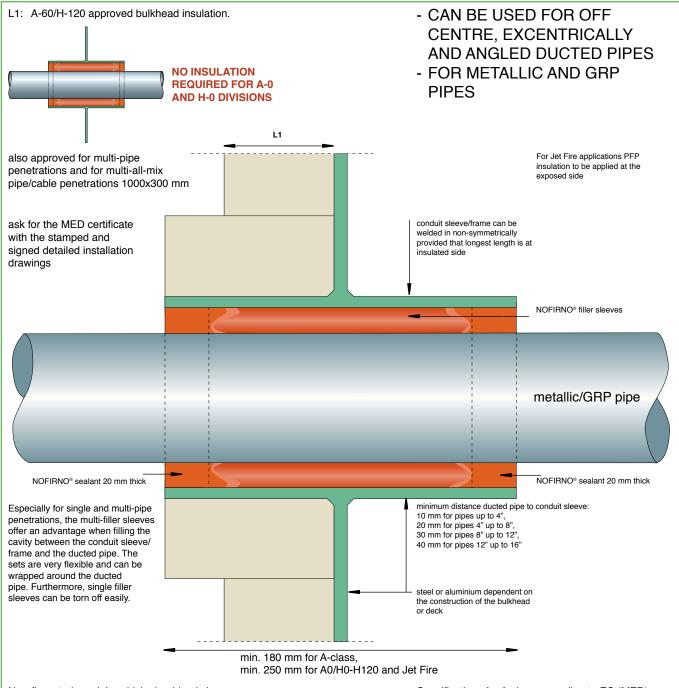
After applying the sealant, it can be smoothed by means of a wet cloth or by hand. Because the sealant adheres very tightly, the cloth and hands should be wetted with water before use to prevent sealant from sticking to them.

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



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 408/1016 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.

Specifications for A-class according to EC (MED) certificate MED-B-4908 issued by Det Norske Veritas. Drawings N0009E, N0011E, N0018E and N0020E, R0207E, R0213E.

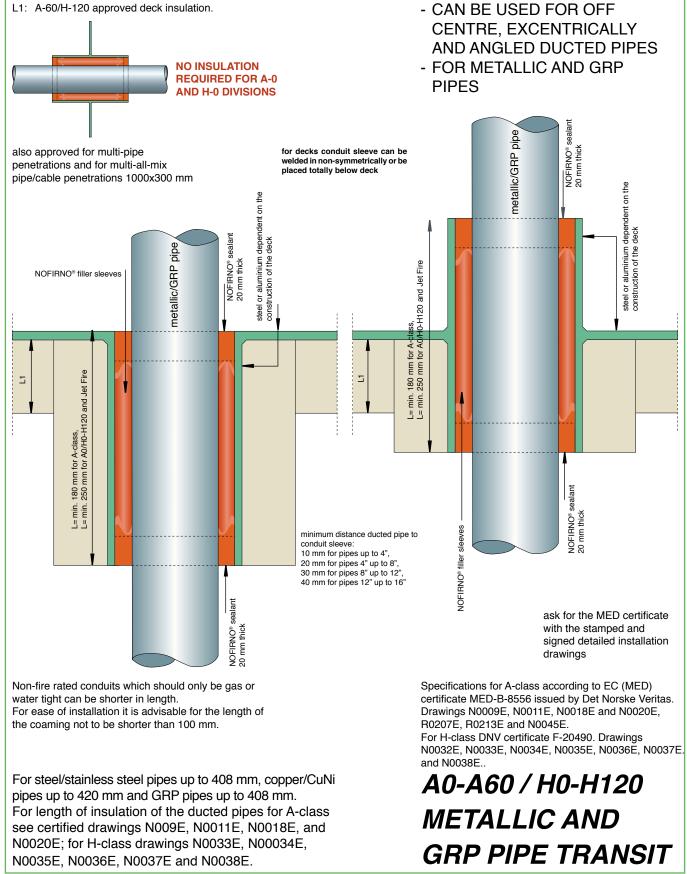
For H-class DNV certificate F-19524. Drawings N0032E, N0033E, N0034E, N0035E, N0036E, N0037E and N0038E.

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



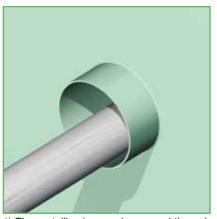


NOFIRNO® (MULTI-) PIPE TRANSIT SEALING SYSTEM

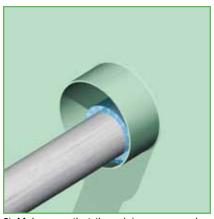




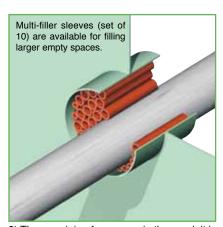




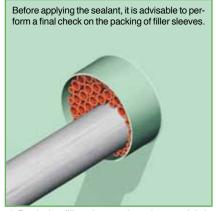
1) The metallic pipe can be passed through the conduit sleeve in any position, provided there is enough space between the sleeve and the ducted pipe (see next at 2).



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.



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.



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.



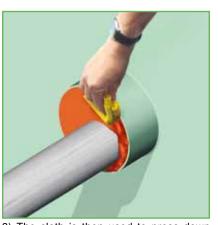
5) A 20 mm thick layer of NOFIRNO® sealant is applied at each side of the con-duit. Clean and dry the conduit opening as well as the pipe thoroughly, and remove any dirt, rust or oil residues before applying the sealant.



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!



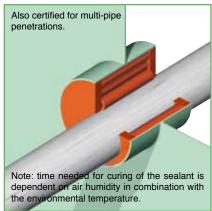
8) The cloth is then used to press down the sealant layer. People with sensitive skin should use gloves when working with NOFIRNO®. Please refer to the Safety Data Sheet for more information.



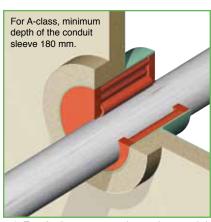
9) The surface can be smoothed by hand. Just wet the hands thoroughly with soap and water. No dirty hands when working with NOFIRNO® and a very neat surface is the result.



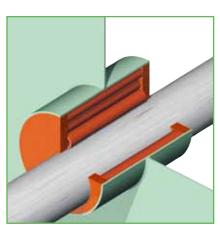




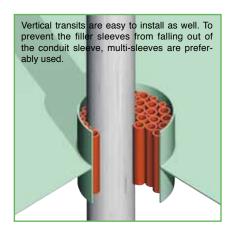
10) The conduit sleeve should be minimum 180 mm deep for A-60 class and 250 mm deep for A-0, H0-H120 and Jet Fire rated divisions.



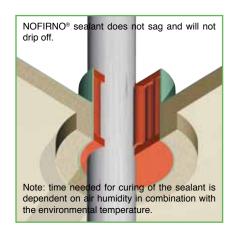
11) For A-class penetrations, the conduit sleeve needs to be insulated only at the insulated side of the bulkhead or at the lower side of the deck. The ducted pipe has to be insulated according to the specifications on the certified drawings.

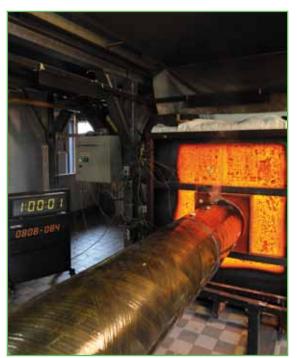


12) For A0- and H0-class penetrations the conduit sleeve/frame needs no insulation.



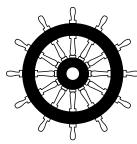






JET FIRE TESTED ACCORDING TO ISO 22899-1:2007 AND ISO/ CD 22899-2

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.

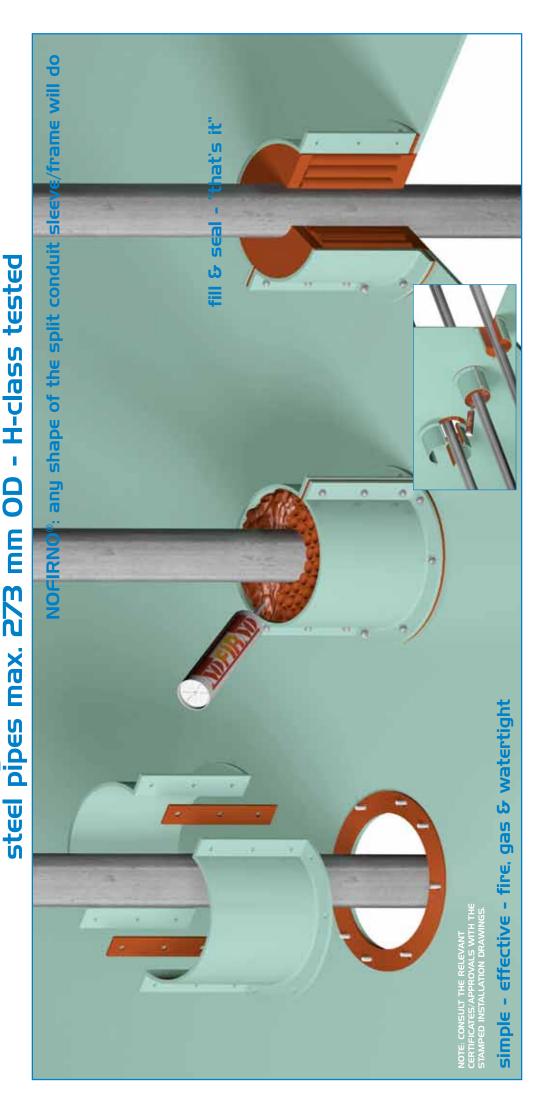




QUALITY, DURABILITY & FUNCTIONALITY LONG-TERM VIABILITY AND INTEGRITY

LOWEST TOTAL COST OF OWNERSHIP

NOFIRNO® gaskets, NOFIRNO® filler sleeves and sealant



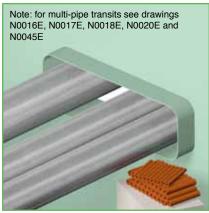




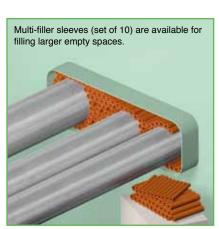
NOFIRNO® (MULTI-) PIPE TRANSIT SEALING SYSTEM - FIRESAFE/GAS & WATERTIGHT



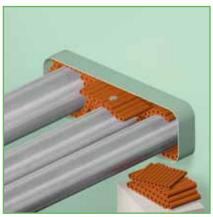
1) The metallic pipes can be passed through the conduit opening in any position. Make sure that the space between the pipes and the wall of the conduit and between the ducted pipes is in accordance with the minimum allowed distance as certified.



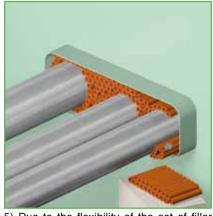
2) The open free space in the conduit opening has to be filled with NOFIRNO® filler sleeves For ease of filling, the filler sleeves are also supplied in multi-sets of 10 pieces. The filling ratio 18/12 to 27/19 should be maximum 1:2. Alternative only filler sleeves type 22/15.



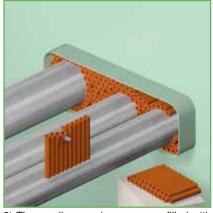
3) Before starting the installation work the ducted pipes and the wall of the conduit opening should be cleaned. Dirt, rust and oil residues should be removed. Start filling the larger open spaces in the conduit by inserting the sets of multi-filler sleeves.



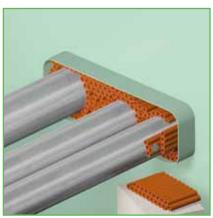
4) The installation of the NOFIRNO® sealing system is extremely fast when using the NOFIRNO® multi-filler sleeves. Besides, it makes it less complicated than using the single filler sleeves.



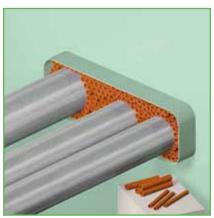
5) Due to the flexibility of the set of filler sleeves, the sets can be easily rolled up and then pushed into the narrow spaces. This is most helpful when installating floor penetrattions.



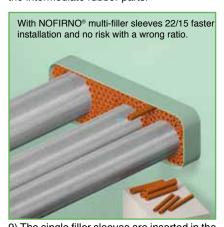
6) The smaller openings are now filled with parts of the sets of multi-filler sleeves. To tear off sleeves from the multi-set, the procedure is to do this backwards/forwards and not sidewards. This is because of the strength of the intermediate rubber parts.



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.

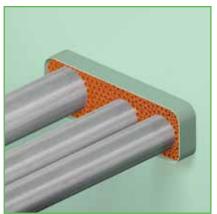


9) The single filler sleeves are inserted in the open spaces. At this stage they can generally be pushed in by hand. At the final stage to create a very tight fit of the whole set of fillers, the sleeves can be inserted with the help of a flat nose pliers.

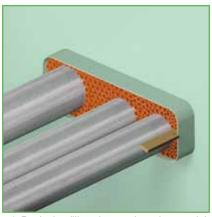




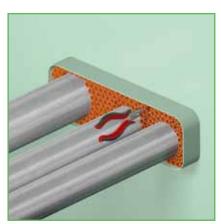
NOFIRNO® (MULTI-) PIPE TRANSIT SEALING SYSTEM - FIRESAFE/GAS & WATERTIGHT



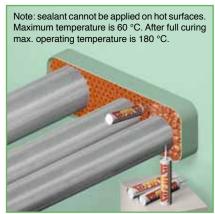
10) A tight fit of the filling with filler sleeves is essential for the overall mechanical stability and the ultimate tightness ratings.



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.

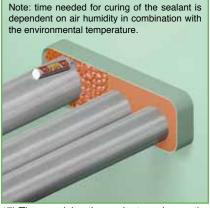


15) A cloth is sprayed with water. Note: do not use soap water!

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.



ued for the rest of the transit.

