BEELE
ENGINEERING

PRODUCT OVERVIEW CABLE AND PIPE SEALING SYSTEMS BUILDING INDUSTRY

WE CARE

BEELE ENGINEERING

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Edition : February 2016

Research & Development : BEELE Engineering BV, Aalten, the Netherlands.

brochure code : product overview/en/con

BEELE ENGINEERING

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BEELE ENGINEERING - SAFETY, RELIABILITY, INVOLVEMENT

Every moment of the day, in every business and every situation, the threat of fire or flood is present. For over three decades, BEELE Engineering has specialized in passive fire safety and leakage prevention 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.

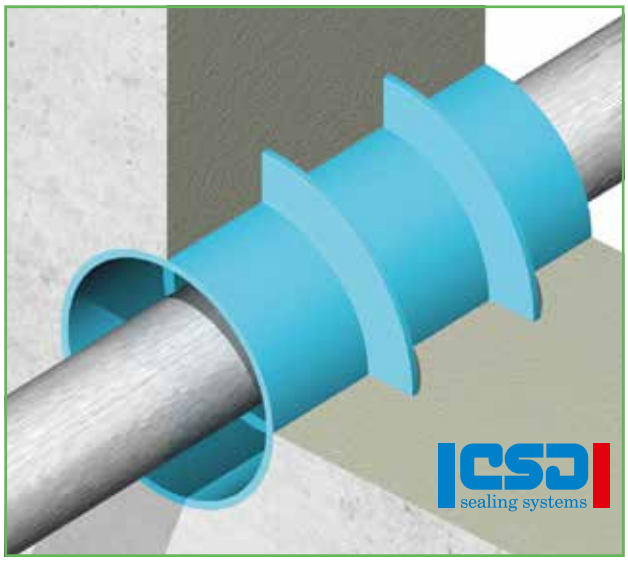
BEELE Engineering has built up an enormous body of specialized expertise and knowledge. Our company is the world market leader in sealing systems for state-of-the-art shipbuilding applications as well as civil and industrial applications. We do not follow trends, we set them.

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.

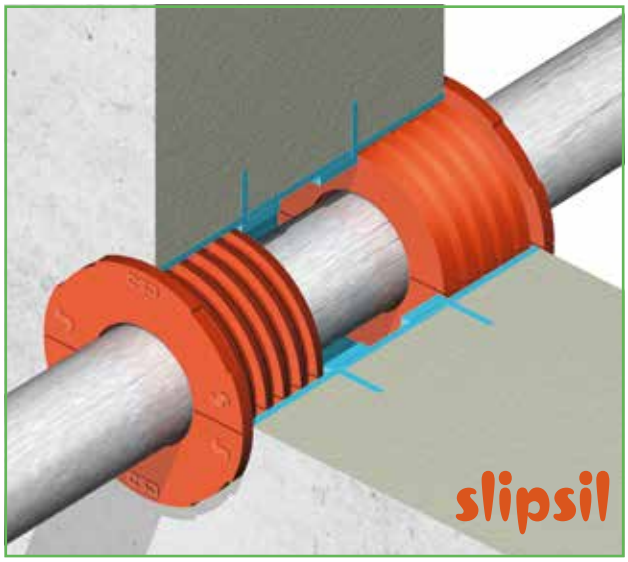
Our development, test and production facilities are among the most advanced in the world. The factory is equipped with state of the art machines, which are tailor made to the requirements of our company. We work to a high-level ISO system, with unmatched involvement. Continuous investment in design technologies,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



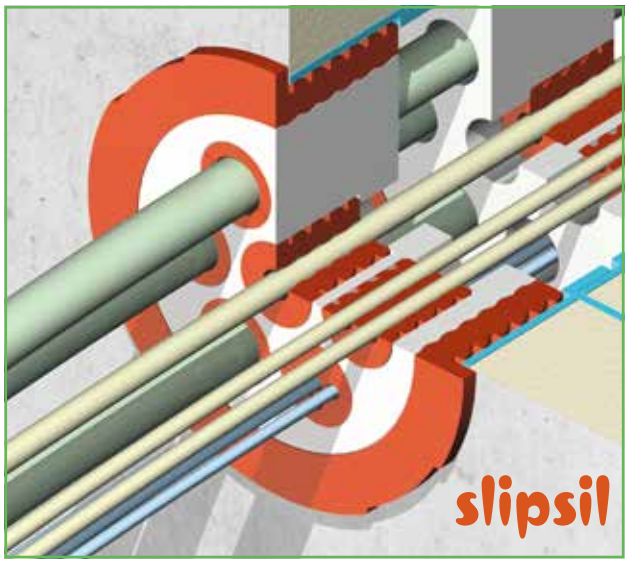
CSD®

- Embedded pipe sets for casting into concrete.
- Made of impact resistant plastic.
- Consisting of conduit inlets, adjusting pipes (length), pipe connectors (extreme length) and fixations to the casing.
- Flanges on the conduit inlets act as a water barrier and fixation of the inlet in concrete.
- Conduit inlets manufactured to exact dimensions of the SLIPSIL® plugs and rounded off to avoid any damage to the plugs during insertion.
- Smooth inner surface and shoulder at the back for optimum insertion of the SLIPSIL® plugs.
- Breakthrough - watertight, modular system
- Loosen embedded pipes a thing of the past.



SLIPSIL®

- Designed to provide fire safe, gas and watertight seals for pipe/cable penetrations.
- For transits carrying single or multiple metal pipes with the same diameter.
- Installs in a couple of minutes. Lubricate and push - that's it!
- No bolting or other mechanical devices required.
- Absorbs mechanical stresses, vibration and prevents galvanic corrosion problems.
- Wide temperature range: -50 °C up to +180 °C.
- Proven - simple installation, high performance
- The system of choice for underground ducting in the building industry worldwide for almost 4 decades!

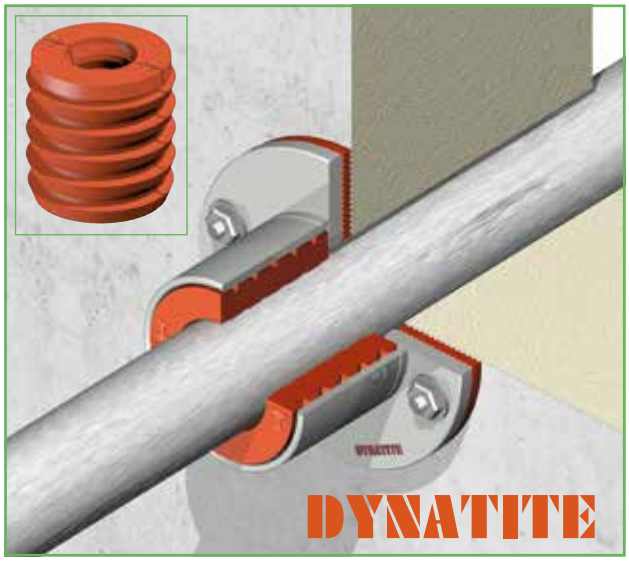


SLIPSIL®- MPP

- Designed to provide a simple solution for both cable and pipe multi-penetrations.
- For transits carrying a variety of pipes/cables with different diameters.
- Installs in a couple of minutes. Lubricate and push - that is it!
- Easy access for later extensions.
- No bolting or other mechanical devices required.
- Modules with various hole configurations, made of a special plastic grade for watertight penetrations, guaranteeing a long service life.
- Breakthrough - most easy access for extensions
- The system of choice for underground ducting in concrete pits and foundations!

BEELE PRODUCT OVERVIEW
APPLICATIONS IN THE BUILDING INDUSTRY

DYNATITE®

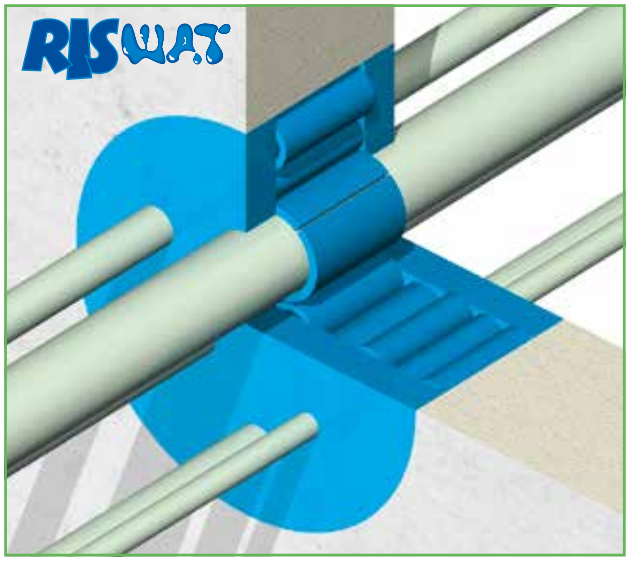


- For applications where a high degree of (instantaneous) tightness is required.
- Dynamic sealing when a disaster occurs.
- Plugs are compressible and will return to their original shape after shock pressure.
- Easily withstands shock pressure loads up to 15 bar (220 psi).
- Ideal solution for cable and pipe transits in subsea and explosion proof installations.
- 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.

CSD®

- High quality stainless steel conduit sleeves.
- Made of stainless steel 1.4571.
- Newest capacitor discharge welding technology.
- Corrosion prevention by an unique passivation process. Tested according to DIN EN 60068-2-52.
- Ceramic or PTFE (Teflon) coating inside the flanged conduit sleeves.
- Flanged conduit inlets milled to exact dimensions of the SLIPSIL® and DYNATITE® plugs and rounded off to avoid any damage to the plugs during insertion.
- Breakthrough - corrosion protection, even in sea-water conditions, guaranteed for many years
- For cases where durability of the installation counts.

RISWAT®

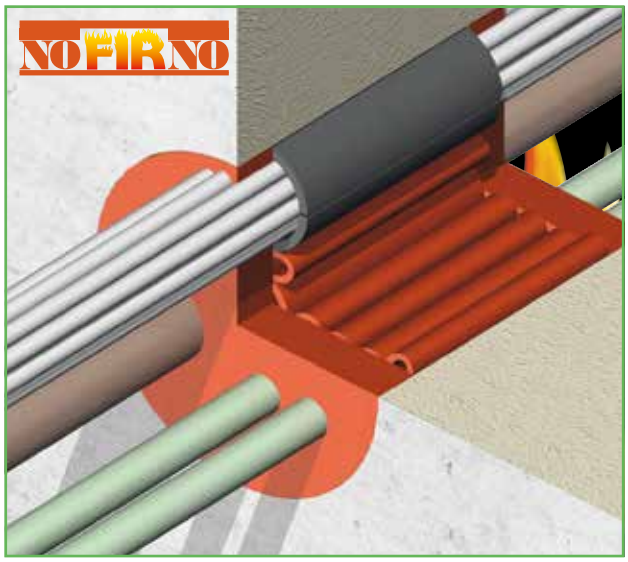


- The system of choice worldwide to replace leaking conduits in a most efficient way.
- The system is suitable for existing cable and pipe penetrations.
- DRIFIL® sealant has a high bonding strength.
- Can be applied in concrete or brick walls.
- No conduit frames or sleeves necessary.
- CSD® split modular frames for leaking conduits.
- Limited amount of structural components: RISWAT® insert and filler sleeves and DRIFIL® sealant.
- Proven - thousands of leaking conduits sealed with RISWAT® all over the world
- Identical system technology as NOFIRNO®.

BEELE PRODUCT OVERVIEW
APPLICATIONS IN THE BUILDING INDUSTRY

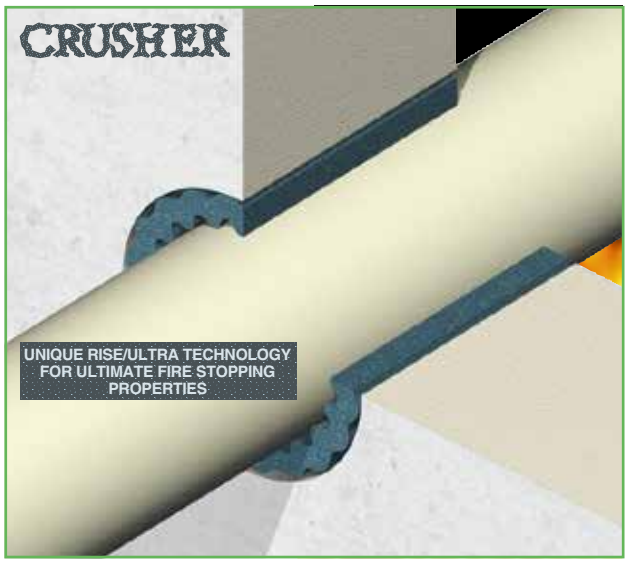
NOFIRNO®

- Approved for harshest fire ratings (EN, A, H and Jet Fire class) in the building industry.
- NOFIRNO® rubber sleeves and sealant will remain stable and not be consumed by fire.
- 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.
- Breakthrough - MULTI-ALL-MIX® system
- Approved for any combination of cable and/or metallic, GRP or plastic pipes!



NOFIRNO®

- For fire, gas, smoke and watertight sealing of multi-cable penetrations.
- Compact system. No precise fitting parts.
- No metal parts, no corrosion.
- Most 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.
- Re-entry for cable modifications is simple.
- Approved for harshest fire ratings for multi-cable penetrations (EN, A, H and Jet Fire class).
- Breakthrough - bundled cable sets approved
- The system of choice for highest fire ratings and harshest environment!

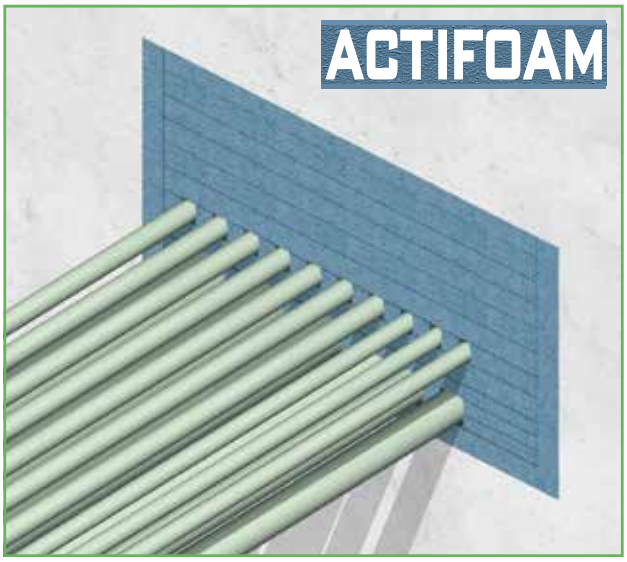


CRUSHER®

- Most simple and effective system for all fire safe 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.
- 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 and metallic pipes.
- NOFIRNO® sleeves for filling larger spaces.
- NOFIRNO® sealant adheres well to plastics: high degree of water tightness feasible.

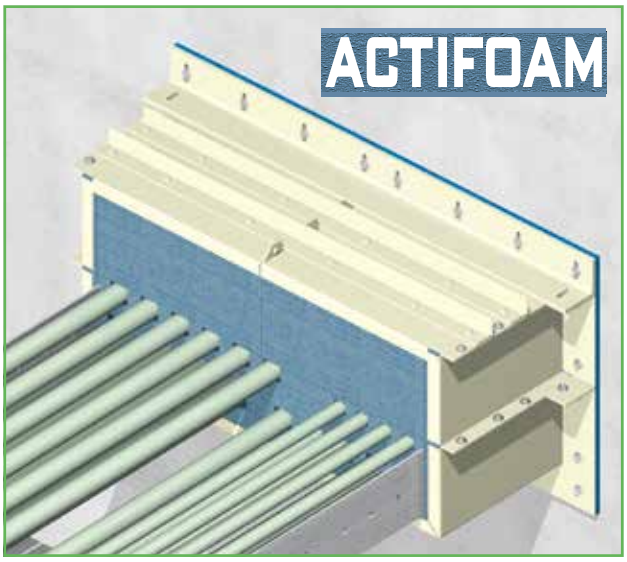
BEELE PRODUCT OVERVIEW
APPLICATIONS IN THE BUILDING INDUSTRY

ACTIFOAM®



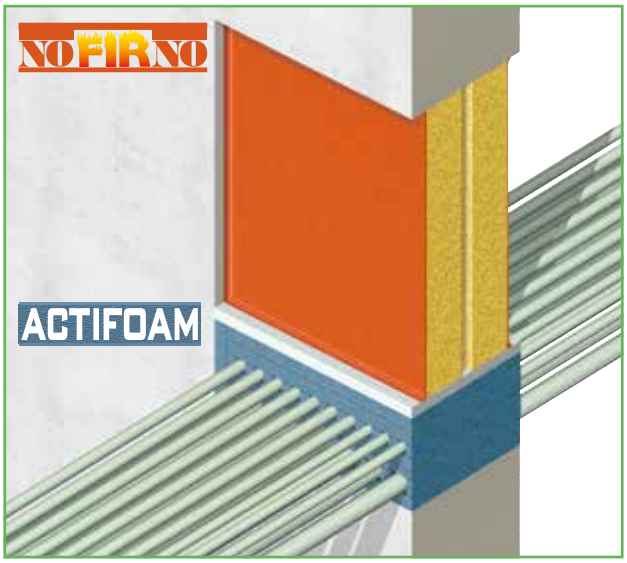
- Designed to provide a simple solution for both new and existing cable penetrations.
- Cellular rubber with closed cell structure to prevent moisture absorption.
- Rubber is activated and expanding when exposed to flames or extensive heat.
- Self-correcting fire stop system.
- EN certified for a two hour fire rating.
- Adding or removing cables an easy matter.
- Front of the sealing system can be covered with FIWA® or NOFIRNO® sealant for outdoor use.
- Proven - simple installation (sheets and slit sheets)
- The system of choice for upgrading existing cable penetrations.

FIRSTO®



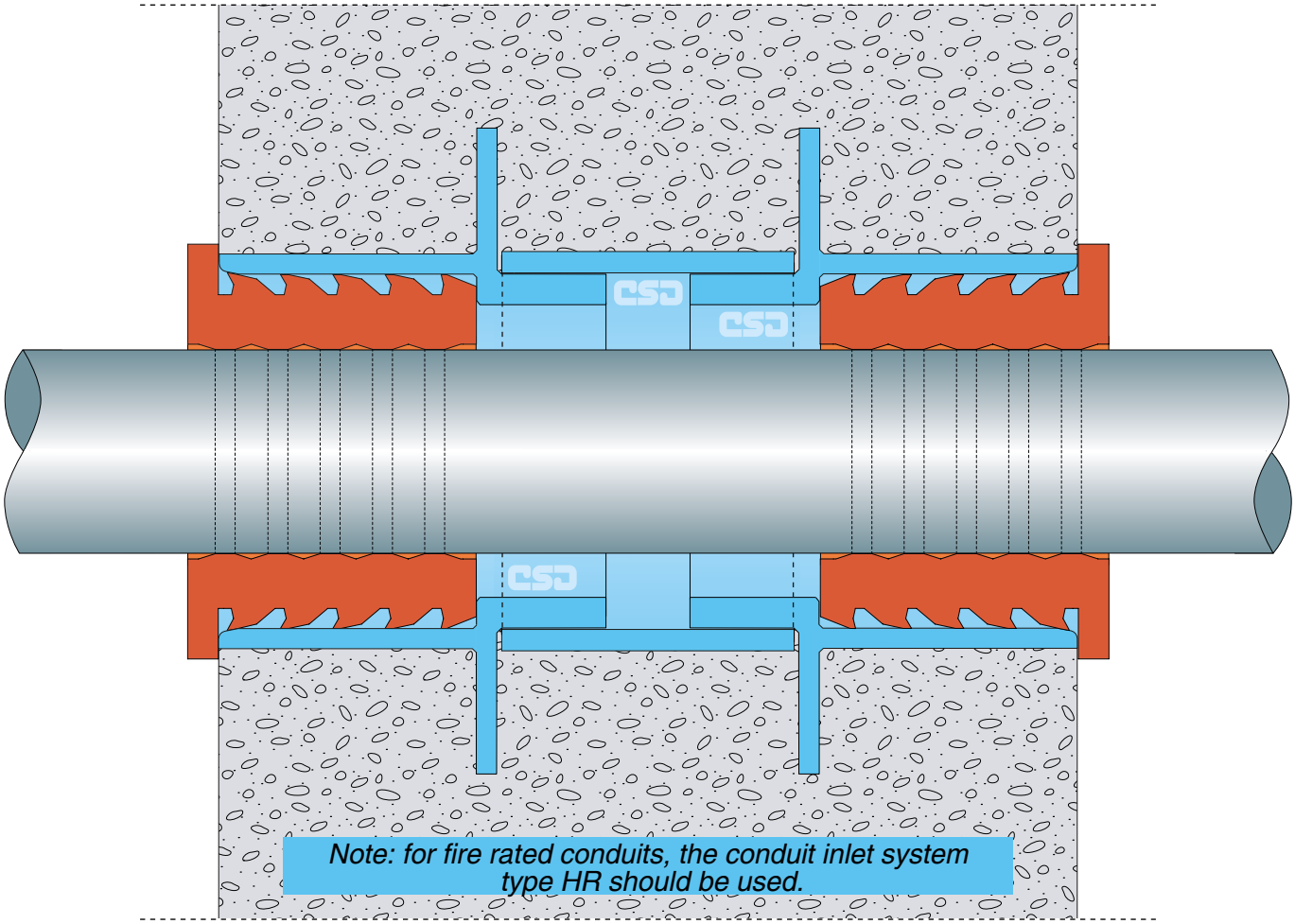
- Designed to provide a simple solution for both new and existing cable penetrations.
- Cellular rubber with closed cell structure to prevent moisture absorption.
- Rubber is activated and expanding when exposed to flames or extensive heat.
- Self-correcting fire stop system.
- EN certified for a two hour fire rating.
- Adding or removing cables an easy matter.
- Front of the sealing system can be covered with FIWA® or NOFIRNO® sealant for outdoor use.
- Proven - modular casings to fit to cable ways.
- The system of choice for installations with continuous changes of the cable set.

NOFIRNO®-BRD

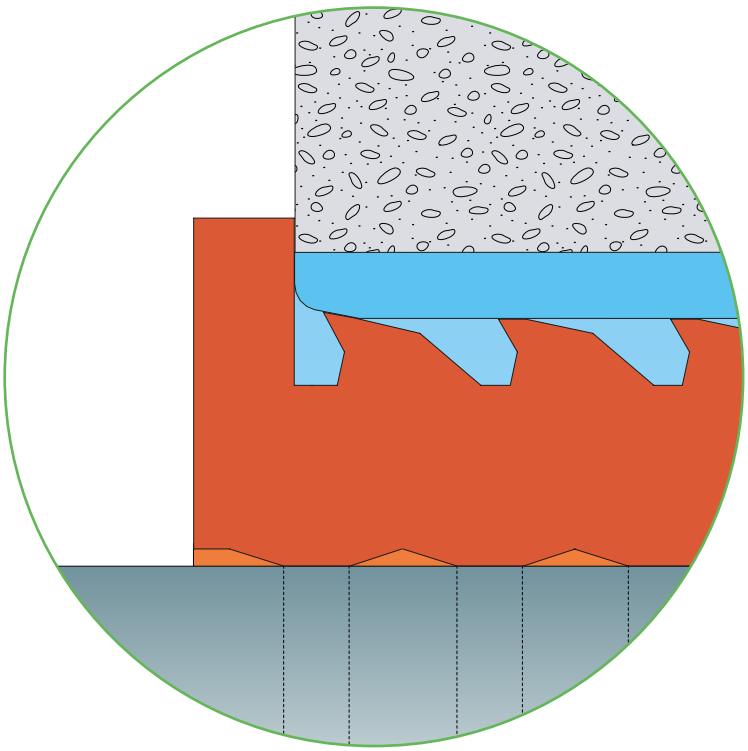


- Designed to provide a fire safe sealing solution for upgrading existing installations.
- Combination of ACTIFOAM® rubber and NOFIRNO® boards, especially for oversized penetrations.
- Cellular rubber with closed cell structure to prevent moisture absorption.
- Rubber is activated and expanding when exposed to flames or extensive heat.
- NOFIRNO® coating prevents shrinking of mineral wool board. Not moisture sensitive.
- Breakthrough - coating which forms a ceramic shield when exposed to fire, preventing shrinkage
- The system of choice for replacing intumescent sealing systems.

SLIPSIL® EMBEDDED CONDUIT INLET SYSTEM FOR SLIPSIL® SEALING PLUGS



Optimized gas and water tightness is obtained by applying the SLIPSIL® sealing plugs in the CSD® embedded conduit inlet system or in the CSD® flanged conduit sleeves.
These offer optimum ease of installation, prevent any damage to the plugs during insertion and prevent the plugs from being inserted too deep into the conduit opening. The sealing plugs also can be used in holes bored with diamond-tipped drills. The tolerances of the drilled hole should be within the tolerances of the plug series.
For fire resistant seals, the sealing plugs must be installed always at each side of the conduit. For conduits which are required to be gas and water tight only, it is possible for a sealing plug to be installed at just one side of the conduit. However, for optimum sealing performance it is advisable always to install plugs at each side of the conduit. Care should be taken that the ducted cable/pipe is not passed through the conduit opening at an angle. For horizontal ducts, it is extremely important to support the pipes properly at both sides of the conduit.
The picture shows the settling of the profiling after insertion and the rounded off inlet opening of the CSD® conduit inlets. Optimum tightness guaranteed. The leveled outer profiles show that the contact surface with the conduit pipe could be further increased when smaller inner diameters should be used. The drawback however is less ease of installation. CSD® conduit inlets are made to nominal sizes.



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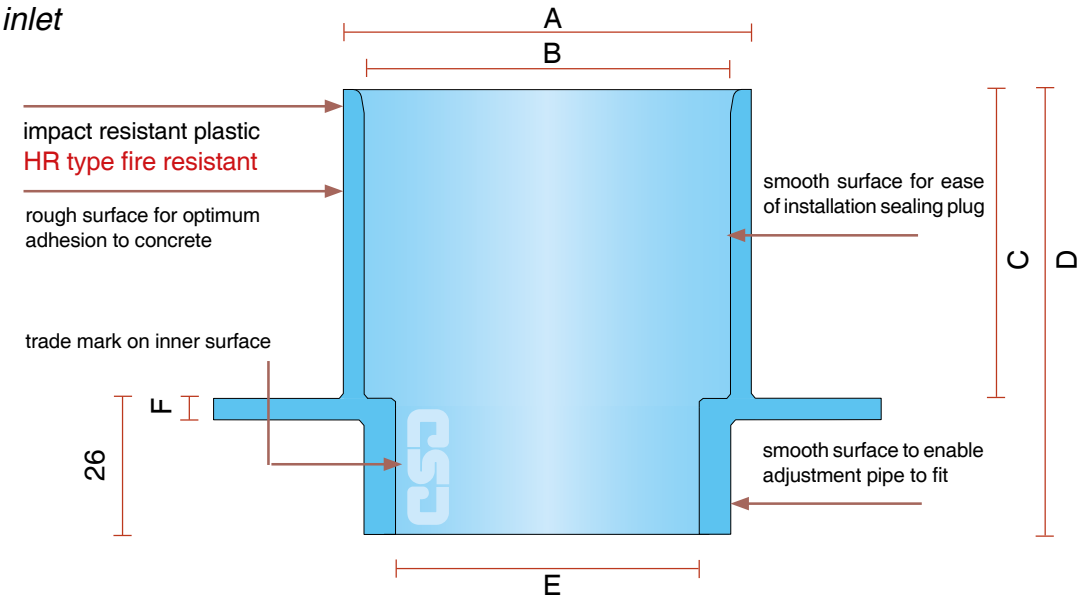
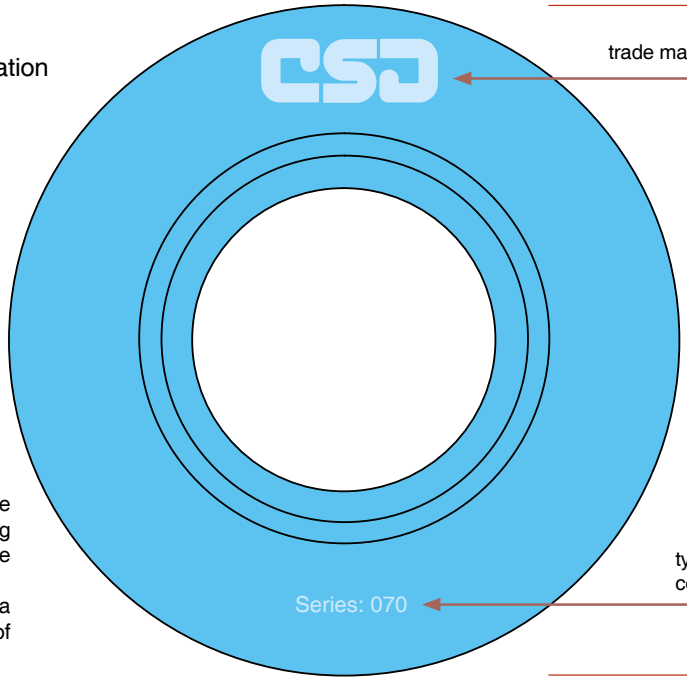
SLIPSIL® EMBEDDED CONDUIT INLET SYSTEM FOR SLIPSIL® SEALING PLUGS

conduit inlet





FIRE CLASSIFICATION E 120/EI 120 ACCORDING TO THE NEWEST STANDARDS EN 13501-2:2007 + A1:2009 AND EN 15882-3:2009 AND TEST PROCEDURE EN 1366-3:2009

CSD® conduit inlet selected for the application of the SLIPSIL® plug series on the basis of the OD of the pipe/cable to be ducted.
The back side of the inlet has a smooth surface fitting to the ID of the adjustment pipe.

All dimensions in mm

type	A	B	C	D	E	F	G	plug-series	cable/ pipe OD	art. no.	art. no. HR
CSD 40 CI	48	40	47	73	28	4	88	40	5-22	60.9102	60.9202
CSD 50 CI	58	50	59	85	38	4	108	50	6-32	60.9103	60.9203
CSD 60 CI	68	60	59	85	48	4	118	60	14-40	60.9104	60.9204
CSD 70 CI	78	70	59	85	58	4	128	70	22-50	60.9105	60.9205
CSD 80 CI	88	80	59	85	68	4	138	80	28-60	60.9106	60.9206
CSD 100 CI	110	100	59	85	88	4	170	100	40-75	60.9107	60.9207
CSD 125 CI	135	125	59	85	113	4	195	125	60-92	60.9108	60.9208
CSD 160 CI	170	160	71	97	148	4	230	160	88-125	60.9109	60.9209
CSD 200 CI	210	200	71	97	188	4	290	200	110-160	60.9110	60.9210

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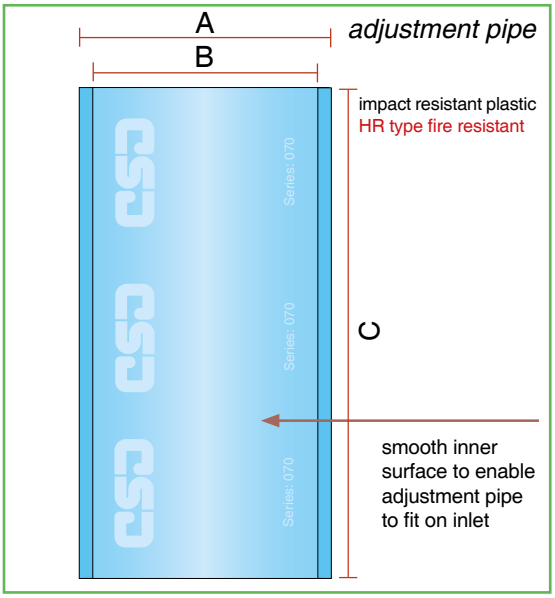
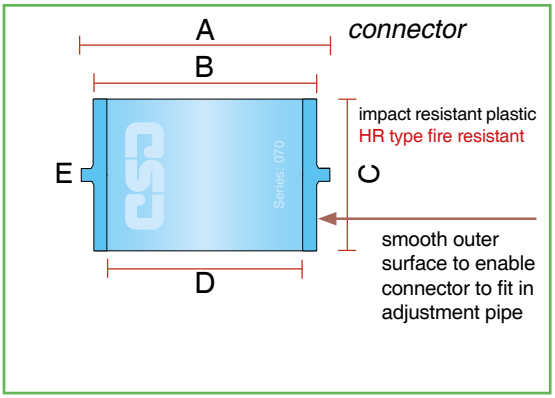
SLIPSIL® EMBEDDED CONDUIT INLET SYSTEM FOR SLIPSIL® SEALING PLUGS

type	A	B	C	art. no.	art. no. HR
CSD 40 AP	48	40	200	60.9122	60.9222
CSD 50 AP	58	50	200	60.9123	60.9223
CSD 60 AP	68	60	200	60.9124	60.9224
CSD 70 AP	78	70	200	60.9125	60.9225
CSD 80 AP	88	80	200	60.9126	60.9226
CSD 100 AP	110	100	200	60.9127	60.9227
CSD 125 AP	135	125	200	60.9128	60.9228
CSD 160 AP	170	160	200	60.9129	60.9229
CSD 200 AP	210	200	150	60.9130	60.9230

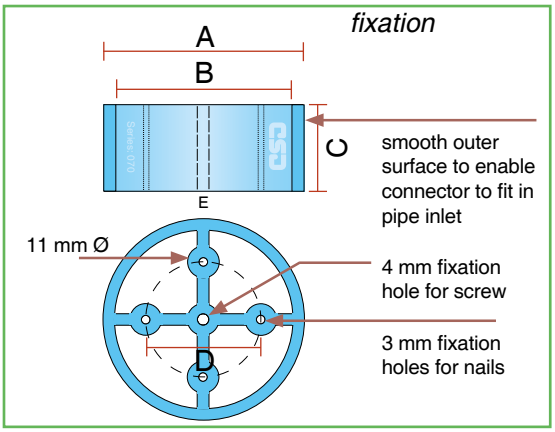
CSD® adjustment pipe cut to size to adjust the complete inlet set to the thickness of the form to cast the concrete.
The CSD® adjustment pipe has a smooth inner surface fitting to the conduit inlets.

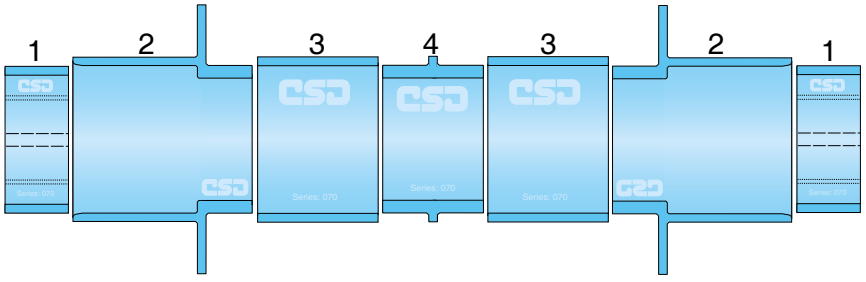


type	A	B	C	D	E	art. no.	art. no. HR
CSD 40 CP	48	40	48	28	4	60.9142	60.9242
CSD 50 CP	58	50	48	38	4	60.9143	60.9243
CSD 60 CP	68	60	48	48	4	60.9144	60.9244
CSD 70 CP	78	70	48	58	4	60.9145	60.9245
CSD 80 CP	88	80	48	68	4	60.9146	60.9246
CSD 100 CP	110	100	48	88	4	60.9147	60.9247
CSD 125 CP	135	125	48	113	4	60.9148	60.9248
CSD 160 CP	170	160	48	148	4	60.9149	60.9249
CSD 200 CP	210	200	48	188	4	60.9150	60.9250



type	A	B	C	D	E	art. no.
CSD 40 FP	40	32	20	-	-	60.9162
CSD 50 FP	50	42	20	30	4	60.9163
CSD 60 FP	60	52	20	30	4	60.9164
CSD 70 FP	70	62	20	40	4	60.9165
CSD 80 FP	80	72	20	40	4	60.9166
CSD 100 FP	100	92	20	50	4	60.9167
CSD 125 FP	125	117	20	60	4	60.9168
CSD 160 FP	160	152	20	80	4	60.9169
CSD 200 FP	200	192	30	120	6	60.9170

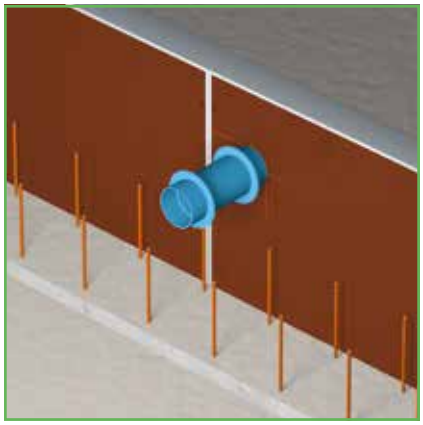




1) fixation piece to fix the set to the casting form
2) conduit inlets to accept the SLIPSIL® plugs
3) adjustments pipes to make the set fit to the width of the casting form
4) connector piece to connect adjustment pipes in case of extremely wide casting forms

SLIPSIL® EMBEDDED CONDUIT INLET SYSTEM FOR SLIPSIL® SEALING PLUGS

1) After marking off on the formwork, CSD® fixation pieces suitable for CSD® conduit inlets are fastened by means of nails or screws.