17) Then applying the sealant can be contin-Smoothing and finishing in the same way as for the first part of the sealant layer

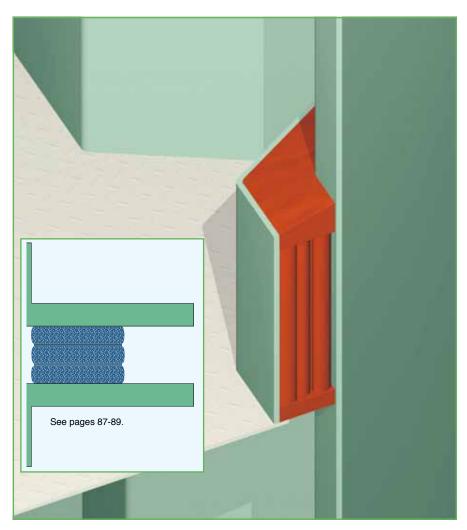


11) For A-class penetrations, the conduit sleeve needs to be insulated only at the insulated side of the bulkhead or at the lower side of the deck. The ducted pipes have to be insulated according to the specifications on the certified drawings.





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 the top layer to ensure that water will drip off in case of leakages in the installation.

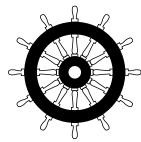
For fire safe sealing of horizontal gaps, for instance between walls and ceilings, use can be made of the ACTIFOAM®/ULTRA sandwich construction. The system can be inserted using a hammer and a piece of wood. Jet Fire rated, when covered at the exposed side with NOFIRNO® sealant.

For these type of special applications on offshore installations, socalled 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.

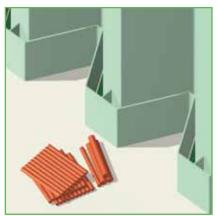
Conduit depth 250 mm.



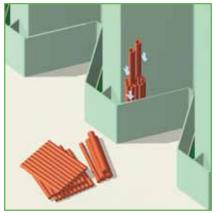




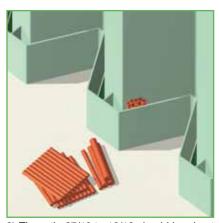
NOFIRNO® SEALING SYSTEM FOR STRUCTURAL GAPS - FIRESAFE/GAS & WATERTIGHT



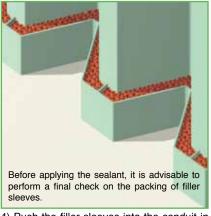
1) Based on the width and length of the gap to be sealed, partitions have to be put in place to ensure that the adhesive surface is in accordance with the maximum certified surface of 1800 cm².



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.



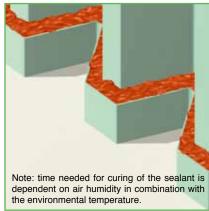
3) The ratio 27/19 to 18/12 should be about 2:1. Alternative only filler sleeves type 22/15. For H/class and Jet Fire rated constructions the length of the sleeves is 210 mm. For ease of filling, the filler sleeves are also supplied in multi-sets of 10 pieces.



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.



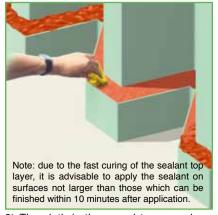
5) A 20 mm thick layer of NOFIRNO® sealant is applied at each side of the conduit. Clean and dry the conduit opening, and remove any dirt, rust or oil residues before applying the sealant.



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!



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 surface can be smoothed by hand. Just wet the hands thoroughly with soap and water. No dirty hands when working with NO-FIRNO® 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.



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 18 20 25 32 40 50 63 75 90 110 125 140 160	37/16 37/18 37/20 37/25 54/32 54/40 82/50 82/63 107/75 131/90 159/110 159/125 207/140 207/160	37.2 37.2 37.2 37.2 54.5 54.5 82.5 82.5 107.1 131.7 159.3 159.3 207.3	all dimensions in mm	140 140 140 140 140 140 140 140 140 140	80.2800 80.2801 80.2802 80.2803 80.2804 80.2805 80.2806 80.2807 80.2808 80.2809 80.2810 80.2811 80.2812 80.2813
16 18 20 25 32 40 50 63 75 90 110 125 140 160	37/16 37/18 37/20 37/25 54/32 54/40 82/50 82/63 107/75 131/90 159/110 159/125 207/140 207/160	37.2 37.2 37.2 54.5 54.5 82.5 82.5 107.1 131.7 159.3 159.3 207.3	all dimensions in mm	170 170 170 170 170 170 170 170 170 170	80.2840 80.2841 80.2842 80.2843 80.2844 80.2845 80.2846 80.2847 80.2848 80.2849 80.2850 80.2851 80.2852 80.2853
16 18 20 25 32 40 50 63 75 90 110 125 140 160	35/16 35/18 41/20 41/25 53/32 53/40 77/50 77/63 105/75 128/90 154/110 154/125 202/140 202/160	35.9 35.9 41.1 41.1 53.9 53.9 80.7 80.7 105.3 128.1 155.2 155.2 202.7 202.7	all dimensions in mm	140 140 140 140 140 140 140 140 140 140	80.2900 80.2901 80.2902 80.2903 80.2904 80.2905 80.2906 80.2907 80.2908 80.2909 80.2911 80.2911 80.2913
16 18 20 25 32 40 50 63 75 90 110 125 140 160	35/16 35/18 41/20 41/25 53/32 53/40 77/50 77/63 105/75 128/90 154/110 154/125 202/140 202/160	35.9 35.9 41.1 41.1 53.9 53.9 77.9 77.9 105.3 128.1 155.2 155.2 202.7 202.7	all dimensions in mm	170 170 170 170 170 170 170 170 170 170	80.2940 80.2941 80.2942 80.2943 80.2944 80.2945 80.2414 80.2415 80.2948 80.2949 80.2950 80.2951 80.2952
wrap 1000x14 wrap 1000x16 wrap 1000x17 wrap 1000x19 wrap 1000x21	60x2.5 mm 70x2.5 mm 90x2.5 mm	all dimen	sions	in mm	80.2512 80.2513 80.2514 80.2515 80.2516





RISE®/ULTRA - SINGLE PLASTIC PIPE TRANSIT SEALING SYSTEM



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

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



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	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	и	140	80.2725
40	60/40	60	all dimensions in mm	140	80.2726
50	70/50	70	i Sr	140	80.2727
50	80/50	80	isio	140	80.2728
63	80/63	80	mer	140	80.2729
63	90/63	90	ll di	140	80.2730
75	100/75	100	a	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
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	ш	170	80.2764
40	50/40	50	s in	170	80.2765
40	60/40	60	sion	170	80.2766
50	70/50	70	all dimensions in mm	170	80.2767
50	80/50	80	din	170	80.2768
63	80/63	80	a	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

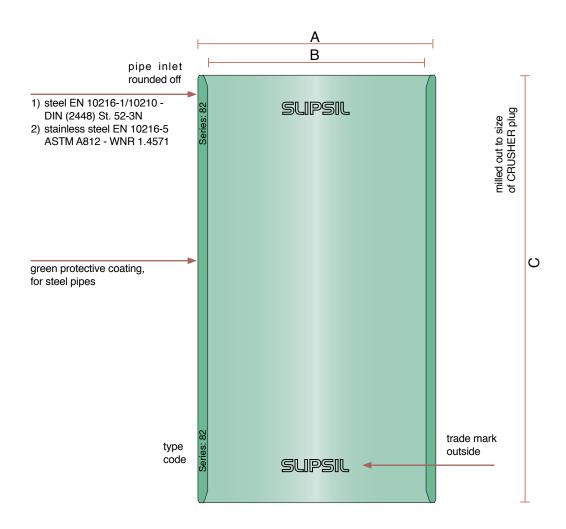
RISE®/ULTRA - SPECIAL SIZES C-FIT CRUSHERS

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	щ ш	170	80.2413
50	77/50	i	170	80.2414
60	77/60	all dimensions in mm	170	80.2415
63	77/63	ensi	170	80.2416
76	100/76	dime	170	80.2419
89	125/89	all c	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





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



All dimensions in mm

type	Α	В	С	art. no. steel	art. no. stainless	С	art. no. steel	art. no. stainless	С	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. - FOR ALL PLASTIC PIPES (ABS, PE, PB, PP-R, PVC) In case RISE®/ULTRA crushers are not UP TO 160 MM OD available for conduit sleeves applied in the field, a CRUSHER® can be made to size by - FOR PIPES WITH WALL wrapping RISE®/ULTRA sheets around the THICKNESS UP TO 10 MM ducted pipe. In this case the CRUSHER® must fit tightly inside the conduit sleeve to obtain sufficient mechanical stability. L1 Note: check the adhesive properties of the sealant with the ducted plastic pipe before application in watertight penetrations. For optimum tightness air gap: max 3 mm conduit sleeve can be welded in nonratings, we recommend for pipes up to 60 mm (2"), 6 mm up to 114 symmetrically provided that longest length is at insulated side applying a fitting crusher. mm (4") and 10 mm for decks conduit sleeve can be above 114 mm OD welded in non-symmetrically or be placed totally below deck NOFIRNO® sealant 20 mm thick RISE®/ULTRA C-FIT crusher plastic pipe NOFIRNO® sealant 20 mm thick ask for the MED certificate steel or aluminium dependent on the construction of the bulkhead with the stamped and signed detailed installation drawings minimum 180 mm/minimum 200 mm for plastic pipes >140 mm OD

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, RO265 and R0267E.

A0-A60 PLASTIC PIPE TRANSIT





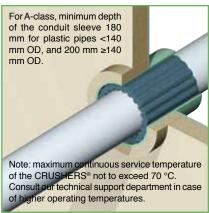
RISE®/ULTRA - SINGLE PLASTIC PIPE TRANSIT SEALING SYSTEM



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



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.



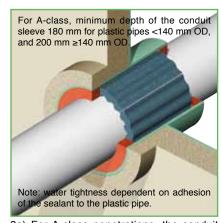
3) For A-class penetrations, the conduit sleeve needs to be insulated only at the insulated side of the bulkhead or the lower side of the deck. The ducted pipe does not need to be insulated.



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.



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.



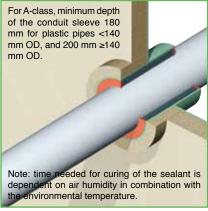
3a) For A-class penetrations, the conduit sleeve needs to be insulated only at the insulated side of the bulkhead or the lower side of the deck. The ducted pipe does not need to be insulated.



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.



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.



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.

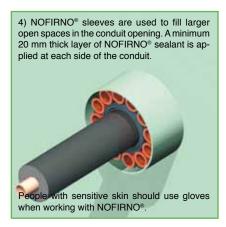


2) A RISE®/ULTRA sheet 210mm wide, 2.5 mm thick is wrapped to the required thickness around the thermal insulation.

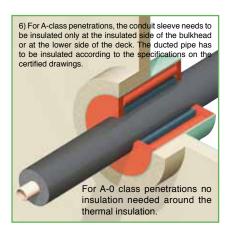
The system can be used for insulated steel and copper pipes.

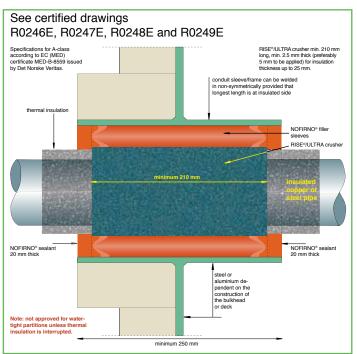


3) Push the crusher wrap into the conduit sleeve in such a way as to leave about 20 mm free space at the front and back side.











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



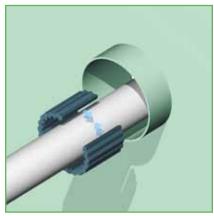




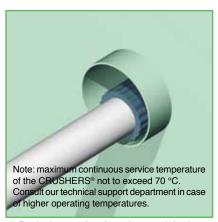
RISE®/ULTRA - SINGLE PLASTIC PIPE TRANSIT SEALING SYSTEM



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.



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.



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.



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.



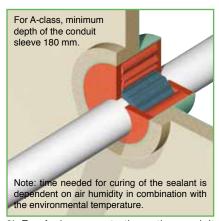
6) The optimized viscosity and the superb adhesion properties of the NOFIRNO® sealant make applying the sealant overhead an easy matter. NOFIRNO® sealant does not sag and will not drip off.



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.



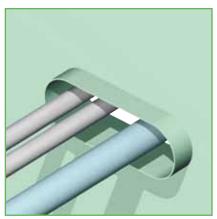
8) The surface can be smoothed by hand. Just wet the hands thoroughly with soap and water. No dirty hands when working with NOFIRNO® and a very neat surface is the result.



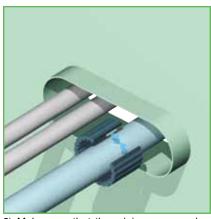
9) For A-class penetrations, the conduit sleeve needs to be insulated only at the insulated side of the bulkhead or the lower side of the deck. The ducted pipe does not need to be insulated.



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).



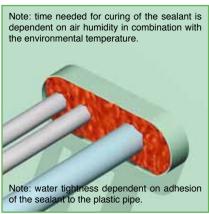
3) Push the RISE®/ULTRA crusher/wrap into the conduit sleeve in such a way as to leave 20 mm free space at the front and back side.



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.



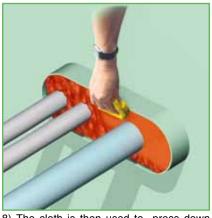
5) A 20 mm thick layer of NOFIRNO® sealant is applied at each side of the conduit. Clean and dry the conduit opening and the pipes thoroughly, and remove any dirt, rust or oil residues before applying the sealant.



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 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



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	ш	140	80.2724
40	50/40	in	140	80.2725
50	70/50	all dimensions in mm	140	80.2726
63	80/63	nsic	140	80.2727
75	100/75	ime	140	80.2728
90	125/90	p e	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 1000x14	0x2.5 mm			80.2512



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	all dimensions in mm	140	80.0056
27/19	17 - 21	s in	140	80.0057
31/23	21 - 25	ion	140	80.0058
35/27	25 - 29	ens	140	80.0059
39/31	29 - 33	din	140	80.0060
46/36	33 - 39	all	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

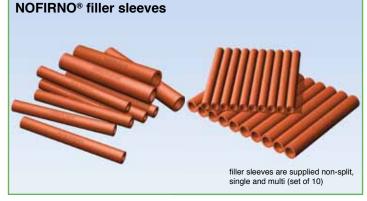


NOFIRNO® is a paste-like compound which is simple to use. NOFIRNO® has a balanced viscosity and can be applied overhead.

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® 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	140	80.7052





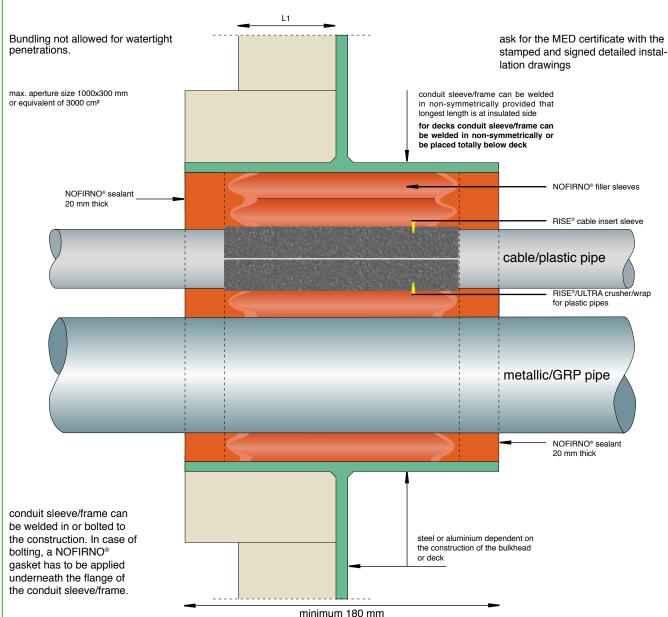


NOFIRNO®/MULTI-ALL-MIX® CABLE/ PIPE TRANSIT SEALING SYSTEM

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



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

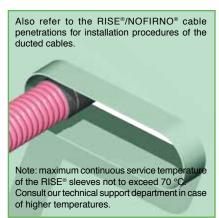
A0-A60 MULTI-ALL-MIX® PIPE/CABLE TRANSIT



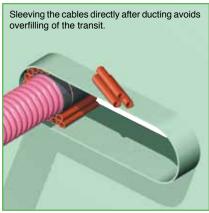




NOFIRNO®/MULTI-ALL-MIX® CABLE/PIPE TRANSIT SEALING SYSTEM



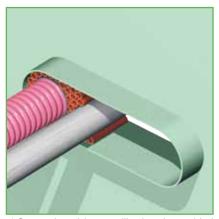
1) The cables can be ducted through the conduit sleeve/frame in random order. After the cables have been ducted, RISE® insert sleeves are applied around each cable.



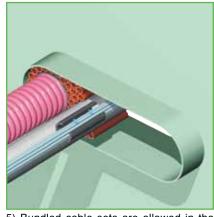
2) The RISE® insert sleeves are split lengthwise and can therefore be fitted around the cables in front of the conduit. For cable sizes > 64 mm a RISE® wrap with thickness 5 mm is applied. The wraps can be fixed with a tiewrap (or similar).



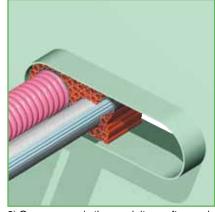
3) The system is also approved for ducting steel/stainless steel pipes. The minimum interspacing should be followed according to the specifications on the approved installation drawings.



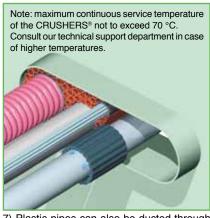
4) Separation of the metallic pipes is provided by NOFIRNO® filler sleeves all around the ducted pipe(s). NOFIRNO® filler sleeves are available in sizes 18/12 and 27/19 and are non-split for ease of installation.



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.

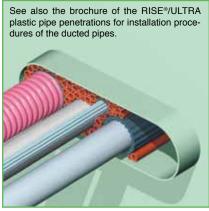


6) Open spaces in the conduit are afterwards filled with NOFIRNO® filler sleeves type 27/19 and 18/12. The ratio 27/19 to 18/12 should be about 2:1. Alternative only filler sleeves type 22/15. NOFIRNO® multi-filler sleeves can be used for filling the larger open spaces.

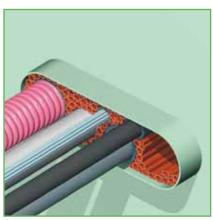


7) Plastic pipes can also be ducted through the multi-all-mix® transit.

Place a RISE®/ULTRA crusher around the ducted pipe in front of the penetration. RISE®/ ULTRA crushers are split lengthwise.



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.

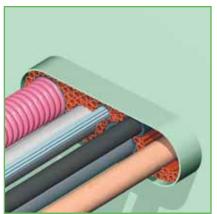


9) The system also allows for insulated chilled water lines (without interrupting the insulation), and multi-beverage lines. A RISE®/ ULTRA crusher or wrap is placed around the insulation, and inserted into the penetration.

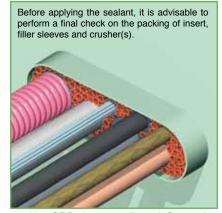




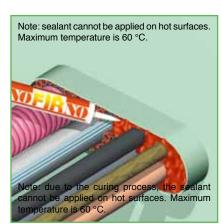
NOFIRNO®/MULTI-ALL-MIX® CABLE/PIPE TRANSIT SEALING SYSTEM



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).



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.



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.



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.



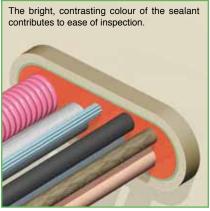
14) To smooth the surface of the NOFIRNO® sealant layer, a cloth is sprayed with water. This prevents the sealant from sticking to the cloth. Note: do not use soap water!



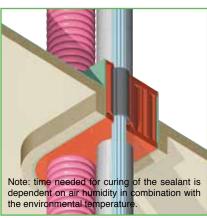
15) The cloth is then used to press down the sealant layer. People with sensitive skin should use gloves when working with NOFIRNO®. Please refer to the Safety Data Sheet for more information.



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



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.



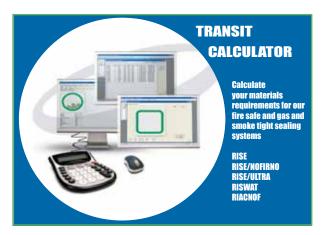
18) The optimized viscosity and the superb adhesion properties of the NOFIRNO® sealant make applying the sealant overhead an easy matter. NOFIRNO® sealant does not sag and will not drip off.







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



Free material calculation software. Download at our website 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 NO-FIRNO® 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.

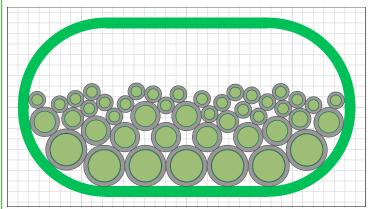
The material list of a transit shows the options which can be entered to make a calculation of the materials needed:

- 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:
Width:
300,00
Height:
150,00
Corner radius:
73,50
Depth:
180,00
Transit type:
Cable

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: 20m n (both sides)

Check the Type Approval Certificates or limitations in sizes!

Material specifications:

Type of filler sleeves: FIWA sealant:

standard cartridges 310 ml

Cable specifications:

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

Total amount of cables: 45

RISE materials needed:

KISE Illateriais lieeueu.		
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)





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 I 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





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.

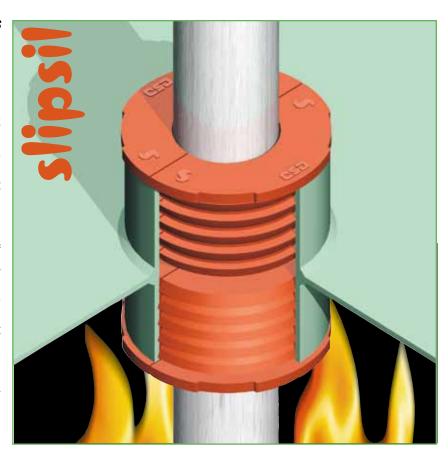
NOFIRNO® rubber can be used in a very wide temperature range (-50 °C - +180 °C). Optimum fire safety guaranteed.

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.





















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 32	29.5 - 30.5	_	54 54	5 - 16 5 - 16 E
32 34	31.5 - 32.5 33.5 - 34.5	ш	54	5-18
35	34.5 - 35.7	.12	54	5 - 20
37	36.5 - 37.7	all dimensions in mm	54	5 - 16 5 - 18 5 - 20 5 - 22 5 - 25 5 - 28
40	39.5 - 40.7	nsic	54	5 - 22
41	40.5 - 41.7	ле	54	5 - 25
43	42.5 - 43.7	ġ.	54	5 - 28
50	49.5 - 50.7	al	66	6 - 32 ¹⁸
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 3	14 - 40
62	61.0 - 62.7		66 <u>‡</u>	14 - 40
67	66.0 - 67.7		66	22 - 50
68	67.0 - 68.7		66 6	20 - 50
70 75	69.0 - 70.7		66 <i>bn</i> J	22 - 50
75 78	74.0 - 75.7		<i>b</i> 66	22 - 50
80	77.0 - 78.7 79.0 - 80.7		66 6 66 8	22 - 50 28 - 60
82	81.0 - 82.7		99 99 99 99 99 99 99 99 99 99 99 99 99	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
128 131	127.0 - 128.7 130.5 - 132.2		66 66	60 - 92 60 - 92
146	145.0 - 146.7		79	88 - 120
150	149.0 - 150.7		79 79	88 - 125
152	151.0 - 152.7		70	88 - 125
154	153.0 - 154.7		79 ji .	88 - 125
156	155.0 - 156.7		79 E	88 - 125
160	159.0 - 160.7		79 79 79 79 79 79 79 79 91	88 - 125
190	189.0 - 190.7		79 g	110-160
200	199.0 - 200.7		79 đ	110-160
203	202.0 - 203.7		79 خ	110-168
207	206.0 - 207.7		79 ဦ	110-168
250	249.0 - 250.7			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

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 duced 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).







cable/ pipe diameter	plug type	article number	cable/ pipe diameter	plug type	article number	cable/ pipe diamete	plug type r	article numbe
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.	
9-10	25/9-10	40.0109	9-10	34/9-10	40.0609		40 muiti is max.	2X10, 3X7, 5X7
10-11	25/10-11	40.0110	10-11	34/10-11	40.0610	blind	41/0	40.1000
	25/10-11							
11-12		40.0111	11-12	34/11-12	40.0611	5-6	41/5-6	40.1005
12	25/12	40.0112	12-13	34/12-13	40.0612	6-7	41/6-7	40.1006
			13-14	34/13-14	40.0613	7-8	41/7-8	40.1007
blind	27/0	40.0200	14-15	34/14-15	40.0614	8-9	41/8-9	40.1008
5-6	27/5-6	40.0205	15-16	34/15-16	40.0615	9-10	41/9-10	40.1009
6-7	27/6-7	40.0206	16-17	34/16-17	40.0616	10-11	41/10-11	40.1010
7-8	27/7-8	40.0207	17-18	34/17-18	40.0617	11-12	41/11-12	40.1011
8-9	27/8-9	40.0208	18	34/18	40.0618	12-14	41/12-14	40.1012
9-10	27/9-10	40.0209		5	10.0010	14-16	41/14-16	40.1013
10-11	27/10-11	40.0209	blind	35/0	40.0700	16-18	41/16-18	40.1013
11-12	27/11-12	40.0211	5-6 8 7 8	35/5-6	40.0705	18-20	£ 41/18-20	40.1015
12-13 8 13-14 5 14-15 8 15 5 blind 8	27/12-13	40.0212	6-7 7-8 8-9 9-10 10-11 11-12	35/6-7	40.0706	20-22	## 41/20-22 #1/22-23 #1/23-24 #1/24-25 #1/25 #1 multi is max.	40.1016
13-14 .5	27/13-14	40.0213	7-8 .5	35/7-8	40.0707	22-23	£ 41/22-23	40.1017
14-15	27/14-15	40.0214	8-9 g	35/8-9	40.0708	23-24	2 41/23-24	40.1018
15 · Ş	27/15	40.0215	9-10 - 🤶	35/9-10	40.0709	24-25	·	40.1019
- 0			10-11	35/10-11	40.0710	25	£ 41/25	40.1020
blind .§	28/0	40.0300	11-12	35/11-12	40.0711	20	9 1172	
5-6	28/5-6	40.0305	12-13	35/12-13	40.0711		41 multi is max.	2x10, 3x7, 5x7
0-0	20/3-0					la Consul	<u>a</u> 13/0	40.4400
6-7	28/6-7	40.0306	13-14	35/13-14	40.0713	Dilliu	43/0	40.1100
7-8	28/7-8	40.0307	14-15	35/14-15	40.0714	5-6	43/5-6	40.1105
8-9	28/8-9	40.0308	15-16	35/15-16	40.0715	6-7	43/6-7	40.1106
9-10	28/9-10	40.0309	16-17	35/16-17	40.0716	7-8	43/7-8	40.1107
10-11	28/10-11	40.0310	17-18	35/17-18	40.0717	8-9	43/8-9	40.1108
11-12	28/11-12	40.0311	18-19	35/18-19	40.0718	9-10	43/9-10	40.1109
12-13	28/12-13	40.0312	19-20	35/19-20	40.0719	10-12	43/10-12	40.1110
13-14	28/13-14	40.0313	20	35/20	40.0720	12-14	43/12-14	40.1111
			20	33/20	40.0720			
14-15	28/14-15	40.0314				14-16	43/14-16	40.1112
15	28/15	40.0315	blind	37/0	40.0800	16-18	43/16-18	40.1113
			5-6	37/5-6	40.0805	18-20	43/18-20	40.1114
blind	30/0	40.0400	6-7	37/6-7	40.0806	20-22	43/20-22	40.1115
5-6	30/5-6	40.0405	7-8	37/7-8	40.0807	22-24	43/22-24	40.1116
6-7	30/6-7	40.0406	8-9	37/8-9	40.0808	24-25	43/24-25	40.1117
7-8	30/7-8	40.0407	9-10	37/9-10	40.0809	25-26	43/25-26	40.1118
8-9	30/8-9	40.0408	10-11	37/10-11	40.0810	26-27	43/26-27	40.1119
9-10	30/9-10	40.0409	11-12	37/11-12	40.0811	27-28	43/27-28	40.1120
10-11	30/10-11	40.0410	12-13	37/12-13	40.0812	28	43/28	40.1121
11-12	30/11-12	40.0411	13-14	37/13-14	40.0813		43 multi is max.	2x10, 3x7, 5x7
12-13	30/12-13	40.0412	14-15	37/14-15	40.0814			
13-14	30/13-14	40.0413	15-16	37/15-16	40.0815	blind	50/0	40.1200
14-15	30/14-15	40.0414	16-17	37/16-17	40.0816	6-7	50/6-7	40.1205
15-16	30/15-16	40.0415	17-18	37/17-18	40.0817	7-8	50/7-8	40.1206
16	30/16	40.0416	18-19	37/18-19	40.0818	8-9	50/8-9	40.1207
	557.10	.0.0 110	19-20	37/19-20	40.0819	9-10	50/9-10	40.1208
blind	32/0	40.0500						
blind		40.0500	20	37/20	40.0820	10-12	50/10-12	40.1209
5-6	32/5-6	40.0505			46	12-14	50/12-14	40.1210
6-7	32/6-7	40.0506	blind	40/0	40.0900	14-16	50/14-16	40.1211
7-8	32/7-8	40.0507	5-6	40/5-6	40.0905	16-18	50/16-18	40.1212
8-9	32/8-9	40.0508	6-7	40/6-7	40.0906	18-20	50/18-20	40.1213
9-10	32/9-10	40.0509	7-8	40/7-8	40.0907	20-22	50/20-22	40.1214
10-11	32/10-11	40.0510	8-9	40/8-9	40.0908	22-24	50/22-24	40.1215
11-12	32/10-11	40.0510	9-10	40/9-10	40.0909	24-26	50/24-26	40.1216
12-13	32/12-13	40.0512	10-11	40/10-11	40.0910	26-28	50/26-28	40.1217
13-14	32/13-14	40.0513	11-12	40/11-12	40.0911	28-29	50/28-29	40.1218
14-15	32/14-15	40.0514	12-14	40/12-14	40.0912	29-30	50/29-30	40.1219
15-16	32/15-16	40.0515	14-16	40/14-16	40.0913	30-31	50/30-31	40.1220
	32/16	40.0516	16-18	40/16-18	40.0914	31-32	50/31-32	40.1221