2) Adapt the CSD®embedded conduit inlet system to the width of the formwork by sawing the CSD® adjustment pipe to length in situ. Press the CSD® conduit inlets and adjustment pipe over the installed fixation piece.

3) For very wide formwork, two or more CSD® adjustment pipes are used. The adjustment pipes are linked with the aid of CSD® connectors.

4) The CSD® embedded conduit inlet system must also be affixed to the formwork element on the other side using a fixation piece in order to obtain sufficient stability during the pouring of the concrete.

5) The formwork element is provisionally positioned so that the position of the CSD® fixation piece to be fitted can be marked off.

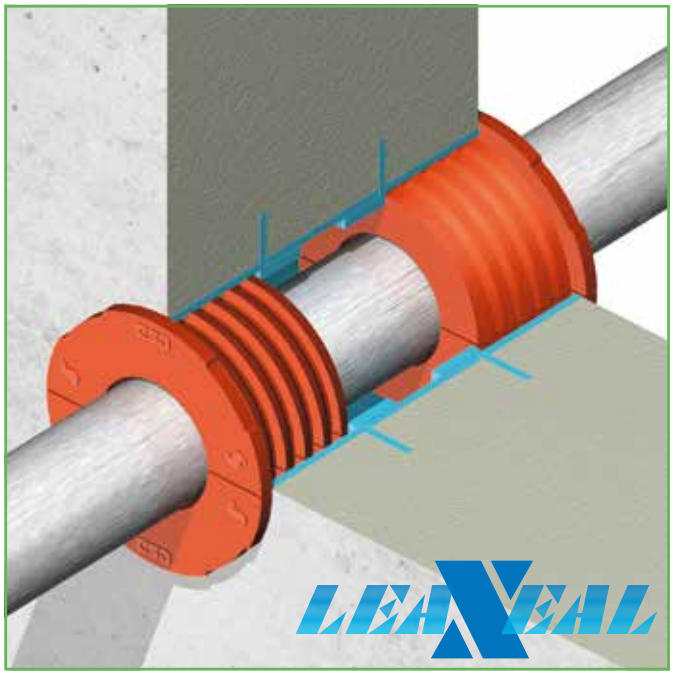
6) The formwork element is then removed so that the CSD® fixation piece can be affixed.

7) The CSD® fixation pieces are made to be a clamping fit for fixation in the CSD® conduit inlets for reasons of stability but also to prevent concrete running into the conduit inlets.

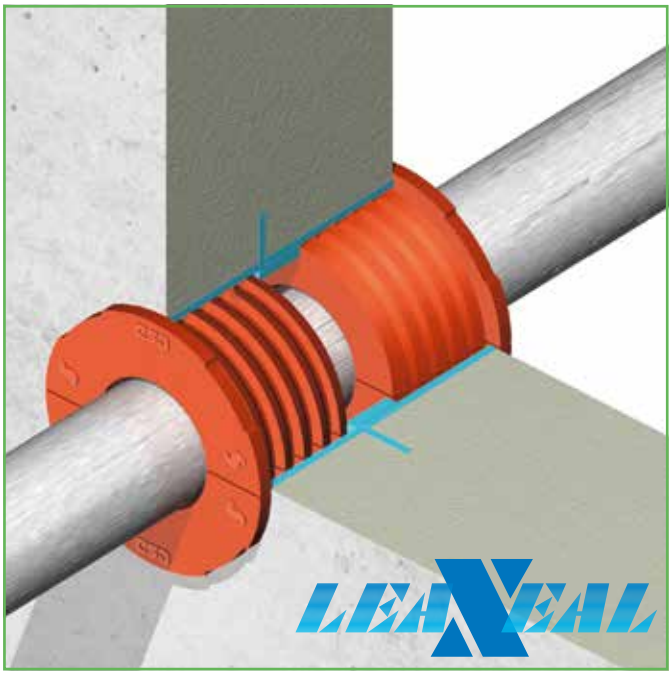
8) The flanges of the CSD® conduit inlets serve for fixation into the concrete and also act as a water barrier. The CSD® embedded conduit inlet system is made of impact-resistant plastic.

9) The CSD® fixation pieces that are affixed to the formwork can be re-used for subsequent projects.

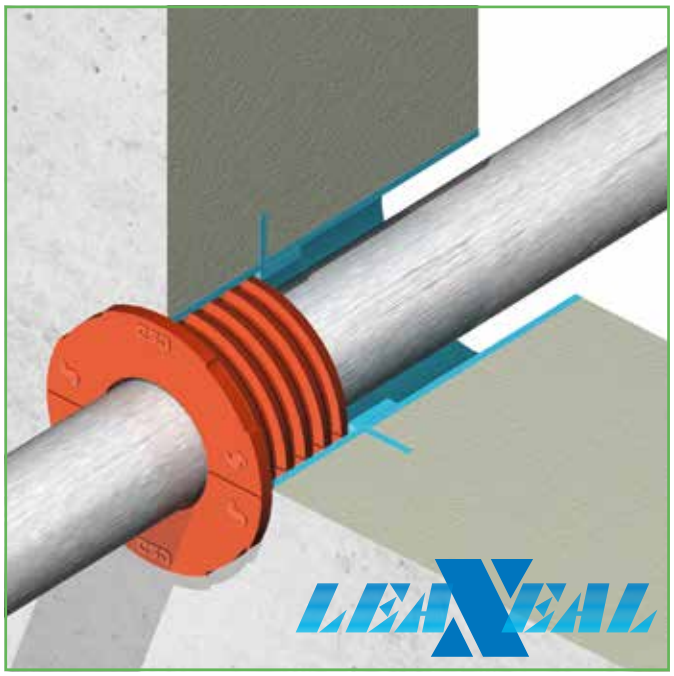
SLIPSIL® SEALING PLUGS FOR PIPE/CABLE ENTRIES - FIRESAFE/GAS & WATERTIGHT



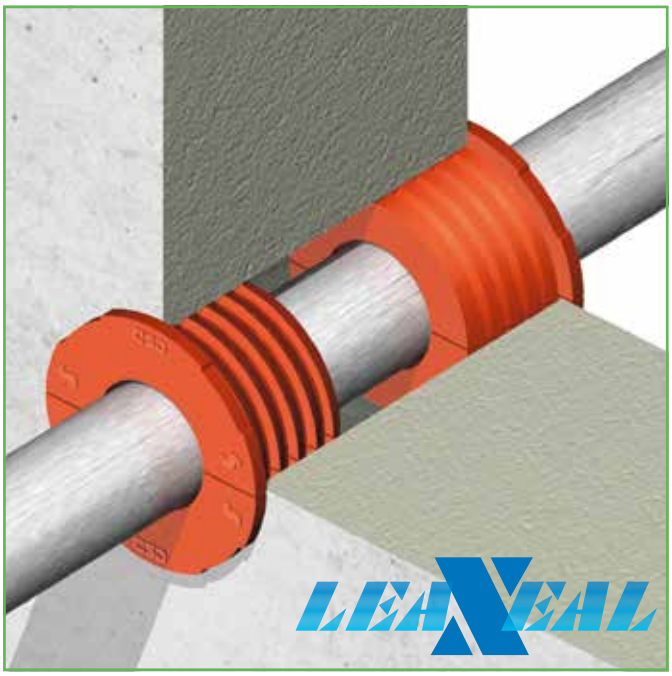
Several options are possible with the CSD® embedded conduit pipe system. Conduit inlets at both sides with an adjustment pipe in between the inlets to enable application of the SLIPSIL® plugs at both sides of the wall/floor.



In cases of limited wall/floor thickness, a conduit inlet at the exposed side with a length of the adjustment pipe to be cast in. In this option the SLIPSIL® plugs can also be installed at both sides.



In cases where the required tightness is not excessive, a SLIPSIL® sealing plug can be installed at one side of the conduit. Only applicable in combination with CSD® embedded conduit pipe system. It is however advisable to apply the plugs always at both sides of the penetration.



For fire rated penetrations, the CSD® embedded conduit pipe system cannot be used. In these cases steel conduit sleeves or drilled holes have to be utilized.
For fire rated penetrations, the SLIPSIL® sealing plugs always have to be inserted in both ends of the conduit.

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

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

all dimensions in mm (CONDUIT SLEEVE)

flange of plug 7 mm thick (PLUG LENGTH 54 – 66)

flange of plug 8 mm thick (PLUG LENGTH 79 – 91)

all dimensions in mm (PIPE DIAMETER)

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 and the conduit inlet.
For instance: a copper pipe of 42 mm OD has to be ducted. Select the plug series on the basis of the ID of the conduit sleeve to be used and the OD of the ducted pipe (67 up to 107 can be your choice). When a CSD® conduit pipe inlet series 80 (ID = 80 mm) will be used a sealing plug 80/42-44 is the right choice. If a 54 mm OD copper pipe has to be ducted through a steel sleeve with an ID of 107.1 mm, plug type 107/54-56 has to be selected. See the tables of the series 80 and 107 on pages 13 and 14.
Note: the sealing plugs with a thin wall (like for instance 53/34) are not easy to install in undersized conduit openings. It is advisable to select a larger plug series (for instance 60/34-36).

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

cable/ pipe diameter	plug type	article number
blind	25/0	40.0100
5-6	25/5-6	40.0105
6-7	25/6-7	40.0106
7-8	25/7-8	40.0107
8-9	25/8-9	40.0108
9-10	25/9-10	40.0109
10-11	25/10-11	40.0110
11-12	25/11-12	40.0111
12	25/12	40.0112
blind	27/0	40.0200
5-6	27/5-6	40.0205
6-7	27/6-7	40.0206
7-8	27/7-8	40.0207
8-9	27/8-9	40.0208
9-10	27/9-10	40.0209
10-11	27/10-11	40.0210
11-12	27/11-12	40.0211
12-13	27/12-13	40.0212
13-14	27/13-14	40.0213
14-15	27/14-15	40.0214
15	27/15	40.0215
blind	28/0	40.0300
5-6	28/5-6	40.0305
6-7	28/6-7	40.0306
7-8	28/7-8	40.0307
8-9	28/8-9	40.0308
9-10	28/9-10	40.0309
10-11	28/10-11	40.0310
11-12	28/11-12	40.0311
12-13	28/12-13	40.0312
13-14	28/13-14	40.0313
14-15	28/14-15	40.0314
15	28/15	40.0315
blind	30/0	40.0400
5-6	30/5-6	40.0405
6-7	30/6-7	40.0406
7-8	30/7-8	40.0407
8-9	30/8-9	40.0408
9-10	30/9-10	40.0409
10-11	30/10-11	40.0410
11-12	30/11-12	40.0411
12-13	30/12-13	40.0412
13-14	30/13-14	40.0413
14-15	30/14-15	40.0414
15-16	30/15-16	40.0415
16	30/16	40.0416
blind	32/0	40.0500
5-6	32/5-6	40.0505
6-7	32/6-7	40.0506
7-8	32/7-8	40.0507
8-9	32/8-9	40.0508
9-10	32/9-10	40.0509
10-11	32/10-11	40.0510
11-12	32/11-12	40.0511
12-13	32/12-13	40.0512
13-14	32/13-14	40.0513
14-15	32/14-15	40.0514
15-16	32/15-16	40.0515
16	32/16	40.0516

all dimensions in mm

cable/ pipe diameter	plug type	article number
blind	34/0	40.0600
5-6	34/5-6	40.0605
6-7	34/6-7	40.0606
7-8	34/7-8	40.0607
8-9	34/8-9	40.0608
9-10	34/9-10	40.0609
10-11	34/10-11	40.0610
11-12	34/11-12	40.0611
12-13	34/12-13	40.0612
13-14	34/13-14	40.0613
14-15	34/14-15	40.0614
15-16	34/15-16	40.0615
16-17	34/16-17	40.0616
17-18	34/17-18	40.0617
18	34/18	40.0618
blind	35/0	40.0700
5-6	35/5-6	40.0705
6-7	35/6-7	40.0706
7-8	35/7-8	40.0707
8-9	35/8-9	40.0708
9-10	35/9-10	40.0709
10-11	35/10-11	40.0710
11-12	35/11-12	40.0711
12-13	35/12-13	40.0712
13-14	35/13-14	40.0713
14-15	35/14-15	40.0714
15-16	35/15-16	40.0715
16-17	35/16-17	40.0716
17-18	35/17-18	40.0717
18-19	35/18-19	40.0718
19-20	35/19-20	40.0719
20	35/20	40.0720
blind	37/0	40.0800
5-6	37/5-6	40.0805
6-7	37/6-7	40.0806
7-8	37/7-8	40.0807
8-9	37/8-9	40.0808
9-10	37/9-10	40.0809
10-11	37/10-11	40.0810
11-12	37/11-12	40.0811
12-13	37/12-13	40.0812
13-14	37/13-14	40.0813
14-15	37/14-15	40.0814
15-16	37/15-16	40.0815
16-17	37/16-17	40.0816
17-18	37/17-18	40.0817
18-19	37/18-19	40.0818
19-20	37/19-20	40.0819
20	37/20	40.0820
blind	40/0	40.0900
5-6	40/5-6	40.0905
6-7	40/6-7	40.0906
7-8	40/7-8	40.0907
8-9	40/8-9	40.0908
9-10	40/9-10	40.0909
10-11	40/10-11	40.0910
11-12	40/11-12	40.0911
12-14	40/12-14	40.0912
14-16	40/14-16	40.0913
16-18	40/16-18	40.0914

all dimensions in mm

cable/ pipe diameter	plug type	article number
18-20	40/18-20	40.0915
20-21	40/20-21	40.0916
21-22	40/21-22	40.0917
22	40/22	40.0918
	40 multi is max. 2x10, 3x7, 5x7	
blind	41/0	40.1000
5-6	41/5-6	40.1005
6-7	41/6-7	40.1006
7-8	41/7-8	40.1007
8-9	41/8-9	40.1008
9-10	41/9-10	40.1009
10-11	41/10-11	40.1010
11-12	41/11-12	40.1011
12-14	41/12-14	40.1012
14-16	41/14-16	40.1013
16-18	41/16-18	40.1014
18-20	41/18-20	40.1015
20-22	41/20-22	40.1016
22-23	41/22-23	40.1017
23-24	41/23-24	40.1018
24-25	41/24-25	40.1019
25	41/25	40.1020
	41 multi is max. 2x10, 3x7, 5x7	
blind	43/0	40.1100
5-6	43/5-6	40.1105
6-7	43/6-7	40.1106
7-8	43/7-8	40.1107
8-9	43/8-9	40.1108
9-10	43/9-10	40.1109
10-12	43/10-12	40.1110
12-14	43/12-14	40.1111
14-16	43/14-16	40.1112
16-18	43/16-18	40.1113
18-20	43/18-20	40.1114
20-22	43/20-22	40.1115
22-24	43/22-24	40.1116
24-25	43/24-25	40.1117
25-26	43/25-26	40.1118
26-27	43/26-27	40.1119
27-28	43/27-28	40.1120
28	43/28	40.1121
	43 multi is max. 2x10, 3x7, 5x7	
blind	50/0	40.1200
6-7	50/6-7	40.1205
7-8	50/7-8	40.1206
8-9	50/8-9	40.1207
9-10	50/9-10	40.1208
10-12	50/10-12	40.1209
12-14	50/12-14	40.1210
14-16	50/14-16	40.1211
16-18	50/16-18	40.1212
18-20	50/18-20	40.1213
20-22	50/20-22	40.1214
22-24	50/22-24	40.1215
24-26	50/24-26	40.1216
26-28	50/26-28	40.1217
28-29	50/28-29	40.1218
29-30	50/29-30	40.1219
30-31	50/30-31	40.1220
31-32	50/31-32	40.1221

all dimensions in mm

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

all dimensions in mm

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

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

all dimensions in mm

cable/ pipe diameter	plug type	article number
48-50	78/48-50	40.2228
50-52	78/50-52	40.2229
52-53	78/52-53	40.2230
53-54	78/53-54	40.2231
54	78/54	40.2232
	78 multi is max. 2x22, 3x15, 5x15	
blind	80/0	40.2300
28-30	80/28-30	40.2318
30-32	80/30-32	40.2319
32-34	80/32-34	40.2320
34-36	80/34-36	40.2321
36-38	80/36-38	40.2322
38-40	80/38-40	40.2323
40-42	80/40-42	40.2324
42-44	80/42-44	40.2325
44-46	80/44-46	40.2326
46-48	80/46-48	40.2327
48-50	80/48-50	40.2328
50-52	80/50-52	40.2329
52-54	80/52-54	40.2330
54-56	80/54-56	40.2331
56-58	80/56-58	40.2332
58-60	80/58-60	40.2333
60	80/60	40.2334
	80 multi is max. 2x22, 3x15, 5x15	
blind	82/0	40.2400
28-30	82/28-30	40.2418
30-32	82/30-32	40.2419
32-34	82/32-34	40.2420
34-36	82/34-36	40.2421
36-38	82/36-38	40.2422
38-40	82/38-40	40.2423
40-42	82/40-42	40.2424
42-44	82/42-44	40.2425
44-46	82/44-46	40.2426
46-48	82/46-48	40.2427
48-50	82/48-50	40.2428
50-52	82/50-52	40.2429
52-54	82/52-54	40.2430
54-56	82/54-56	40.2431
56-58	82/56-58	40.2432
58-60	82/58-60	40.2433
60	82/60	40.2434
	82 multi is max. 2x22, 3x15, 5x15	
blind	90/0	40.2500
40-42	90/40-42	40.2520
42-44	90/42-44	40.2521
44-46	90/44-46	40.2522
46-48	90/46-48	40.2523
48-50	90/48-50	40.2524
50-52	90/50-52	40.2525
52-54	90/52-54	40.2526
54-56	90/54-56	40.2527
56-58	90/56-58	40.2528
58-60	90/58-60	40.2529
60-62	90/60-62	40.2530
62-64	90/62-64	40.2531
64	90/64	40.2532
	90 multi is max. 2x25, 3x15	

all dimensions in mm

cable/ pipe diameter	plug type	article number
blind	94/0	40.2600
40-42	94/40-42	40.2620
42-44	94/42-44	40.2621
44-46	94/44-46	40.2622
46-48	94/46-48	40.2623
48-50	94/48-50	40.2624
50-52	94/50-52	40.2625
52-54	94/52-54	40.2626
54-56	94/54-56	40.2627
56-58	94/56-58	40.2628
58-60	94/58-60	40.2629
60-62	94/60-62	40.2630
62-64	94/62-64	40.2631
64	94/64	40.2632
blind	97/0	40.2700
40-42	97/40-42	40.2720
42-44	97/42-44	40.2721
44-46	97/44-46	40.2722
46-48	97/46-48	40.2723
48-50	97/48-50	40.2724
50-52	97/50-52	40.2725
52-54	97/52-54	40.2726
54-56	97/54-56	40.2727
56-58	97/56-58	40.2728
58-60	97/58-60	40.2729
60-62	97/60-62	40.2730
62-64	97/62-64	40.2731
64	97/64	40.2732
blind	100/0	40.2800
40-42	100/40-42	40.2820
42-44	100/42-44	40.2821
44-46	100/44-46	40.2822
46-48	100/46-48	40.2823
48-50	100/48-50	40.2824
50-52	100/50-52	40.2825
52-54	100/52-54	40.2826
54-56	100/54-56	40.2827
56-58	100/56-58	40.2828
58-60	100/58-60	40.2829
60-62	100/60-62	40.2830
62-64	100/62-64	40.2831
64-66	100/64-66	40.2832
66-68	100/66-68	40.2833
68-70	100/68-70	40.2834
70-72	100/70-72	40.2835
72-74	100/72-74	40.2836
74-75	100/74-75	40.2837
75	100/75	40.2838
blind	102/0	40.2900
40-42	102/40-42	40.2920
42-44	102/42-44	40.2921
44-46	102/44-46	40.2922
46-48	102/46-48	40.2923
48-50	102/48-50	40.2924
50-52	102/50-52	40.2925
52-54	102/52-54	40.2926
54-56	102/54-56	40.2927
56-58	102/56-58	40.2928
58-60	102/58-60	40.2929
60-62	102/60-62	40.2930

all dimensions in mm

cable/ pipe diameter	plug type	article number
62-64	102/62-64	40.2931
64-66	102/64-66	40.2932
66-68	102/66-68	40.2933
68-70	102/68-70	40.2934
70-72	102/70-72	40.2935
72-74	102/72-74	40.2936
74-75	102/74-75	40.2937
75	102/75	40.2938
blind	103/0	40.3000
26-28	103/26-28	40.3013
28-30	103/28-30	40.3014
32-34	103/32-34	40.3016
40-42	103/40-42	40.3020
42-44	103/42-44	40.3021
44-46	103/44-46	40.3022
46-48	103/46-48	40.3023
48-50	103/48-50	40.3024
50-52	103/50-52	40.3025
52-54	103/52-54	40.3026
54-56	103/54-56	40.3027
56-58	103/56-58	40.3028
58-60	103/58-60	40.3029
60-62	103/60-62	40.3030
62-64	103/62-64	40.3031
64-66	103/64-66	40.3032
66-68	103/66-68	40.3033
68-70	103/68-70	40.3034
70-72	103/70-72	40.3035
72-74	103/72-74	40.3036
74-75	103/74-75	40.3037
75	103/75	40.3038
blind	105/0	40.3100
40-42	105/40-42	40.3120
42-44	105/42-44	40.3121
44-46	105/44-46	40.3122
46-48	105/46-48	40.3123
48-50	105/48-50	40.3124
50-52	105/50-52	40.3125
52-54	105/52-54	40.3126
54-56	105/54-56	40.3127
56-58	105/56-58	40.3128
58-60	105/58-60	40.3129
60-62	105/60-62	40.3130
62-64	105/62-64	40.3131
64-66	105/64-66	40.3132
66-68	105/66-68	40.3133
68-70	105/68-70	40.3134
70-72	105/70-72	40.3135
72-74	105/72-74	40.3136
74-75	105/74-75	40.3137
75	105/75	40.3138
blind	107/0	40.3200
40-42	107/40-42	40.3220
42-44	107/42-44	40.3221
44-46	107/44-46	40.3222
46-48	107/46-48	40.3223
48-50	107/48-50	40.3224
50-52	107/50-52	40.3225
52-54	107/52-54	40.3226

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

cable/ pipe diameter	plug type	article number
54-56	107/54-56	40.3227
56-58	107/56-58	40.3228
58-60	107/58-60	40.3229
60-62	107/60-62	40.3230
62-64	107/62-64	40.3231
64-66	107/64-66	40.3232
66-68	107/66-68	40.3233
68-70	107/68-70	40.3234
70-72	107/70-72	40.3235
72-74	107/72-74	40.3236
74-75	107/74-75	40.3237
75-76	107/75-76	40.3238
76	107/76	40.3239
blind	110/0	40.3300
48-50	110/48-50	40.3324
50-52	110/50-52	40.3325
52-54	110/52-54	40.3326
54-56	110/54-56	40.3327
56-58	110/56-58	40.3328
58-60	110/58-60	40.3329
60-62	110/60-62	40.3330
62-64	110/62-64	40.3331
64-66	110/64-66	40.3332
66-68	110/66-68	40.3333
68-70	110/68-70	40.3334
70-72	110/70-72	40.3335
72-74	110/72-74	40.3336
74-76	110/74-76	40.3337
76-78	110/76-78	40.3338
78-80	110/78-80	40.3339
80	110/80	40.3340
blind	118/0	40.3400
60-62	118/60-62	40.3430
62-64	118/62-64	40.3431
64-66	118/64-66	40.3432
66-68	118/66-68	40.3433
68-70	118/68-70	40.3434
70-72	118/70-72	40.3435
72-74	118/72-74	40.3436
74-76	118/74-76	40.3437
76-78	118/76-78	40.3438
78-80	118/78-80	40.3439
80-82	118/80-82	40.3440
82-84	118/82-84	40.3441
84-86	118/84-86	40.3442
86-88	118/86-88	40.3443
88-90	118/88-90	40.3444
90	118/90	40.3445
blind	122/0	40.3500
60-62	122/60-62	40.3530
62-64	122/62-64	40.3531
64-66	122/64-66	40.3532
66-68	122/66-68	40.3533
68-70	122/68-70	40.3534
70-72	122/70-72	40.3535
72-74	122/72-74	40.3536
74-76	122/74-76	40.3537
76-78	122/76-78	40.3538
78-80	122/78-80	40.3539
80-82	122/80-82	40.3540

all dimensions in mm

cable/ pipe diameter	plug type	article number
82-84	122/82-84	40.3541
84-86	122/84-86	40.3542
86-88	122/86-88	40.3543
88-90	122/88-90	40.3544
90-92	122/90-92	40.3545
92	122/92	40.3546
blind	125/0	40.3600
60-62	125/60-62	40.3630
62-64	125/62-64	40.3631
64-66	125/64-66	40.3632
66-68	125/66-68	40.3633
68-70	125/68-70	40.3634
70-72	125/70-72	40.3635
72-74	125/72-74	40.3636
74-76	125/74-76	40.3637
76-78	125/76-78	40.3638
78-80	125/78-80	40.3639
80-82	125/80-82	40.3640
82-84	125/82-84	40.3641
84-86	125/84-86	40.3642
86-88	125/86-88	40.3643
88-90	125/88-90	40.3644
90-92	125/90-92	40.3645
92	125/92	40.3646
100	125/100	40.3650
blind	128/0	40.3700
60-62	128/60-62	40.3730
62-64	128/62-64	40.3731
64-66	128/64-66	40.3732
66-68	128/66-68	40.3733
68-70	128/68-70	40.3734
70-72	128/70-72	40.3735
72-74	128/72-74	40.3736
74-76	128/74-76	40.3737
76-78	128/76-78	40.3738
78-80	128/78-80	40.3739
80-82	128/80-82	40.3740
82-84	128/82-84	40.3741
84-86	128/84-86	40.3742
86-88	128/86-88	40.3743
88-90	128/88-90	40.3744
90-92	128/90-92	40.3745
92	128/92	40.3746
blind	131/0	40.3800
60-62	131/60-62	40.3830
62-64	131/62-64	40.3831
64-66	131/64-66	40.3832
66-68	131/66-68	40.3833
68-70	131/68-70	40.3834
70-72	131/70-72	40.3835
72-74	131/72-74	40.3836
74-76	131/74-76	40.3837
76-78	131/76-78	40.3838
78-80	131/78-80	40.3839
80-82	131/80-82	40.3840
82-84	131/82-84	40.3841
84-86	131/84-86	40.3842
86-88	131/86-88	40.3843
88-90	131/88-90	40.3844
90-92	131/90-92	40.3845
92	131/92	40.3846

all dimensions in mm

cable/ pipe diameter	plug type	article number
blind	146/0	40.3900
88-90	146/88-90	40.3920
90-92	146/90-92	40.3921
92-94	146/92-94	40.3922
94-96	146/94-96	40.3923
96-98	146/96-98	40.3924
98-100	146/98-100	40.3925
100-102	146/100-102	40.3926
102-104	146/102-104	40.3927
104-106	146/104-106	40.3928
106-108	146/106-108	40.3929
108-110	146/108-110	40.3930
110-112	146/110-112	40.3931
112-114	146/112-114	40.3932
114-116	146/114-116	40.3933
116-118	146/116-118	40.3934
118-120	146/118-120	40.3935
120	146/120	40.3936
blind	150/0	40.4000
88-90	150/88-90	40.4020
90-92	150/90-92	40.4021
92-94	150/92-94	40.4022
94-96	150/94-96	40.4023
96-98	150/96-98	40.4024
98-100	150/98-100	40.4025
100-102	150/100-102	40.4026
102-104	150/102-104	40.4027
104-106	150/104-106	40.4028
106-108	150/106-108	40.4029
108-110	150/108-110	40.4030
110-112	150/110-112	40.4031
112-114	150/112-114	40.4032
114-116	150/114-116	40.4033
116-118	150/116-118	40.4034
118-120	150/118-120	40.4035
120-122	150/120-122	40.4036
122-124	150/122-124	40.4037
124-125	150/124-125	40.4038
125	150/125	40.4039
blind	152/0	40.4100
88-90	152/88-90	40.4120
90-92	152/90-92	40.4121
92-94	152/92-94	40.4122
94-96	152/94-96	40.4123
96-98	152/96-98	40.4124
98-100	152/98-100	40.4125
100-102	152/100-102	40.4126
102-104	152/102-104	40.4127
104-106	152/104-106	40.4128
106-108	152/106-108	40.4129
108-110	152/108-110	40.4130
110-112	152/110-112	40.4131
112-114	152/112-114	40.4132
114-116	152/114-116	40.4133
116-118	152/116-118	40.4134
118-120	152/118-120	40.4135
120-122	152/120-122	40.4136
122-124	152/122-124	40.4137
124-125	152/124-125	40.4138
125	152/125	40.4139

all dimensions in mm

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

cable/ pipe diameter	plug type	article number
blind	154/0	40.4200
88-90	154/88-90	40.4220
90-92	154/90-92	40.4221
92-94	154/92-94	40.4222
94-96	154/94-96	40.4223
96-98	154/96-98	40.4224
98-100	154/98-100	40.4225
100-102	154/100-102	40.4226
102-104	154/102-104	40.4227
104-106	154/104-106	40.4228
106-108	154/106-108	40.4229
108-110	154/108-110	40.4230
110-112	154/110-112	40.4231
112-114	154/112-114	40.4232
114-116	154/114-116	40.4233
116-118	154/116-118	40.4234
118-120	154/118-120	40.4235
120-122	154/120-122	40.4236
122-124	154/122-124	40.4237
124-125	154/124-125	40.4238
125	154/125	40.4239
blind	156/0	40.4300
88-90	156/88-90	40.4320
90-92	156/90-92	40.4321
92-94	156/92-94	40.4322
94-96	156/94-96	40.4323
96-98	156/96-98	40.4324
98-100	156/98-100	40.4325
100-102	156/100-102	40.4326
102-104	156/102-104	40.4327
104-106	156/104-106	40.4328
106-108	156/106-108	40.4329
108-110	156/108-110	40.4330
110-112	156/110-112	40.4331
112-114	156/112-114	40.4332
114-116	156/114-116	40.4333
116-118	156/116-118	40.4334
118-120	156/118-120	40.4335
120-122	156/120-122	40.4336
122-124	156/122-124	40.4337
124-125	156/124-125	40.4338
125	156/125	40.4339
blind	160/0	40.4400
88-90	160/88-90	40.4420
90-92	160/90-92	40.4421
92-94	160/92-94	40.4422
94-96	160/94-96	40.4423
96-98	160/96-98	40.4424
98-100	160/98-100	40.4425
100-102	160/100-102	40.4426
102-104	160/102-104	40.4427
104-106	160/104-106	40.4428
106-108	160/106-108	40.4429
108-110	160/108-110	40.4430
110-112	160/110-112	40.4431
112-114	160/112-114	40.4432
114-116	160/114-116	40.4433
116-118	160/116-118	40.4434
118-120	160/118-120	40.4435
120-122	160/120-122	40.4436
122-124	160/122-124	40.4437

all dimensions in mm

cable/ pipe diameter	plug type	article number
124-125	160/124-125	40.4438
125	160/125	40.4439
blind	190/0	40.4500
110-112	190/110	40.4520
114-116	190/114	40.4523
125-127	190/125	40.4528
139-141	190/139	40.4533
142-144	190/142	40.4534
150-152	190/150	40.4538
153-155	190/153	40.4541
159-161	190/159	40.4543
blind	200/0	40.4600
110-112	200/110	40.4620
114-116	200/114	40.4623
120-122	200/120	40.4626
122-124	200/122	40.4627
125-127	200/125	40.4628
133-135	200/133	40.4631
135-137	200/135	40.4632
139-141	200/139	40.4633
141-143	200/141	40.4634
159-160	200/159	40.4643
160	200/160	40.4644
blind	203/0	40.4700
110-112	203/110	40.4720
114-116	203/114	40.4723
125-127	203/125	40.4728
133-135	203/133	40.4731
139-141	203/139	40.4733
141-143	203/141	40.4734
159-161	203/159	40.4743
162-164	200/162	40.4744
168-170	203/168	40.4748
blind	207/0	40.4800
110-112	207/110	40.4820
114-116	207/114	40.4823
125-127	207/125	40.4828
129-131	207/129	40.4829
133-135	207/133	40.4831
139-141	207/139	40.4833
156-158	207/156	40.4842
159-161	207/159	40.4843
168-170	207/168	40.4848
160	250/160	40.5010
168	250/168	40.5014
171	250/171	40.5015
180	250/180	40.5020
200	250/200	40.5030
160	260/160	40.5210
168	260/168	40.5214
200	260/200	40.5230
204	260/204	40.5232
219	260/219	40.5239
200	300/200	40.5321
219	300/219	40.5330
225	300/225	40.5333
250	300/250	40.5346
219	339/219	40.5518
273	339/273	40.5545

all dimensions in mm

multi-sealing plugs for 2, 3 or 5 same diameter cables/pipes

type code: series/2xcable diameter
For instance 40/2x6-7

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

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

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

all dimensions in mm

cable/ pipe diameter	plug type	article number
5-6	40/2x5-6	40.0925
6-7	40/2x6-7	40.0926
7-8	40/2x7-8	40.0927
8-9	40/2x8-9	40.0928
9-10	40/2x9-10	40.0929
10-11	40/2x10-11	40.0930
5-6	41/2x5-6	40.1025
6-7	41/2x6-7	40.1026
7-8	41/2x7-8	40.1027
8-9	41/2x8-9	40.1028
9-10	41/2x9-10	40.1029
10-11	41/2x10-11	40.1030
5-6	43/2x5-6	40.1125
6-7	43/2x6-7	40.1126
7-8	43/2x7-8	40.1127
8-9	43/2x8-9	40.1128
9-10	43/2x9-10	40.1129
10-11	43/2x10-11	40.1130
6-7	50/2x6-7	40.1231
7-8	50/2x7-8	40.1232
8-9	50/2x8-9	40.1233
9-10	50/2x9-10	40.1234
10-11	50/2x10-11	40.1235
11-12	50/2x11-12	40.1236
12-13	50/2x12-13	40.1237
13-14	50/2x13-14	40.1238
14-15	50/2x14-15	40.1239
15-16	50/2x15-16	40.1240
6-7	53/2x6-7	40.1331
7-8	53/2x7-8	40.1332
8-9	53/2x8-9	40.1333
9-10	53/2x9-10	40.1334
10-11	53/2x10-11	40.1335
11-12	53/2x11-12	40.1336
12-13	53/2x12-13	40.1337
13-14	53/2x13-14	40.1338
14-15	53/2x14-15	40.1339
15-16	53/2x15-16	40.1340
6-7	55/2x6-7	40.1431
7-8	55/2x7-8	40.1432
8-9	55/2x8-9	40.1433
9-10	55/2x9-10	40.1434
10-11	55/2x10-11	40.1435
11-12	55/2x11-12	40.1436
12-13	55/2x12-13	40.1437
13-14	55/2x13-14	40.1438
14-15	55/2x14-15	40.1439
15-16	55/2x15-16	40.1440
11-12	60/2x11-12	40.1636
12-13	60/2x12-13	40.1637
13-14	60/2x13-14	40.1638
14-15	60/2x14-15	40.1639
15-16	60/2x15-16	40.1640
11-12	62/2x11-12	40.1736
12-13	62/2x12-13	40.1737
13-14	62/2x13-14	40.1738
14-15	62/2x14-15	40.1739
15-16	62/2x15-16	40.1740
11-12	68/2x11-12	40.1936
12-13	68/2x12-13	40.1937
13-14	68/2x13-14	40.1938
14-15	68/2x14-15	40.1939
15-16	68/2x15-16	40.1940
16-17	68/2x16-17	40.1941
17-18	68/2x17-18	40.1942
18-19	68/2x18-19	40.1943
19-20	68/2x19-20	40.1944
20-21	68/2x20-21	40.1945
21-22	68/2x21-22	40.1946
22-23	68/2x22-23	40.1947
11-12	70/2x11-12	40.2036
12-13	70/2x12-13	40.2037
13-14	70/2x13-14	40.2038
14-15	70/2x14-15	40.2039
15-16	70/2x15-16	40.2040
16-17	70/2x16-17	40.2041
17-18	70/2x17-18	40.2042
18-19	70/2x18-19	40.2043
19-20	70/2x19-20	40.2044
20-21	70/2x20-21	40.2045
21-22	70/2x21-22	40.2046
22-23	70/2x22-23	40.2047
12-13	78/2x12-13	40.2241
13-14	78/2x13-14	40.2242
14-15	78/2x14-15	40.2243
15-16	78/2x15-16	40.2244
16-17	78/2x16-17	40.2245
17-18	78/2x17-18	40.2246
18-19	78/2x18-19	40.2247
19-20	78/2x19-20	40.2248
20-21	78/2x20-21	40.2249
21-22	78/2x21-22	40.2250
22-23	78/2x22-23	40.2251
12-13	80/2x12-13	40.2341
13-14	80/2x13-14	40.2342
14-15	80/2x14-15	40.2343
15-16	80/2x15-16	40.2344
16-17	80/2x16-17	40.2345
17-18	80/2x17-18	40.2346
18-19	80/2x18-19	40.2347
19-20	80/2x19-20	40.2348
20-21	80/2x20-21	40.2349
21-22	80/2x21-22	40.2350
22-23	80/2x22-23	40.2351
12-13	82/2x12-13	40.2441
13-14	82/2x13-14	40.2442
14-15	82/2x14-15	40.2443
15-16	82/2x15-16	40.2444
16-17	82/2x16-17	40.2445
17-18	82/2x17-18	40.2446
18-19	82/2x18-19	40.2447
19-20	82/2x19-20	40.2448
20-21	82/2x20-21	40.2449
21-22	82/2x21-22	40.2450
22-23	82/2x22-23	40.2451
15-16	90/2x15-16	40.2541
16-17	90/2x16-17	40.2542
17-18	90/2x17-18	40.2543
18-19	90/2x18-19	40.2544
19-20	90/2x19-20	40.2545
20-21	90/2x20-21	40.2546
21-22	90/2x21-22	40.2547
22-23	90/2x22-23	40.2548
23-24	90/2x23-24	40.2549
24-25	90/2x24-25	40.2550
25-26	90/2x25-26	40.2551

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.