cable/ pipe diamet	ter	plug type	article number	cable/ pipe diameter	plug type	article number	cable/ pipe diamet	er	plug type	article number
32		50/32	40.1222	40	57/40	40.1526	30-32		68/30-32	40.1919
02				40	37740	40.1320	32-34		68/32-34	40.1919
		50 multi is max. 2	x15, 3x8, 5x8	blind	60/0	40.1600	34-36		68/34-36	40.1921
blind		53/0	40.1300	14-16	60/14-16	40.1611	36-38		68/36-38	40.1922
6-7		53/6-7	40.1305	16-18	60/16-18	40.1612	38-40		68/38-40	40.1923
7-8		53/7-8	40.1306	18-20	60/18-20	40.1613	40-42		68/40-42	40.1924
8-9		53/8-9	40.1307	20-22	60/20-22	40.1614	42-44		68/42-44	40.1925
9-10		53/9-10	40.1308	22-24	60/22-24	40.1615	44-46		68/44-46	40.1926
10-12		53/10-12	40.1309	24-26	60/24-26	40.1616	46-48		68/46-48	40.1927
12-14		53/12-14	40.1310	26-28	60/26-28	40.1617	48-50		68/48-50	40.1928
14-16		53/14-16	40.1311	28-30	60/28-30	40.1618	50		68/50	40.1929
16-18		53/16-18	40.1312	30-32	60/30-32	40.1619			68 multi is max.	2x22, 3x12, 5x12
18-20		53/18-20	40.1313	32-34	60/32-34	40.1620				
20-22		53/20-22	40.1314	34-36	60/34-36	40.1621	blind		70/0	40.2000
22-24		53/22-24	40.1315	36-37	60/36-37	40.1622	20-22		70/20-22	40.2014
24-26		53/24-26	40.1316	37-38	60/37-38	40.1623	22-24		70/22-24	40.2015
26-28		53/26-28	40.1317	38-39	60/38-39	40.1624	24-26		70/24-26	40.2016
28-30	ш	53/28-30	40.1318	39-40	60/39-40	40.1625	26-28	ш	70/26-28	40.2017
30-31	7 17	53/30-31	40.1319	40 €	60/40	40.1626	28-30	in mm	70/28-30	40.2018
31-32	s ii	53/31-32	40.1320	s ii	60 multi is max.	2x15, 3x10	30-32	s ii	70/30-32	40.2019
32-33	ion	53/32-33	40.1321	ion	00/0	40.4700	32-34	io.	70/32-34	40.2020
33-34	dimensions in mm	53/33-34 53/34	40.1322	39-40 40	62/0	40.1700 40.1711	34-36 36-38	dimensions	70/34-36	40.2021 40.2022
34	me		40.1323	14-16 bi 16-18 iii	62/14-16 62/16-18	40.1711 40.1712	36-38 38-40	ше	70/36-38 70/38-40	40.2022
		53 multi is max. 2	x15, 3x10, 5x10	18-20	62/18-20	40.1712	40-42	ď	70/36-40 70/40-42	40.2023
blind	all	55/0	40.1400	20-22	62/20-22	40.1713	40-42 42-44	all	70/40-42	40.2024
6-7		55/6-7	40.1405	22-24	62/22-24	40.1714	44-46		70/42-44	40.2026
7-8		55/7-8	40.1406	24-26	62/24-26	40.1716	46-48		70/44-48	40.2027
8-9		55/8-9	40.1407	26-28	62/26-28	40.1717	48-50		70/48-50	40.2028
9-10		55/9-10	40.1408	28-30	62/28-30	40.1718	50		70/50	40.2029
10-12		55/10-12	40.1409	30-32	62/30-32	40.1719			70 multi is max.	
12-14		55/12-14	40.1410	32-34	62/32-34	40.1720			70 muiu is max.	2X22, 3X12
14-16		55/14-16	40.1411	34-36	62/34-36	40.1721	blind		75/0	40.2100
16-18		55/16-18	40.1412	36-37	62/36-37	40.1722	22-24		75/22-24	40.2115
18-20		55/18-20	40.1413	37-38	62/37-38	40.1723	24-26		75/24-26	40.2116
20-22		55/20-22	40.1414	38-39	62/38-39	40.1724	26-28		75/26-28	40.2117
22-24		55/22-24	40.1415	39-40	62/39-40	40.1725	28-30		75/28-30	40.2118
24-26		55/24-26	40.1416	40	62/40	40.1726	30-32		75/30-32	40.2119
26-28		55/26-28	40.1417		62 multi is max.	2x15, 3x10	32-34		75/32-34	40.2120
28-30		55/28-30	40.1418				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 30-32	67/28-30 67/30-32	40.1818	44-46		75/44-46	40.2126 40.2127
		55 multi is max. 2	x15, 3x10, 5x10	30-32 32-34	67/32-34	40.1819 40.1820	46-48 48-50		75/46-48 75/48-50	40.2127
blind		57/0	40.1500	34-36	67/34-36	40.1821	50 50		75/40-50 75/50	40.2129
14-16		57/14-16	40.1511	36-38	67/36-38	40.1822	50		75/50	40.2129
16-18		57/16-18	40.1511	38-40	67/38-40	40.1823	blind		78/0	40.2200
18-20		57/18-20	40.1513	40-42	67/40-42	40.1824	22-24		78/22-24	40.2215
20-22		57/20-22	40.1514	42-44	67/42-44	40.1825	24-26		78/24-26	40.2216
22-24		57/22-24	40.1515	44-46	67/44-46	40.1826	26-28		78/26-28	40.2217
24-26		57/24-26	40.1516	46-48	67/46-48	40.1827	28-30		78/28-30	40.2218
26-28		57/26-28	40.1517	48-50	67/48-50	40.1828	30-32		78/30-32	40.2219
28-30		57/28-30	40.1518	50	67/50	40.1829	32-34		78/32-34	40.2220
30-32		57/30-32	40.1519				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
		57/38-39	40.1524	26-28	68/26-28	40.1917	44-46		78/44-46	40.2226
38-39									78/46-48	







cable/ pipe diamet	er	plug type	article number	cable/ pipe diamete	er	plug type	article number	cable/ pipe diame		plug type	article number
40.50		78/48-50	40.2228	blind		94/0	40.2600	62-64		100/00 01	40.2931
48-50 50-52		78/50-52		40-42		94/40-42	40.2620	64-66		102/62-64 102/64-66	40.2932
			40.2229								
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
			,,	50-52		94/50-52	40.2625	74-75		102/74-75	40.2937
blind		80/0	40.2300	52-54		94/52-54	40.2626	75		102/75	40.2938
28-30		80/28-30	40.2318	54-56		94/54-56	40.2627				
30-32		80/30-32	40.2319	56-58		94/56-58	40.2628	blind		103/0	40.3000
32-34		80/32-34	40.2320	58-60		94/58-60	40.2629	26-28		103/26-28	40.3013
34-36		80/34-36	40.2321	60-62		94/60-62	40.2630	28-30		103/28-30	40.3014
36-38		80/36-38	40.2322	62-64		94/62-64	40.2631	32-34		103/32-34	40.3016
								40-42			
38-40		80/38-40	40.2323	64		94/64	40.2632			103/40-42	40.3020
40-42		80/40-42	40.2324					42-44		103/42-44	40.3021
42-44		80/42-44	40.2325	blind		97/0	40.2700	44-46		103/44-46	40.3022
44-46		80/44-46	40.2326	40-42		97/40-42	40.2720	46-48		103/46-48	40.3023
46-48	2	80/46-48	40.2327	42-44	и	97/42-44	40.2721	48-50	и	103/48-50	40.3024
48-50	иu	80/48-50	40.2328	44-46	шш	97/44-46	40.2722	50-52	шш	103/50-52	40.3025
50-52	. <u>.</u>	80/50-52	40.2329	46-48	ij	97/46-48	40.2723	52-54	<u>i</u> .	103/52-54	40.3026
52-54	all dimensions in mm	80/52-54	40.2330	48-50	SI	97/48-50	40.2724	54-56	IS I	103/54-56	40.3027
54-56	<i>i</i> 0	80/54-56	40.2331	50-52	jo	97/50-52	40.2725	56-58	.5	103/56-58	40.3028
56-58	ns	80/56-58	40.2332	52-54	ns	97/52-54	40.2726	58-60	ns	103/58-60	40.3029
58-60	пе	80/58-60	40.2333	54-56	dimensions	97/54-56	40.2727	60-62	dimensions	103/60-62	40.3030
60	ä	80/60	40.2334	56-58	ä	97/56-58	40.2728	62-64	ë	103/62-64	40.3031
60	all.	60/60	40.2334		all				all		
		80 multi is max.	2x22, 3x15, 5x15	58-60		97/58-60	40.2729	64-66		103/64-66	40.3032
				60-62		97/60-62	40.2730	66-68		103/66-68	40.3033
blind		82/0	40.2400	62-64		97/62-64	40.2731	68-70		103/68-70	40.3034
28-30		82/28-30	40.2418	64		97/64	40.2732	70-72		103/70-72	40.3035
30-32		82/30-32	40.2419					72-74		103/72-74	40.3036
32-34		82/32-34	40.2420	blind		100/0	40.2800	74-75		103/74-75	40.3037
34-36		82/34-36	40.2421	40-42		100/40-42	40.2820	75		103/75	40.3038
36-38		82/36-38	40.2422	42-44		100/42-44	40.2821				
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		100/50-52	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 mav	2x22, 3x15, 5x15	68-70		100/68-70	40.2834	62-64		105/62-64	40.3131
		02	, ox 10, ox 10	70-72		100/70-72	40.2835	64-66		105/64-66	40.3132
blind		90/0	40.2500	72-74		100/72-74	40.2836	66-68		105/66-68	40.3133
40-42		90/40-42	40.2520	74-75		100/74-75	40.2837	68-70		105/68-70	40.3134
42-44		90/42-44	40.2521	75 75		100/74 75	40.2838	70-72		105/70-72	40.3135
44-46		90/44-46	40.2522			100,10	10.2000	72-74		105/70 72	40.3136
46-48		90/46-48	40.2523	blind		102/0	40.2900	74-75		105/72-74	40.3137
48-50		90/48-50	40.2524	40-42		102/40-42	40.2920	75		105/75	40.3138
50-52		90/50-52	40.2525	42-44		102/42-44	40.2921	LP .		107/0	40.0000
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
				58-60		102/58-60	40.2929	52-54		107/52-54	40.3226
		90 multi is max.	∠x25, 3X15	60-62		102/60-62	40.2930	32 37		. 5.752 04	.5.5220
				00 02		102/00 02	+0.∠000				







cable/ pipe diameter	plug type	article number	cable/ pipe diameter	plug type	article number	cable/ pipe diameter	plug type	article numbe
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		90-92	122/90-92		94-96		40.3923
64-66		40.3231			40.3545		146/94-96	
	107/64-66	40.3232	92	122/92	40.3546	96-98	146/96-98	40.3924
66-68	107/66-68	40.3233	blind	125/0	40.3600	98-100	146/98-100	40.3925
68-70	107/68-70	40.3234				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
. •		.0.0200	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			
52-54	110/52-54	40.3326	78-80	125/78-80	40.3639	118-120	146/118-120	40.3935
	110/52-54					120 =	146/120	40.3936
54-56		40.3327	80-82	125/80-82	40.3640	j È	450/0	10 1000
56-58	110/56-58	40.3328	82-84	125/82-84	40.3641	blind .E	150/0	40.4000
يَوَ	110/58-60	40.3329	84-86 ຊ	125/84-86	40.3642	88-90 క్ర	150/88-90	40.4020
54-56 56-58 58-60 60-62 62-64 64-66 66-68	110/60-62	40.3330	80-82 82-84 84-86 86-88 88-90 90-92 90	125/86-88	40.3643	blind suojsue	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 등	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	150/102 104	40.4028
			62-64	128/62-64	40.3731			
76-78	110/76-78	40.3338	64-66	128/64-66	40.3732	106-108	150/106-108	40.4029
78-80	110/78-80	40.3339	66-68	128/66-68	40.3732	108-110	150/108-110	40.4030
80	110/80	40.3340				110-112	150/110-112	40.4031
	440/0	40.0400	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	150/124 126	40.4039
72-74	118/72-74	40.3436	84-86	128/84-86	40.3742	123	150/125	40.4039
74-76	118/74-76	40.3437	86-88	128/86-88	40.3743	blind	152/0	40.4100
74-70 76-78	118/76-78	40.3438	88-90	128/88-90	40.3744	88-90	152/88-90	40.4120
78-80 PO 92	118/78-80	40.3439	90-92	128/90-92	40.3745	90-92	152/90-92	40.4121
30-82	118/80-82	40.3440	92	128/92	40.3746	92-94	152/92-94	40.4122
32-84	118/82-84	40.3441	blind	131/0	10 3000	94-96	152/94-96	40.4123
34-86	118/84-86	40.3442	blind	131/0	40.3800	96-98	152/96-98	40.4124
36-88	118/86-88	40.3443	60-62	131/60-62	40.3830	98-100	152/98-100	40.4125
38-90	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
olind	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	152/110-110	40.4131
64-66	122/64-66	40.3532	74-76	131/74-76	40.3837			
66-68	122/66-68	40.3533	76-78	131/76-78	40.3838	112-114	152/112-114	40.4132
68-70	122/68-70	40.3534	78-80	131/78-80	40.3839	114-116	152/114-116	40.4133
						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	152/124 123	40.4139
30-82	122/80-82	40.3540	90-92	131/90-92	40.3845	120	192/129	40.4109
-	55 52		92	131/92	40.3846	l		







cable/ pipe diameter	plug type	article number	cable/ pipe diameter	plug type	article number	multi-sealing plugs for 2, 3 or same diameter cables/pipes
blind	154/0	40.4200	124-125	160/124-125	40.4438	
88-90	154/88-90	40.4220	125	160/125	40.4439	
90-92	154/90-92	40.4221				The same of the sa
92-94	154/92-94	40.4222	blind	190/0	40.4500	
94-96	154/94-96	40.4223	110-112	190/110	40.4520	16.6
96-98	154/96-98	40.4224	114-116	190/114	40.4523	
			125-127	190/125	40.4528	
98-100	154/98-100	40.4225	139-141	190/139	40.4533	
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	139-101	190/139	40.4545	
110-112	154/110-112	40.4231	to the sale	000/0	40.4000	
112-114	154/112-114	40.4232	blind	200/0	40.4600	
114-116	154/114-116	40.4233	110-112	200/110	40.4620	
116-118	154/116-118	40.4234	114-116	200/114	40.4623	
118-120	154/118-120	40.4235	120-122	200/120	40.4626	
			122-124	200/122	40.4627	type code: series/2xcable diameter
120-122	154/120-122	40.4236	125-127 €	200/125	40.4628	For instance 40/2x6-7
122-124	154/122-124	40.4237	133-135	200/133	40.4631	1 01 1115ta110# 40/2X0-/
124-125 .s	154/124-125	40.4238	125-127 EE II 133-135 II 135-137 II 139-141 II 141-143 II 159-160 II II 160	200/135	40.4632	
125	154/125	40.4239	139-141	200/139	40.4633	
125 gg blind gg 88-90 gg 90-92 gg	156/0	40.4300	141-143	200/139	40.4634	
DIIIIU 2	150/0		141-143			The state of the s
88-90	156/88-90	40.4320	159-160	200/159	40.4643	
90-92 · 등	156/90-92	40.4321		200/160	40.4644	
92-94		40.4322	blind la	203/0	40.4700	
94-96	156/94-96	40.4323	110-112	203/110	40.4720	
96-98	156/96-98	40.4324	114-116	203/114	40.4723	
98-100	156/98-100	40.4325	125-127	203/114	40.4728	
100-102	156/100-102	40.4326				
102-104	156/102-104	40.4327	133-135	203/133	40.4731	
104-106	156/104-106	40.4328	139-141	203/139	40.4733	
106-108	156/106-108	40.4329	141-143	203/141	40.4734	
108-110	156/108-110	40.4330	159-161	203/159	40.4743	
110-112	156/110-112	40.4331	162-164	200/162	40.4744	
112-114	156/112-114	40.4332	168-170	203/168	40.4748	
			blind	007/0	40 4000	
114-116	156/114-116	40.4333	blind	207/0	40.4800	
116-118	156/116-118	40.4334	110-112	207/110	40.4820	
118-120	156/118-120	40.4335	114-116	207/114	40.4823	
120-122	156/120-122	40.4336	125-127	207/125	40.4828	type code: series/3xcable diameter
122-124	156/122-124	40.4337	129-131	207/129	40.4829	For instance 40/3x6-7
124-125	156/124-125	40.4338	133-135	207/133	40.4831	
125	156/125	40.4339	139-141	207/139	40.4833	
امانا ما	100/0	40.4400	156-158	207/156	40.4842	
blind	160/0	40.4400	159-161	207/159	40.4843	
88-90	160/88-90	40.4420	168-170	207/168	40.4848	
90-92	160/90-92	40.4421				The state of the s
92-94	160/92-94	40.4422	160	250/160	40.5010	
94-96	160/94-96	40.4423	168	250/168	40.5014	The state of the s
96-98	160/96-98	40.4424	171	250/171	40.5015	The second second
98-100	160/98-100	40.4425	180	250/180	40.5020	
100-102	160/100-102	40.4426	200	250/200	40.5030	
102-104	160/102-104	40.4427				
104-106	160/104-106	40.4428	160	260/160	40.5210	
106-108	160/104 100	40.4429	168	260/168	40.5214	
108-106	160/108-110	40.4429	200	260/200	40.5230	
			204	260/204	40.5232	
110-112	160/110-112	40.4431	219	260/219	40.5239	
112-114	160/112-114	40.4432				
114-116	160/114-116	40.4433	200	300/200	40.5321	
116-118	160/116-118	40.4434	219	300/219	40.5330	
118-120	160/118-120	40.4435	225	300/225	40.5333	
120-122	160/120-122	40.4436	250	300/250	40.5346	
122-124	160/122-124	40.4437				type code: series/5xcable diameter
	. 55/ 122 127		219	339/219	40.5518	· ·
			273	339/273	40.5545	For instance 40/5x6-7





cable/ pipe diamete	er	plug type	article number	cable/ pipe diamete	er	plug type	article number	cable/ pipe diameter	plug type	article numbe
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
		40/2X10 11	40.0000	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	90/2x21-22 90/2x22-23	40.2548
7-0 8-9		41/2x8-9	40.1027	19-20		68/2x19-20	40.1944	23-24	90/2x23-24	40.2549
9-10		41/2x9-10	40.1028	20-21		68/2x20-21	40.1945	24-25	90/2x24-25	40.2550
10-11		41/2x10-11	40.1029	21-22		68/2x21-22	40.1946	25-26	90/2x25-26	40.2551
10-11		41/2310-11	40.1030	22-23		68/2x22-23	40.1947	25-20	90/2825-20	40.2551
6 7		42/0v6 7	40 1106	22-23		00/2322-23	40.1947			
6-7		43/2x6-7	40.1126							
7-8		43/2x7-8	40.1127	11-12		70/2x11-12	40.2036			
8-9		43/2x8-9	40.1128	12-13		70/2x12-13	40.2037		or other plug ser	
9-10		43/2x9-10	40.1129	13-14		70/2x13-14	40.2038		er request. The list	
10-11		43/2x10-11	40.1130	14-15		70/2x14-15	40.2039		items. For other	sizes, pleas
	и			15-16	и	70/2x15-16	40.2040	contact our sa	ales department.	
6-7	all dimensions in mm	50/2x6-7	40.1231	16-17	шш	70/2x16-17	40.2041			
7-8	2.	50/2x7-8	40.1232	17-18		70/2x17-18	40.2042			
8-9	NS.	50/2x8-9	40.1233	18-19	SU	70/2x18-19	40.2043			
9-10	9.	50/2x9-10	40.1234	19-20	all dimensions in	70/2x19-20	40.2044			
10-11	376	50/2x10-11	40.1235	20-21	916	70/2x20-21	40.2045			
11-12	ŭ.	50/2x11-12	40.1236	21-22	ij.	70/2x21-22	40.2046			
12-13	g	50/2x12-13	40.1237	22-23	g	70/2x22-23	40.2047			
13-14	al	50/2x13-14	40.1238	22 20	a	TOTEREE EO	40.2047			
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			
10 10		00/2/(10 10	10.12.10	14-15		78/2x14-15	40.2243		ti-sealing plugs f	
6-7		53/2x6-7	40.1331	15-16		78/2x14-15 78/2x15-16	40.2244		neter cables or pip	
7-8		53/2x7-8	40.1332	16-17					ual parts, so that	•
7-0 8-9		53/2x8-9	40.1333			78/2x16-17	40.2245		the cables or pipe	
9-10		53/2x9-10	40.1334	17-18		78/2x17-18	40.2246		ting the right typ	
10-11				18-19		78/2x18-19	40.2247	plug, look for t	he plug series fro	m the tables
11-12		53/2x10-11	40.1335 40.1336	19-20		78/2x19-20	40.2248			
		53/2x11-12		20-21		78/2x20-21	40.2249			
12-13		53/2x12-13	40.1337	21-22		78/2x21-22	40.2250			
13-14		53/2x13-14	40.1338	22-23		78/2x22-23	40.2251			
14-15		53/2x14-15	40.1339							
15-16		53/2x15-16	40.1340	12-13		80/2x12-13	40.2341			
				13-14		80/2x13-14	40.2342			
6-7		55/2x6-7	40.1431	14-15		80/2x14-15	40.2343			
7-8		55/2x7-8	40.1432	15-16		80/2x15-16	40.2344			
3-9		55/2x8-9	40.1433	16-17		80/2x16-17	40.2345			
9-10		55/2x9-10	40.1434	17-18		80/2x17-18	40.2346			
10-11		55/2x10-11	40.1435	18-19		80/2x18-19	40.2347		The same of the sa	
11-12		55/2x11-12	40.1436	19-20		80/2x19-20	40.2348			
12-13		55/2x12-13	40.1437	20-21		80/2x20-21	40.2349	All the same		
13-14		55/2x13-14	40.1438	21-22		80/2x21-22	40.2350	-		9
14-15		55/2x14-15	40.1439	22-23		80/2x22-23	40.2351	110		
15-16		55/2x15-16	40.1440							-
-				12-13		82/2x12-13	40.2441			
11-12		60/2x11-12	40.1636	13-14		82/2x13-14	40.2442	10 10		N/SY
12-13		60/2x12-13	40.1637	14-15		82/2x14-15	40.2443	A. Comment		
13-14		60/2x13-14	40.1638	15-16		82/2x14-15 82/2x15-16	40.2443	100		
14-15		60/2x14-15	40.1639	16-17		82/2x16-17	40.2444			
15-16		60/2x14-15	40.1640					W. See		
.5 10		0012X10-10	TO. 1040	17-18		82/2x17-18	40.2446			
11 10		60/0:44 40	40 4700	18-19		82/2x18-19	40.2447			
11-12		62/2x11-12	40.1736	19-20		82/2x19-20	40.2448			
12-13		62/2x12-13	40.1737	20-21		82/2x20-21	40.2449	100		
		62/2x13-14	40.1738	21-22		82/2x21-22	40.2450			
13-14										
		62/2x14-15 62/2x15-16	40.1739 40.1740	22-23		82/2x22-23	40.2451	type code.	series/2xcable d	iameter





article

40.2366

40.2367

40.2368

40.2369

40.2370

40.2371

40.2466

40.2467

40.2468

40.2469

40.2470

40.2471

number

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

cable/ pipe diameter	plug type	article number	cable/ pipe diamet	er	plug type	article number
6-7	40/3x6-7	40.0936	10-11		80/3x10-11	40.2356
7-8	40/3x7-8	40.0937	11-12		80/3x11-12	40.2357
			12-13		80/3x12-13	40.2358
6-7	41/3x6-7	40.1036	13-14		80/3x13-14	40.2359
7-8	41/3x7-8	40.1037	14-15		80/3x14-15	40.2360
' "	TITOKT 0	10.1007	15-16		80/3x15-16	40.2361
6-7	43/3x6-7	40.1136	13 10		00/0213 10	40.2001
7-8	43/3x7-8	40.1137	10-11		82/3x10-11	40.2456
7-0	43/3X/-0	40.1137	11-12			
0.7	F0/0C 7	40 4044			82/3x11-12	40.2457
6-7	50/3x6-7	40.1241	12-13		82/3x12-13	40.2458
7-8	50/3x7-8	40.1242	13-14		82/3x13-14	40.2459
8-9	50/3x8-9	40.1243	14-15		82/3x14-15	40.2460
			15-16		82/3x15-16	40.2461
6-7	53/3x6-7	40.1341				
7-8	53/3x7-8	40.1342	10-11		90/3x10-11	40.2556
8-9	53/3x8-9	40.1343	11-12		90/3x11-12	40.2557
9-10	53/3x9-10	40.1344	12-13		90/3x12-13	40.2558
10-11	53/3x10-11	40.1345	13-14	~	90/3x13-14	40.2559
			14-15	ш	90/3x14-15	40.2560
6-7	55/3x6-7	40.1441	15-16	u	90/3x15-16	40.2561
7-8	55/3x7-8	40.1442		Si		
8-9	55/3x8-9	40.1443		10		
9-10	55/3x9-10	40.1444		SU		
10-11	55/3x10-11	40.1445	6-7	πе	40/5x6-7	40.0941
6-7 see	33/0210 11	40.1443	7-8	all dimensions in mm	40/5x7-8	40.0942
6-7	60/3x6-7	40.1646	, 0	all	40/3X/ U	40.004Z
7-8	60/3x7-8	40.1647	6-7		41/5x6-7	40.1041
8-9	60/3x8-9	40.1648	7-8		41/5x7-8	40.1041
9-10	60/3x9-10	40.1649	7-0		41/38/-0	40.1042
10-11	60/3x10-11	40.1650	6-7		43/5x6-7	40.1141
10-11	00/3X10-11	40.1630	7-8			
6.7	60/046 7	40 1746	/-0		43/5x7-8	40.1142
6-7	62/3x6-7	40.1746	0.7		F0/FC 7	40 4054
7-8	62/3x7-8	40.1747	6-7		50/5x6-7	40.1251
8-9	62/3x8-9	40.1748	7-8		50/5x7-8	40.1252
9-10	62/3x9-10	40.1749	8-9		50/5x8-9	40.1253
10-11	62/3x10-11	40.1750			50/5 0 7	10.1051
			6-7		53/5x6-7	40.1351
6-7	68/3x6-7	40.1951	7-8		53/5x7-8	40.1352
7-8	68/3x7-8	40.1952	8-9		53/5x8-9	40.1353
8-9	68/3x8-9	40.1953	9-10		53/5x9-10	40.1354
9-10	68/3x9-10	40.1954	10-11		53/5x10-11	40.1355
10-11	68/3x10-11	40.1955				
11-12	68/3x11-12	40.1956	6-7		55/5x6-7	40.1451
12-13	68/3x12-13	40.1957	7-8		55/5x7-8	40.1452
			8-9		55/5x8-9	40.1453
6-7	70/3x6-7	40.2051	9-10		55/5x9-10	40.1454
7-8	70/3x7-8	40.2052	10-11		55/5x10-11	40.1455
8-9	70/3x8-9	40.2053				
9-10	70/3x9-10	40.2054	6-7		68/5x6-7	40.1961
10-11	70/3x10-11	40.2055	7-8		68/5x7-8	40.1962
11-12	70/3x11-12	40.2054	8-9		68/5x8-9	40.1963
12-13	70/3x12-13	40.2055	9-10		68/5x9-10	40.1964
			10-11		68/5x10-11	40.1965
10-11	78/3x10-11	40.2256	11-12		68/5x11-12	40.1966
11-12	78/3x11-12	40.2257	12-13		68/5x12-13	40.1967
12-13	78/3x12-13	40.2258				
13-14	78/3x13-14	40.2259	10-11		78/5x10-11	40.2266
14-15	78/3x14-15	40.2260	11-12		78/5x10-11	40.2267
15-16	78/3x15-16	40.2261	12-13		78/5x11 12 78/5x12-13	40.2268
13 10	70/0713-10	70.2201	13-14		78/5x13-14	40.2269
			14-15		78/5x14-15	40.2270
			15-16		78/5x15-16	40.2270
			10-10		70/3/13-10	40.2211
1			I			