SLIPSIL® multi-sealing plugs for two up to five same diameter cables or pipes consist of two or four equal parts, so that they can be installed after the cables or pipes have been laid. For selecting the right type of sealing plug, look for the plug series from the tables.

type code: series/2xcable diameter
For instance 40/2x6-7

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

cable/ pipe diameter	plug type	article number
5-6	40/3x5-6	40.0935
6-7	40/3x6-7	40.0936
7-8	40/3x7-8	40.0937
5-6	41/3x5-6	40.1036
6-7	41/3x6-7	40.1036
7-8	41/3x7-8	40.1037
5-6	43/3x5-6	40.1136
6-7	43/3x6-7	40.1136
7-8	43/3x7-8	40.1137
6-7	50/3x6-7	40.1241
7-8	50/3x7-8	40.1242
8-9	50/3x8-9	40.1243
6-7	53/3x6-7	40.1341
7-8	53/3x7-8	40.1342
8-9	53/3x8-9	40.1343
9-10	53/3x9-10	40.1344
10-11	53/3x10-11	40.1345
6-7	55/3x6-7	40.1441
7-8	55/3x7-8	40.1442
8-9	55/3x8-9	40.1443
9-10	55/3x9-10	40.1444
10-11	55/3x10-11	40.1445
6-7	60/3x6-7	40.1646
7-8	60/3x7-8	40.1647
8-9	60/3x8-9	40.1648
9-10	60/3x9-10	40.1649
10-11	60/3x10-11	40.1650
6-7	62/3x6-7	40.1746
7-8	62/3x7-8	40.1747
8-9	62/3x8-9	40.1748
9-10	62/3x9-10	40.1749
10-11	62/3x10-11	40.1750
6-7	68/3x6-7	40.1951
7-8	68/3x7-8	40.1952
8-9	68/3x8-9	40.1953
9-10	68/3x9-10	40.1954
10-11	68/3x10-11	40.1955
11-12	68/3x11-12	40.1956
12-13	68/3x12-13	40.1957
6-7	70/3x6-7	40.2051
7-8	70/3x7-8	40.2052
8-9	70/3x8-9	40.2053
9-10	70/3x9-10	40.2054
10-11	70/3x10-11	40.2055
11-12	70/3x11-12	40.2054
12-13	70/3x12-13	40.2055
10-11	78/3x10-11	40.2256
11-12	78/3x11-12	40.2257
12-13	78/3x12-13	40.2258
13-14	78/3x13-14	40.2259
14-15	78/3x14-15	40.2260
15-16	78/3x15-16	40.2261

all dimensions in mm

cable/ pipe diameter	plug type	article number
10-11	80/3x10-11	40.2356
11-12	80/3x11-12	40.2357
12-13	80/3x12-13	40.2358
13-14	80/3x13-14	40.2359
14-15	80/3x14-15	40.2360
15-16	80/3x15-16	40.2361
10-11	82/3x10-11	40.2456
11-12	82/3x11-12	40.2457
12-13	82/3x12-13	40.2458
13-14	82/3x13-14	40.2459
14-15	82/3x14-15	40.2460
15-16	82/3x15-16	40.2461
10-11	90/3x10-11	40.2556
11-12	90/3x11-12	40.2557
12-13	90/3x12-13	40.2558
13-14	90/3x13-14	40.2559
14-15	90/3x14-15	40.2560
15-16	90/3x15-16	40.2561
5-6	40/5x5-6	40.0940
6-7	40/5x6-7	40.0941
7-8	40/5x7-8	40.0942
5-6	41/5x5-6	40.1040
6-7	41/5x6-7	40.1041
7-8	41/5x7-8	40.1042
5-6	43/5x5-6	40.1140
6-7	43/5x6-7	40.1141
7-8	43/5x7-8	40.1142
6-7	50/5x6-7	40.1251
7-8	50/5x7-8	40.1252
8-9	50/5x8-9	40.1253
6-7	53/5x6-7	40.1351
7-8	53/5x7-8	40.1352
8-9	53/5x8-9	40.1353
9-10	53/5x9-10	40.1354
10-11	53/5x10-11	40.1355
6-7	55/5x6-7	40.1451
7-8	55/5x7-8	40.1452
8-9	55/5x8-9	40.1453
9-10	55/5x9-10	40.1454
10-11	55/5x10-11	40.1455
6-7	68/5x6-7	40.1961
7-8	68/5x7-8	40.1962
8-9	68/5x8-9	40.1963
9-10	68/5x9-10	40.1964
10-11	68/5x10-11	40.1965
11-12	68/5x11-12	40.1966
12-13	68/5x12-13	40.1967
10-11	78/5x10-11	40.2266
11-12	78/5x11-12	40.2267
12-13	78/5x12-13	40.2268
13-14	78/5x13-14	40.2269
14-15	78/5x14-15	40.2270
15-16	78/5x15-16	40.2271

all dimensions in mm

cable/ pipe diameter	plug type	article number
10-11	80/5x10-11	40.2366
11-12	80/5x11-12	40.2367
12-13	80/5x12-13	40.2368
13-14	80/5x13-14	40.2369
14-15	80/5x14-15	40.2370
15-16	80/5x15-16	40.2371
10-11	82/5x10-11	40.2466
11-12	82/5x11-12	40.2467
12-13	82/5x12-13	40.2468
13-14	82/5x13-14	40.2469
14-15	82/5x14-15	40.2470
15-16	82/5x15-16	40.2471

* 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.
* 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

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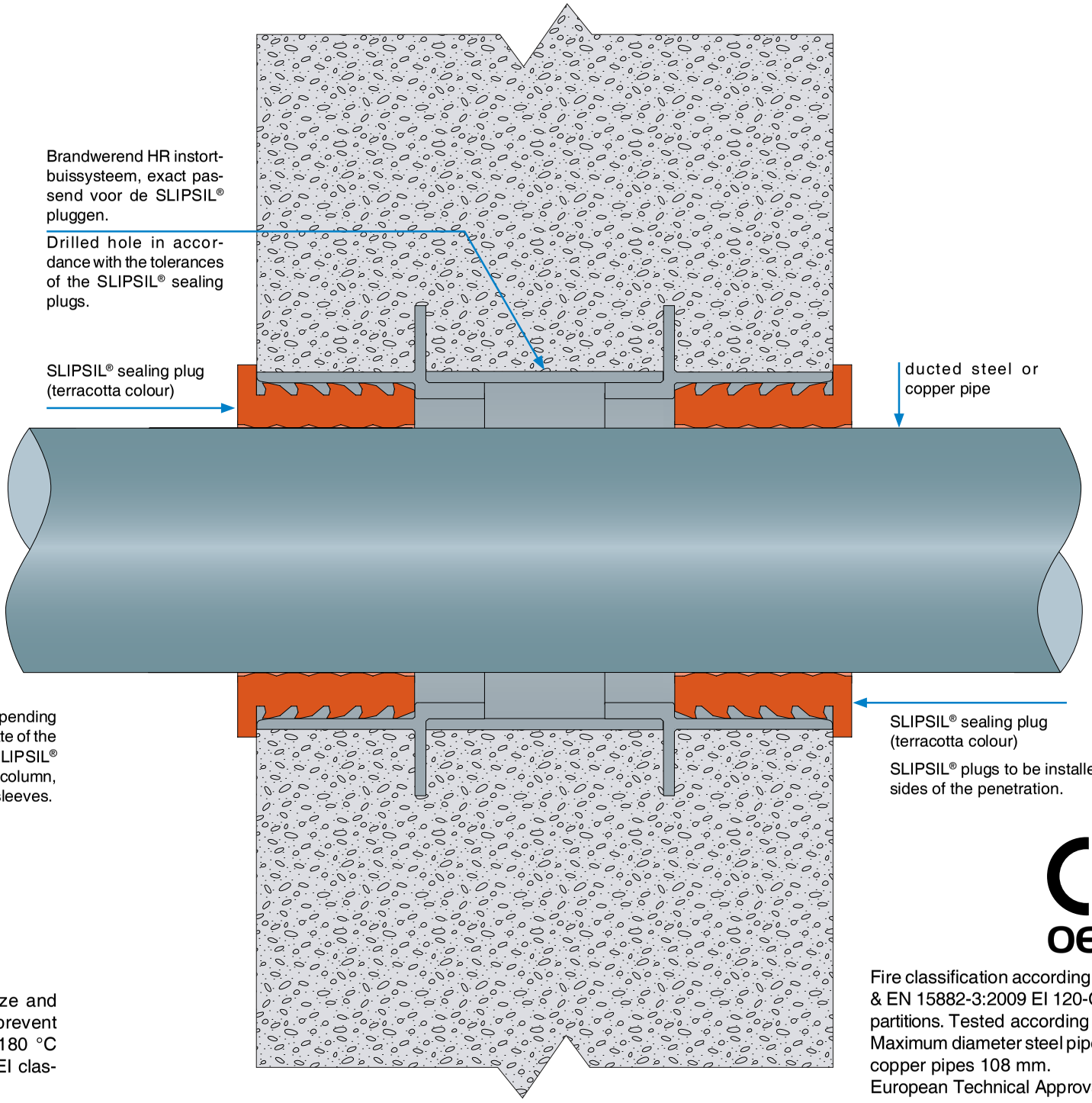
SLIPSIL® sealing plugs are made from NOFIRNO® silicone rubber developed by BEELE Engineering.

slipsil

SLIPSIL® sealing plugs for fire safe, water and gas tight sealing of conduit openings, drilled with diamond tipped concrete drills, for ducting steel or copper pipes.



Pipe or cable has to be ducted straight and centrically through the conduit opening.

SLIPSIL® plugs to be installed at both sides of the penetration.

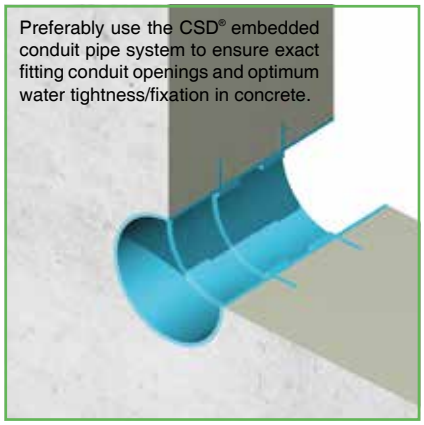
Tightness rating in drilled holes depending on tolerances, roundness and the state of the concrete. Tightness ratings of the SLIPSIL® sealing plugs up to 15 meter water column, when installed in fitting HR conduit sleeves.

CE
0620

Fire classification according to EN 13501-2: 2007 +A1:2009 & EN 15882-3:2009 EI 120-C/U - E120-C/U in 150 mm thick partitions. Tested according EN 1366-3:2009.
Maximum diameter steel pipes 159 mm; maximum diameter copper pipes 108 mm.
European Technical Approval ETA 13/0152

Ducted pipes, depending on size and type, have to be insulated to prevent temperature rise in excess of 180 °C to obtain a higher time related EI clas-sification.

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

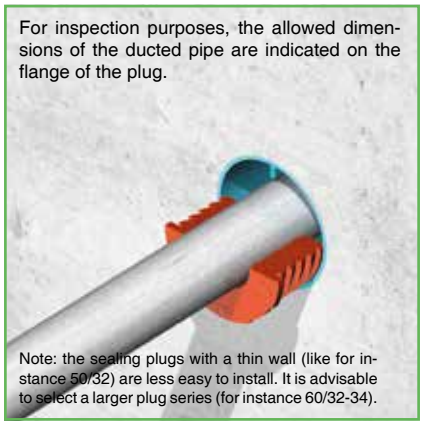


1) Before starting the installation procedure, any dirt or concrete residues should be removed from the conduit inlet pipe.
For fire rated penetrations, plastic conduit sleeves should never be used.

2) The inside wall of the conduit inlet pipe is treated with CSD® lubricant up to the shoulder inside the conduit inlet pipe. In case of drilled holes or non-CSD® conduit sleeves, sharp edges have to be rounded off to avoid damage to the plugs during insertion.

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 conduit and the OD of the ducted pipe.

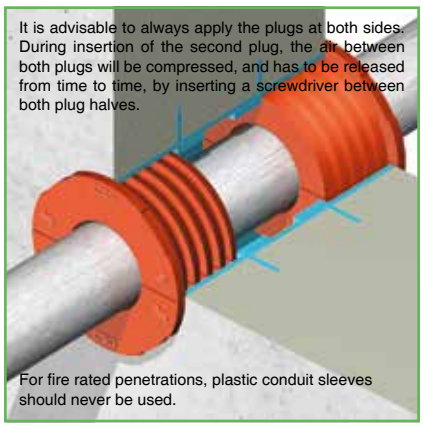
4) The segments of the SLIPSIL® sealing plug are also treated with CSD® lubricant on the outside.
Please refer to the Safety Data Sheet of the CSD® lubricant for more information.



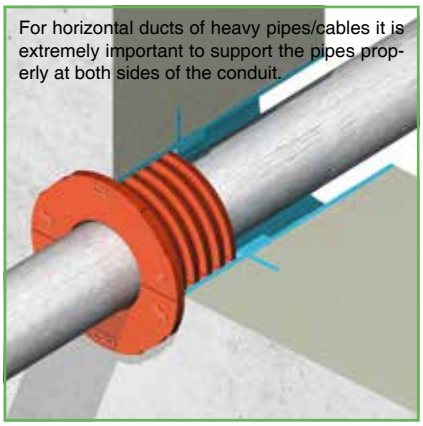
5) Both segments of the SLIPSIL® sealing plug are placed around the ducted pipe and then pushed into the conduit opening as far as the first serration. The first serration is smaller than the other serrations to make this procedure very easy.

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

7) The flanged edge of the sealing plug must be flush against the front side of the wall. The shoulder inside the conduit pipe inlet prevents the SLIPSIL® plug from being inserted too deep into the conduit opening.

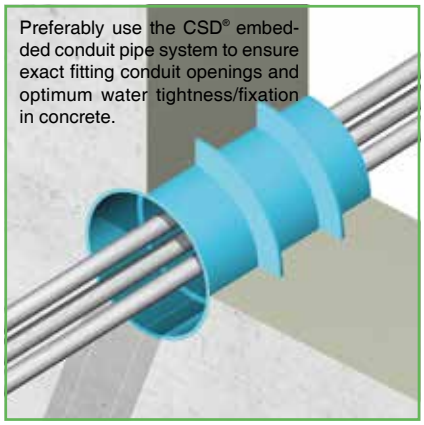


8) SLIPSIL® sealing plugs always have to be inserted in both ends of conduits for heavy pipes, when to cope with settling in front of the foundation, in drilled holes and for fire rated penetrations.



9) In cases where the required tightness is not excessive, a SLIPSIL® sealing plug can be installed at one side of the conduit. Only applicable in combination with CSD® embedded conduit pipe system.

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

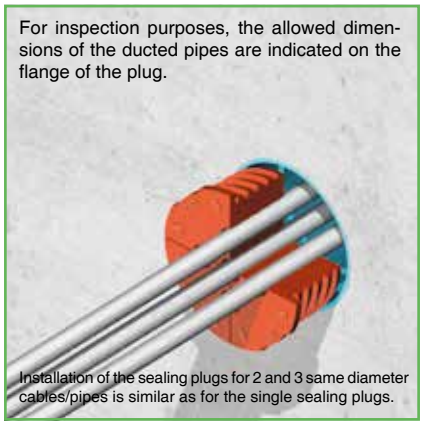


1) Before starting the installation procedure, any dirt or concrete residues should be removed from the conduit inlet pipe.
For fire rated penetrations, plastic conduit sleeves should never be used.

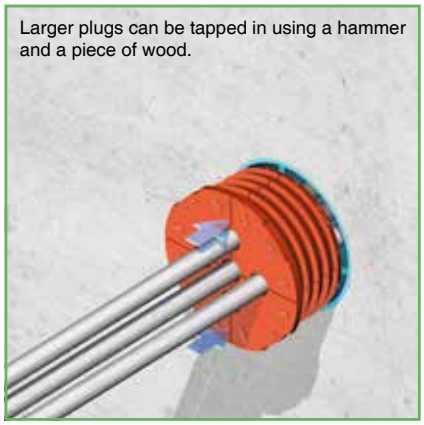
2) The inside wall of the conduit inlet pipe is treated with CSD® lubricant up to the shoulder inside the conduit inlet pipe. In case of drilled holes or non-CSD® conduit sleeves, sharp edges have to be rounded off to avoid damage to the plugs during insertion.

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 conduit and the OD of the ducted pipes.

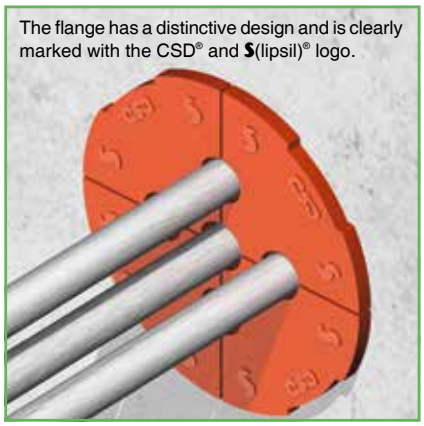
4) The four segments of the SLIPSIL® multi-sealing plug are also treated with CSD® lubricant on the outside.
Please refer to the Safety Data Sheet of the CSD® lubricant for more information.



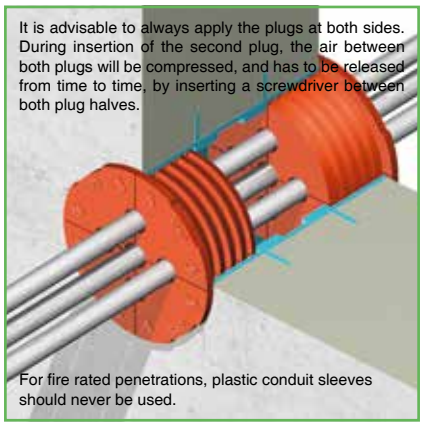
5) The segments of the SLIPSIL® multi-sealing plug are placed around the ducted pipes and then pushed into the conduit opening as far as the first serration. The first serration is smaller than the other serrations to make this procedure very easy.



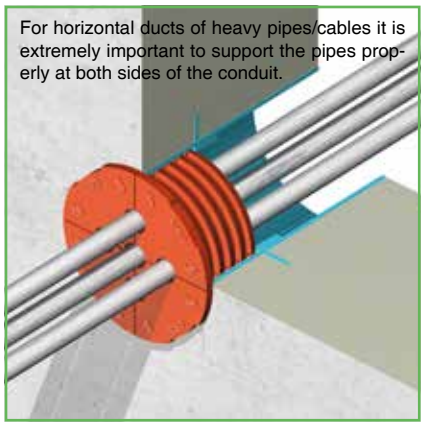
6) Then the four segments of the SLIPSIL® multi-sealing plug are pushed by hand evenly, serration by serration, further into the conduit opening.



7) The flanged edge of the sealing plug must be flush against the front side of the wall. The shoulder inside the conduit pipe inlet prevents the SLIPSIL® plug from being inserted too deep into the conduit opening.

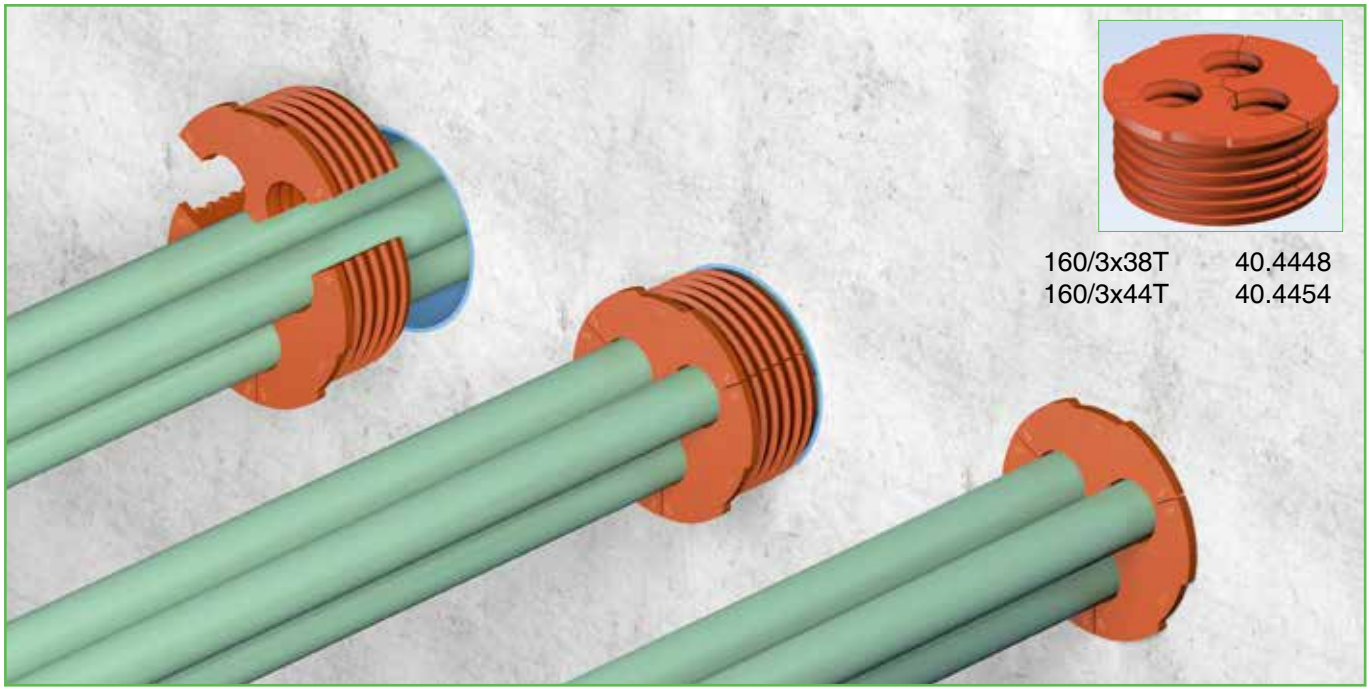


8) SLIPSIL® sealing plugs always have to be inserted in both ends of conduits for heavy pipes, to cope with settling in front of the foundation, in drilled holes and for fire rated penetrations.



9) In cases where the required tightness is not excessive, a SLIPSIL® sealing plug can be installed at one side of the conduit. Only applicable in combination with CSD® embedded conduit pipe system.

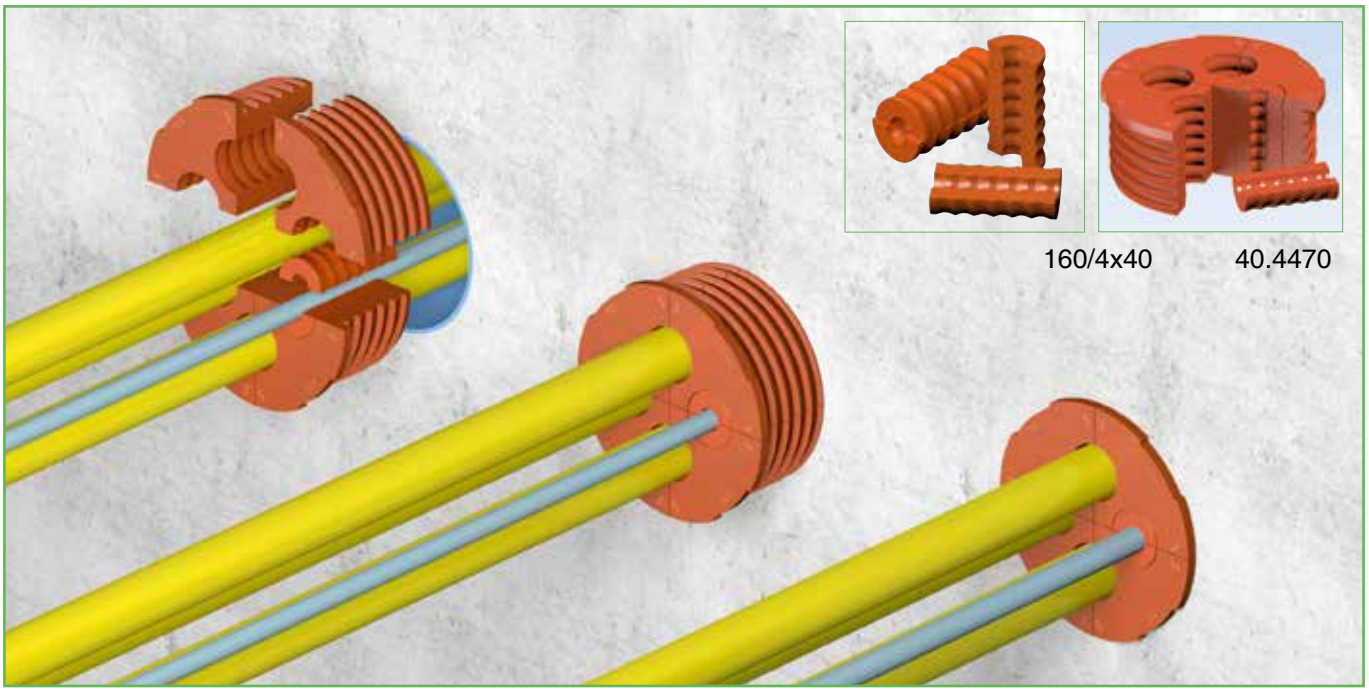
CSD® CONDUIT PIPE INLET SYSTEM AND SLIPSIL®
3 SEGMENT PLUG FOR 3 SINGLE CORE CABLES MAX. 44 MM



160/3x38T	40.4448
160/3x44T	40.4454

CSD® CONDUIT PIPE INLET SYSTEM AND SLIPSIL®
4 SEGMENT PLUG FOR HDPE MAX. 40/CABLES MAX. 20 MM

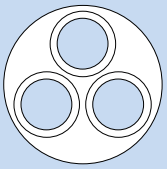
- COMBINATION OF 4-SEGMENT PLUG AND ADAPTER PLUG
- SLIPSIL® ADAPTER FOR ADJUSTING 40 MM OPENING TO SIZE
- SLIPSIL® ADAPTER FITTING FOR DUCTED CABLE
- ADAPTER HALVES TO BE PLACED IN THE TWO PLUG SEGMENTS
- SLIPSIL® ADAPTER TO BE LUBRICATED ONLY AT THE INSIDE
- SET OF SEGMENT PLUG/ADAPTER TO BE INSERTED TOGETHER



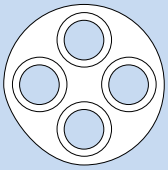
160/4x40	40.4470

SLIPSIL®-MPP GAS & WATERTIGHT MULTI-CABLE AND PIPE TRANSIT SEALING SYSTEM

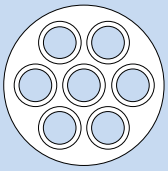
CSD® multi-passage modules



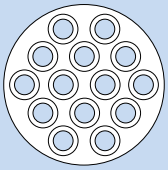
MPP 160/3x67
3 conduit openings 67 mm
shoulder 66 mm deep
passage opening 57 mm
article number 60.9408



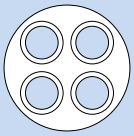
MPP 160/4x55
4 conduit openings 55 mm
shoulder 66 mm deep
passage opening 40 mm
article number 60.9407



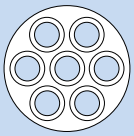
MPP 160/7x43
7 conduit openings 43 mm
shoulder 54 mm deep
passage opening 33 mm
article number 60.9406



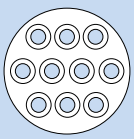
MPP 160/14x30
14 conduit openings 30 mm
shoulder 54 mm deep
passage opening 20 mm
article number 60.9405



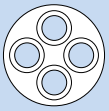
MPP 125/4x43
4 conduit openings 43 mm
shoulder 54 mm deep
passage opening 33 mm
article number 60.9404



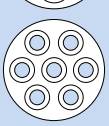
MPP 125/7x35
7 conduit openings 35 mm
shoulder 54 mm deep
passage opening 25 mm
article number 60.9403



MPP 125/10x27
10 conduit openings 27 mm
shoulder 54 mm deep
passage opening 17 mm
article number 60.9402



MPP 100/4x35
4 conduit openings 35 mm
shoulder 54 mm deep
passage opening 25 mm
article number 60.9401



MPP 100/7x27
7 conduit openings 27 mm
shoulder 54 mm deep
passage opening 17 mm
article number 60.9400

CSD® module	SLIPSIL® plug	DYNATITE® series	CSD® inlet
100/7x27	125/100	27	125 CI*
100/4x35	125/100	35	125 CI*
125/10x27	160/125	27	160 CI*
125/7x35	160/125	35	160 CI*
125/4x43	160/125	43	160 CI*
160/14x30	200/159	30	200 CI*
160/7x43	200/159	43	200 CI*
160/4x55	200/159	55	200 CI*
160/3x67	200/159	67	200 CI*

all dimensions in mm

* look for the CSD® embedded pipe conduit system (pages 6-8)

CSD® module	SLIPSIL® plug	article number	CSD® inlet
100 series	125/100	40.3650	yes
	128/100	40.3750	none
	131/100	40.3850	none
	146/100	40.3926	none
125 series	150/125	40.4039	none
	152/125	40.4139	none
	154/125	40.4239	none
	156/125	40.4339	none
	160/125	40.4439	yes
160 series	190/159	40.4543	none
	200/159	40.4643	yes
	203/159	40.4743	none
	207/159	40.4843	none

all dimensions in mm

DYNATITE® mono and multi- sealing plugs

SLIPSIL®-MPP GAS & WATERTIGHT MULTI-CABLE AND PIPE TRANSIT SEALING SYSTEM

all dimensions in mm

cable/ pipe diameter	plug type	article number
blind	27/0DT	45.0200
5-6	27/5-6DT	45.0205
6-7	27/6-7DT	45.0206
7-8	27/7-8DT	45.0207
8-9	27/8-9DT	45.0208
9-10	27/9-10DT	45.0209
10-11	27/10-11DT	45.0210
11-12	27/11-12DT	45.0211
12-13	27/12-13DT	45.0212
13-14	27/13-14DT	45.0213
blind	30/0DT	45.0400
5-6	30/5-6DT	45.0405
6-7	30/6-7DT	45.0406
7-8	30/7-8DT	45.0407
8-9	30/8-9DT	45.0408
9-10	30/9-10DT	45.0409
10-11	30/10-11DT	45.0410
11-12	30/11-12DT	45.0411
12-13	30/12-13DT	45.0412
13-14	30/13-14DT	45.0413
14-15	30/14-15DT	45.0414
15-16	30/15-16DT	45.0415
16	30/16DT	45.0416
blind	35/0DT	45.0700
5-6	35/5-6DT	45.0705
6-7	35/6-7DT	45.0706
7-8	35/7-8DT	45.0707
8-9	35/8-9DT	45.0708
9-10	35/9-10DT	45.0709
10-11	35/10-11DT	45.0710
11-12	35/11-12DT	45.0711
12-13	35/12-13DT	45.0712
13-14	35/13-14DT	45.0713
14-15	35/14-15DT	45.0714
15-16	35/15-16DT	45.0715
16-17	35/16-17DT	45.0716
17-18	35/17-18DT	45.0717
18-19	35/18-19DT	45.0718
19-20	35/19-20DT	45.0719
20	35/20DT	45.0720
blind	43/0DT	45.1100
5-6	43/5-6DT	45.1105
6-7	43/6-7DT	45.1106
7-8	43/7-8DT	45.1107
8-9	43/8-9DT	45.1108
9-10	43/9-10DT	45.1109
10-12	43/10-12DT	45.1110
12-14	43/12-14DT	45.1111
14-16	43/14-16DT	45.1112
16-18	43/16-18DT	45.1113
18-20	43/18-20DT	45.1114
20-22	43/20-22DT	45.1115
22-24	43/22-24DT	45.1116
24-25	43/24-25DT	45.1117
25-26	43/25-26DT	45.1118
26-27	43/26-27DT	45.1119
27-28	43/27-28DT	45.1120
28	43/28DT	45.1121

all dimensions in mm

cable/ pipe diameter	plug type	article number
5-6	43/2x5-6DT	45.1125
6-7	43/2x6-7DT	45.1126
7-8	43/2x7-8DT	45.1127
8-9	43/2x8-9DT	45.1128
9-10	43/2x9-10DT	45.1129
10-11	43/2x10-11DT	45.1130
5-6	43/3x5-6DT	45.1135
6-7	43/3x6-7DT	45.1136
7-8	43/3x7-8DT	45.1137
5-6	43/5x5-6DT	45.1140
6-7	43/5x6-7DT	45.1141
7-8	43/5x7-8DT	45.1142
blind	55/0DT	45.1400
6-7	55/6-7DT	45.1405
7-8	55/7-8DT	45.1406
8-9	55/8-9DT	45.1407
9-10	55/9-10DT	45.1408
10-12	55/10-12DT	45.1409
12-14	55/12-14DT	45.1410
14-16	55/14-16DT	45.1411
16-18	55/16-18DT	45.1412
18-20	55/18-20DT	45.1413
20-22	55/20-22DT	45.1414
22-24	55/22-24DT	45.1415
24-26	55/24-26DT	45.1416
26-28	55/26-28DT	45.1417
28-30	55/28-30DT	45.1418
30-31	55/30-31DT	45.1419
31-32	55/31-32DT	45.1420
32-33	55/32-33DT	45.1421
33-34	55/33-34DT	45.1422
6-7	55/2x6-7DT	45.1431
7-8	55/2x7-8DT	45.1432
8-9	55/2x8-9DT	45.1433
9-10	55/2x9-10DT	45.1434
10-11	55/2x10-11DT	45.1435
11-12	55/2x11-12DT	45.1436
12-13	55/2x12-13DT	45.1437
13-14	55/2x13-14DT	45.1438
14-15	55/2x14-15DT	45.1439
15-16	55/2x15-16DT	45.1440
6-7	55/3x6-7DT	45.1441
7-8	55/3x7-8DT	45.1442
8-9	55/3x8-9DT	45.1443
9-10	55/3x9-10DT	45.1444
10-11	55/3x10-11DT	45.1445
6-7	55/5x6-7DT	45.1451
7-8	55/5x7-8DT	45.1452
8-9	55/5x8-9DT	45.1453
9-10	55/5x9-10DT	45.1454
10-11	55/5x10-11DT	45.1455
blind	67/0DT	45.1800
22-24	67/22-24DT	45.1815
24-26	67/24-26DT	45.1816
26-28	67/26-28DT	45.1817
28-30	67/28-30DT	45.1818
30-32	67/30-32DT	45.1819
32-34	67/32-34DT	45.1820
34-36	67/34-36DT	45.1821

all dimensions in mm

cable/ pipe diameter	plug type	article number
36-38	67/36-38DT	45.1822
38-40	67/38-40DT	45.1823
40-42	67/40-42DT	45.1824
42-44	67/42-44DT	45.1825
44-46	67/44-46DT	45.1826
46-48	67/46-48DT	45.1827
48-50	67/48-50DT	45.1828
50	67/50DT	45.1829
11-12	67/2x11-12DT	40.1836
12-13	67/2x12-13DT	40.1837
13-14	67/2x13-14DT	40.1838
14-15	67/2x14-15DT	40.1839
15-16	67/2x15-16DT	40.1840
16-17	67/2x16-17DT	40.1841
17-18	67/2x17-18DT	40.1842
18-19	67/2x18-19DT	40.1843
19-20	67/2x19-20DT	40.1844
20-21	67/2x20-21DT	40.1845
6-7	67/3x6-7DT	40.1851
7-8	67/3x7-8DT	40.1852
8-9	67/3x8-9DT	40.1853
9-10	67/3x9-10DT	40.1854
10-11	67/3x10-11DT	40.1855
11-12	67/3x11-12DT	40.1856
12-13	67/3x12-13DT	40.1857
6-7	67/5x6-7DT	40.1861
7-8	67/5x7-8DT	40.1862
8-9	67/5x8-9DT	40.1863
9-10	67/5x9-10DT	40.1864
10-11	67/5x10-11DT	40.1865
11-12	67/5x11-12DT	40.1866
12-13	67/5x12-13DT	40.1867

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

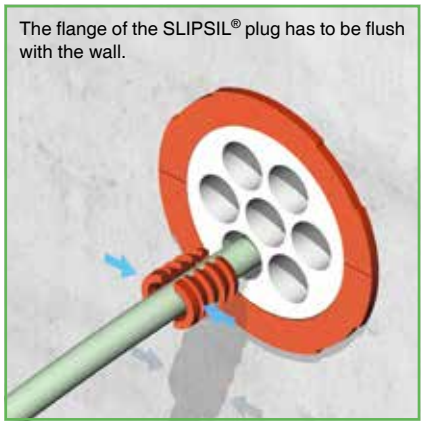
DYNATITE® blind plugs

SLIPSIL®-MPP GAS & WATERTIGHT MULTI-CABLE AND PIPE TRANSIT SEALING SYSTEM

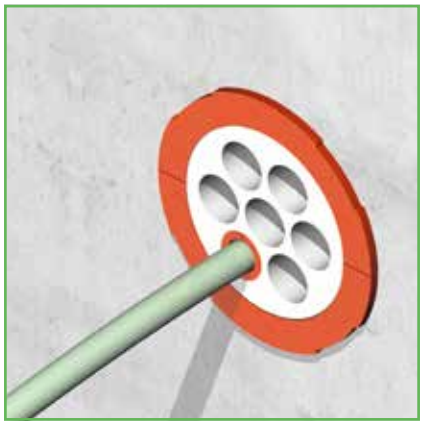
1) Before starting the installation procedure, any dirt or concrete residues should be removed from the conduit inlet pipe.
Then the inside wall of the conduit inlet pipe is treated with CSD® lubricant up to the shoulder inside the conduit inlet pipe.