^{*} 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.

plug

type

80/5x10-11

80/5x11-12

80/5x12-13

80/5x13-14

80/5x14-15

80/5x15-16

82/5x10-11

82/5x11-12

82/5x12-13

82/5x13-14

82/5x14-15

82/5x15-16

cable/

diameter

pipe

11-12

12-13 13-14

14-15

15-16

10-11 11-12

12-13

13-14

14-15

15-16

^{*} the tooling for the multi-plugs 5x is very expensive. Specials only on request based on quantities.



type code: series/3xcable diameter For instance 40/3x6-7



type code: series/5xcable diameter For instance 40/5x6-7





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.



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.



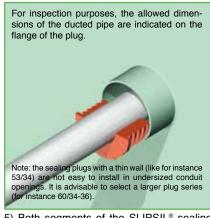
3) The inside surfaces of both segments of the SLIPSIL® sealing plug are then treated with CSD® lubricant.

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.



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.



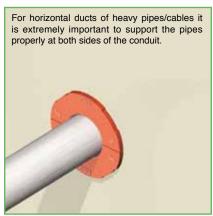
5) Both segments of the SLIPSIL® sealing plug are placed around the ducted pipe and then pushed into the conduit sleeve as far as the first serration. The first serration is smaller than the other serrations to make this procedure very easy.



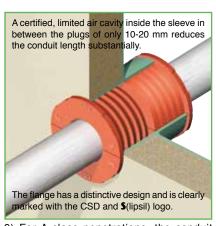
6) Then both segments of the SLIPSIL® sealing plug are pushed by hand evenly, serration by serration, further into the conduit sleeve.



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 \$(lipsil)® logo.



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 at the lower side of the deck. The ducted pipe has to be insulated according to the specifications on the certified drawings.







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.



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.



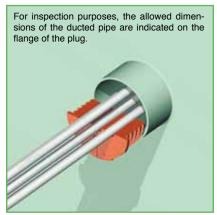
3) The inside surfaces of the four segments of the SLIPSIL® multi-sealing plug are then treated with CSD® lubricant.

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.



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

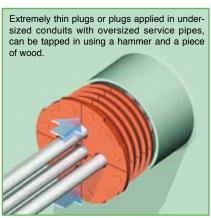
Please refer to the Safety Data Sheet of the CSD® lubricant for more information.



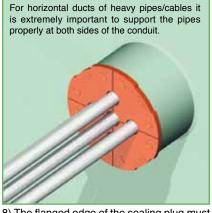
5) The segments of the SLIPSIL® multi- sealing plug are placed around the ducted pipes and then pushed into the conduit sleeve as far as the first serration. The first serration is smaller than the other serrations to make this procedure very easy.



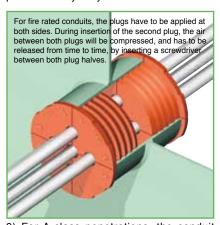
6) The segments of the SLIPSIL® multi- sealing plug are placed around the ducted pipes and then pushed into the conduit sleeve as far as the first serration. The first serration is smaller than the other serrations to make this procedure very easy.



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



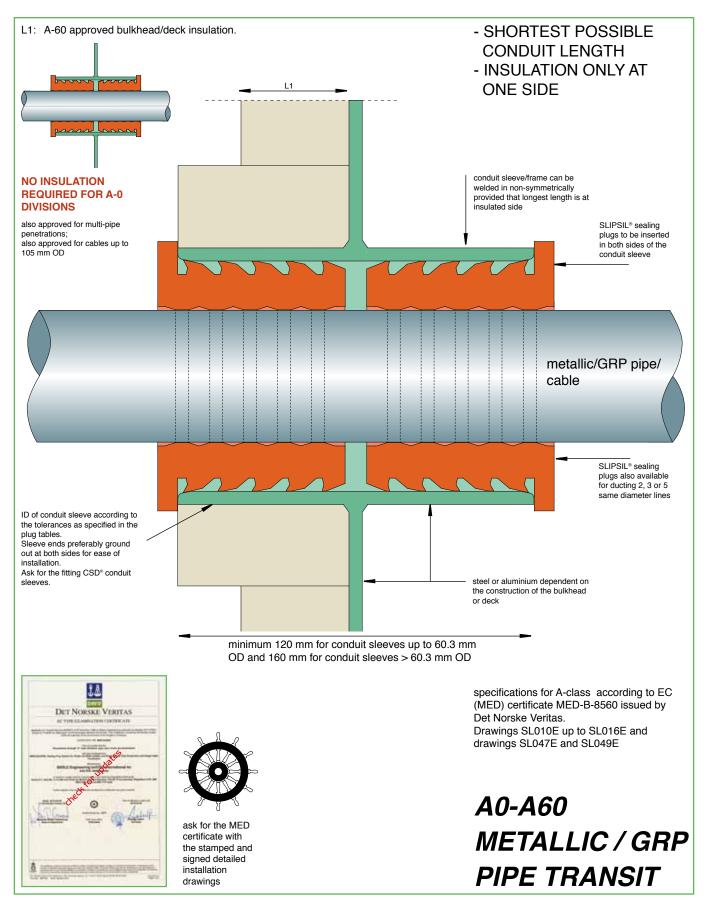
8) The flanged edge of the sealing plug must be flush against the front side of the conduit sleeve. The flange has a distinctive design and is clearly marked with the \$(lipsil)* logo.



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.

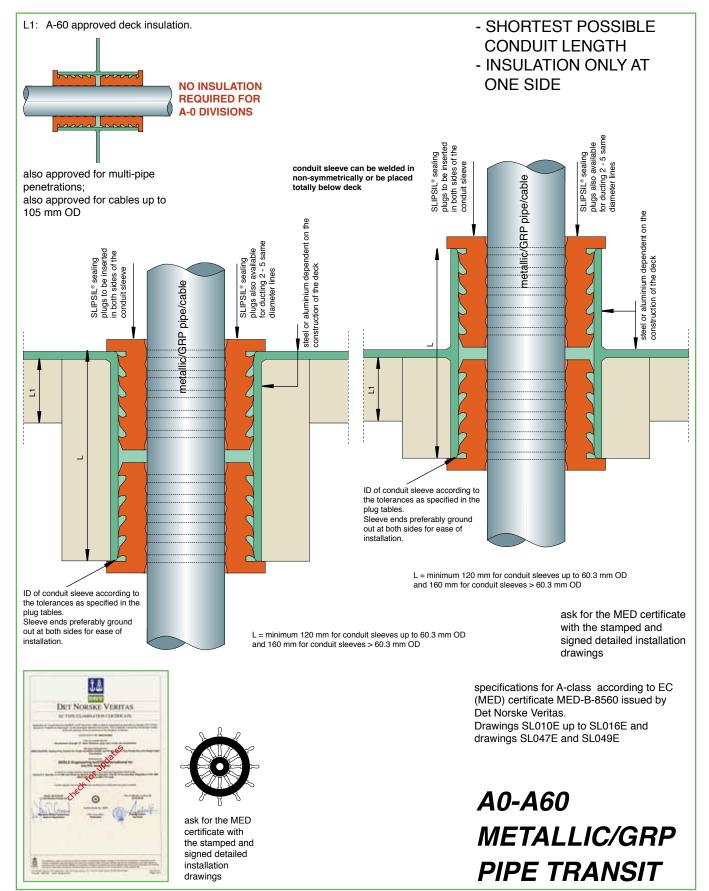








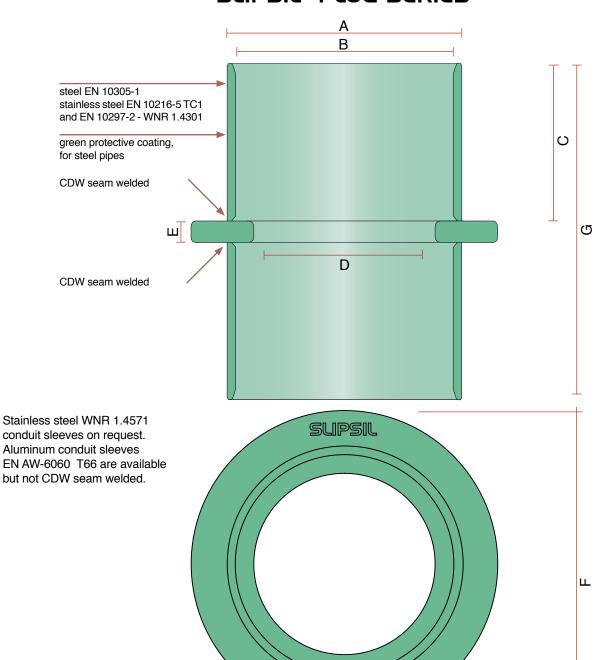








CSD® CONDUIT SLEEVES EXACTLY FITTING TO THE SLIPSIL® PLUG SERIES



All dimensions in mm

								the second second	
type	Α	В	С	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

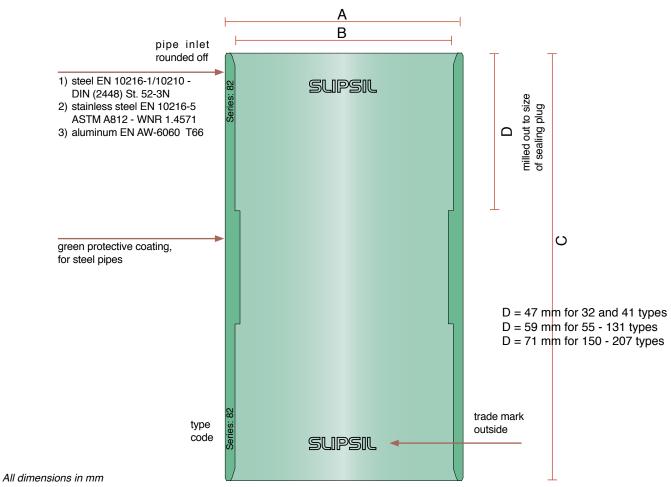
Series: 82

type code





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

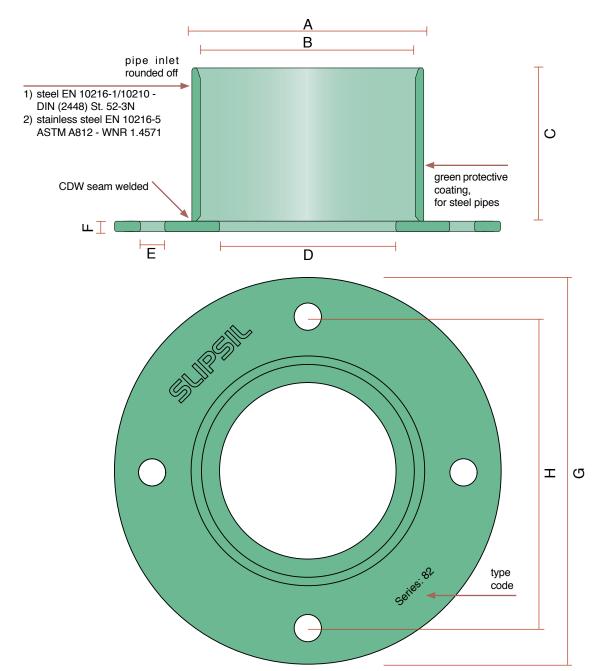


type	Α	В	С	art. no. steel	art. no. stainless	type	Α	В	С	art. no. aluminum
SL 32 WS	39.5	32	120	60.8200	60.8245	SL 53 WA	60	53	160	60.8600
SL 41 WS	48.5	41	120	60.8201	60.8246	SL 62 WA	70	62	160	60.8601
SL 55 WS	62.5	55	160	60.8202	60.8247	SL 70 WA	80	70	160	60.8602
SL 62 WS	70	62	160	60.8203	60.8248	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	88.5	82	160	60.8205	60.8250	SL 102 WA	110	102	160	60.8605
SL 100 WS	90	100	160	60.8206	60.8251	SL 110 WA	120	110	160	60.8606
SL 107 WS	114	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 160 WS	168	160	180	60.8210	60.8255					
SL 207 WS	218.5	207	180	60.8211	60.8256					
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 160 WS	168	160	250	60.8240	60.8285					
SL 207 WS	218.5	207	250	60.8241	60.8286					





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



All dimensions in mm

type	A	В	С	D	E	F	G	Н	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









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

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 duced 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®/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.



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 SLIPSIL®/DYNATITE® combination.



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.



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

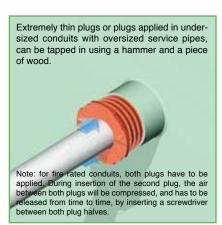
Please refer to the Safety Data Sheet of the CSD® lubricant for more information.



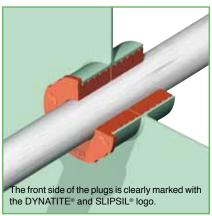
5) Both segments of the DYNATITE® sealing plug are placed around the ducted pipe, then pushed into the conduit sleeve as far as the first serration. Both halves are then pushed by hand evenly, serration by serration, further into the conduit sleeve.



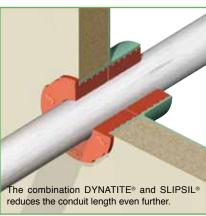
6) The DYNATITE plug should be inserted into the conduit sleeve over a length which corresponds with the length of the second plug. The surfaces of both segments of the SLIPSIL® sealing plug are then treated with CSD® lubricant all around.



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.



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.

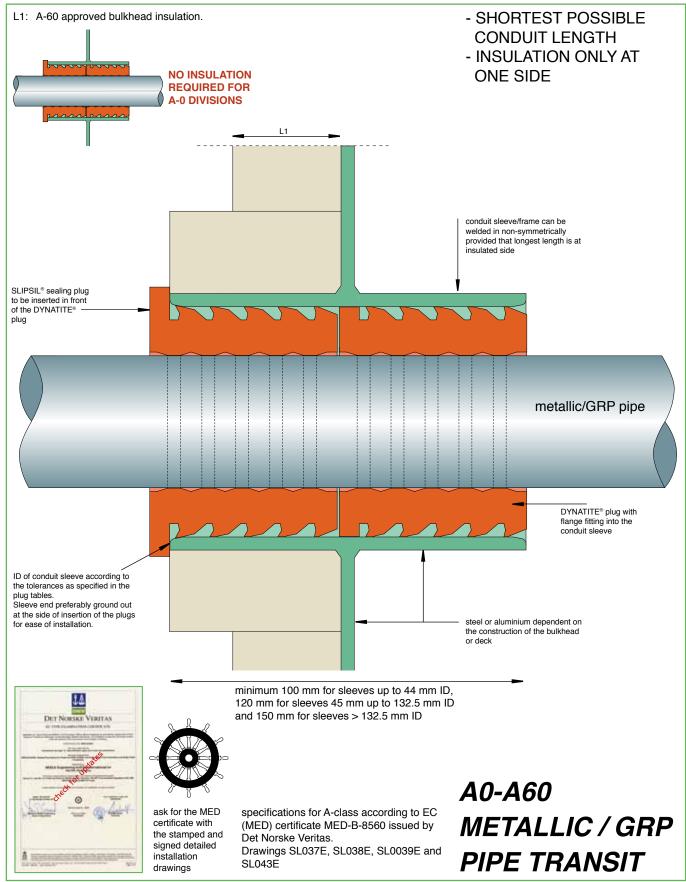


9) For A-class penetrations, the conduit sleeve needs to be insulated only at the insulated side of the bulkhead or at the lower side of the deck. The ducted pipe has to be insulated according to the specifications on the certified drawings.





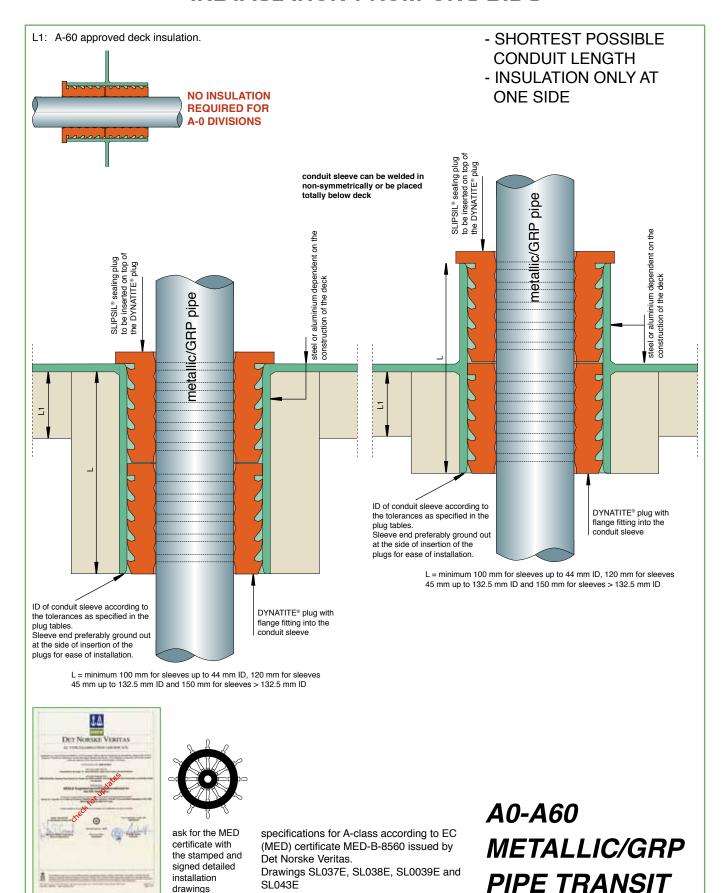
SLIPSIL®/DYNATITE® SEALING PLUGS FOR INSTALLATION FROM ONE SIDE







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







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 centrically!



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.



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



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.



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.

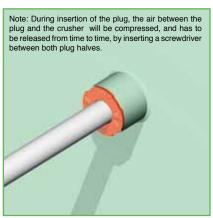


5) The inside surfaces of both segments of the SLIPSIL® sealing plug are then also treated with CSD® lubricant.

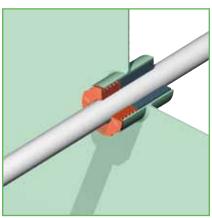
For selecting the right sealing plug, look for the plug series and the plug type in this series on the basis of the ID of the sleeve and the OD of the ducted pipe.



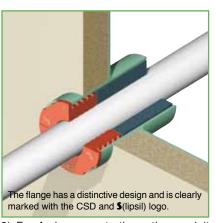
6) Both segments of the SLIPSIL® sealing plug are placed around the ducted pipe and then pushed by hand evenly, serration by serration, into the conduit sleeve.



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).

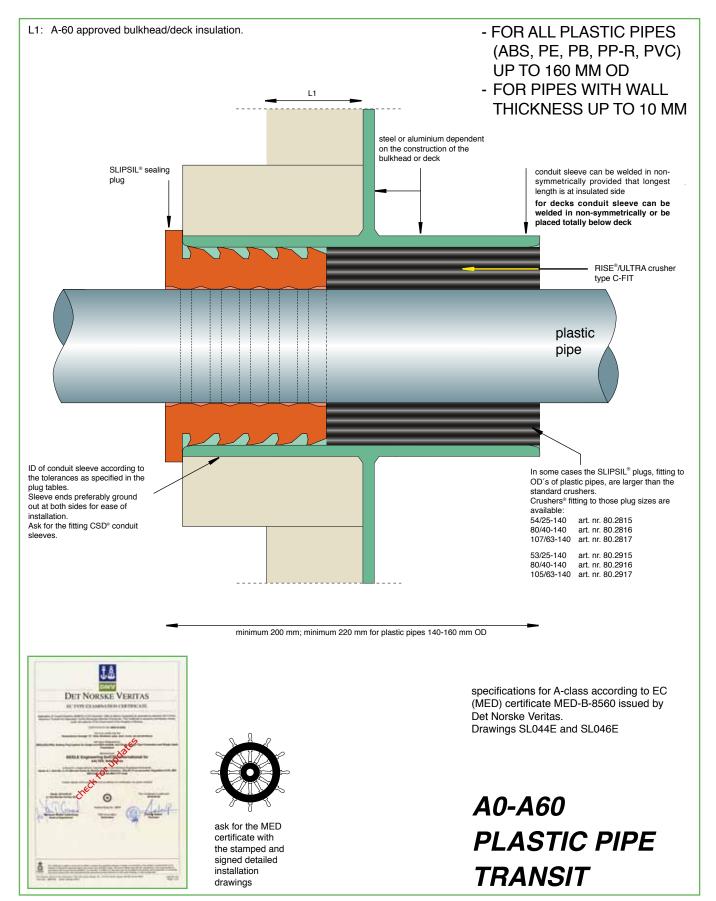


9) For A-class penetrations, the conduit sleeve needs to be insulated only at the insulated side of the bulkhead or the lower side of the deck. The ducted pipe does not need to be insulated.





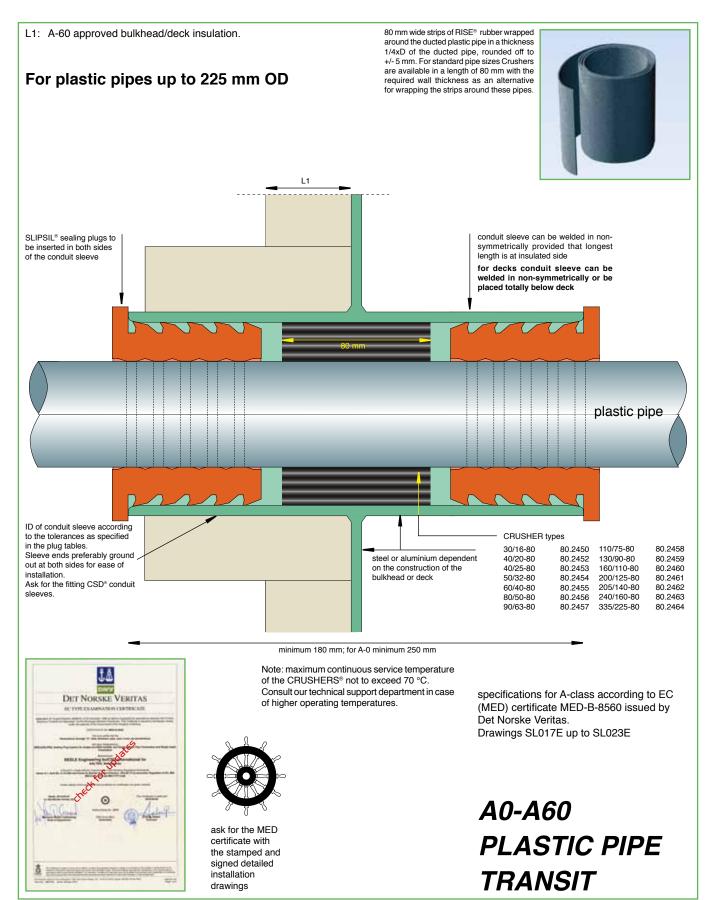
SLIPSIL® SEALING PLUGS FOR PLASTIC PIPE PENETRATIONS







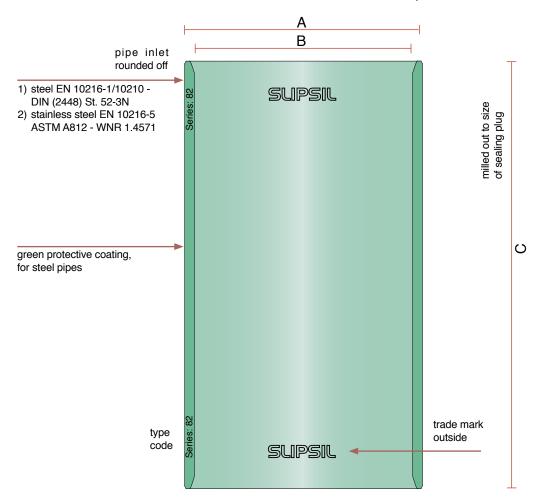
SLIPSIL® SEALING PLUGS FOR PLASTIC PIPE PENETRATIONS







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



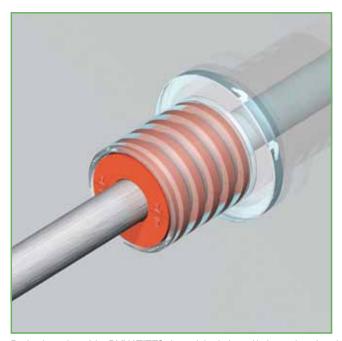
type	Α	В	С	art. no. steel	art. no. stainless	С	art. no. steel	art. no. stainless	С	art. no. steel	art. no. stainless
SL 32 WS-cr	39.5	32	180	60.8100	60.8115	200	60.8130	60.8145	250	60.8160	60.8175
SL 41 WS-cr	48.5	41	180	60.8101	60.8116	200	60.8131	60.8146	250	60.8161	60.8176
SL 55 WS-cr	62.5	55	180	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 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

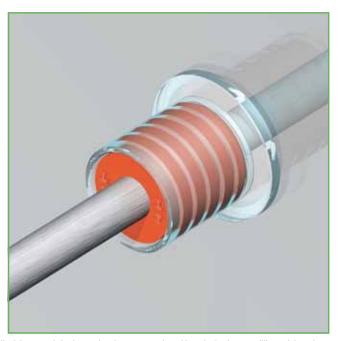




DYNATITE® dynamic sealing system has been developed especially for those applications where a high degree of (instantaneous) tightness is required and, for all, to maintain this performance on long term. The basics of the LEAXEAL®, NOFIRNO® and SLIPSIL® technology have been combined in the development 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.

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.