2) The segments of the SLIPSIL® sealing plug are treated with CSD® lubricant on the outside. Both segments of the SLIPSIL® plug are fitted around a SLIPSIL®/MPP multi-passage module.

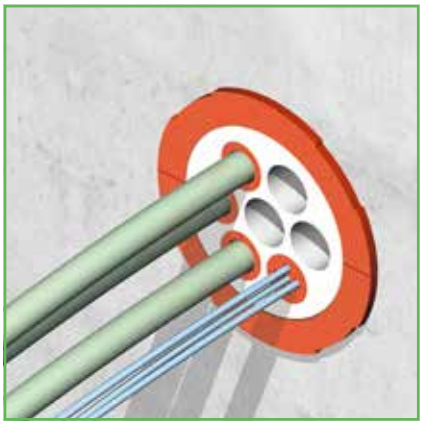
3) The set of SLIPSIL® plug and multi-passage module is pushed into the conduit opening as far as the first serration and then pushed by hand evenly, serration by serration, further into the conduit opening.



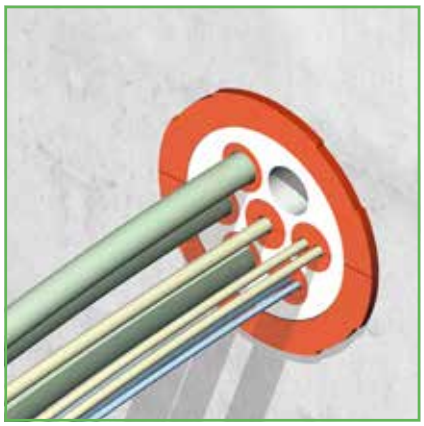
4) A cable is pulled through one of the conduit openings in the module. The segments of the DYNATITE® plugs are lubricated all around, placed around the ducted cable and then pushed into the conduit opening.



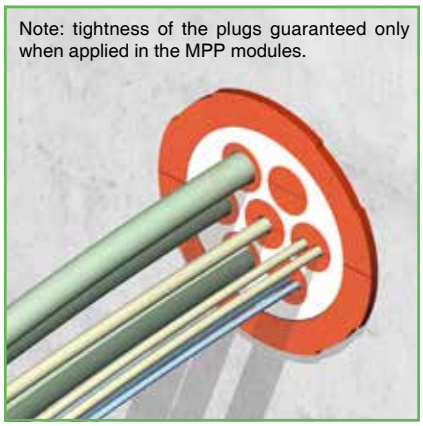
5) After insertion, the front side of the sealing plug must be flush with the front side of the module. This proves that the back side of the plug is positioned against the shoulder inside the conduit opening of the multi-passage module.



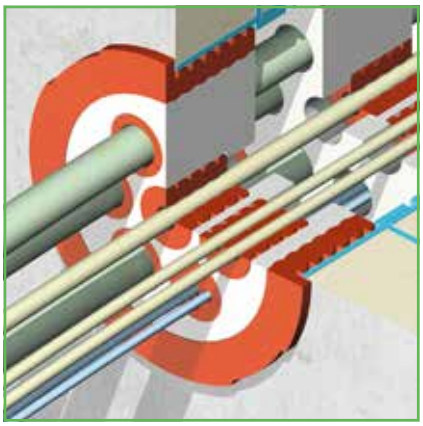
6) In the same way, all conduit openings with a single ducted cable are sealed with DYNATITE® sealing plugs. Multi-sealing plugs are used for conduit openings through which 2, 3 or 5 same diameter cables are pulled.



7) The SLIPSIL®/MPP multi-passage modules allow ducting of cables with various diameters through the multi-passage module. Spare openings can be used for ducting extra cables in a later stage.

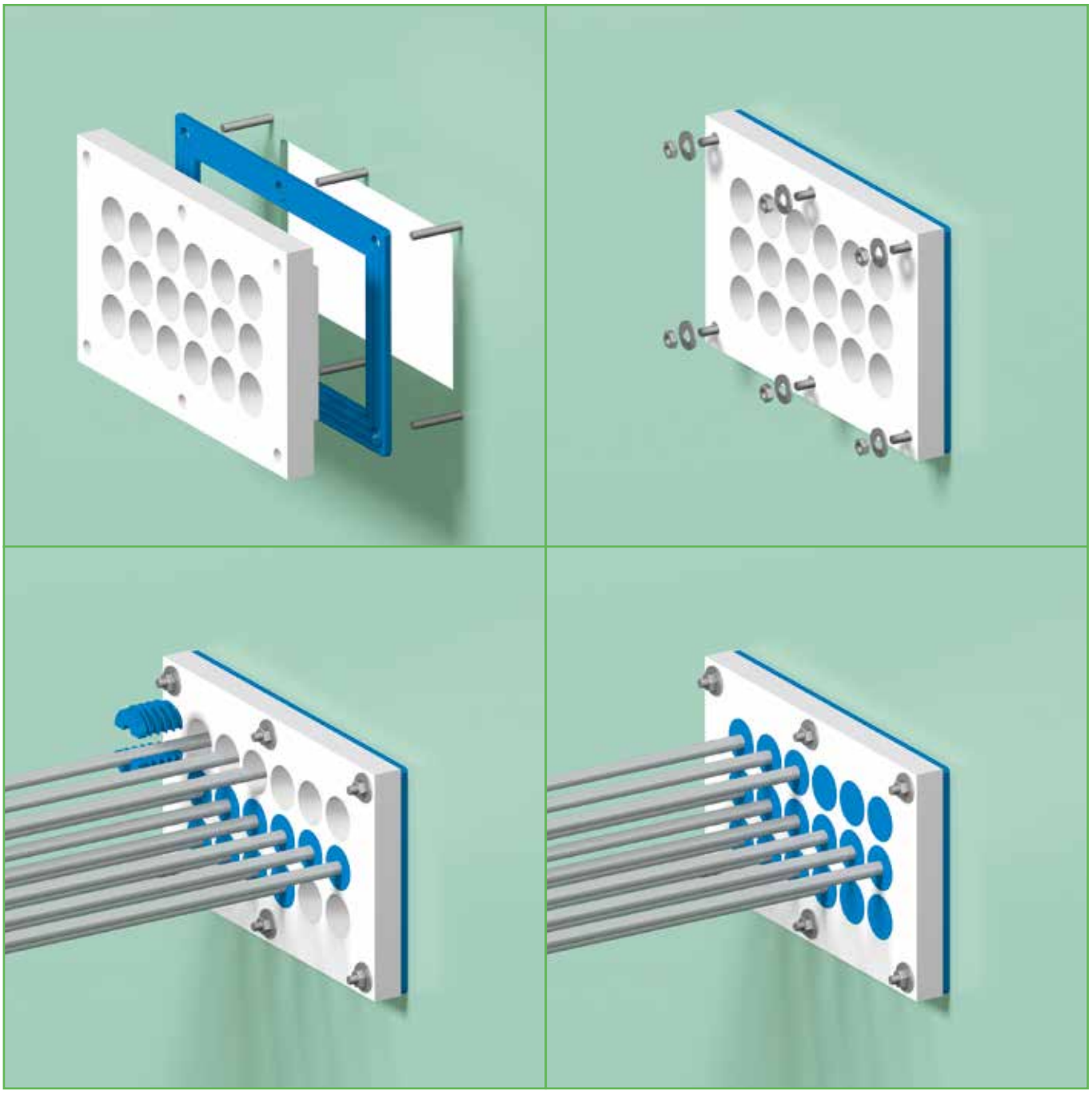


8) DYNATITE® blind plugs are used to seal the openings for later extensions. Blind plugs can easily be removed. Cable can be pulled through and sealed with a fitting sealing plug. No need to dismantle the whole penetration.



9) For highest performance and mechanical stability, it is advisable to install the set of SLIPSIL® plug and multi-passage module at both sides of the wall or floor.

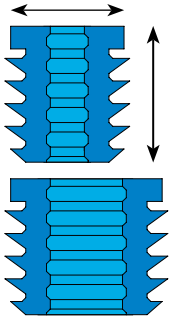
GLANDMOD - MULTI-GLAND SYSTEM
MULTI-MODULES - NOFIRNO GASKETS - CET-A-SIL PLUGS



GLANDMOD - MULTI-GLAND SYSTEM

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

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



flange 15 mm
length 18 mm

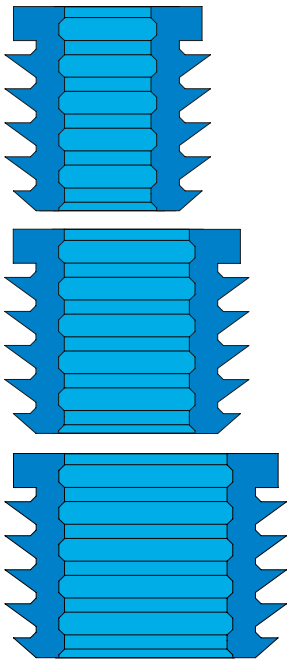
flange 20mm
length 18 mm

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

CET-A-SIL SERIES 15

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

CET-A-SIL SERIES 20



flange 25 mm
length 27 mm

flange 30 mm
length 27 mm

flange 35 mm
length 27 mm

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

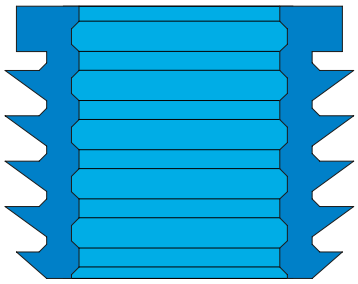
CET-A-SIL SERIES 25

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

CET-A-SIL SERIES 30

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

CET-A-SIL SERIES 35



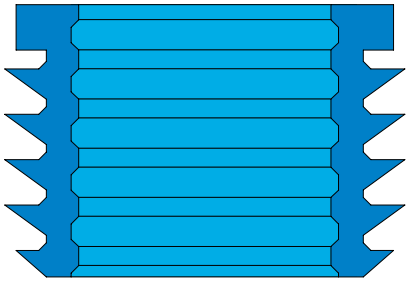
flange 43 mm
length 36 mm

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

CET-A-SIL SERIES 43

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

CET-A-SIL SERIES 50



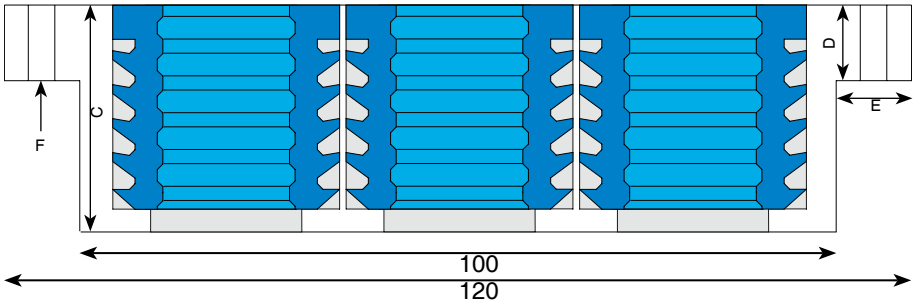
flange 50 mm
length 36 mm

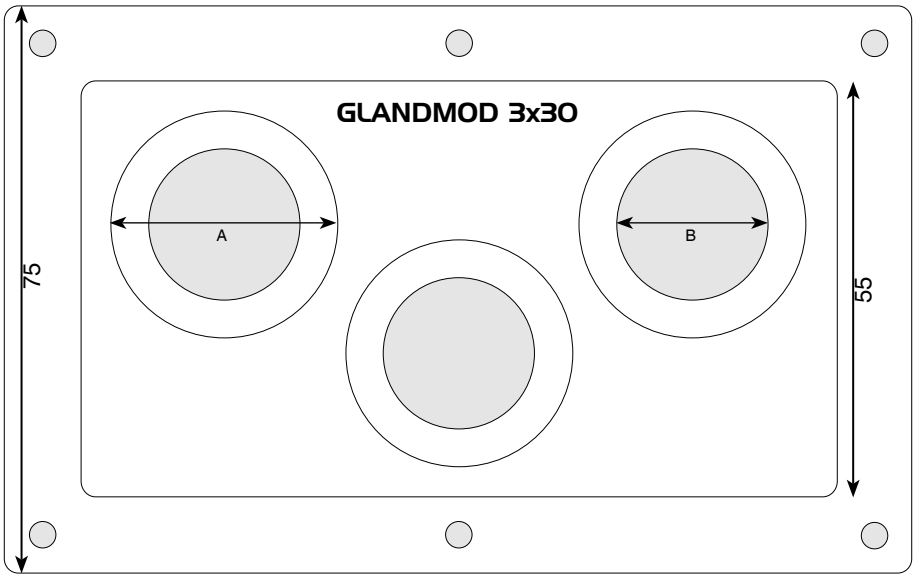
flange 60 mm
length 36 mm

60/0	blind	46.0800
60/29	28.7-29.7	46.8029
60/30	29.7-30.7	46.0830
60/31	30.7-31.7	46.0831
60/32	31.7-32.7	46.0832
60/33	32.7-33.7	46.0833
60/34	33.7-34.7	46.0834
60/35	34.7-35.7	46.0835
60/36	35.7-36.7	46.0836
60/37	36.7-37.7	46.0837
60/38	37.7-38.7	46.0838
60/39	38.7-39.7	46.0839
60/40	39.7-40.7	46.0840

CET-A-SIL SERIES 60

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





GLANDMOD SERIES 01:
outer dimensions 120x75 mm
recessed dimensions 100x55 mm

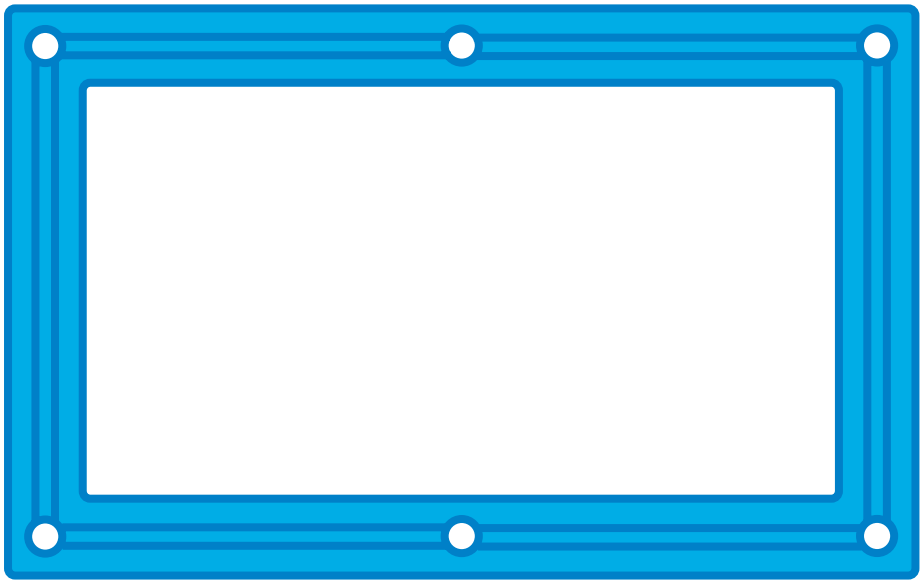
TYPE	A	B	C	D	E	F	art. no.
14x15	15	10	20	10	10	M4	60.9300
8x20	20	15	20	10	10	M4	60.9301
5x25	25	17.5	30	10	10	M4	60.9302
3x30	30	20	30	10	10	M4	60.9303

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

GLANDMOD SERIES 02:
outer dimensions 230x130 mm
recessed dimensions 200x100 mm

TYPE	A	B	C	D	E	F	art. no.
18x30	30	20	30	10	15	M6	60.9310
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	conduit openings	plug series	cable size
18x30	18	30	9.7-17.7
IIx35	11	35	14.7-22.7
8x43	8	43	19.7-28.7
5x50	5	50	24.7-34.7

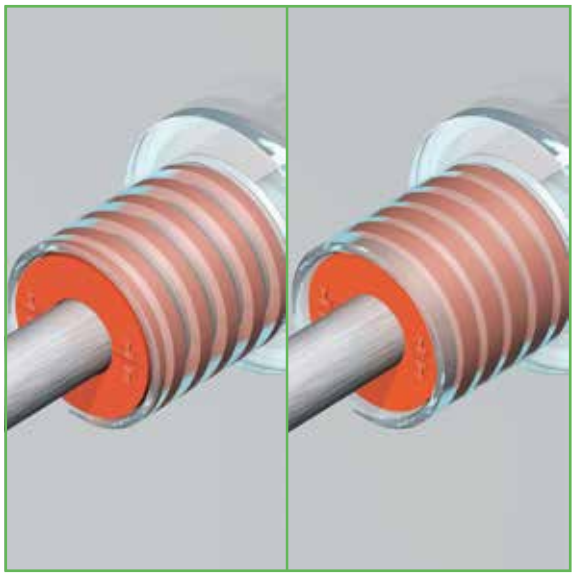


NOFIRNO GASKET SERIES 01
profiled, thickness overall 5 mm, width 10 mm
dimensions outside 120x75 mm
dimensions inside 100x55 mm
art. nr. 51.9301

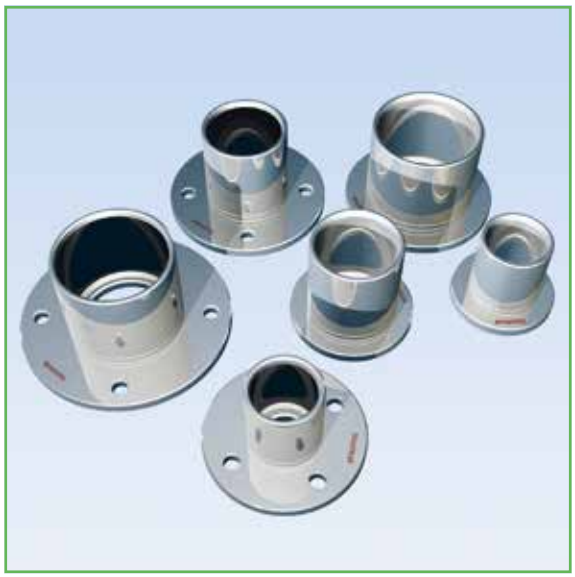
NOFIRNO GASKET SERIES 02
profiled, thickness overall 5 mm, width 15 mm
dimensions outside 230x130 mm
dimensions inside 200x100 mm
art. nr. 51.9302

Note: the functionality with regard to tightness of the multi-gland system can be guaranteed only by application of the CET-A-SIL plugs in GLANDMOD modules. Application of CET-A-SIL plugs cannot be guaranteed in other conduit systems. Two standard series of the GLANDMOD modules are available. Ask for the drawings of the GLANDMOD modules. On request modules with various hole configurations can be made to size. The largest one so far made is a module 565 x 240 mm with 24 conduit openings 50 mm. For special sizes, please contact our sales department.

DYNATITE® SEALING PLUGS IN COMBINATION WITH DYNATITE® CONDUIT SLEEVES FOR HIGH PRESSURE RATINGS



In view of the incompressibility of rubbers, the design work focused on finding an ideal solution to allow rubber to move in the right directions under mechanical loads. To cope with instantaneous pressure loads, an ultimate displacement of the rubber is needed.
For this reason, the flange has been designed to enable functioning as a guidance for the movement inside the conduit sleeve. The DYNATITE® plugs have a flange which has the same outer dimensions as the inside diameter of the conduit sleeve.
By allowing displacement of the rubber, the initial labyrinth seal of the profiling without pressure load is then automatically improving to cope with higher ratings.
The higher the pressure, the higher the tightness.

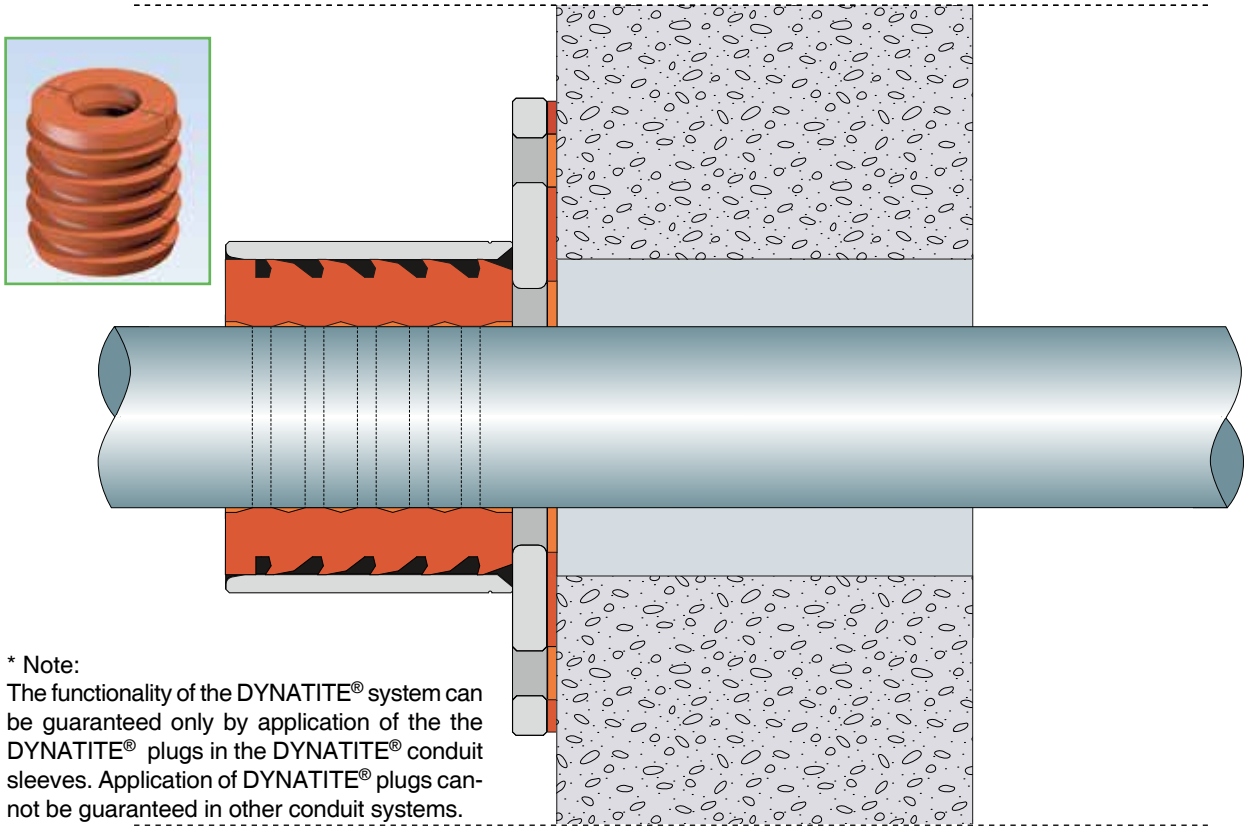


The conduit sleeves are milled to exact internal dimensions from stainless steel 1.4571. The milled sleeves are CDW seam welded to the flanges used for bolting or welding.
To optimize corrosion resistance, especially in salt water conditions and harsh environments, the DYNATITE® conduit sleeves are surface treated on the basis of a unique passivation process. This prevents corrosion for a service life up to 20 years. Salt Fog test according to DIN EN 60068-2-52 to simulate 20 years operation in sea water atmosphere successfully carried out.
The inner walls of the conduit sleeves for welding (right side of the picture) are treated with a silicon dioxide ceramic coating (500 °C resistant, fire resistant); the inner walls of the conduit sleeves for bolting have a black PTFE (Teflon) coating.

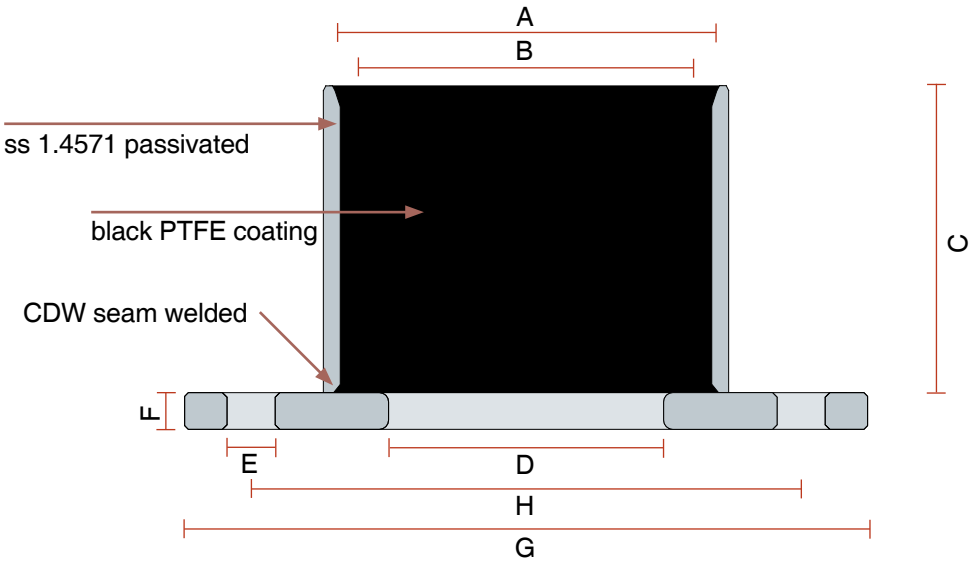
The NOFIRNO® rubber, used for the plugs and gaskets, has excellent weathering properties, UV and ozone resistance and long term behaviour. Service life easily exceeds 50 years under normal environmental conditions. The rubber can be used in a very wide temperature range. Even at low temperatures down to -50° C the rubber stays flexible. This guarantees tightness even at low temperatures.
NOFIRNO® rubber is made of a high grade, inert silicone polymer. The NOFIRNO® gaskets have a special profiling to exclude the need for excessive compression and the need for retightening from time to time.

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

DYNATITE® SEALING PLUGS IN COMBINATION WITH DYNATITE® CONDUIT SLEEVES FOR HIGH PRESSURE RATINGS



* 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	A	B	C	D	E	F	G	H	art. no.	gasket	art. no.
DT 25 FB	33.5	25	54	12	10.5	8	92	63	60.9000	DT 25 FB	51.9000
DT 32 FB	40.5	32	54	16	10.5	8	99	70	60.9001	DT 32 FB	51.9001
DT 41 FB	49.5	41	54	25	10.5	8	108	79	60.9002	DT 41 FB	51.9002
DT 55 FB	63.5	55	66	34	10.5	8	122	93	60.9003	DT 55 FB	51.9003
DT 70 FB	78.5	70	66	50	10.5	8	137	108	60.9004	DT 70 FB	51.9004
DT 82 FB	90.5	82	66	60	10.5	8	149	120	60.9005	DT 82 FB	51.9005
DT 100 FB	108.5	100	66	75	10.5	8	167	138	60.9006	DT 100 FB	51.9006
DT 125 FB	133.5	125	66	95	10.5	8	192	163	60.9007	DT 125 FB	51.9007
DT 150 FB	158.5	150	79	120	10.5	8	217	188	60.9008	DT 150 FB	51.9008

DYNATITE

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DYNATITE® SEALING PLUGS IN COMBINATION WITH DYNATITE® CONDUIT SLEEVES FOR HIGH PRESSURE RATINGS

cable/ pipe diameter	plug type	article number
5-6	25/5-6DT	45.0105
6-7	25/6-7DT	45.0106
7-8	25/7-8DT	45.0107
8-9	25/8-9DT	45.0108
5-6	32/5-6DT	45.0505
6-7	32/6-7DT	45.0506
7-8	32/7-8DT	45.0507
8-9	32/8-9DT	45.0508
9-10	32/9-10DT	45.0509
10-11	32/10-11DT	45.0510
11-12	32/11-12DT	45.0511
12	32/12DT	45.0512
5-6	41/5-6DT	45.1005
6-7	41/6-7DT	45.1006
7-8	41/7-8DT	45.1007
8-9	41/8-9DT	45.1008
9-10	41/9-10DT	45.1009
10-11	41/10-11DT	45.1010
11-12	41/11-12DT	45.1011
12-14	41/12-14DT	45.1012
14-16	41/14-16DT	45.1013
16-18	41/16-18DT	45.1014
18-20	41/18-20DT	45.1015
20	41/20	40.1016
6-7	41/2x6-7DT	45.1026
7	41/2x7DT	45.1027
14-16	55/14-16DT	45.1411
16-18	55/16-18DT	45.1412
18-20	55/18-20DT	45.1413
20-22	55/20-22DT	45.1414
22-24	55/22-24DT	45.1415
24-26	55/24-26DT	45.1416
26-28	55/26-28DT	45.1417
28	55/28	45.1418
6-7	55/2x6-7DT	45.1431
7-8	55/2x7-8DT	45.1432
8-9	55/2x8-9DT	45.1433
9-10	55/2x9-10DT	45.1434
10	55/2x10DT	45.1435
20-22	70/20-22DT	45.2014
22-24	70/22-24DT	45.2015
24-26	70/24-26DT	45.2016
26-28	70/26-28DT	45.2017
28-30	70/28-30DT	45.2018
30-32	70/30-32DT	45.2019
32-34	70/32-34DT	45.2020
34-36	70/34-36DT	45.2021
36-38	70/36-38DT	45.2022
38-40	70/38-40DT	45.2023
40-42	70/40-42DT	45.2024
42	70/42DT	45.2025

alle maten in mm

cable/ pipe diameter	plug type	article number
11-12	70/2x11-12DT	45.2036
12-13	70/2x12-13DT	45.2037
13-14	70/2x13-14DT	45.2038
14-15	70/2x14-15DT	45.2039
15-16	70/2x15-16DT	45.2040
16-17	70/2x16-17DT	45.2041
17-18	70/2x17-18DT	45.2042
18	70/2x18DT	45.2043
28-30	82/28-30DT	45.2418
30-32	82/30-32DT	45.2419
32-34	82/32-34DT	45.2420
34-36	82/34-36DT	45.2421
36-38	82/36-38DT	45.2422
38-40	82/38-40DT	45.2423
40-42	82/40-42DT	45.2424
42-44	82/42-44DT	45.2425
44-46	82/44-46DT	45.2426
46-48	82/46-48DT	45.2427
48-50	82/48-50DT	45.2428
50-52	82/50-52DT	45.2429
52-54	82/52-54DT	45.2430
54	82/54DT	45.2431
12-13	82/2x12-13DT	45.2441
13-14	82/2x13-14DT	45.2442
14-15	82/2x14-15DT	45.2443
15-16	82/2x15-16DT	45.2444
16-17	82/2x16-17DT	45.2445
17-18	82/2x17-18DT	45.2446
18-19	82/2x18-19DT	45.2447
19-20	82/2x19-20DT	45.2448
20	82/2x20	45.2449
10-11	82/3x10-11DT	45.2456
11-12	82/3x11-12DT	45.2457
12	82/3x12DT	45.2458
40-42	100/40-42DT	45.2820
42-44	100/42-44DT	45.2821
44-46	100/44-46DT	45.2822
46-48	100/46-48DT	45.2823
48-50	100/48-50DT	45.2824
50-52	100/50-52DT	45.2825
52-54	100/52-54DT	45.2826
54-56	100/54-56DT	45.2827
56-58	100/56-58DT	45.2828
58-60	100/58-60DT	45.2829
60-62	100/60-62DT	45.2830
62-64	100/62-64DT	45.2831
64	100/64DT	45.2832
60-62	125/60-62DT	45.3630
62-64	125/62-64DT	45.3631
64-66	125/64-66DT	45.3632
66-68	125/66-68DT	45.3633
68-70	125/68-70DT	45.3634

alle maten in mm

cable/ pipe diameter	plug type	article number
70-72	125/70-72DT	45.3635
72-74	125/72-74DT	45.3636
74-76	125/74-76DT	45.3637
76-78	125/76-78DT	45.3638
78-80	125/78-80DT	45.3639
80-82	125/80-82DT	45.3640
82-84	125/82-84DT	45.3641
84-86	125/84-86DT	45.3642
86-88	125/86-88DT	45.3643
88	125/88DT	45.3644
88-90	150/88-90DT	45.4020
90-92	150/90-92DT	45.4021
92-94	150/92-94DT	45.4022
94-96	150/94-96DT	45.4023
96-98	150/96-98DT	45.4024
98-100	150/98-100DT	45.4025
100-102	150/100-102DT	45.4026
102-104	150/102-104DT	45.4027
104-106	150/104-106DT	45.4028
106-108	150/106-108DT	45.4029
108-110	150/108-110DT	45.4030
110-112	150/110-112DT	45.4031
112-114	150/112-114DT	45.4032
114	150/114DT	45.4033

alle maten in mm

* 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.