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.





article

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



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

cable/ pipe diameter	plug type	article number
5-6 6-7 ผม ม 7-8 !! รม	25/5-6DT 25/6-7DT 25/7-8DT 25/8-9DT	45.0105 45.0106 45.0107 45.0108
6-7 7-8 8-9 5-6 6-7 7-8 8-9 9-10 10-11 11-12 12	32/5-6DT 32/6-7DT 32/7-8DT 32/8-9DT 32/9-10DT 32/10-11DT 32/11-12DT 32/12DT	45.0505 45.0506 45.0507 45.0508 45.0509 45.0510 45.0511 45.0512
5-6 6-7 7-8 8-9 9-10 10-11 11-12 12-14 14-16 16-18 18-20 20	41/5-6DT 41/6-7DT 41/7-8DT 41/8-9DT 41/9-10DT 41/10-11DT 41/11-12DT 41/12-14DT 41/14-16DT 41/16-18DT 41/18-20DT 41/20	45.1005 45.1006 45.1007 45.1008 45.1010 45.1011 45.1012 45.1013 45.1014 45.1015 40.1016
6-7 7	41/2x6-7DT 41/2x7DT	45.1026 45.1027
14-16 16-18 18-20 20-22 22-24 24-26 26-28 28	55/14-16DT 55/16-18DT 55/18-20DT 55/20-22DT 55/22-24DT 55/24-26DT 55/26-28DT 55/28	45.1411 45.1412 45.1413 45.1414 45.1415 45.1416 45.1417 45.1418
6-7 7-8 8-9 9-10 10	55/2x6-7DT 55/2x7-8DT 55/2x8-9DT 55/2x9-10DT 55/2x10DT	45.1431 45.1432 45.1433 45.1434 45.1435

pipe diameter	type	number
20-22 22-24 mm u 24-26 26-28 28-30 30-32 32-34 jp lle 36-38 38-40 40-42 42	70/20-22DT 70/22-24DT 70/24-26DT 70/26-28DT 70/28-30DT 70/30-32DT 70/32-34DT 70/34-36DT 70/36-38DT 70/38-40DT 70/40-42DT 70/42DT	45.2014 45.2015 45.2016 45.2017 45.2018 45.2019 45.2020 45.2021 45.2022 45.2023 45.2024 45.2025
11-12 12-13 13-14 14-15 15-16 16-17 17-18	70/2x11-12DT 70/2x12-13DT 70/2x13-14DT 70/2x14-15DT 70/2x15-16DT 70/2x16-17DT 70/2x17-18DT 70/2x18DT	45.2036 45.2037 45.2038 45.2039 45.2040 45.2041 45.2042 45.2043

* Note:

cable/

nlua

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.

* 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.











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

cable/ pipe diameter	plug type	article number
28-30 30-32 32-34 34-36 36-38 38-40 40-42 42-44 44-46 46-48 48-50 50-52 52-54 54	82/28-30DT 82/30-32DT 82/32-34DT 82/34-36DT 82/36-38DT 82/38-40DT 82/40-42DT 82/40-42DT 82/42-44DT 82/46-48DT 82/46-48DT 82/48-50DT 82/50-52DT 82/52-54DT 82/54DT	45.2418 45.2419 45.2420 45.2421 45.2422 45.2423 45.2424 45.2425 45.2426 45.2427 45.2428 45.2429 45.2430 45.2431
12-13 13-14 14-15 15-16 16-17 17-18 18-19 19-20	82/2x12-13DT 82/2x13-14DT 82/2x14-15DT 82/2x15-16DT 82/2x16-17DT 82/2x17-18DT 82/2x18-19DT 82/2x19-20DT 82/2x20	45.2442 45.2443 45.2444 45.2445 45.2446
10-11 11-12 12	82/3x10-11DT 82/3x11-12DT 82/3x12DT	45.2456 45.2457 45.2458
40-42 42-44 44-46 46-48 48-50 50-52 52-54 54-56 56-58 58-60 60-62 62-64	100/40-42DT 100/42-44DT 100/44-46DT 100/46-48DT 100/48-50DT 100/50-52DT 100/52-54DT 100/54-56DT 100/56-58DT 100/58-60DT 100/60-62DT 100/62-64DT 100/64DT	45.2820 45.2821 45.2822 45.2823 45.2824 45.2825 45.2826 45.2827 45.2828 45.2829 45.2830 45.2831 45.2832

cable/ pipe diamete	plug type r	article number
60-62 62-64 64-66 66-68 68-70 70-72 72-74 74-76 76-78 78-80 80-82 82-84 84-86 86-88 88	125/60-62DT 125/62-64DT 125/64-66DT 125/66-68DT 125/68-70DT 125/70-72DT 125/72-74DT 125/74-76DT 125/76-78DT 125/78-80DT 125/80-82DT 125/82-84DT 125/84-86DT 125/86-88DT 125/88-88DT	45.3630 45.3631 45.3632 45.3633 45.3635 45.3636 45.3637 45.3638 45.3640 45.3641 45.3642 45.3643 45.3644
88-90 90-92 92-94 94-96 96-98 98-100 100-102 102-104 104-106 106-108 108-110 110-112 112-114	150/88-90DT 150/90-92DT 150/92-94DT 150/94-96DT 150/96-98DT 150/100-102DT 150/102-104DT 150/104-106DT 150/104-106DT 150/108-110DT 150/108-110DT 150/110-112DT 150/112-114DT 150/114DT	45.4020 45.4021 45.4022 45.4023 45.4024 45.4025 45.4027 45.4028 45.4029 45.4030 45.4031 45.4032 45.4033

* Note:

With the largest pipe diameter to be ducted there is limited space between the hole in the retainer ring and the ducted pipe.

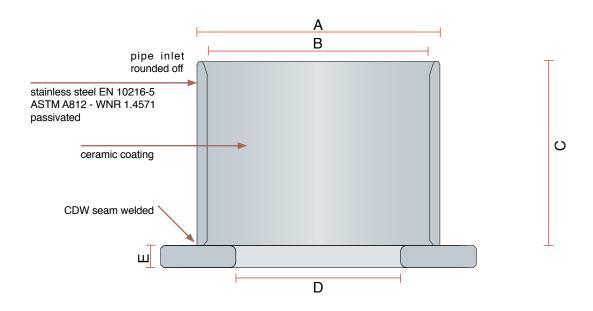
Care has to be taken for adequate fixation.

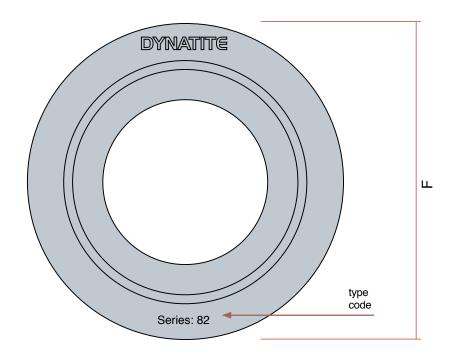
* Note:

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.





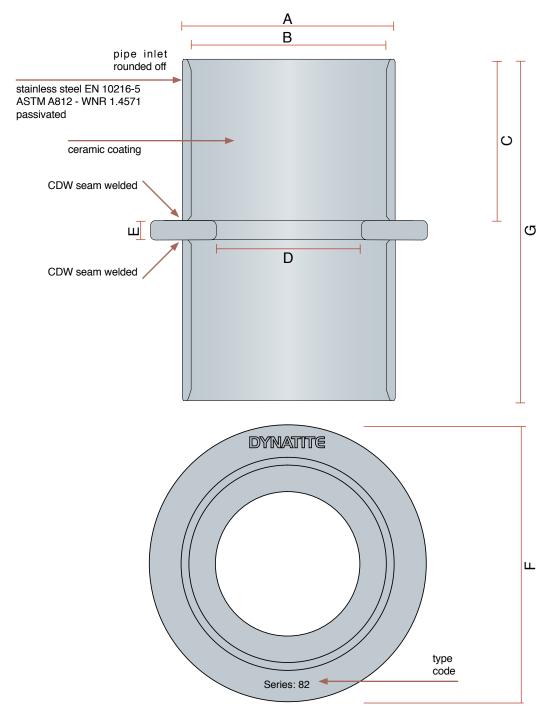




type	Α	В	С	D	E	F	art. no.
DT 25 FW	32.5	25	54	12	8	55	60.9020
DT 32 FW	39.5	32	54	16	8	65	60.9021
DT 41 FW	48.5	41	54	25	8	75	60.9022
DT 55 FW	62.5	55	66	34	8	90	60.9023
DT 70 FW	78	70	66	50	8	105	60.9024
DT 82 FW	90	82	66	60	8	115	60.9025
DT 100 FW	108	100	66	75	8	135	60.9026
DT 125 FW	134	125	66	100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



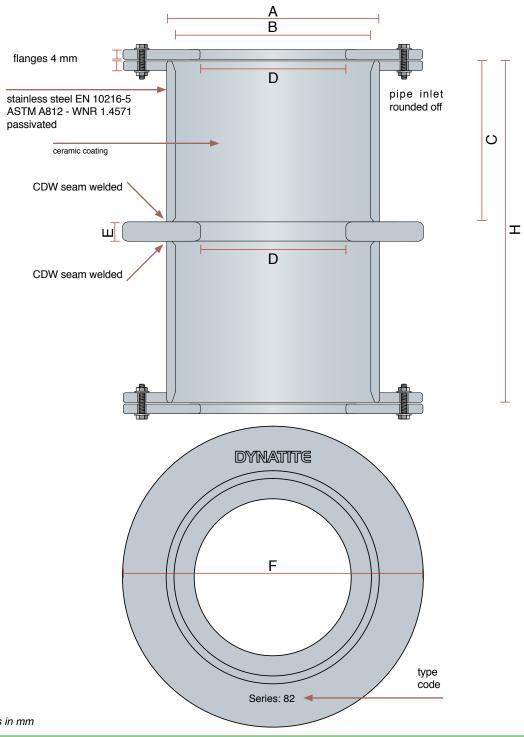




type	Α	В	С	D	E	F	G	art. no.
DT 25 FWD	32.5	25	54	12	8	55	116	60.9040
DT 32 FWD	39.5	32	54	16	8	65	116	60.9041
DT 41 FWD	48.5	41	54	25	8	75	116	60.9042
DT 55 FWD	62.5	55	66	34	8	90	140	60.9043
DT 70 FWD	78	70	66	50	8	105	140	60.9044
DT 82 FWD	90	82	66	60	8	115	140	60.9045
DT 100 FWD	108	100	66	75	8	135	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







ΑII	dimensions	in	mm	

type	Α	В	С	D	E	F	н	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







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.



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.



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

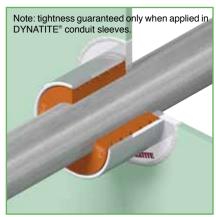
Please refer to the Safety Data Sheet of the CSD® lubricant for more information.



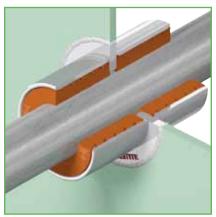
5) Both segments of the DYNATITE® sealing plug are placed around the ducted pipe, then pushed into the conduit sleeve as far as the first serration. Both halves are then pushed by hand evenly, further into the conduit sleeve.



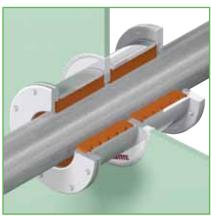
6) The front side of the sealing plug must be flush against the front side of the conduit sleeve. This proves that the back side of the plug is positioned against the retainer ring inside the conduit sleeve.



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



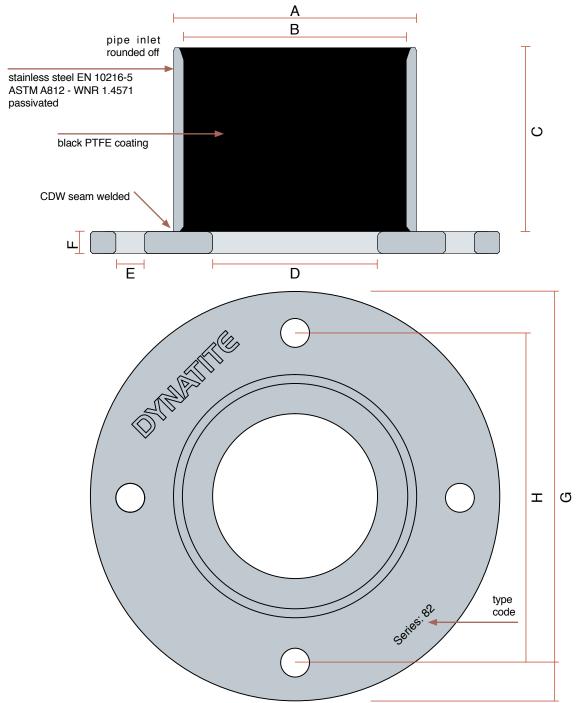
8) For pressure loads from both sides or in case of fire rated penetrations, a double sided DYNATITE® conduit sleeve must be welded symmetrically in the partition to enable installation of DYNATITE® sealing plugs at both sides of the partition.



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.







type	Α	В	С	D	E	F	G	Н	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







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.



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.



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.



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

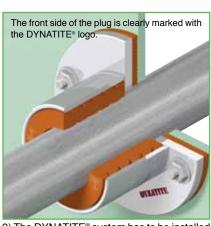
Please refer to the Safety Data Sheet of the CSD® lubricant for more information.



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.



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.



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.

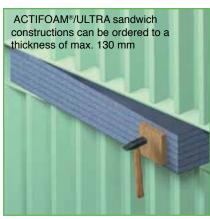




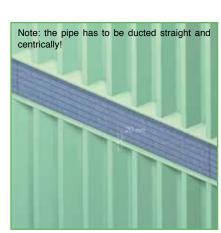
ACTIFOAM®/ULTRA GAP/HATCH SEALING SYSTEM FIRESAFE/WATERTIGHT



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



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.



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.



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.



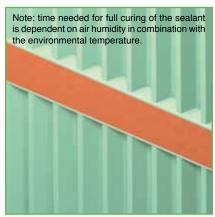
5) When working on larger gaps, the sealant should be applied in parts. Due to the fast curing of the top layer of the sealant, the amount of sealant should not be more than can be finished within 10 minutes. A cloth is sprayed with water. Note: do not use soap water!



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..

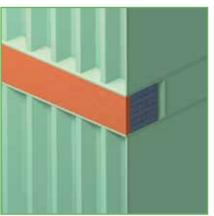


7) The surface can be smoothed by hand. Wet the hands thoroughly with soap and water to avoid the NOFIRNO® sticking to the hands. A very neat surface is the result. Prevent soap water to be applied on the sealant surface on which the next sealant will be applied.



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



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 fir 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





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