DYNATITE

DYNATITE® SEALING PLUGS IN COMBINATION WITH DYNATITE® CONDUIT SLEEVES FOR HIGH PRESSURE RATINGS

1) When DYNATITE® conduit sleeves for bolting are going to be used, anchor bolts have to be provided in the wall/floor 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 wall/floor. 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 wall/floor, the pipe/cable can be passed through. Before starting the installation procedure, any dirt or oil residues should be removed from the conduit sleeve.

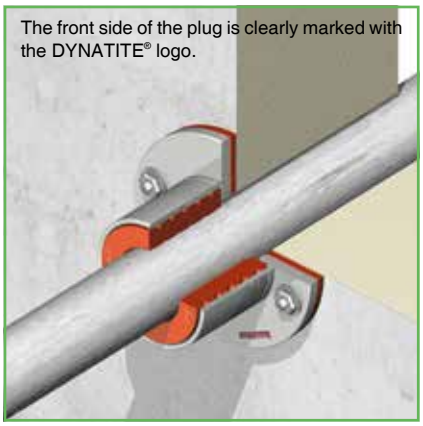
4) The inside wall of the conduit sleeve is treated with CSD® lubricant over its full length. The inlet of the DYNATITE® conduit sleeve is rounded off to avoid any damages to the plug during insertion.

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 with the front side of the conduit sleeve. This proves that the back side of the plug is positioned against the shoulder 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 wall.

RISWAT® GAS & WATERTIGHT SEALING SYSTEM FOR NEW AND EXISTING MULTI-CABLE PENETRATIONS

RISWAT® cable sleeves

cable sleeves are supplied split lengthwise

RISWAT® sleeves are made from a specially developed extrudable thermoplastic which offers sufficient stiffness to enable ease of insertion. RISWAT® sleeves have a clearly recognizable blue colour to ensure that they are easily distinguishable from the NOFIRNO® sleeves which are used for fire-resistant conduits. RISWAT® sleeves are supplied in lengths of 60, 80, 110, 140 and 160 mm. They are also available in lengths of 500 and 1000 mm. They can be cut to length as required on the construction site. RISWAT® cable sleeves are split lengthwise to facilitate fitting them around cables which are already in place. The wall thickness of sleeves is so chosen to ensure sufficient separation of the cables to facilitate application of the DRIFIL®, FIWA® or NOFIRNO® sealant. RISWAT® filler sleeves are not split lengthwise.

The article numbers for the cable sleeves 500 mm long are 80.3200 and following; for the cable sleeves 1000 mm long 80.3220 and following.

RISWAT® cable sleeve	cable diameter	sleeve length	article number
12/6	5 - 7	160	80.3120
14/8	7 - 9	160	80.3121
16/10	9 - 11	160	80.3122
18/12	11 - 13	160	80.3123
20/14	13 - 15	160	80.3124
22/16	15 - 17	160	80.3125
27/19	17 - 21	160	80.3126
31/23	21 - 25	160	80.3127
35/27	25 - 29	160	80.3128
39/31	29 - 33	160	80.3129
46/36	33 - 39	160	80.3130
52/42	39 - 45	160	80.3131
58/48	45 - 51	160	80.3132
64/54	51 - 57	160	80.3133
70/60	57 - 63	160	80.3134

all dimensions in mm

RISWAT® cable sleeve	cable diameter	sleeve length	article number
12/6	5 - 7	60	80.3000
14/8	7 - 9	60	80.3001
16/10	9 - 11	60	80.3002
18/12	11 - 13	60	80.3003
20/14	13 - 15	60	80.3004
22/16	15 - 17	60	80.3005
27/19	17 - 21	60	803006
31/23	21 - 25	60	80.3007
35/27	25 - 29	60	80.3008
39/31	29 - 33	60	80.3009
46/36	33 - 39	60	80.3010
52/42	39 - 45	60	80.3011
58/48	45 - 51	60	80.3012
64/54	51 - 57	60	80.3013
70/60	57 - 63	60	80.3014
12/6	5 - 7	80	80.3020
14/8	7 - 9	80	80.3021
16/10	9 - 11	80	80.3022
18/12	11 - 13	80	80.3023
20/14	13 - 15	80	80.3024
22/16	15 - 17	80	80.3025
27/19	17 - 21	80	80.3026
31/23	21 - 25	80	80.3027
35/27	25 - 29	80	80.3028
39/31	29 - 33	80	80.3029
46/36	33 - 39	80	80.3030
52/42	39 - 45	80	80.3031
58/48	45 - 51	80	80.3032
64/54	51 - 57	80	80.3033
70/60	57 - 63	80	80.3034
12/6	5 - 7	110	80.3060
14/8	7 - 9	110	80.3061
16/10	9 - 11	110	80.3062
18/12	11 - 13	110	80.3063
20/14	13 - 15	110	80.3064
22/16	15 - 17	110	80.3065
27/19	17 - 21	110	80.3066
31/23	21 - 25	110	80.3067
35/27	25 - 29	110	80.3068
39/31	29 - 33	110	80.3069
46/36	33 - 39	110	80.3070
52/42	39 - 45	110	80.3071
58/48	45 - 51	110	80.3072
64/54	51 - 57	110	80.3073
70/60	57 - 63	110	80.3074
12/6	5 - 7	140	80.3100
14/8	7 - 9	140	80.3101
16/10	9 - 11	140	80.3102
18/12	11 - 13	140	80.3103
20/14	13 - 15	140	80.3104
22/16	15 - 17	140	80.3105
27/19	17 - 21	140	80.3106
31/23	21 - 25	140	80.3107
35/27	25 - 29	140	80.3108
39/31	29 - 33	140	80.3109
46/36	33 - 39	140	80.3110
52/42	39 - 45	140	80.3111
58/48	45 - 51	140	80.3112
64/54	51 - 57	140	80.3113
70/60	57 - 63	140	80.3114

all dimensions in mm

all dimensions in mm

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RISWAT

RISWAT® GAS & WATERTIGHT SEALING SYSTEM FOR NEW AND EXISTING MULTI-CABLE PENETRATIONS

RISWAT® filler sleeve	sleeve length		article number
18/12 single	60		80.3018
18/12 multi (NOFIRNO®)	60		80.5050
18/12 single	80		80.3038
18/12 single	110	*all dimensions in mm*	80.3078
18/12 multi (NOFIRNO®)	110		80.5051
18/12 single	140		80.3118
18/12 multi (NOFIRNO®)	140		80.5052
18/12 single	160		80.3138
18/12 multi (NOFIRNO®)	160		80.5053
18/12 single	500		80.3218
18/12 single	1000		80.3238

RISWAT® filler sleeve	sleeve length		article number
27/19 single	60		80.3019
27/19 multi (NOFIRNO®)	60		80.5060
27/19 single	80		80.3039
27/19 single	110	*all dimensions in mm*	80.3079
27/19 multi (NOFIRNO®)	110		80.5061
27/19 single	140		80.3119
27/19 multi (NOFIRNO®)	140		80.5062
27/19 single	160		80.3139
27/19 multi (NOFIRNO®)	160		80.5063
27/19 single	500		80.3219
27/19 single	1000		80.3239

PRODUCT INFORMATION SEALANT

01)	colour	dark blue
02)	specific gravity	1.40 ± 0.03 g/cm³
03)	curing of top layer	0.5 - 1 hour depending on temperature and air humidity
04)	service temperature	-50 °C up to +180 °C
05)	tensile strength	0.95 MPa
06)	elongation at break	375%
07)	hardness	35 Shore A
08)	elastic deformation	approx. 75%
09)	resistance	UV, Ozone, arctic conditions
10)	ageing	more than 20 years
11)	supplied in	310 ml cartridges
12)	storage	to be stored cool and dry min/max temperature = +5/+30° C
13)	storage life	guaranteed 6 months; when applied later than 6 months after date of manufacturing, curing and adhesive properties have to be checked before application

article number 80.0920

DRIFIL® is a paste-like, halogen free compound which is simple to use. DRIFIL® 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.

PRODUCT INFORMATION SEALANT

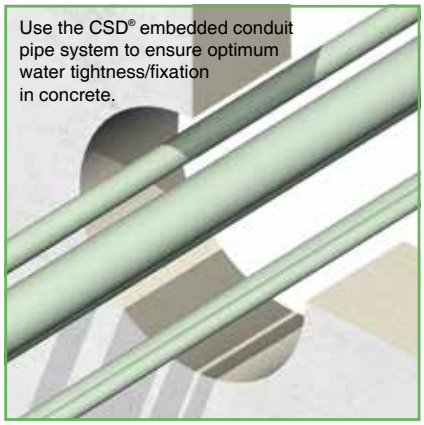
01)	colour	dark grey
02)	specific gravity	1.30 ± 0.03 g/cm³
03)	curing of top layer	0.5 - 1 hour depending on temperature and air humidity
04)	service temperature	-50 °C up to +160 °C
05)	tensile strength	1.15 MPa
06)	elongation at break	125%
07)	hardness	35 Shore A
08)	elastic deformation	approx. 25%
09)	resistance	UV, Ozone, arctic conditions
10)	ageing	more than 20 years
11)	supplied in	310 ml cartridges
12)	storage	to be stored cool and dry min/max temperature = +5/+30° C
13)	storage life	guaranteed 6 months; when applied later than 6 months after date of manufacturing, curing and adhesive properties have to be checked before application

article number 80.0900

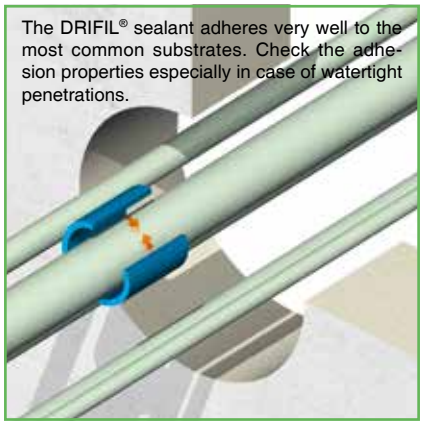
FIWA® is a paste-like, halogen free compound (tested according to Naval Engineering Standard NES 713: Issue 3). Furthermore FIWA® has a low smoke index (NES 711: Issue 2: 1981) and a high oxygen index (ISO 4589-2: 1996), and low flame spread characteristics according to IMO Resolution A.653(16).

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

RISWAT® GAS & WATERTIGHT SEALING SYSTEM FOR NEW AND EXISTING MULTI-CABLE PENETRATIONS

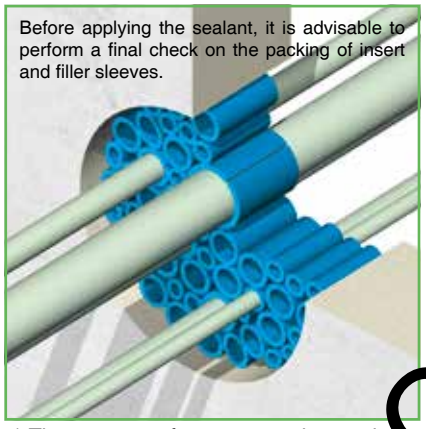


1) The cables can be ducted through the conduit opening in random order.
It is most important that they are not pulled too tight so as not to hamper their separation when RISWAT® insert sleeves are inserted.

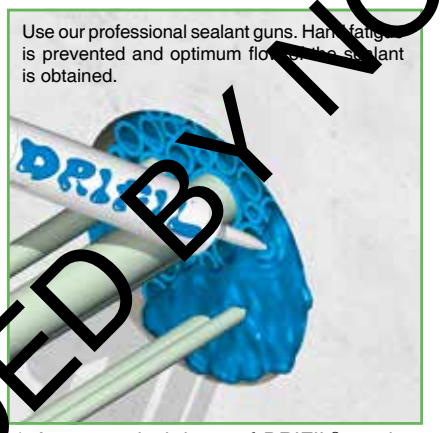


2) After the cables have been ducted, RISWAT® insert sleeves are applied around each cable. The insert sleeves are split lengthwise and can therefore be placed around the cables in front of the conduit.

3) The insert sleeves are primarily used for separation of the cables to enable to apply the sealant. An exact fit is for this reason not required. Push the sleeves into the conduit in such a way as to leave about 20 mm free space at the front and back.



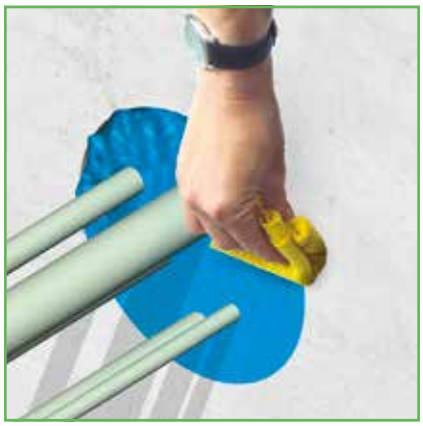
4) The remaining free space in the conduits is filled with RISWAT® filler sleeves types 7/19 and 18/12. The whole set of insert and filler sleeves should fit tightly into the conduit to provide sufficient mechanical stability.



5) A 20 mm thick layer of DRIFIL® 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 DRIFIL® 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 DRIFIL® 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 DRIFIL®. Please refer to the Safety Data Sheet for more information.

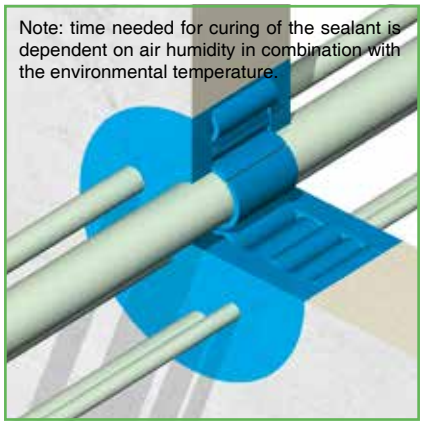
9) The surface can be further smoothed by hand. Just wet the hand thoroughly with soap and water. No dirty hands when working with DRIFIL® and a very neat surface is the result.

RISWAT® GAS & WATERTIGHT SEALING SYSTEM FOR NEW AND EXISTING MULTI-CABLE PENETRATIONS

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

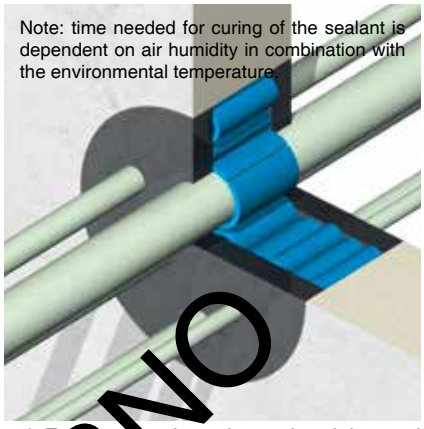
10) After smoothing is finished, a last check should be taken to ensure sealant is applied in between the cables, especially at penetrations with larger amounts of cables.

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



11) For optimum gas and water tightness it is advisable to apply at both sides of the penetration a 20 mm thick layer of the DRIFIL® sealant.

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



12) For optimized mechanical stability and to obtain higher pressure ratings, FIWA® or NOFIRNO® sealant can be used in place of DRIFIL® sealant. NOFIRNO® sealant has optimum mechanical properties.

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

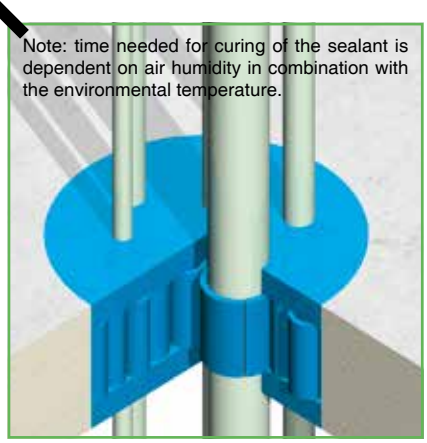
Use our professional sealant guns. Hand fatigue is prevented and optimum flow of the sealant is obtained.

13) For vertical conduits it is advisable to select the insert sleeves a bit undersized. They will then cling to the ducted cables in such a way to prevent them from sliding down.

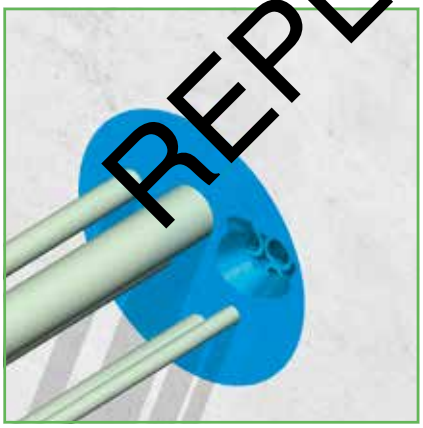
People with sensitive skin should use gloves when working with DRIFIL®.
Please refer to the Safety Data Sheet for more information.

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

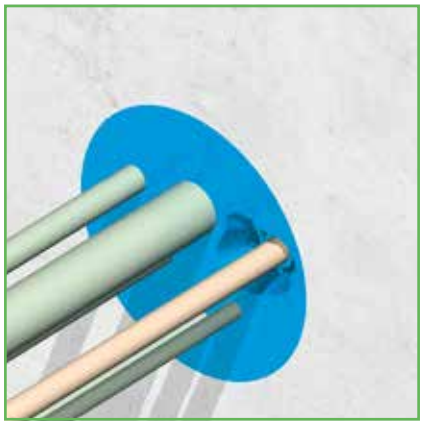
Note: time needed for curing of the sealant is dependent on air humidity in combination with the environmental temperature.



15) The conduit should be overfilled with DRIFIL® 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.

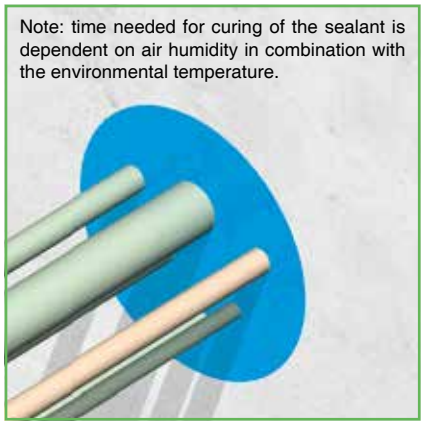


16) Adding extra cables is an easy job. Cut away the sealant layer at both sides of the penetration with a knife or a hollow punch in a tapering shape as shown above. This creates a good foundation for the sealant to be applied later.



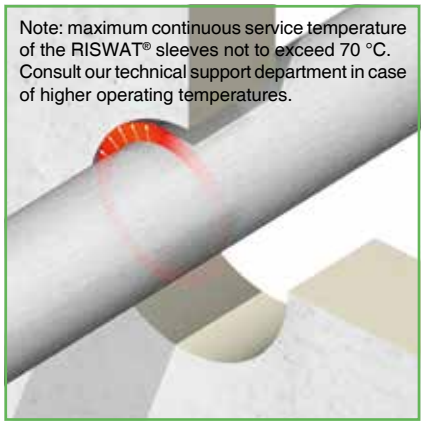
17) Pull the cable through one of the empty filler sleeves with an inner diameter more or less corresponding to the outer diameter of the cable. Or remove one or more RISWAT® filler sleeves to create a fitting opening for the cable to be ducted.

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

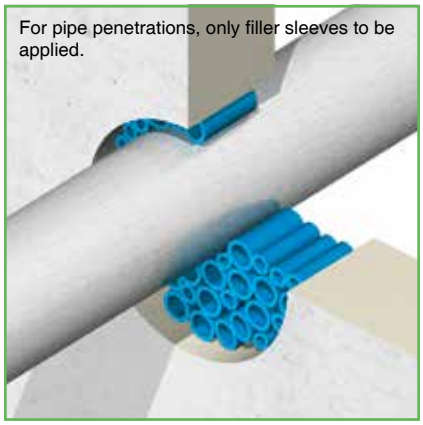


18) Place in this case a RISWAT® sleeve around the newly ducted cable. Push the insert sleeve into the conduit. Refill the opening in the sealant layer at both sides of the penetration with sufficient DRIFIL® sealant.

RISWAT® GAS & WATERTIGHT SEALING SYSTEM FOR NEW AND EXISTING (MULTI-) PIPE PENETRATIONS



1) The pipe(s) can be ducted through the conduit opening off centre. Sufficient space to accommodate the RISWAT® sleeves must remain everywhere between the pipe(s) and between the pipe(s) and the wall of the conduit opening.



2) The remaining free space in the conduit is filled with RISWAT® filler sleeves type 27/19 and 18/12. Push the sleeves into the conduit opening in such as way as to leave at least about 20 mm free space at the front and back.

3) The sleeves should fill the entire conduit opening. The whole set of insert and filler sleeves should fit tightly into the conduit to provide sufficient mechanical stability.

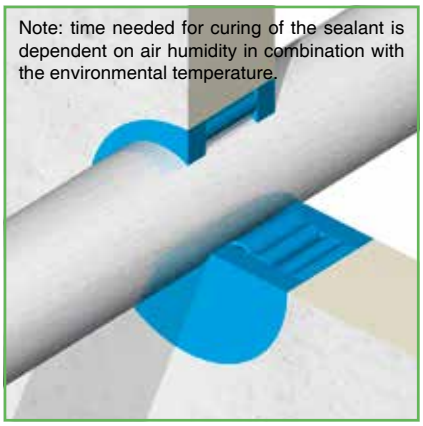
4) A 20 mm thick layer of DRIFIL® sealant is applied at each side of the conduit.
Clean and dry the conduit opening and the surface of the ducted pipe thoroughly, and remove any dirt, rust or oil residues before applying the sealant.

5) The conduit should be overfilled with DRIFIL® 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.

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

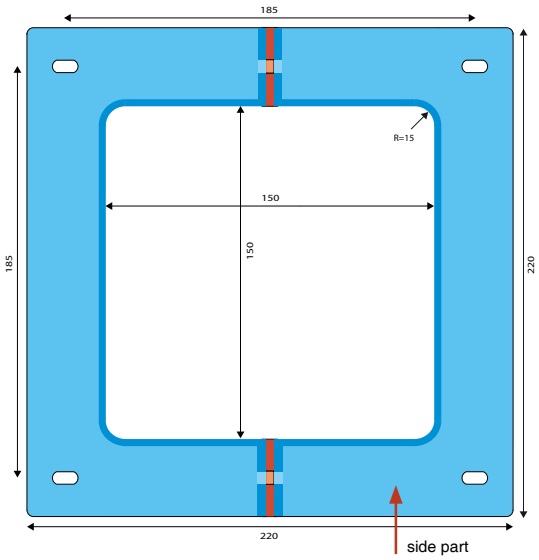
7) The cloth is then used to press down the sealant layer. People with sensitive skin should use gloves when working with DRIFIL®. Please refer to the Safety Data Sheet for more information.

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

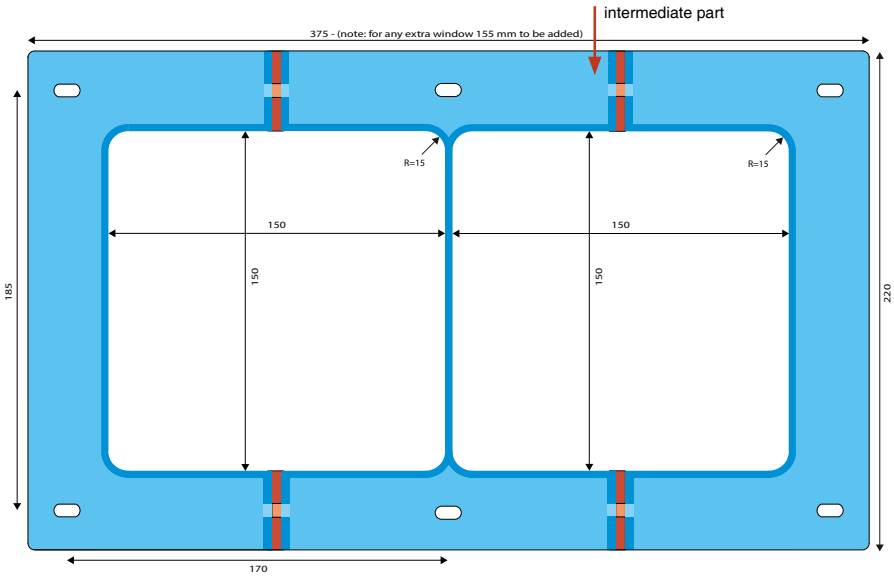


9) For optimum gas and water tightness it is advisable to apply at both sides of the penetration a 20 mm thick layer of the DRIFIL® sealant. FIWA® or NOFIRNO® sealant can be used instead of DRIFIL® sealant.

RISWAT® GAS & WATERTIGHT SEALING SYSTEM FOR EXISTING MULTI-CABLE PENETRATIONS



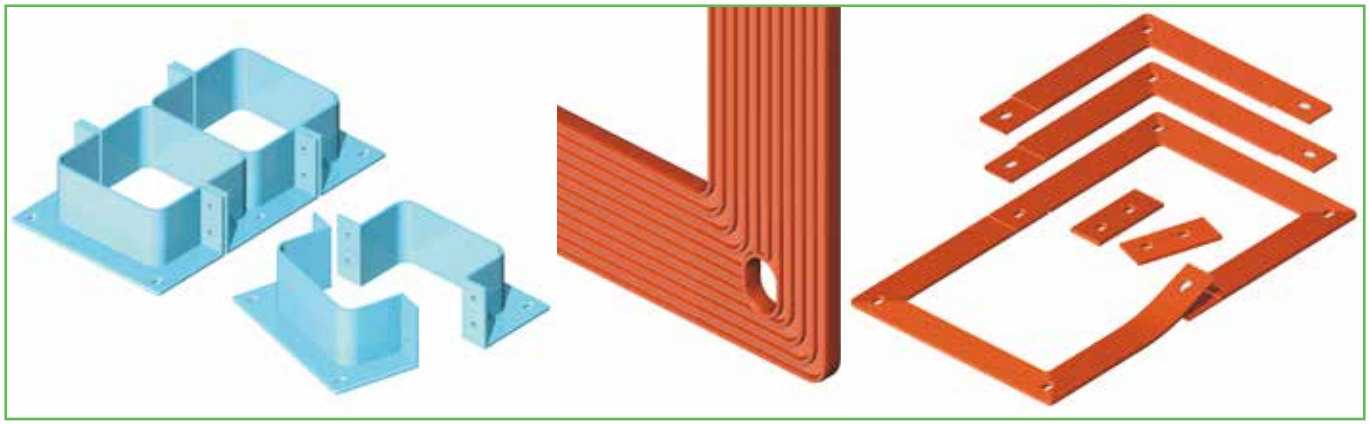
In many instances, it may be impossible to remove the leaking penetration seal through which cables or pipes have been ducted. For this purpose, the CSD® split frames have been developed. The sections of the frame can be placed around the ducted cables/pipes and connected to each other by placing a NOFIRNO® gasket between the flanges and bolted together. The frame is then fixed to the wall with a NOFIRNO® split gasket between the frame and the wall. With the developed intermediate parts, multi-frames can be assembled to larger sizes.
After the frame has been installed, the RISWAT® sealing system can be applied. The depth of the frames is 80 mm which accomodates 60 mm RISWAT® insert and filler sleeves. The remaining 20 mm is used for applying a 20 mm layer of either either DRIFIL® or NOFIRNO® sealant.



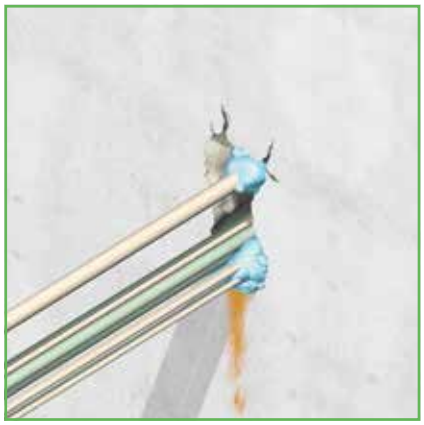
side part frame	60.9500
intermediate part	60.9501
frame 1x150 complete	60.9510
frame 2x150 complete	60.9511
frame 3x150 complete	60.9512
gasket flanges	51.9500
gasket side part 1x150	51.9501
gasket side part nx150	51.9502
extension gasket nx150	51.9503
gasket 1x150 complete	51.9510
gasket 2x150 complete	51.9511
gasket 3x150 complete	51.9512

The CSD® split flanged frames are made of an impact resistant plastic. The design is modular and can be easily assembled to multi-bay units for larger existing penetrations. Frames with an internal dimension of 250 mm are in development.

The NOFIRNO® rubber has excellent weathering properties, UV and Ozone resistance and long term behaviour. The NOFIRNO® gaskets have a special profiling to exclude the need for excessive compression and the need for retightening from time to time.

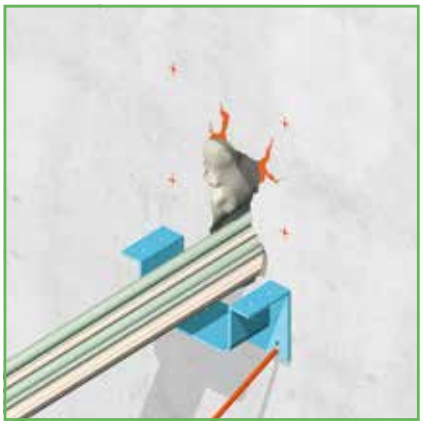


RISWAT® GAS & WATERTIGHT SEALING SYSTEM FOR EXISTING MULTI-CABLE PENETRATIONS



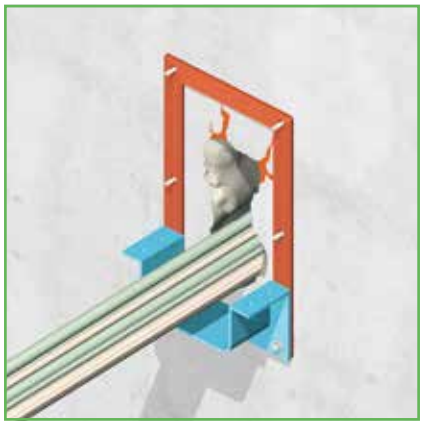
1) Occasionally it is impossible to remove an existing seal in an opening. In this case, just remove the protruding portion of the seal and utilize a CSD® split flanged frame and the RISWAT® system.

2) If there are large irregularities in the wall around the opening, they should be locally smoothed with DRIFIL® or NOFIRNO® sealant. NOFIRNO® sealant has highest mechanical properties.

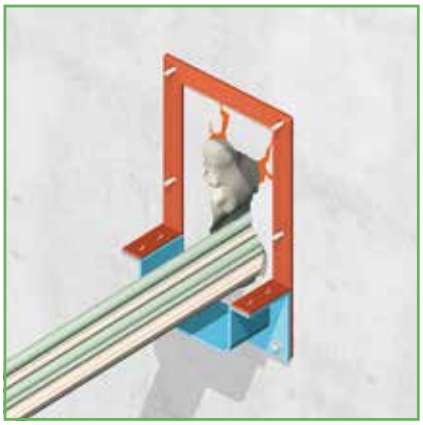


3) The CSD® split flanged frames are made of impact resistant plastic. Attachment holes are marked off on the wall or floor, corresponding to the pattern of holes in the CSD® split flanged frame.

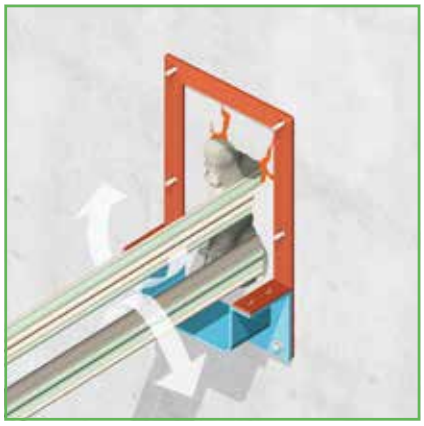
4) After drilling the attachment holes and positioning the anchoring bolts, place the NOFIRNO® gasket parts over the anchoring bolts against the wall.



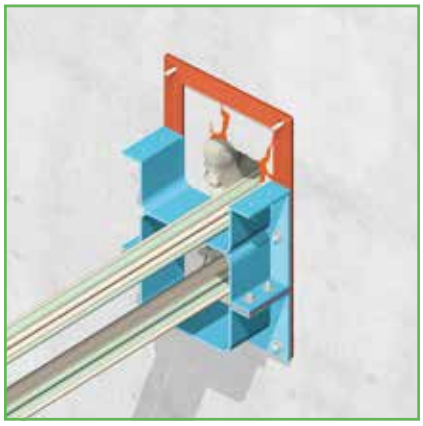
5) The split flanged frame is disassembled, and the lower part secured finger-tight against the wall. Both the CSD® frames and NOFIRNO® gaskets have oval holes for ease of adjustment.



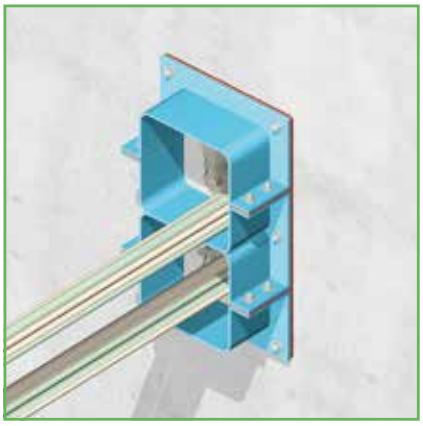
6) Place the NOFIRNO® gaskets on the connector flanges of the CSD® split flanged frame.



7) If utilizing multi-bay frames, separate the cables and place them in the bay where watertight sealing is most easiest. This may depend on the play in the cable set.

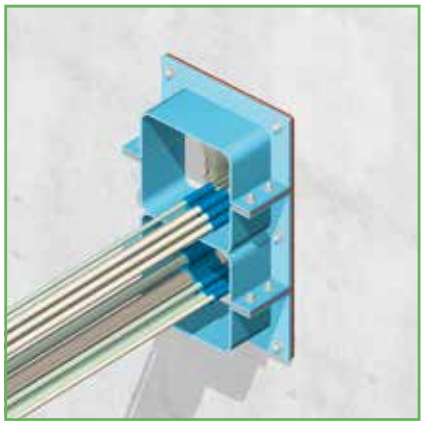


8) Position the intermediate element of the frame over the anchor bolts against the wall, and then fix the element to the previously positioned frame. Secure the intermediate element finger-tight against the wall.

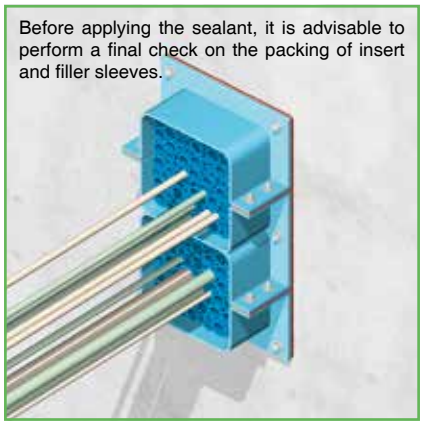


9) In the same way, place the upper part on the intermediate part. Tighten the bolts on the connector flanges. Note: no excessive forces needed. Finally, all the nuts on the anchoring bolts should be firmly tightened.

RISWAT® GAS & WATERTIGHT SEALING SYSTEM FOR EXISTING MULTI-CABLE PENETRATIONS

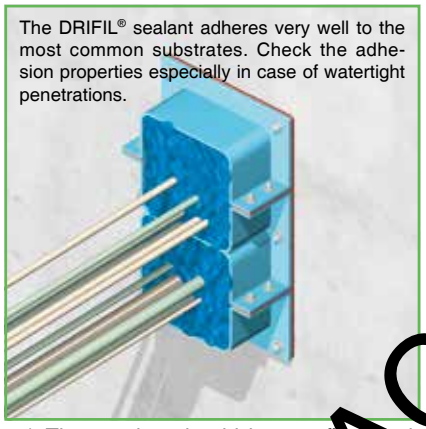


10) RISWAT® insert sleeves are applied around each cable. The insert sleeves are split lengthwise. Push the sleeves into the frame in such a way as to leave about 20 mm free space at the front.



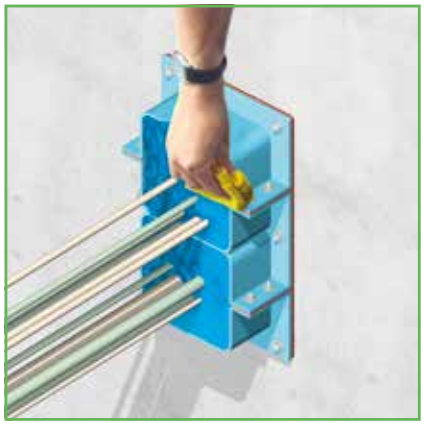
11) The remaining free space in the conduit is filled with RISWAT® filler sleeves type 27/18 and 18/12. The whole set of insert and filler sleeves should fit tightly into the conduit to provide sufficient mechanical stability.

12) A 10 mm thick layer of DRIFIL® sealant is applied. Clean and dry the conduit opening and the cables thoroughly, and remove any dirt, rust or oil residues before applying the sealant.



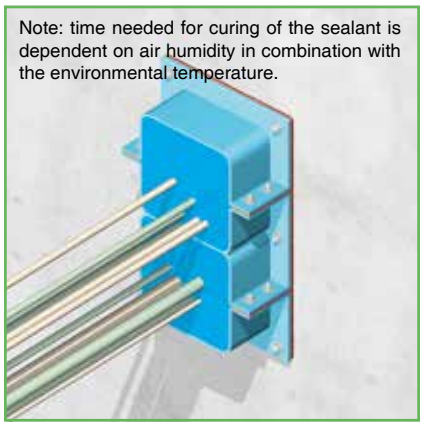
13) The conduit should be overfilled with DRIFIL® sealant, because some sealant will be pushed between and into the empty filler sleeves during further finishing. This will contribute to obtain higher tightness ratings.

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

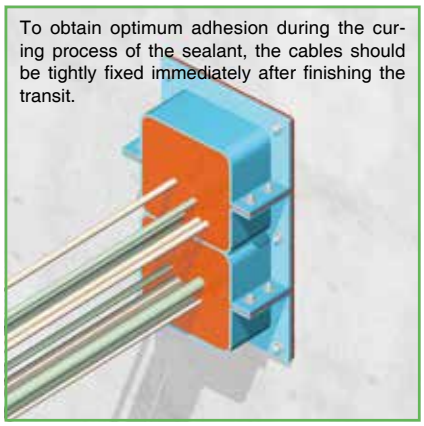


15) The cloth is then used to press down the sealant layer. People with sensitive skin should use gloves when working with DRIFIL®. Please refer to the Safety Data Sheet for more information.

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

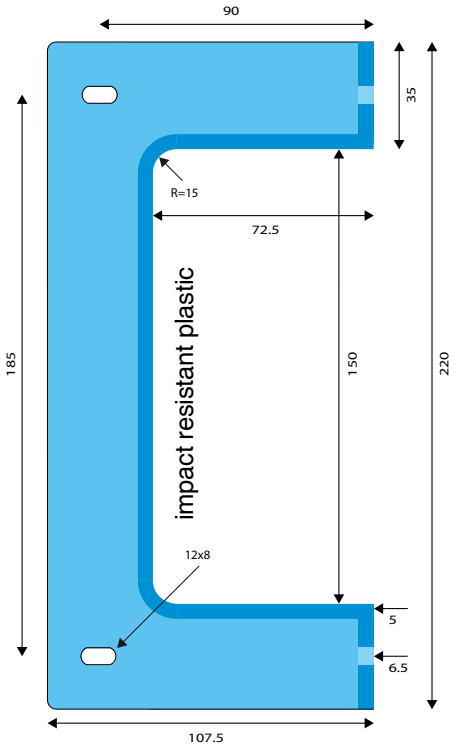


17) After smoothing is finished, a last check should be taken to ensure sealant is applied in between the cables, especially in penetrations with larger amounts of cables.
For adding cables see page 29.

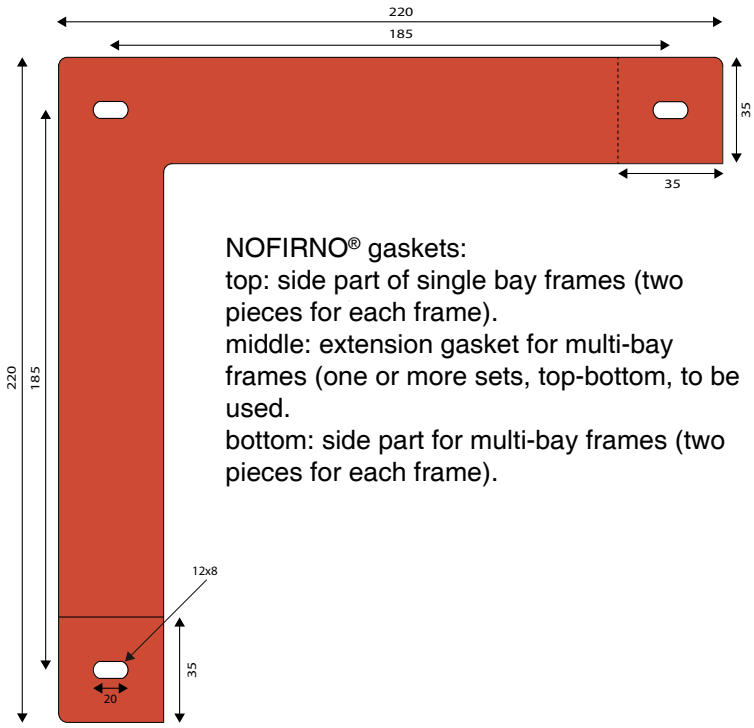


18) For optimized mechanical stability and to obtain higher pressure ratings, NOFIRNO® sealant can be used in place of DRIFIL® sealant. NOFIRNO® sealant has optimum mechanical properties.

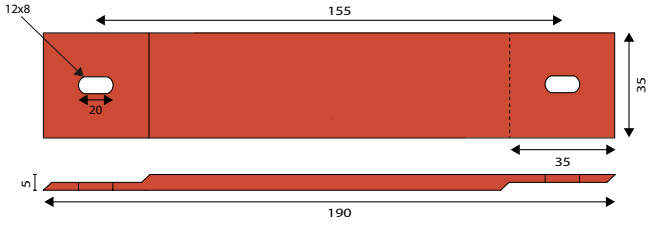
RISWAT® GAS & WATERTIGHT MULTI-CABLE TRANSIT SEALING SYSTEM

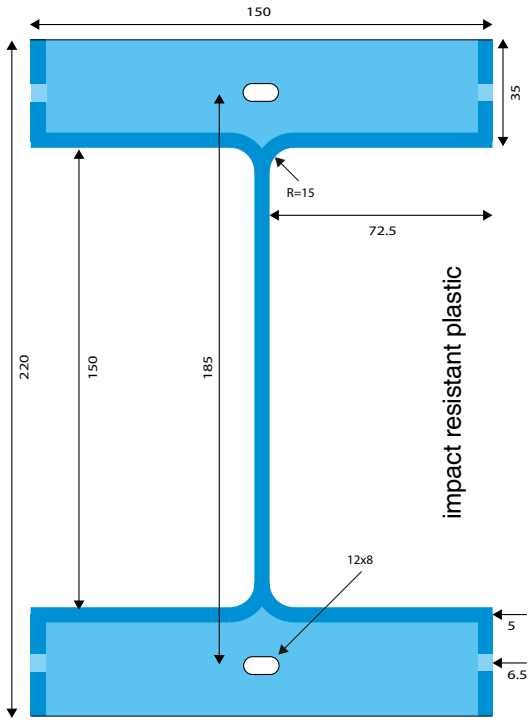


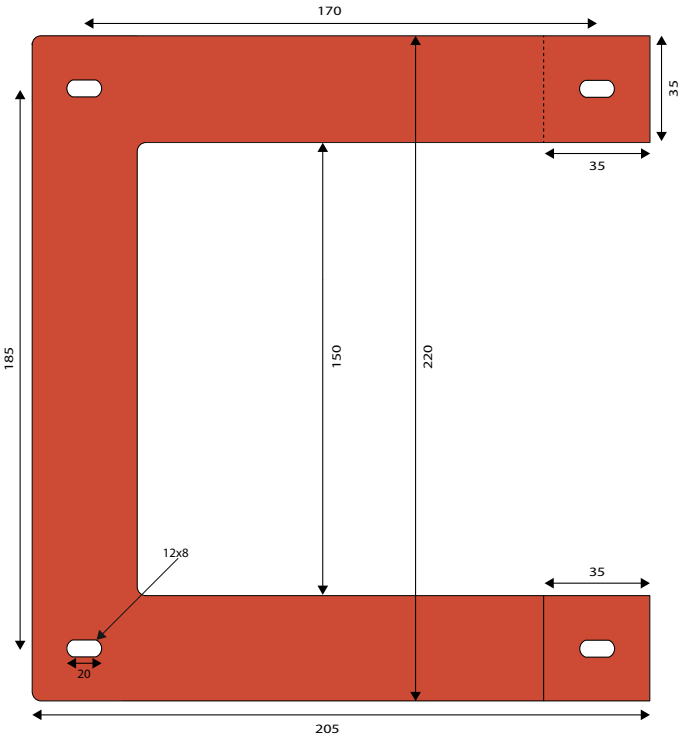
CSD® split flanged frames:
top: side part of single bay frames
bottom: intermediate part for multi-bay frames (one or more intermediate parts to be used for larger frame combinations).



NOFIRNO® gaskets:
top: side part of single bay frames (two pieces for each frame).
middle: extension gasket for multi-bay frames (one or more sets, top-bottom, to be used.
bottom: side part for multi-bay frames (two pieces for each frame).







AQUASTOP® WATERTIGHT SEALING SYSTEM FOR EXISTING, LEAKING CONDUITS

It is self-evident that water leakages must be prevented under all circumstances. After all, leaking water means not only a nuisance but in most cases damage as well. Although no exact figures are known, it is safe to say that the corrosion damage caused every year by leaking cable and pipe entries runs into hundreds of millions of dollars. Therefore, a great deal of effort goes into minimizing the effects of water leakage. Preventing leaking conduits is an absolute must.

We have the products and systems for it, however .....

Leaking conduits are a problem in many buildings/installations when ducting pipes underground. Attempts are made to stop the water leakage, but most often without any success. We can see the effects of leaks almost daily around us. However, we generally forget that a corrosion process is slowly but surely affecting the structure and equipment concerned. The corrosion damage caused by such conduits can be substantial. Secondary drawbacks are that moist spaces are generally accompanied by a mouldy atmosphere, fungus growth and a proliferation of vermin.

BEELE Engineering has developed three solutions to stop the water leakage in buildings and installations:
1) in case the ground water can be pumped away outside the building, the contents of the existing conduit sealing system can be removed and the regular RISWAT® system can be applied in the wall opening.
2) in case the existing sealing system cannot be removed and the leakage occurs only during heavy rainfall, for cable and small bore pipe penetrations the RISWAT® system can be applied against the wall by making use of the split, modular frames at the time there is no leakage.
3) in most cases, however, it is impossible to work outside the building and the repair work has to be carried out under leaking conditions. In this case it is better to leave as much of the existing material in place and make space available for the application of the AQUASTOP® rubber and the NOFIRNO® or DRIFIL® sealant.

To obtain mechanical stability and tightness over an extended service life, the AQUASTOP® filling is finished with a layer of sealant.

For existing, leaking conduits in buildings and installations as described under 3), the AQUASTOP® mouldable rubber has been developed by the engineers of BEELE Engineering. The AQUASTOP® mouldable rubber is made of a silicone polymer to offer the market an inert material which does not pollute the ground water.
The rubber is very sticky and can be applied on wet surfaces. The rubber can be moulded by hand in the shape required for the repair work.

article number 80.0940

AQUASTOP® WATERTIGHT SEALING SYSTEM FOR EXISTING, LEAKING CONDUITS

1) In many cases the last attempt to stop the leakage is the use of foam. Generally, this is only a temporary solution and the leakage might start again after a while.

2) Remove sufficient amount of the existing sealing material to obtain at least 40 mm free space inside the conduit opening. In case this is not feasible, the split, modular frames have to be used.

3) In order to apply the AQUASTOP® system adequately, the corroded pipe has to be cleaned and rust has to be removed.
Note: in many cases the corrosion damage is substantial. However, it is a must to clean all corroded spots thoroughly.

4) Locate the place of the leakage before applying the AQUASTOP® mouldable rubber. Note: the rubber is sticky and is for this reason packed in polyethylene plastic. Please refer to the Safety Data Sheet for more information.

5) Work from the non-leaking area towards the leaking area when inserting the AQUASTOP® rubber into the wall opening against the existing sealing material.

6) Apply the AQUASTOP® rubber all around the ducted pipe. Most of the leakage might have stopped by this point. Note: to stop water leakages with higher pressures much more AQUASTOP® rubber mass is needed, so more depth is required.

7) Start compressing the AQUASTOP® rubber by hand or with the aid of a piece of wood. This is essential to obtain a solid mass of the rubber inside the penetration.

8) To stop the possible last leakages, the AQUASTOP® mouldable rubber is smeared out by hand against the wall of the conduit opening. Take care that there is 20 mm free space left to apply the sealant.

9) Wait a moment to see that the leakage has actually stopped. This is essential for the application of the sealant afterwards.
Any moisture will have a negative impact on the adhesion properties of the sealant.

AQUASTOP® WATERTIGHT SEALING SYSTEM FOR EXISTING, LEAKING CONDUITS

10) With an air blower, the wet surfaces, also that of the AQUASTOP® rubber, are dried properly. Note: a dry surface is needed to obtain optimum adhesion of the sealant.

People with sensitive skin should use gloves when working with the sealants.

11) After drying, remove all dirt and other residues and start applying either the NOFIRNO® or DRIFIL® sealant. Note: for optimum mechanical stability the sealant should be applied with a layer thickness of 20 mm.

12) Either the NOFIRNO® or DRIFIL® sealant is applied against the AQUASTOP® rubber mass. Both sealants adhere very well to the AQUASTOP® rubber.

13) The surface of the sealant layer is compressed and smoothed with a wet cloth.
Note: do not use soap water!
Please refer to the Safety Data Sheet for more information.

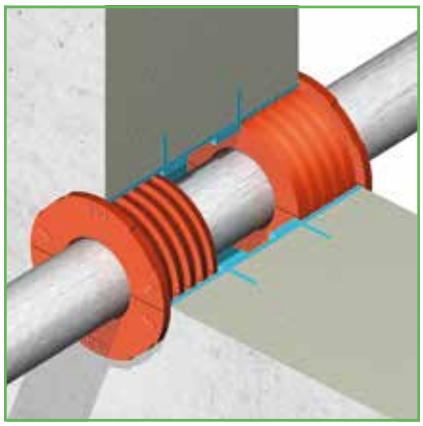
People with sensitive skin should use gloves when working with the sealants.

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

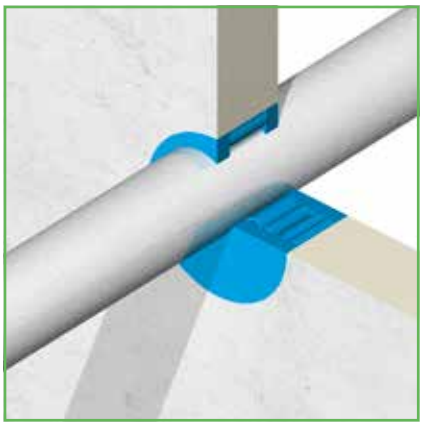
Note: time needed for curing of the sealant is dependent on air humidity in combination with the environmental temperature.

15) For highest mechanical stability it is advisable to use the NOFIRNO® sealant. Note: the pressure ratings of the AQUASTOP® system are lower than those of the regular RISWAT® system.

16) For installations where pipes are exposed to continuous vibration and movements, the DRIFIL® sealant should be used. The cured DRIFIL® sealant has a lower hardness than NOFIRNO® and has a higher flexibility.

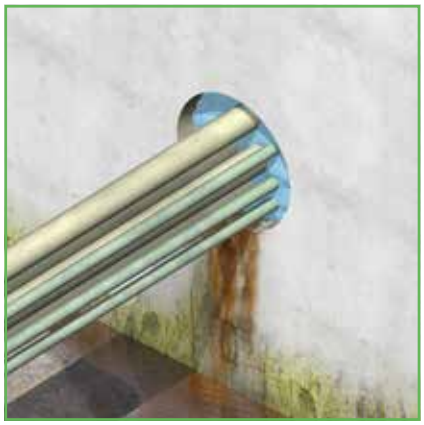


PREVENTION IS BETTER THAN CURE:
for proper watertight sealing in new installations use the CSD® embedded conduit inlet system in combination with the SLIPSIL® sealing plugs.

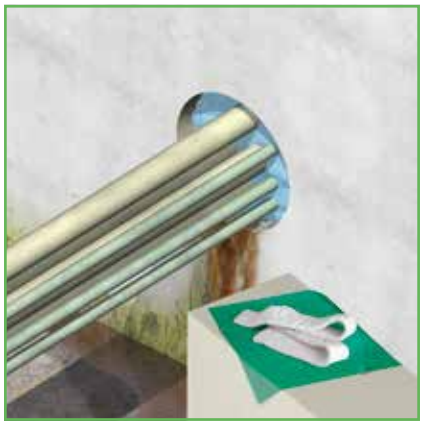


PREVENTION IS BETTER THAN CURE:
for proper watertight sealing in new installations use the RISWAT® or NOFIRNO® sealing system.

AQUASTOP® WATERTIGHT SEALING SYSTEM FOR EXISTING, LEAKING CONDUITS

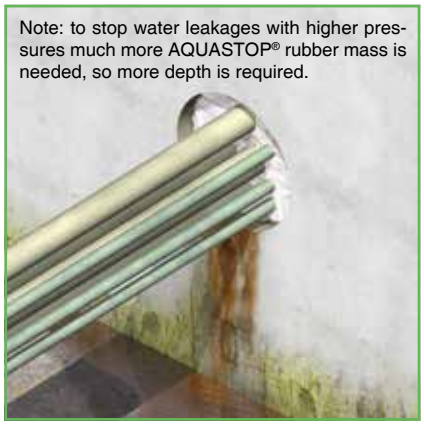


1) Remove sufficient amount of the existing sealing material to obtain at least 40 mm free space inside the conduit opening. In case this is not feasible, the split, modular frames have to be used. The cables have to be cleaned properly to ensure adequate application.

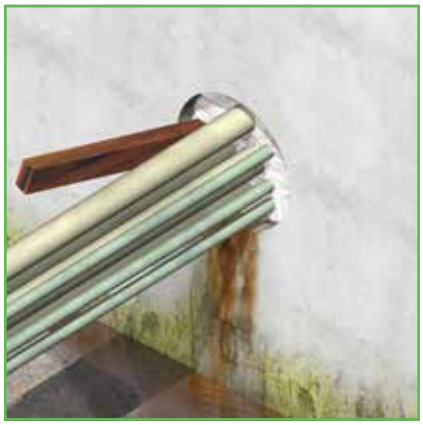


2) Locate the place of the leakage(s) before applying the AQUASTOP® mouldable rubber. Note: the rubber is sticky and is for this reason packed in polyethylene plastic. Please refer to the Safety Data Sheet for more information.

3) Work from the non-leaking area towards the leaking area when inserting the AQUASTOP® rubber into the wall opening against the existing sealing material.

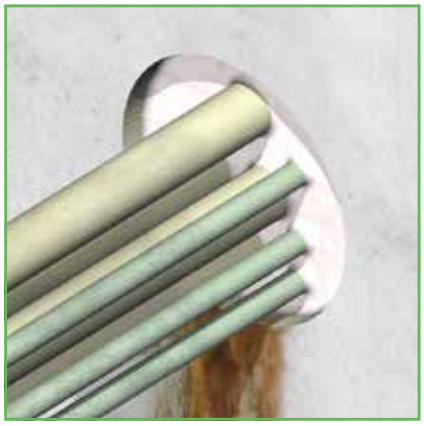


4) Apply the AQUASTOP® rubber thoroughly all around and in between the ducted cables. Most of the leakage might have stopped by this point.

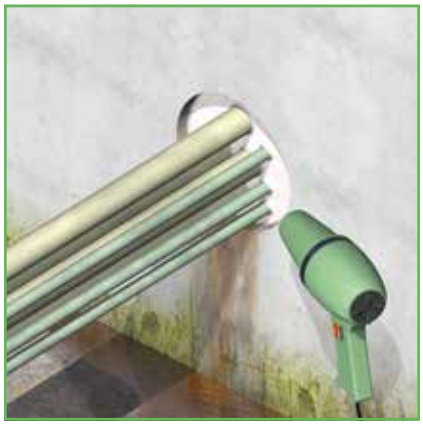


5) Start compressing the AQUASTOP® rubber by hand or with the aid of a piece of wood. This is essential to obtain a solid mass of the rubber inside the penetration.

6) To stop the possible last leakages, the AQUASTOP® mouldable rubber is smeared out by hand against the wall of the conduit opening. Take care that there is 20 mm free space left to apply the sealant.



7) Wait a moment to see that the leakage has actually stopped. This is essential for the application of the sealant afterwards.
Any moisture will have a negative impact on the adhesion properties of the sealant.



8) With an air blower, the wet surfaces, also that of the AQUASTOP® rubber, are dried properly. Be careful not to damage the cable sheathings. Note: a dry surface is needed to obtain optimum adhesion of the sealant.

9) After drying, remove all dirt and other residues and start applying either the NOFIRNO® or DRIFIL® sealant.
Note: for optimum mechanical stability the sealant should be applied with a layer thickness of 20 mm.

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

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

Article 6.5 of ISO/CD 22899-2 mentions:

"There are concerns regarding the application and performance of passive fire protection materials and products when subjected to extreme fire events. Limited information is available how passive fire protection materials and products (developed for buildings only to withstand relatively slow build up fire tests such as ISO 834) perform if subjected to a fire exposure significantly more severe.
A fire protection material or system intended to withstand a conventional building fire for a specified period may not perform adequately in an extreme event scenario. Products that have demonstrated the ability to withstand a jet fire can be used to protect buildings more sensitive to extreme fires".

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

Article 9.1 of ISO/CD 22899-2 mentions:
"Whilst hydrocarbon furnace tests are designed to represent a particular type of fire, they do not reproduce the actual fire conditions. Parameters such as:
the balance between radiative and convective heat transfer, pressure fluctuations due to turbulence, erosive forces from high gas velocities, thermal shock and differential heating are not reproduced".

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

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

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

NOFIRNO® filler sleeves

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

filler sleeves are supplied non-split

NOFIRNO® filler sleeve		sleeve length	article number
18/12 multi		60	80.5050
18/12 single		110	80.5001
18/12 multi		110	80.5051
18/12 single		140	80.5002
18/12 multi		140	80.5052
18/12 single		160	80.5003
18/12 multi		160	80.5053
18/12 single		210	80.5004
18/12 multi		210	80.5054
27/19 multi		60	80.5060
27/19 single		110	80.5011
27/19 multi		110	80.5061
27/19 single		140	80.5012
27/19 multi		140	80.5062
27/19 single		160	80.5013
27/19 multi		160	80.5063
27/19 single		210	80.5014
27/19 multi		210	80.5064
22/15 multi		60	80.5070
22/15 multi		110	80.5071
22/15 multi		140	80.5072
22/15 multi		160	80.5073
22/15 multi	*all dimensions in mm*	210	80.5074

NOFIRNO® multi-filler sleeves

filler sleeves can be supplied in multi-sets of 10 sleeves

The NOFIRNO® rubber grade has excellent properties and will not be consumed by the fire. The NOFIRNO® sealant immediately forms a protective layer and char when exposed to flames, in this way protecting the filling of the penetration seal.
The thermal insulation is very high because of the air volume inside the penetration. The air is tightly enclosed by the sealant layer at both sides even when one side is exposed to the fire. The NOFIRNO® system has been subjected to A-0, H-0 and even Jet Fires without being severely affected. Due to the superb behaviour of our various systems, the NOFIRNO® sealing system can be easily combined with RISE®.
The NOFIRNO® rubber is absolutely HALOGEN FREE (tested according to Naval Engineering Standard NES 713: Issue 3). Furthermore, the NOFIRNO rubber has a low smoke index (NES 711: Issue 2: 1981) and a high oxygen index (ISO 4589-2: 1996).

PRODUCT INFORMATION SEALANT

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

article number 50.0102

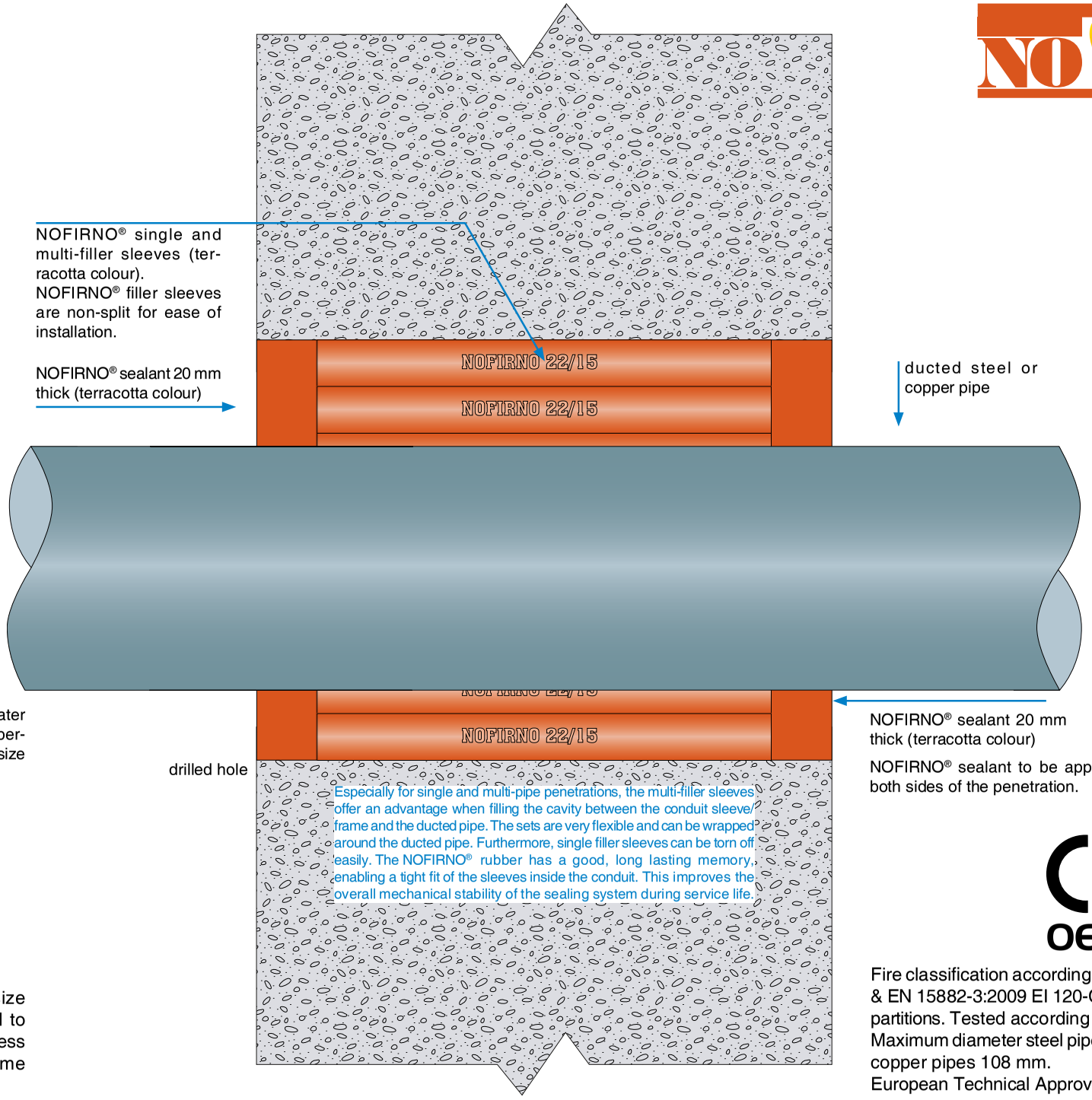
NOFIRNO® is a paste-like compound which is simple to use. NOFIRNO® has a balanced viscosity and can be applied overhead.
After applying the sealant, it can be smoothed by means of a wet cloth or by hand. Because the sealant adheres very tightly, the cloth and hands should be wetted with water before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

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

WE CARE

NOFIRNO® single and multi-filler sleeves are made from NOFIRNO® silicone rubber; NOFIRNO® sealant is based on a single component silicone compound, both developed by BEELE Engineering.

NOFIRNO® sealing sealing system for fire safe, water and gas tight sealing of conduit openings for ducting steel and copper pipes. The system consists of only two components; NOFIRNO® filler sleeves and NOFIRNO® sealant.



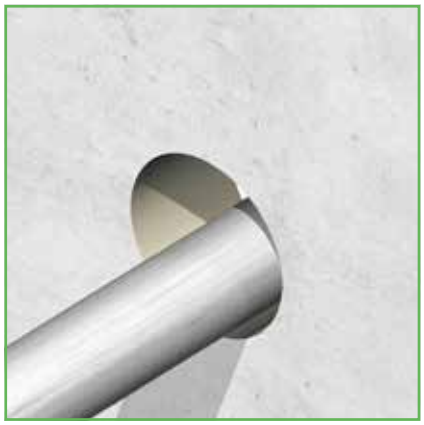
Tightness ratings up to 10 meter water column, depending on adhesive properties to the various substrates and the size of the conduit opening.

CE 0620

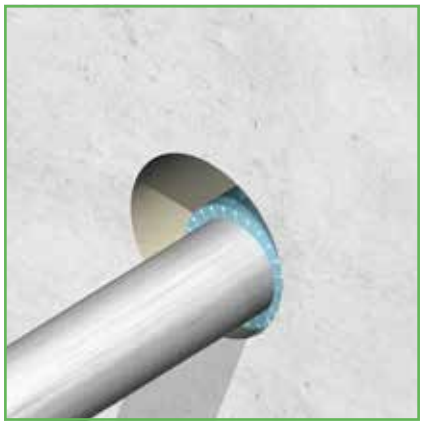
Fire classification according to EN 13501-2: 2007 +A1:2009 & EN 15882-3:2009 EI 120-C/U - E120-C/U in 150 mm thick partitions. Tested according EN 1366-3:2009.
Maximum diameter steel pipes 159 mm; maximum diameter copper pipes 108 mm.
European Technical Approval ETA 13/0153

Ducted pipes, depending on size and type, have to be insulated to prevent temperature rise in excess of 180 °C to obtain a higher time related EI classification.

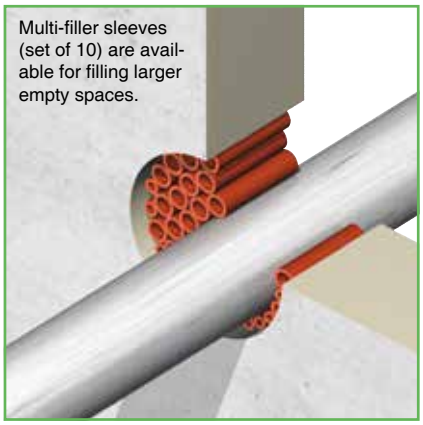
NOFIRNO® (MULTI-) PIPE TRANSIT SEALING SYSTEM - FIRESAFE/GAS & WATERTIGHT



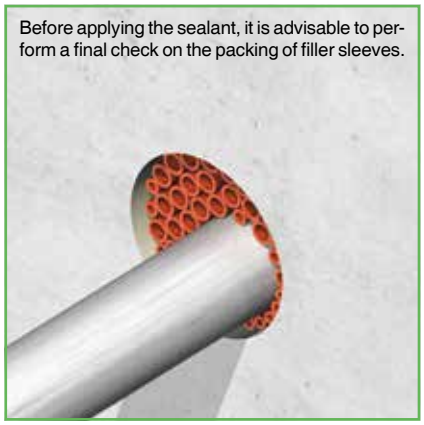
1) The metallic pipe can be passed through the conduit opening in any position, provided there is enough space between the wall of the conduit opening and the ducted pipe (see next at 2). Depth of the conduit for EI90/E120 classification minimum 150 mm.



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



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 is maximum 2:1.
Alternative filler sleeves 22/15 only.



4) Push the filler sleeves into the conduit in such a way as to leave about 20 mm free space at the front and back. 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 conduit. Clean and dry the conduit opening as well as the pipe thoroughly, and remove any dirt, rust or oil residues before applying the sealant.

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!

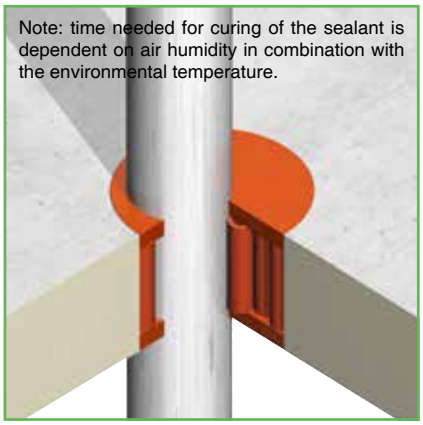
8) The cloth is then used to press down the sealant layer. People with sensitive skin should use gloves when working with NOFIRNO®. Please refer to the Safety Data Sheet for more information.

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-) PIPE TRANSIT SEALING SYSTEM - FIRESAFE/GAS & WATERTIGHT

1a) Vertical penetrations are easy to install as well. To prevent the filler sleeves from falling out of the conduit opening, multi-sleeves are preferably used.

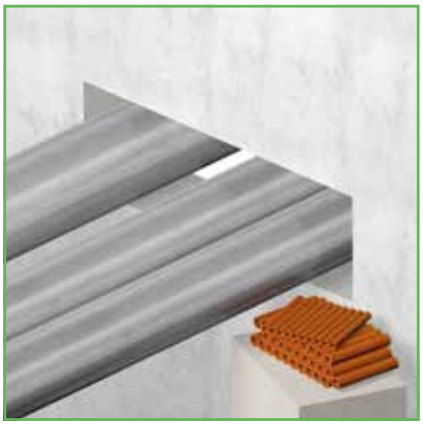
2a) The optimized viscosity and the superb adhesion properties of the NOFIRNO® sealant make applying the sealant overhead an easy matter. NOFIRNO® sealant does not sag and will not drip off.



3a) For fire rated penetrations, the ducted pipe might have to be insulated to cope with the thermal insulation criterion according to EN classification (max. temperature rise 180 °C).

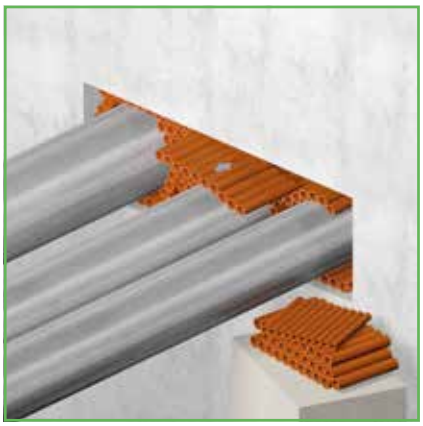
NOFIRNO® (MULTI-) PIPE TRANSIT SEALING SYSTEM - FIRESAFE/GAS & WATERTIGHT

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.

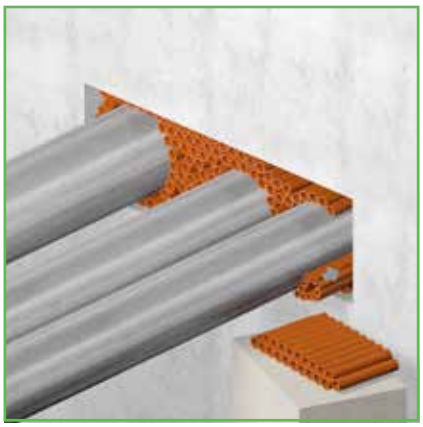


2) The open free space in the conduit opening has to be filled with NOFIRNO® filler sleeves type 27/19 and 18/12. For ease of filling, the filler sleeves are also supplied in multi-sets of 10 pieces. The filling ratio 18/12 to 27/19 should be maximum 1:2. Alternative fillers 22/15 only.

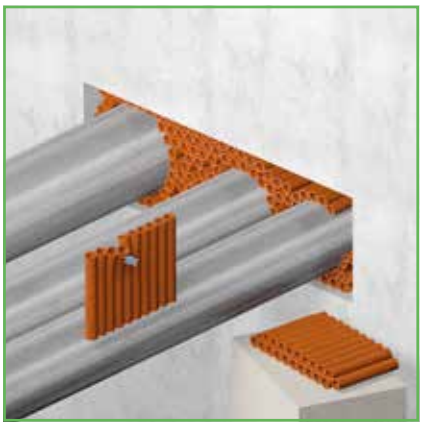
3) Before starting the installation work the ducted pipes and the wall of the conduit opening should be cleaned. Dirt, rust and oil residues should be removed. Start filling the larger open spaces in the conduit by inserting the sets of multi-filler sleeves.



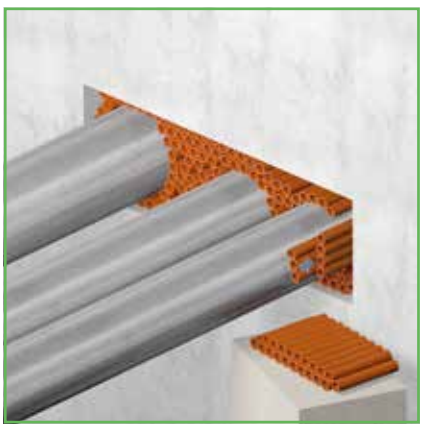
4) The installation of the NOFIRNO® sealing system is extremely fast when using the NOFIRNO® multi-filler sleeves. Besides, it makes it less complicated than using the single filler sleeves.



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.

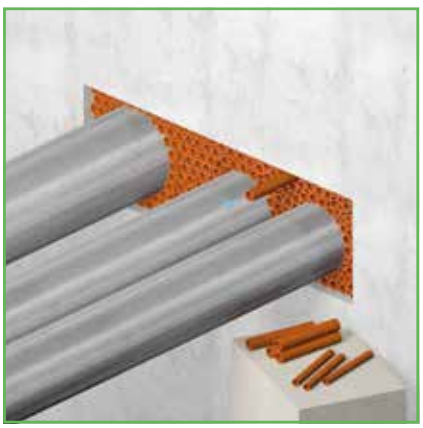


6) The smaller openings are now filled with parts of the sets of multi-filler sleeves. To tear off sleeves from the multi-set, the procedure is to do this backwards/forwards and not sidewards. This is because of the strength of the intermediate rubber parts.



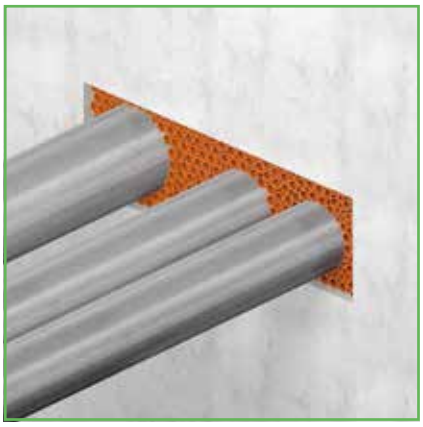
7) These parts of the sets of multi-filler sleeves are then pushed in the fitting remaining open spaces in the set of filling inside the conduit opening.

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.

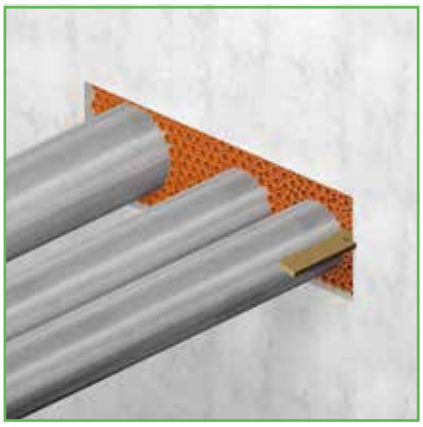


9) The single filler sleeves are inserted in the open spaces. At this stage they can generally be pushed in by hand. At the final stage to create a very tight fit of the whole set of fillers, the sleeves can be inserted with the help of a flat nose pliers.

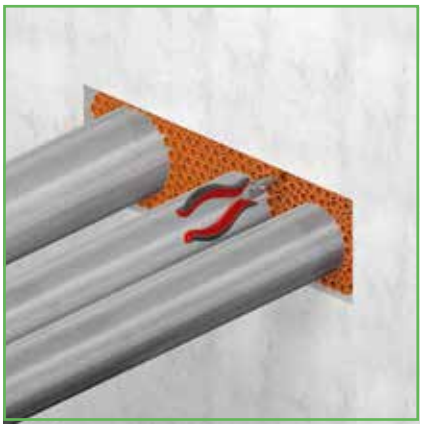
NOFIRNO® (MULTI-) PIPE TRANSIT SEALING SYSTEM - FIRESAFE/GAS & WATERTIGHT



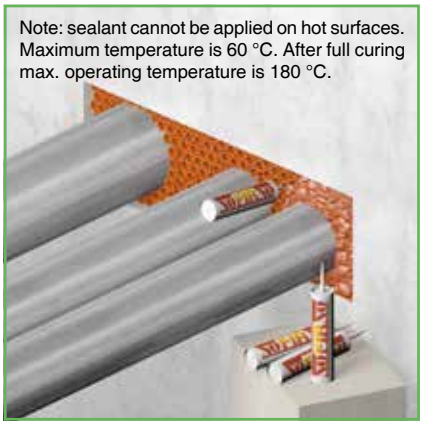
10) A tight fit of the filling with filler sleeves is essential for the overall mechanical stability and the ultimate tightness ratings.



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.



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

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.

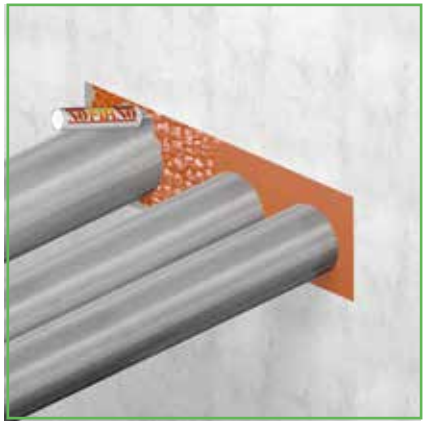
Use our professional sealant guns. Hand fatigue is prevented and optimum flow of the sealant is obtained.

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.

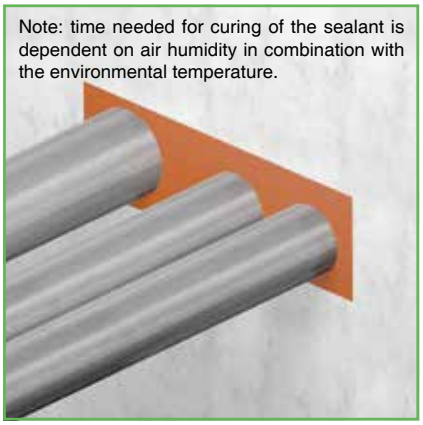
People with sensitive skin should use gloves when working with NOFIRNO®.

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

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



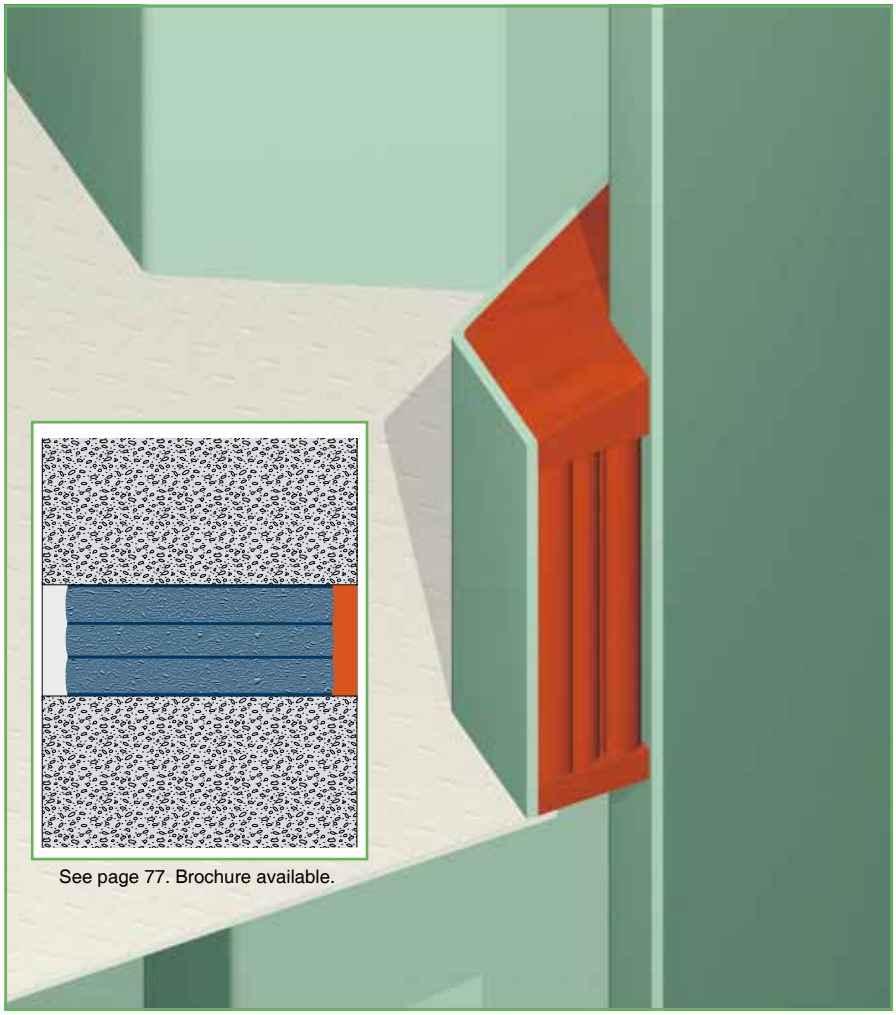
17) Then applying the sealant can be continued for the rest of the transit.
Smoothing and finishing in the same way as for the first part of the sealant layer



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

18) The NOFIRNO® multi-pipe penetrations have been successfully tested for a fire resistance of >120 minutes (E120) according to EN 1366-3:2004). EI-90 or EI-120-classification is dependent on the thermal insulation to be applied around the ducted pipes.

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



See page 77. Brochure available.

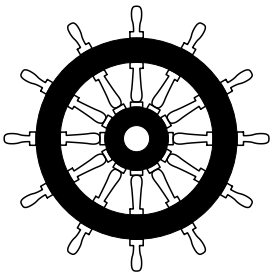
The optimized viscosity and the superb adhesion properties of the NOFIRNO® sealant make applying the sealant overhead at the bottom of the sealing system an easy matter. NOFIRNO® sealant does not sag and will not drip off.
Furthermore, the viscosity of the sealant allows to form a sloped surface of the 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, so-called Design Verification Reports can be obtained on a case by case project basis. A DVR has been issued for both systems.

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

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



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

DNV

DESIGN VERIFICATION REPORT

MANUFACTURER : REELE Engineering bv - CSD International bv, Rosmolijn 11, Aalten, The Netherlands

CLIENT : GustoMSC / SBM, Schiedam, The Netherlands

PROJECT : TALISMAN YME – Redevelopment project SBM Mogmster

DNV PROJECT NO. : D20100

This is to verify that the design of

- NOFIRNO Sealing System

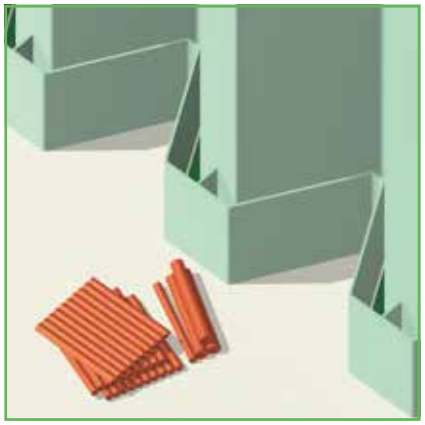
has been reviewed and found to comply with

- Det Norske Veritas' Offshore Standards

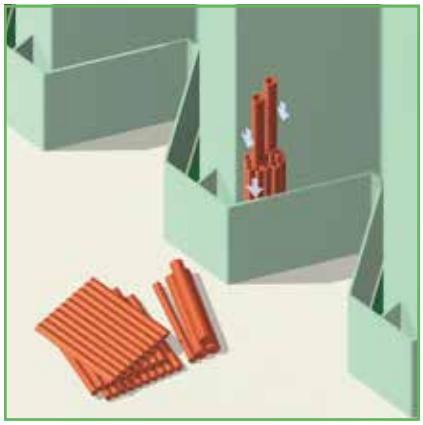
The verification is given with the following limitations/conditions:

- Approved for use as sealing system between corrugated blast wall and 250 mm high steel sleeves welded to the 1. process deck (Minimum sealing thickness: 60 mm)
- The sealing system is composed of 210 mm long NOFIRNO filler sleeves and 20 mm NOFIRNO sealant on both sides.
- The sealing system is approved to withstand a H-0/H-60 fire and a 15 minutes jet fire (15')
- The sealing system is to be installed according to drawing No. D20100?? Rev. A1, dated 4 February 2010
- The sealing system is to be installed according to DNV Type Approval certificate No. F-10020 (NOFIRNO penetrations)

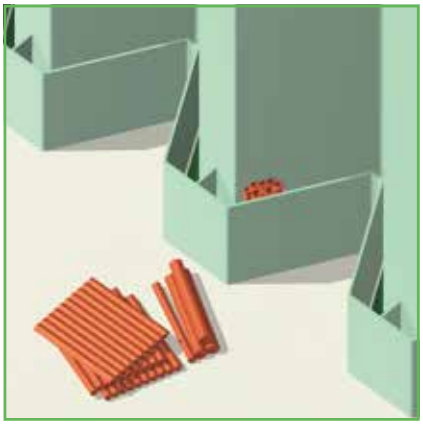
NOFIRNO® SEALING SYSTEM
FOR STRUCTURAL GAPS - FIRESAFE/GAS & WATERTIGHT



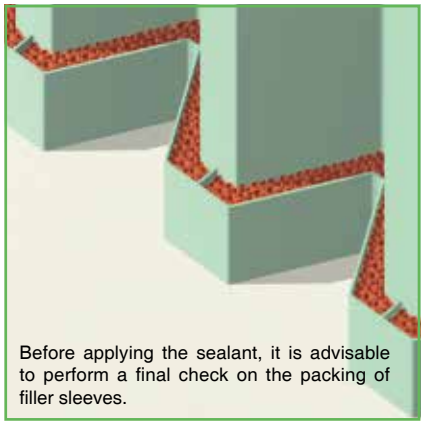
1) Based on the width and length of the gap to be sealed, partitions have to be put in place to ensure that the adhesive surface is in accordance with the maximum certified surface of 1800 cm².



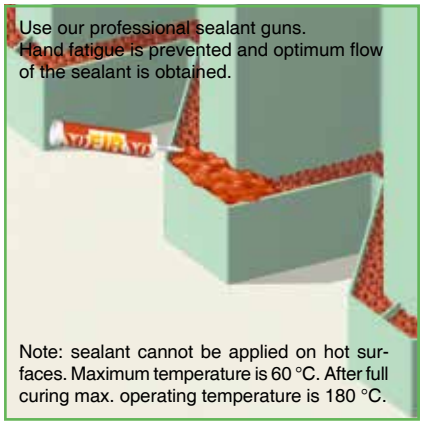
2) NOFIRNO® filler sleeves are inserted in the gap to be sealed. A combination of multi-filler sleeves (set of 10 sleeves) and single filler sleeves type 18/12 and 27/19 can be used. The ratio 27/19 to 18/12 is maximum 2:1. Alternative filler sleeves 22/15 only.



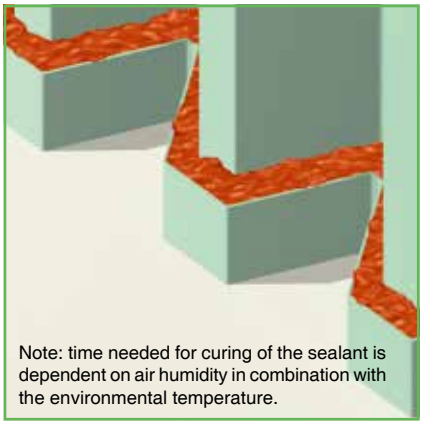
3) For H-class and Jet Fire rated constructions the length of the sleeves is 210 mm.
For ease of filling, the filler sleeves are also supplied in multi-sets of 10 pieces. Single sleeves to be used to fill tightly the smaller open spaces



4) Push the filler sleeves into the gap 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 gap to provide sufficient mechanical stability.

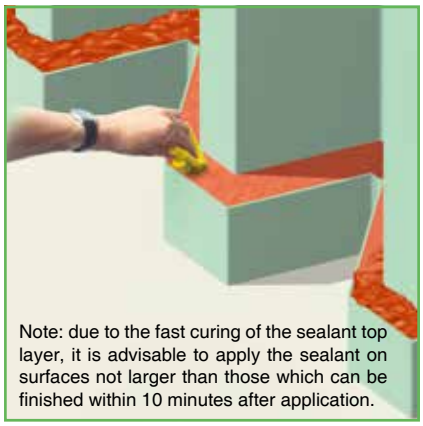


5) A 20 mm thick layer of NOFIRNO® sealant is applied at each side of the gap. Clean and dry the walls of the gap, and remove any dirt, rust or oil residues before applying the sealant.



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 NOFIRNO® and a very neat surface is the result.

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

RISE® cable sleeves

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

cable sleeves are supplied split lengthwise

NOFIRNO® filler sleeves

see page 47 for the article numbers of the filler sleeves

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

filler sleeves are supplied non-split

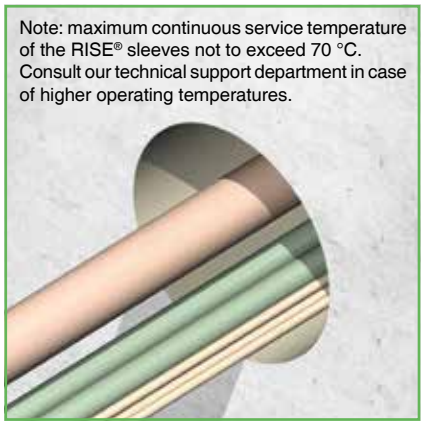
NOFIRNO® multi-filler sleeves

filler sleeves are supplied in multi-sets of 10 sleeves

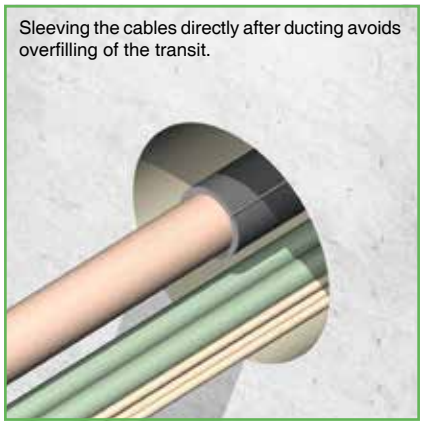
RISE® cable sleeve	cable diameter		sleeve length	article number
12/6	5 - 7		110	80.2000
14/8	7 - 9		110	80.2001
16/10	9 - 11		110	80.2002
18/12	11 - 13		110	80.2003
20/14	13 - 15		110	80.2004
22/16	15 - 17		110	80.2005
27/19	17 - 21		110	80.2006
31/23	21 - 25		110	80.2007
35/27	25 - 29		110	80.2008
39/31	29 - 33		110	80.2009
46/36	33 - 39		110	80.2010
52/42	39 - 45		110	80.2011
58/48	45 - 51		110	80.2012
64/54	51 - 57		110	80.2013
70/60	57 - 63		110	80.2014
12/6	5 - 7		140	80.0051
14/8	7 - 9		140	80.0052
16/10	9 - 11		140	80.0053
18/12	11 - 13		140	80.0054
20/14	13 - 15		140	80.0055
22/16	15 - 17		140	80.0056
27/19	17 - 21		140	80.0057
31/23	21 - 25		140	80.0058
35/27	25 - 29		140	80.0059
39/31	29 - 33		140	80.0060
46/36	33 - 39		140	80.0061
52/42	39 - 45		140	80.0062
58/48	45 - 51		140	80.0063
64/54	51 - 57		140	80.0064
70/60	57 - 63		140	80.0065
12/6	5 - 7		160	80.0100
14/8	7 - 9		160	80.0101
16/10	9 - 11		160	80.0102
18/12	11 - 13		160	80.0103
20/14	13 - 15		160	80.0104
22/16	15 - 17		160	80.0105
27/19	17 - 21		160	80.0106
31/23	21 - 25		160	80.0107
35/27	25 - 29		160	80.0108
39/31	29 - 33		160	80.0109
46/36	33 - 39		160	80.0110
52/42	39 - 45		160	80.0111
58/48	45 - 51		160	80.0112
64/54	51 - 57		160	80.0113
70/60	57 - 63		160	80.0114
12/6	5 - 7		210	80.0200
14/8	7 - 9		210	80.0201
16/10	9 - 11		210	80.0202
18/12	11 - 13		210	80.0203
20/14	13 - 15		210	80.0204
22/16	15 - 17		210	80.0205
27/19	17 - 21		210	80.0206
31/23	21 - 25		210	80.0207
35/27	25 - 29		210	80.0208
39/31	29 - 33		210	80.0209
46/36	33 - 39		210	80.0210
52/42	39 - 45		210	80.0211
58/48	45 - 51		210	80.0212
64/54	51 - 57		210	80.0213
70/60	57 - 63		210	80.0214

all dimensions in mm

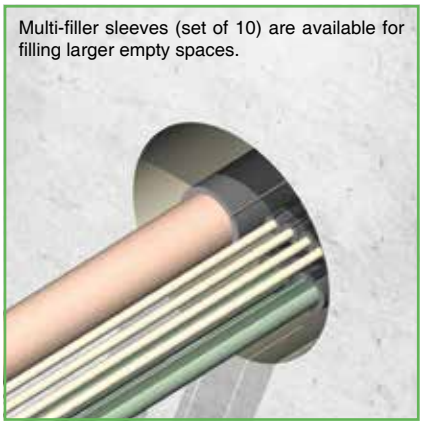
NOFIRNO® (MULTI-) CABLE TRANSIT SEALING SYSTEM - FIRESAFE/GAS & WATERTIGHT



1) The cables can be ducted through the conduit opening 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 delivered non-split. The ratio 27/19 to 18/12 is maximum 2:1.
Alternative filler sleeves 22/15 only.

4) Push the insert/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 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.

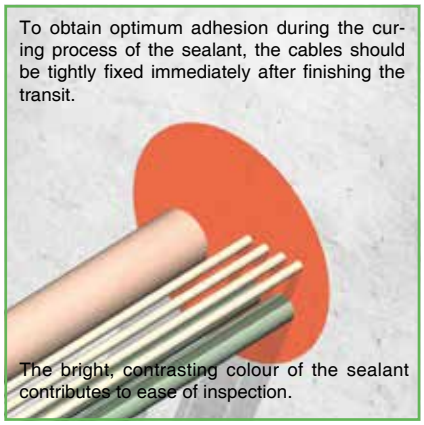
6) The conduit should be overfilled with NOFIRNO® sealant because some sealant will be pushed between and into the empty filler sleeves during further finishing. This will contribute to obtain higher tightness ratings.

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!

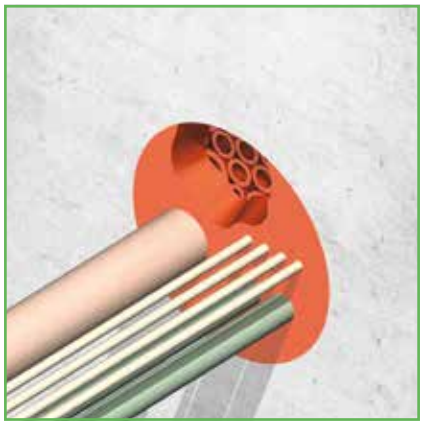
8) The cloth is then used to press down the sealant layer. People with sensitive skin should use gloves when working with NOFIRNO®. Please refer to the Safety Data Sheet for more information.

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

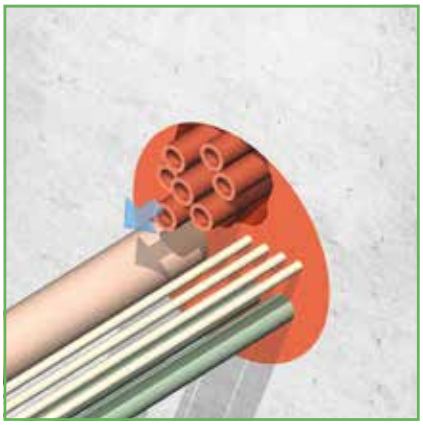
NOFIRNO® (MULTI-) CABLE TRANSIT SEALING SYSTEM - FIRESAFE/GAS & WATERTIGHT



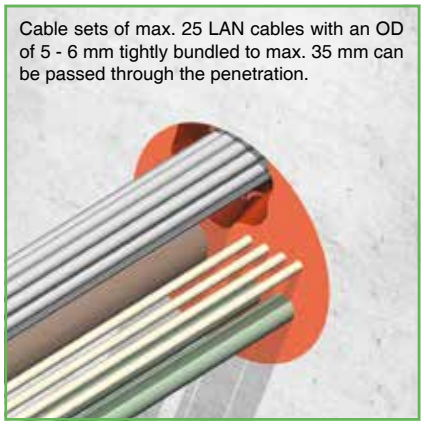
10) After smoothing is finished, a last check should be made to ensure that sufficient sealant is applied in between the cables especially at penetrations with larger amounts of cables. This is most important, especially for water and gas tight penetrations.



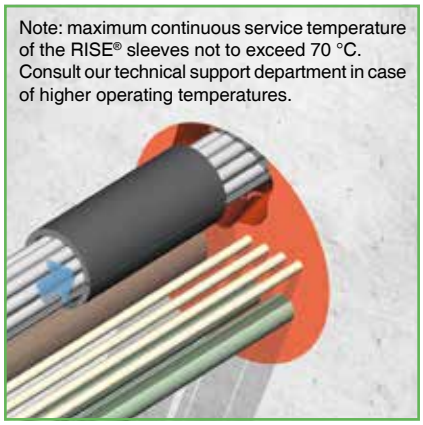
11) Adding extra cables is an easy job. Cut away the sealant layer at both sides of the penetration with a knife or a hollow punch in a tapering shape. This creates a good foundation for the sealant mass to be applied later.



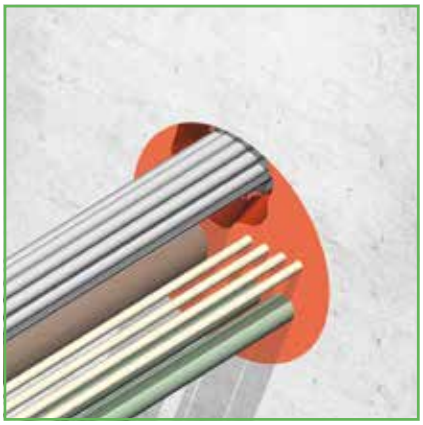
12) Remove one or more NOFIRNO® filler sleeves to create a fitting opening for the cable to be ducted.



13) Pull the new cable (even a set of bundled cables is allowed) through the conduit.
Note: bundled cables not approved for gas or watertight penetrations!



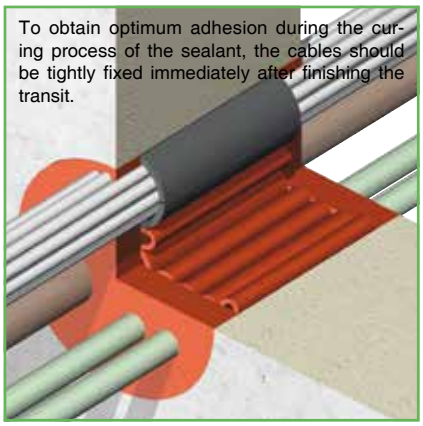
14) After the cable(s) have been ducted, place a RISE® insert sleeve around the cable or bundled set. Insert sleeves are split lengthwise and can therefore be placed around the cables in front of the conduit.



15) Push the insert sleeve into the conduit in such a way as to leave about 20 mm free space at the front and back and place, if necessary, NOFIRNO® filler sleeves back in the remaining open spaces.

16) Refill the opening in the sealant layer with sufficient NOFIRNO® sealant at both sides of the penetration. Finish the sealant layer as described before.

17) The NOFIRNO® sealing system can be applied also in square or rectangular openings. The NOFIRNO® sealant adheres very well to the most common substrates. Check the adhesion properties especially in case of watertight penetrations.



18) For fire rated conduits, plastic conduit sleeves should not be used. This is not a problem for “watertight only” penetrations.

RISE®/ULTRA - FIRE SAFE PLASTIC PIPE TRANSIT SEALING SYSTEM

CRUSHER® type C-FIT

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

CRUSHER® type WRAP

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

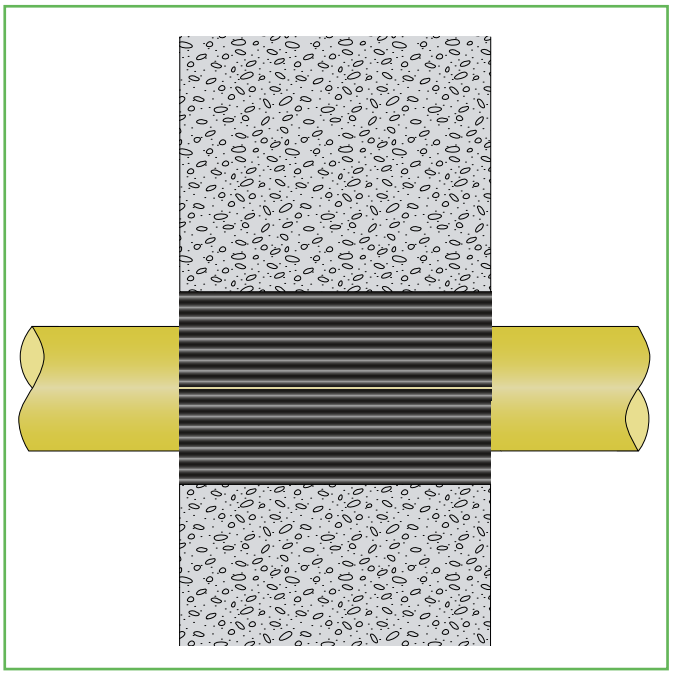
article number 50.0102

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

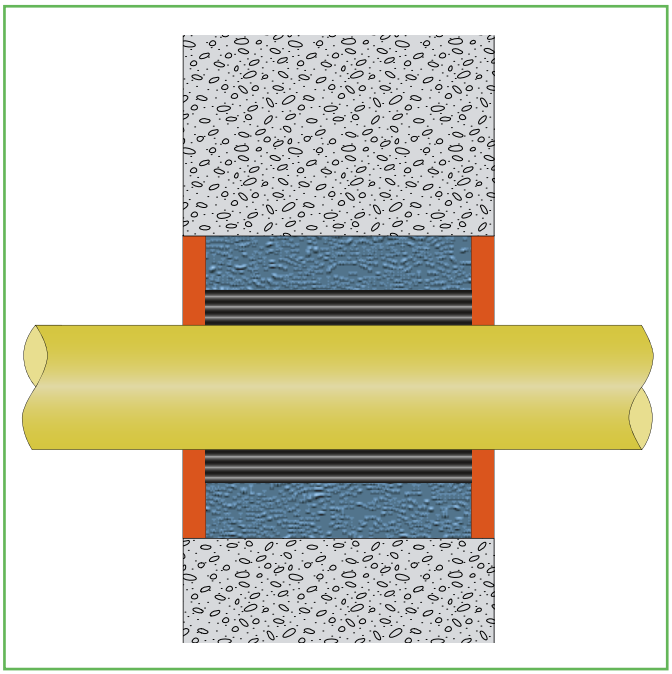
Shelf life is 12 months when stored properly. Since we have no control on storage, we can only guarantee for 6 months.

plastic pipe OD	crusher® type	conduit opening		crusher® length	article number
16	30/16	30		110	80.2700
18	30/18	30		110	80.2701
20	40/20	40		110	80.2702
25	40/25	40		110	80.2703
32	50/32	50		110	80.2704
40	50/40	50		110	80.2705
40	60/40	60		110	80.2706
50	70/50	70		110	80.2707
50	80/50	80		110	80.2708
63	80/63	80		110	80.2709
63	90/63	90	all dimensions in mm	110	80.2710
75	100/75	100		110	80.2711
75	110/75	110		110	80.2712
90	125/90	125		110	80.2713
110	150/110	150		110	80.2714
16	30/16	30		140	80.2720
18	30/18	30		140	80.2721
20	40/20	40		140	80.2722
25	40/25	40		140	80.2723
32	50/32	50		140	80.2724
40	50/40	50		140	80.2725
40	60/40	60		140	80.2726
50	70/50	70		140	80.2727
50	80/50	80		140	80.2728
63	80/63	80		140	80.2729
63	90/63	90	all dimensions in mm	140	80.2730
75	100/75	100		140	80.2731
75	110/75	110		140	80.2732
90	125/90	125		140	80.2733
110	150/110	150		140	80.2734
16	30/16	30		160	80.2740
18	30/18	30		160	80.2741
20	40/20	40		160	80.2742
25	40/25	40		160	80.2743
32	50/32	50		160	80.2744
40	50/40	50		160	80.2745
40	60/40	60		160	80.2746
50	70/50	70		160	80.2747
50	80/50	80		160	80.2748
63	80/63	80		160	80.2749
63	90/63	90	all dimensions in mm	160	80.2750
75	100/75	100		160	80.2751
75	110/75	110		160	80.2752
90	125/90	125		160	80.2753
110	150/110	150		160	80.2754
16	30/16	30		170	80.2760
18	30/18	30		170	80.2761
20	40/20	40		170	80.2403
25	40/25	40		170	80.2404
32	50/32	50		170	80.2764
40	50/40	50		170	80.2765
40	60/40	60		170	80.2766
50	70/50	70		170	80.2767
50	80/50	80		170	80.2768
63	80/63	80		170	80.2769
63	90/63	90	all dimensions in mm	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
wrap 1000x110x2,5 mm					80.2511
wrap 1000x140x2,5 mm					80.2512
wrap 1000x160x2,5 mm					80.2513
wrap 1000x170x2,5 mm			all dimensions in mm		80.2514
wrap 1000x190x2,5 mm					80.2515
wrap 1000x210x2,5 mm					80.2516

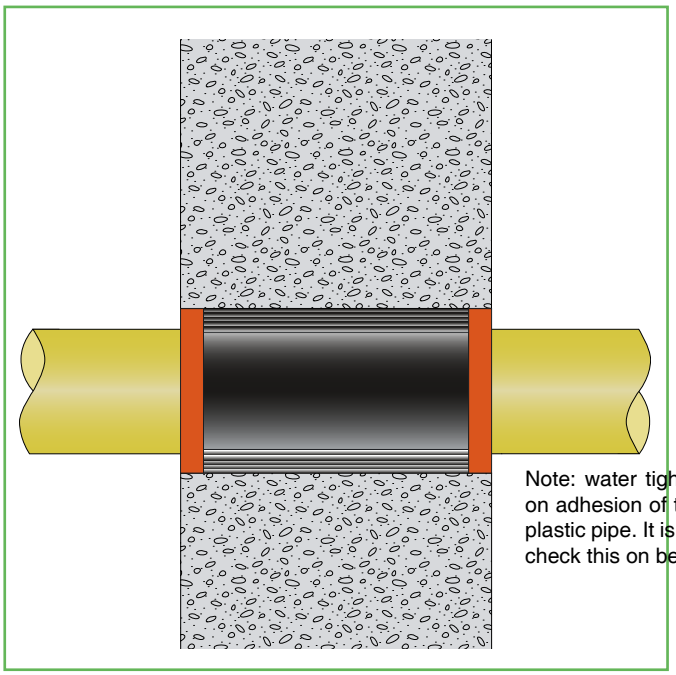
RISE®/ULTRA - FIRE SAFE PLASTIC PIPE TRANSIT SEALING SYSTEM



Several options are available with the RISE®/ULTRA crushers. The most simple and cost effective solution is a fitting C-FIT crusher applied in a conduit opening with an exact ID for a tight fit. This application is for fire-rated only penetrations, not for watertight penetrations.

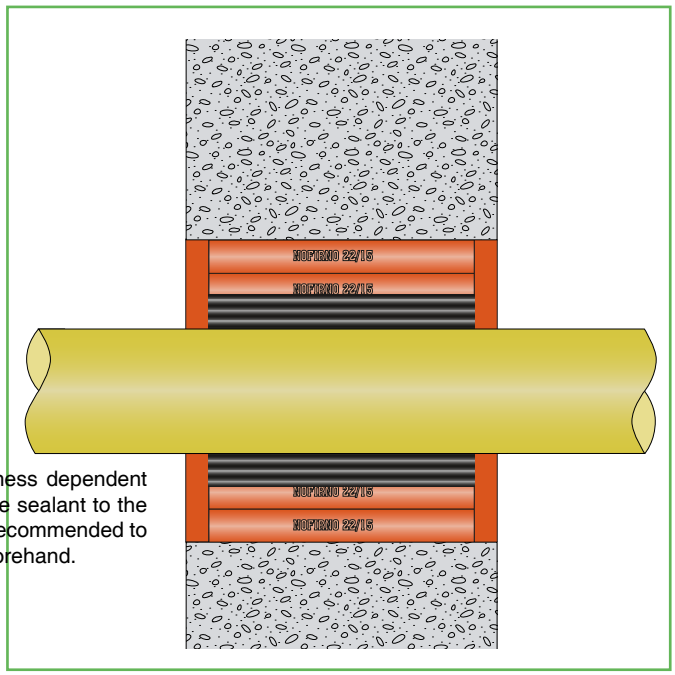


For oversized penetrations, a non-fitting crusher can be used in combination with ACTIFOAM® filler sheets. Care has to be taken that the ACTIFOAM® filler sheets are installed tightly fitting into the conduit opening. Especially in the case of floor penetrations. Non-watertight application.



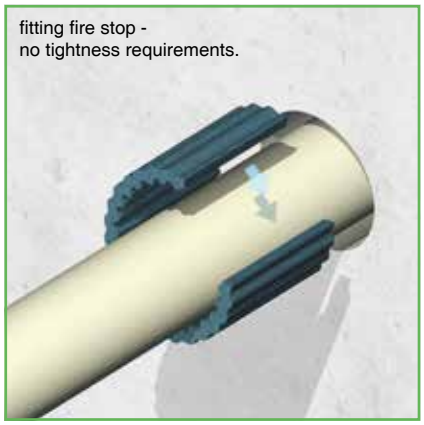
Note: water tightness dependent on adhesion of the sealant to the plastic pipe. It is recommended to check this on beforehand.

Instead of RISE®/ULTRA crushers, RISE®/ULTRA wraps can be used. The RISE®/ULTRA sheets for wrapping are 2.5 mm thick and have to be wrapped to the required thickness. For gas and watertight penetrations, NOFIRNO® sealant with a thickness of minimum 20 mm has to be applied at both sides of the penetration.

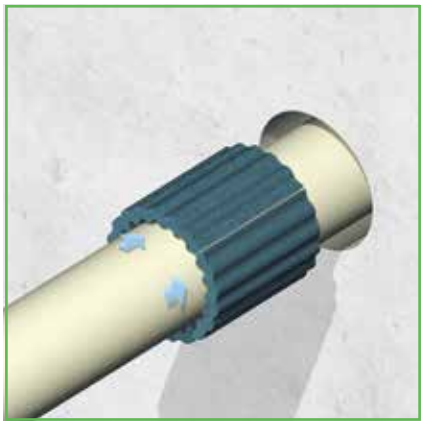


For firesafe, gas and watertight oversized penetrations the open space around the RISE®/ULTRA crusher is filled with NOFIRNO® filler sleeves. A 20 mm thick layer of NOFIRNO® sealant is applied at each side of the conduit. In this case fitting RISE®/ULTRA C/FIT crushers or RISE®/ULTRA wraps can be used.

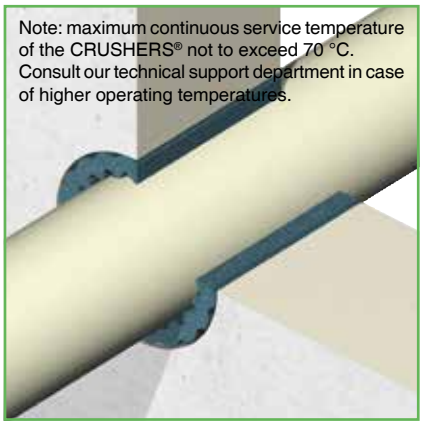
RISE®/ULTRA - FIRE SAFE PLASTIC PIPE TRANSIT SEALING SYSTEM



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

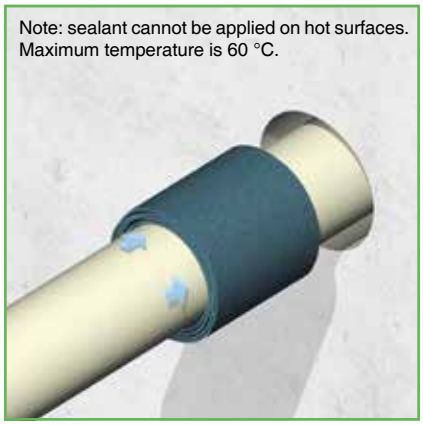


2) In case of a tight fitting crusher, the outside of the crusher and the inner wall of the conduit should be treated with CSD® lubricant for ease of installation. Push the crusher into the conduit opening.

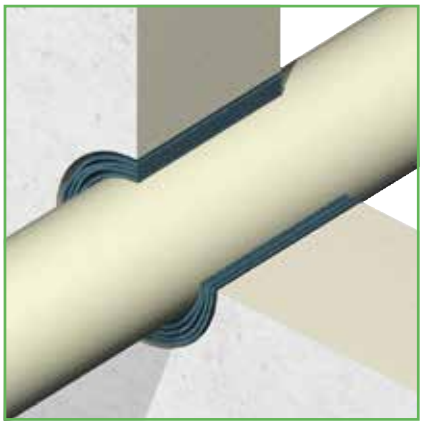


3) Fire safe ducting of plastic pipes cannot be more simple than with the RISE®/ULTRA crushers.
Care has to be taken for a tight fixation of the crusher, especially in floor penetrations.

1a) In case no fitting RISE®/ULTRA crusher is available, use can be made of RISE®/ULTRA crusher wraps with a thickness of 2.5 mm to be wrapped around the plastic pipe.
Also to be used for conduit openings which are a bit oversized.

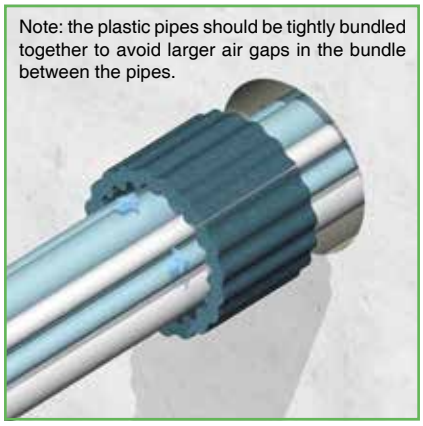


2a) For airtight penetrations, a NOFIRNO® sealant layer with thickness of min. 5 mm is applied at both sides of the penetration. For watertight penetrations the sealant layer has to be 20 mm thick at both sides of the penetration.

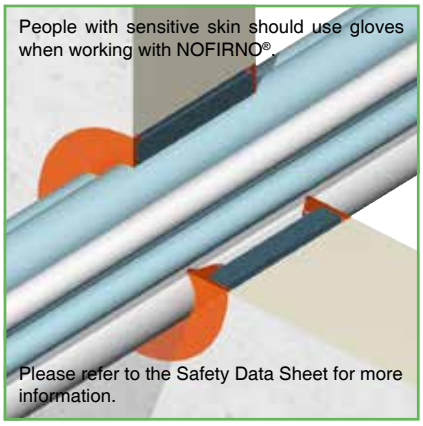


3a) Although RISE®/ULTRA is tested without, it is advisable to apply a layer NOFIRNO® sealant to prevent removal of the crusher. Remove/clean lubricant residues before applying the sealant.

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



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



3b) It is necessary to apply NOFIRNO® sealant around and in between the ducted pipes. Preferably a layer of minimum 5 mm NOFIRNO® sealant is applied at both sides of the conduit. Before applying, clean the pipes and the wall of the conduit opening.

RISE®/ULTRA - FIRE SAFE PLASTIC PIPE TRANSIT SEALING SYSTEM

CRUSHER® type C-FIT

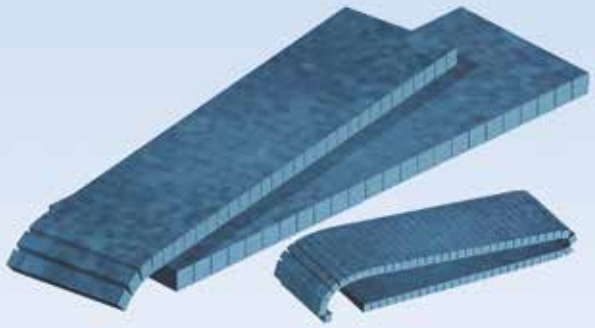
Note: maximum continuous service temperature of the CRUSHERS® not to exceed 70 °C.
Consult our technical support department in case of higher operating temperatures.

plastic pipe OD	crusher® type	crusher® length	article number
16	30/16	110/140/160/170	
18	30/18	110/140/160/170	
20	40/20	110/140/160/170	
25	40/25	110/140/160/170	
32	50/32	110/140/160/170	
40	50/40	110/140/160/170	
40	60/40	110/140/160/170	
50	70/50	110/140/160/170	
50	80/50	110/140/160/170	
63	80/63	110/140/160/170	
63	90/63	110/140/160/170	
75	100/75	110/140/160/170	
75	110/75	110/140/160/170	
90	125/90	110/140/160/170	
110	150/110	110/140/160/170	

see page 58

all dimensions in mm

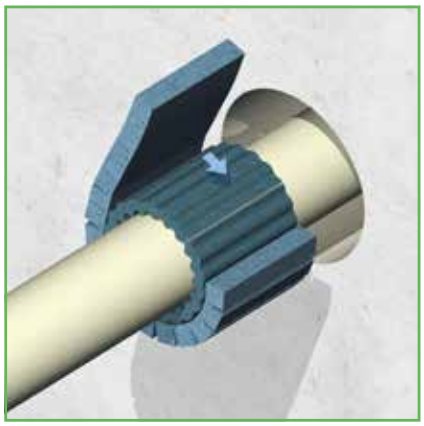
ACTIFOAM® filler sheets



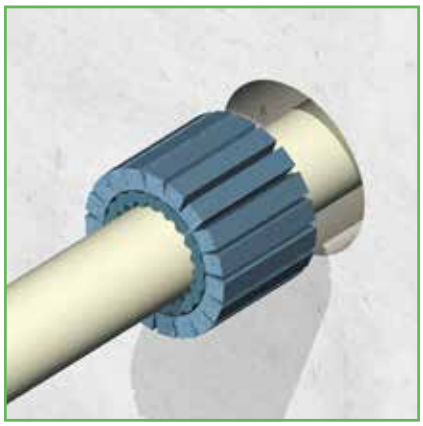
Note: maximum continuous service temperature of the ACTIFOAM® sheets not to exceed 70 °C.
Consult our technical support department in case of higher operating temperatures.

ACTIFOAM® filler sheets	sheet width	article number
300x110x10	110	83.2500
300x110x15	110	83.2501
300x110x20	110	83.2502
300x110x25	110	83.2503
300x140x10	140	83.2510
300x140x15	140	83.2511
300x140x20	140	83.2512
300x140x25	140	83.2513
300x160x10	160	83.2520
300x160x15	160	83.2521
300x160x20	160	83.2522
300x160x25	160	83.2523
300x170x10	170	83.2530
300x170x15	170	83.2531
300x170x20	170	83.2532
300x170x25	170	83.2533

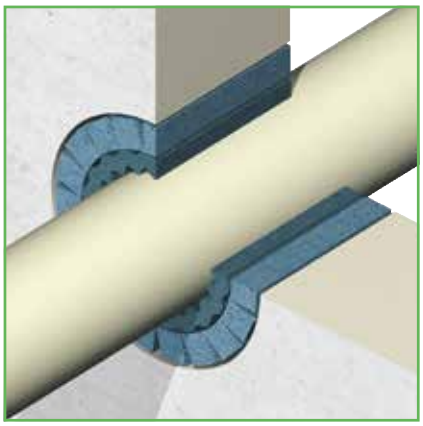
all dimensions in mm



1c) When the conduit opening is over dimensioned, a combination of RISE®/ULTRA and ACTIFOAM® is the solution. A pre-slit ACTIFOAM® sheet is rolled around the crusher. To adjust the length of the wrap around the crusher, slits can be torn off.



2c) Push the combination of RISE®/ULTRA crusher and pre-slit ACTIFOAM® sheet into the conduit opening. The inner wall of the penetration and the outside of the ACTIFOAM® wrap can be treated with CSD® lubricant to enable ease of installation.



3c) Even installation of a CRUSHER® fire stop for over dimensioned conduit openings of plastic pipes is most easy.
Care has to be taken for a tight fit of the RISE®/ULTRA crusher with ACTIFOAM® wrap, especially in floor penetrations.

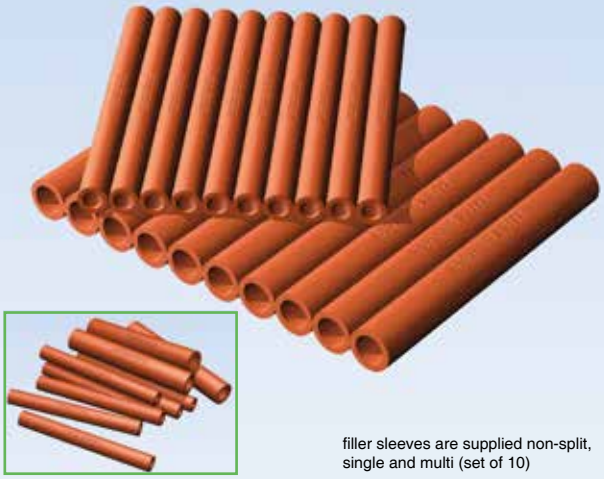
RISE®/ULTRA - NOFIRNO® SINGLE & MULTI-PLASTIC PIPE TRANSIT SEALING SYSTEM

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

NOFIRNO® filler sleeves



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

article number 50.0102

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

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

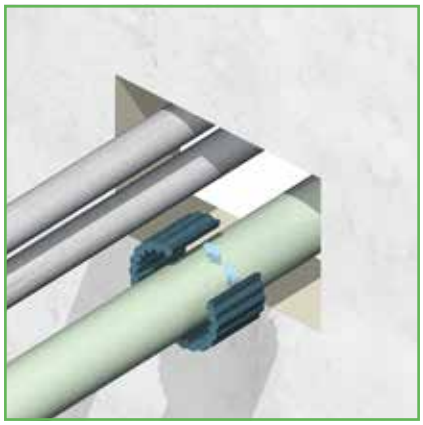
plastic pipe OD	crusher® type	crusher® length	article number
16	30/16	110	80.2700
18	30/18	110	80.2701
20	40/20	110	80.2702
25	40/25	110	80.2703
32	50/32	110	80.2704
40	50/40	110	80.2705
50	70/50	110	80.2706
63	80/63	110	80.2707
75	100/75	110	80.2708
90	125/90	110	80.2709
110	150/110	110	80.2710
16	30/16	140	80.2720
18	30/18	140	80.2721
20	40/20	140	80.2722
25	40/25	140	80.2723
32	50/32	140	80.2724
40	50/40	140	80.2725
50	70/50	140	80.2726
63	80/63	140	80.2727
75	100/75	140	80.2728
90	125/90	140	80.2729
110	150/110	140	80.2730
16	30/16	160	80.2740
18	30/18	160	80.2741
20	40/20	160	80.2742
25	40/25	160	80.2743
32	50/32	160	80.2744
40	50/40	160	80.2745
50	70/50	160	80.2746
63	80/63	160	80.2747
75	100/75	160	80.2748
90	125/90	160	80.2749
110	150/110	160	80.2750

wrap 1000x110x2.5 mm		80.2511
wrap 1000x140x2.5 mm		80.2512
wrap 1000x160x2.5 mm		80.2513
wrap 1000x170x2.5 mm		80.2514
wrap 1000x190x2.5 mm		80.2515
wrap 1000x210x2.5 mm	*all dimensions in mm*	80.2516

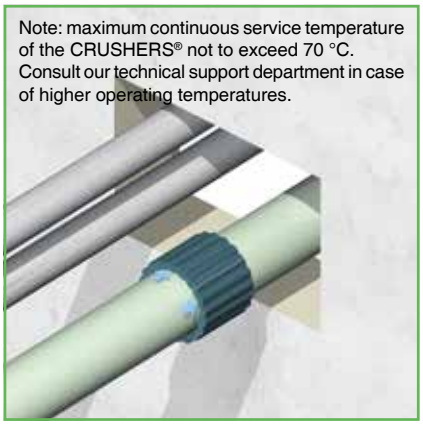
NOFIRNO® filler sleeve		sleeve length	article number
18/12 enkel		110	80.5001
18/12 multi		110	80.5051
18/12 enkel		140	80.5002
18/12 multi		140	80.5052
18/12 enkel		160	80.5003
18/12 multi		160	80.5053
27/19 enkel		110	80.5011
27/19 multi		110	80.5061
27/19 enkel		140	80.5012
27/19 multi		140	80.5062
27/19 enkel		160	80.5013
27/19 multi		160	80.5063
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	all dimensions in mm	210	80.5074

NOFIRNO® MULTI-PLASTIC/METALLIC PIPE TRANSIT SEALING SYSTEM

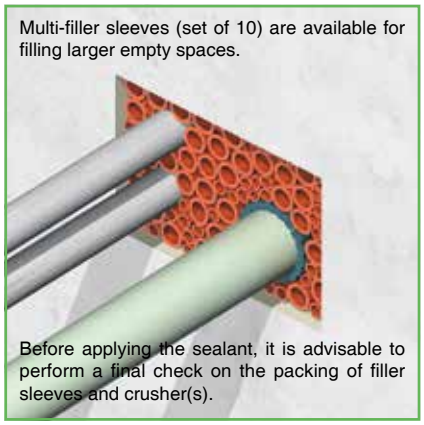
1) The metallic and plastic pipe(s) can be passed through the conduit sleeve in any position, provided there is enough space between the wall of the conduit opening and the ducted pipe(s).



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

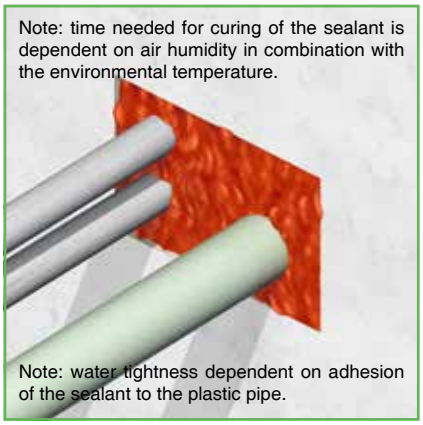


3) Push the RISE®/ULTRA crusher/wrap into the conduit opening in such a way as to leave 20 mm free space at the front and back side. No crusher to be applied around the ducted metallic pipes.



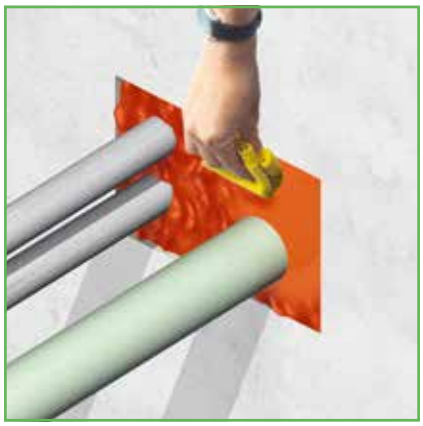
4) The remaining free space in the conduit is filled with NOFIRNO® filler sleeves type 27/19 and 18/12. For ease of filling, the NOFIRNO® filler sleeves are supplied non-split. The ratio 27/19 to 18/12 is maximum 2:1.
Alternative filler sleeves 22/15 only.

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.

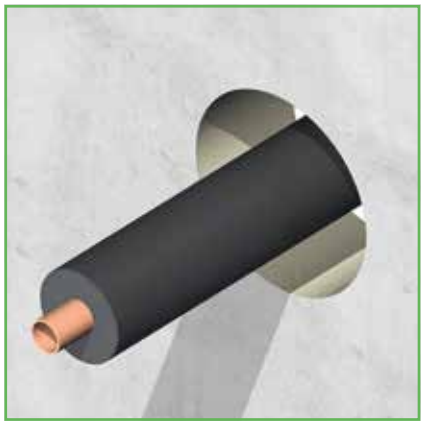
7) To smooth the surface of the NOFIRNO® sealant layer, a cloth is sprayed with water. This prevents the sealant from sticking to the cloth. Note: do not use soap water!



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.

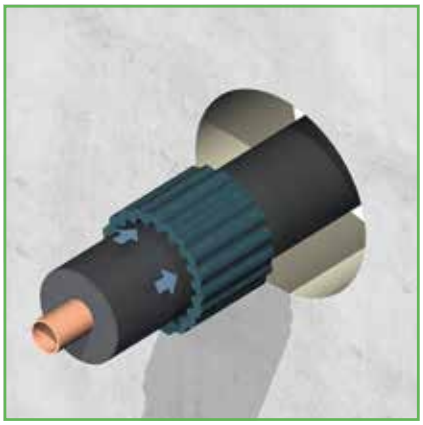
9) The surface can be smoothed by hand. Just wet the hands thoroughly with soap and water. No dirty hands when working with NOFIRNO® and a very neat surface is the result.

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.

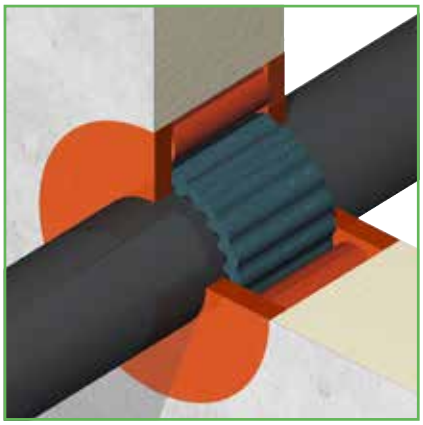
2) A RISE®/ULTRA crusher or wrap with the appropriate thickness is placed around the thermal insulation.
The system can be used for insulated steel and copper pipes.



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

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

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



6) Not applicable for watertight conduits. For fire rated penetrations,the ducted pipe might have to be insulated to cope with the thermal insulation criterion.

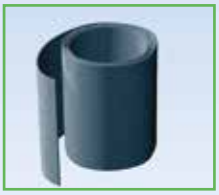
Based on the CRUSHER® technology it is now possible to make fire stop penetrations for plastic pipes just by inserting a single RISE®/ULTRA crusher into the conduit opening around the ducted plastic pipe.
For conduits which should also be air or water tight, a combination of RISE®/ULTRA and NOFIRNO® sealant, if necessary with NOFIRNO® filler sleeves is used.
The design of the crusher allows for a balanced amount of hot air penetrating around the crusher. The time to close off the opening left by the burned or softened plastic pipe must be very short. Otherwise a chimney effect will occur, causing the pipe at the unexposed side to melt. The unique RISE®/ULTRA rubber reacts at two different temperature levels to speed up compression. The first reaction transfers the rubber under limited expansion to a very adhesive substance. Adhesive sealing all around causes the trapped air to expand rather fast.
In this way compression of the plastic pipe starts already at an early stage of the fire. The unique RISE®/ULTRA crusher allows for smallest conduit openings. For oversized openings and for multi-plastic pipe penetrations use is made of NOFIRNO® filler sleeves and NOFIRNO® sealant. Based on the properties of the RISE®/ULTRA rubber, ultimately a hard solid rubber mass adhering to the wall of the conduit and the remaining part of the plastic pipe is formed. In this way the penetration stays tight. Official fire tests according to EN 1366-3:2004 have successfully been carried out at the EFECTIS (formerly TNO) test institute, including multi-mix (cables, metallic and plastic pipe) transits. RISE®/ULTRA crushers are certified according to EN 13501-2:2003 for a two hour fire rating. The combination of RISE®/ULTRA and NOFIRNO® filler sleeves/sealant is also certified for multi-plastic pipe penetrations and the MULTI-ALL-MIX® system.

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

CRUSHER® type C-FIT

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

CRUSHER® type WRAP



plastic pipe OD	crusher® type	crusher® length	article number
16	30/16	110/140/160	
18	30/18	110/140/160	
20	40/20	110/140/160	
25	40/25	110/140/160	
32	50/32	110/140/160	
40	50/40	110/140/160	
50	70/50	110/140/160	
63	80/63	110/140/160	
75	100/75	110/140/160	
90	125/90	110/140/160	
110	150/110	110/140/160	
wrap 1000x...x2.5 mm		110/140/160	

all dimensions in mm

see page 58

CRUSHER

RISE® cable sleeves

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

cable sleeves are supplied split lengthwise

RISE® cable sleeve	cable diameter	sleeve length	article number
12/6	5 - 7	110/140/160	
14/8	7 - 9	110/140/160	
16/10	9 - 11	110/140/160	
18/12	11 - 13	110/140/160	
20/14	13 - 15	110/140/160	
22/16	15 - 17	110/140/160	
27/19	17 - 21	110/140/160	
31/23	21 - 25	110/140/160	
35/27	25 - 29	110/140/160	
39/31	29 - 33	110/140/160	
46/36	33 - 39	110/140/160	
52/42	39 - 45	110/140/160	
58/48	45 - 51	110/140/160	
64/54	51 - 57	110/140/160	
70/60	57 - 63	110/140/160	

all dimensions in mm

see page 55

RISE

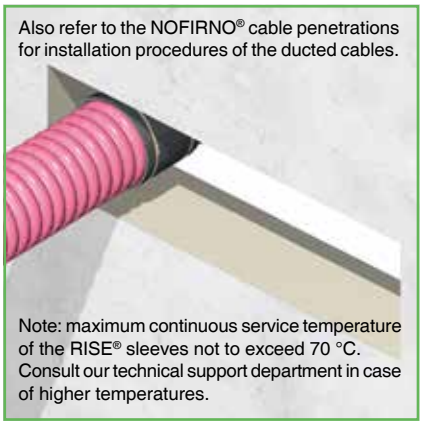
NOFIRNO® filler sleeves

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

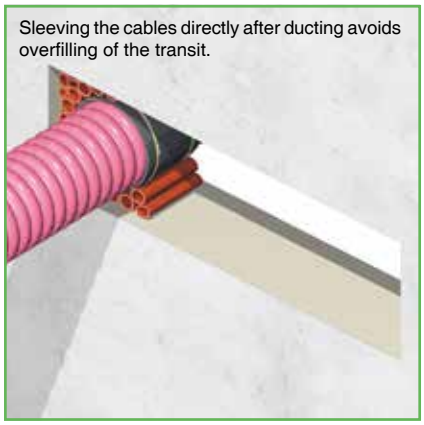
NOFIRNO® filler sleeve	sleeve length	article number
18/12 single	110	80.5001
18/12 multi	110	80.5051
18/12 single	140	80.5002
18/12 multi	140	80.5052
18/12 single	160	80.5003
18/12 multi	160	80.5053
27/19 single	110	80.5011
27/19 multi	110	80.5061
27/19 single	140	80.5012
27/19 multi	140	80.5062
27/19 single	160	80.5013
27/19 multi	160	80.5063

NOFIRNO

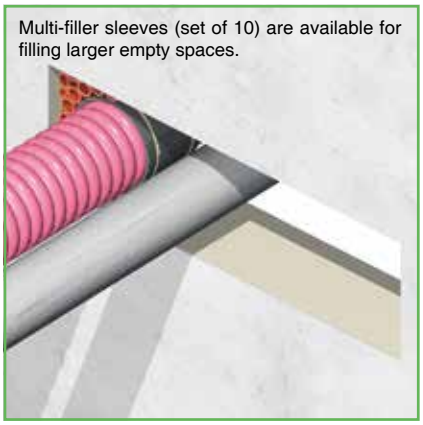
NOFIRNO®/MULTI-ALL-MIX® FIRESAFE CABLE/PIPE TRANSIT SEALING SYSTEM



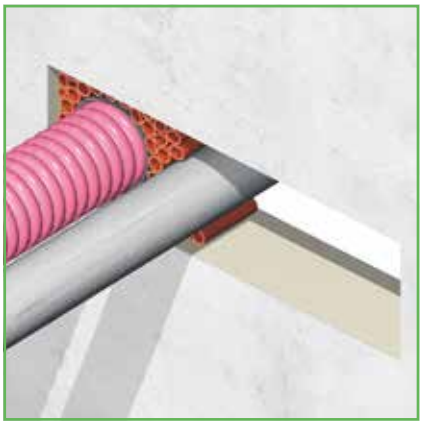
1) The cables can be ducted through the conduit opening in random order.
After the cables have been ducted, RISE® insert sleeves are applied around each cable.



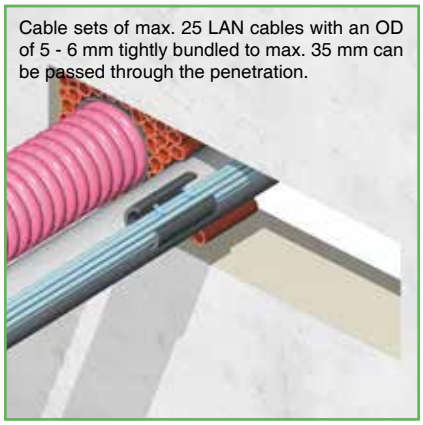
2) The RISE® insert sleeves are split lengthwise and can therefore be applied around the cables in front of the conduit.
For cable sizes > 64 mm, a RISE® wrap with thickness 5 mm is applied. The wraps can be fixed with a tie-wrap (or similar).



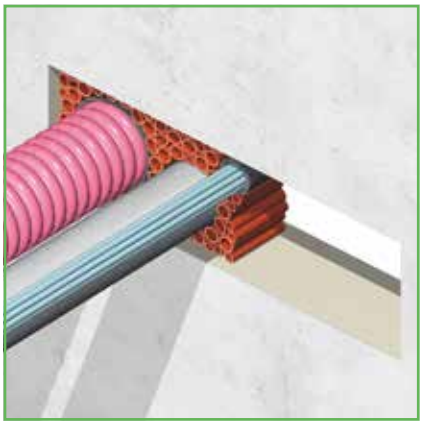
3) The system is also approved for ducting steel/stainless steel pipes. The minimum interspacing should be followed according to the specifications on the installation drawings.



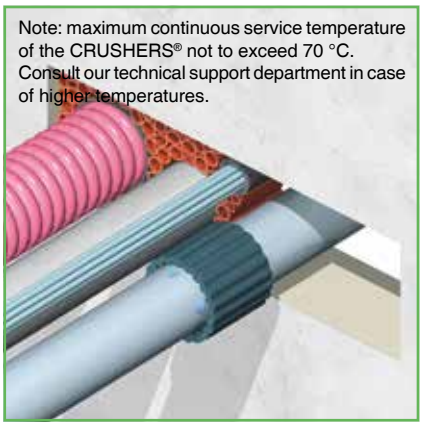
4) Separation of the metallic pipes is provided by NOFIRNO® filler sleeves all around the ducted pipe(s). NOFIRNO® filler sleeves are available in sizes 18/12 and 27/19 and are non-split for ease of installation.



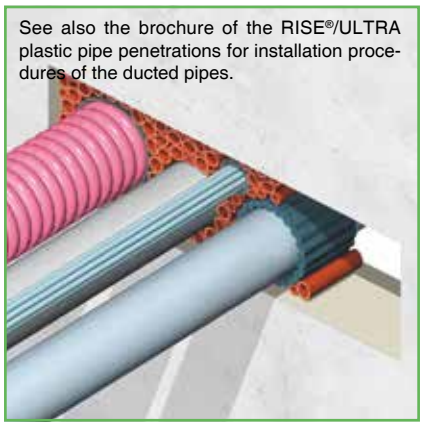
5) Bundled cable sets are allowed in the NOFIRNO® multi-all-mix® sealing system, using only a single RISE® insert sleeve.



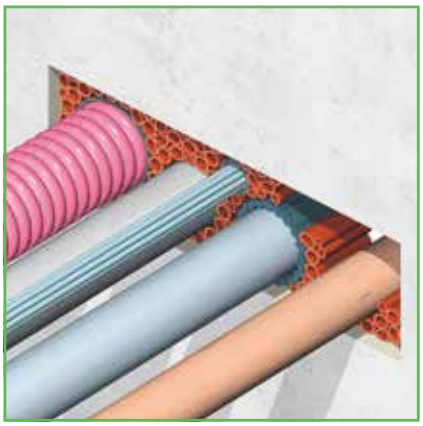
6) Open spaces in the conduit are afterwards filled with NOFIRNO® filler sleeves type 27/19 and 18/12. NOFIRNO® multi-filler sleeves can be used for filling the larger open spaces.
The ratio 27/19 to 18/12 is maximum 2:1.



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.

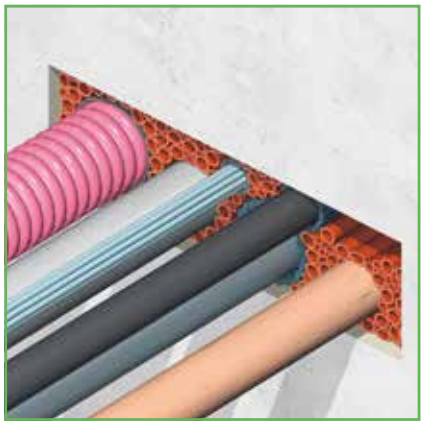


8) Push the insert/filler sleeves and the crusher into the conduit in such a way as to leave about 20 mm free space at both sides of the conduit. This space is needed to apply the NOFIRNO® sealant at a later stage.



9) 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).

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



10) 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.

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 penetration 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 and the cables/pipes thoroughly, removing any dirt, rust or oil/lubricant residues before applying the sealant.

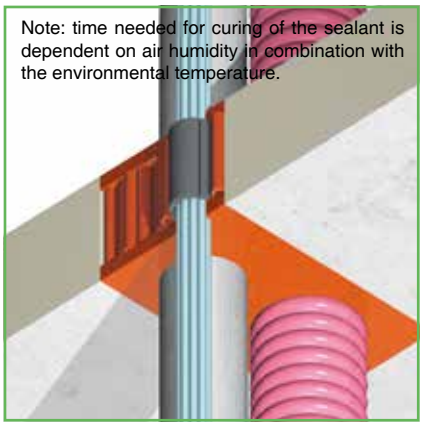
13) The conduit should be overfilled with NOFIRNO® sealant, because some sealant will be pushed between and into the empty filler sleeves during further finishing. This will contribute to obtain higher tightness ratings.

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) No insulation or intumescent paint needed in front of the penetration for cables and plastic pipes. Metallic pipes have to be insulated to fulfil the thermal insulation criterion of EN 1366-3:2004.



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.

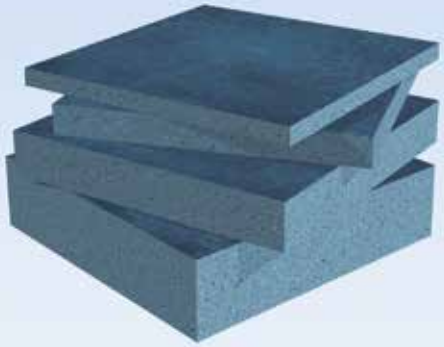
WE CARE

ACTIFOAM

ACTIFOAM® FIRESAFE
MULTI-CABLE & CABLE RUN TRANSIT SEALING SYSTEM

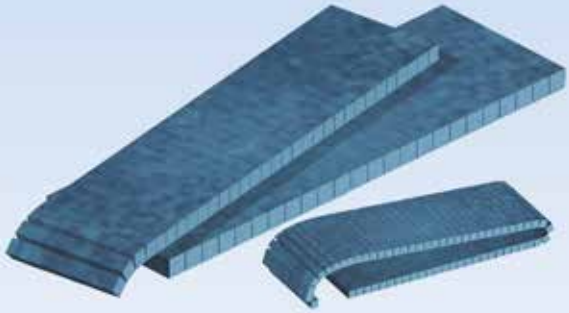
ACTIFOAM® filler sheets

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



ACTIFOAM® slit filler sheets

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

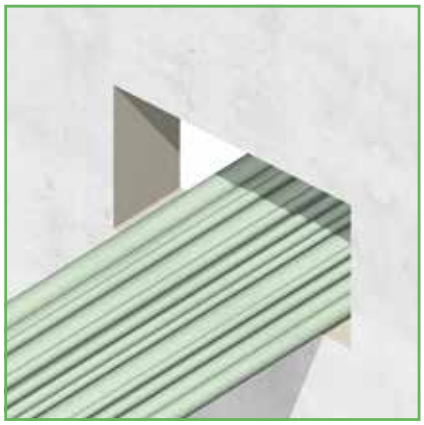


ACTIFOAM® is used to fill any cavities or gaps in constructions. In case of fire, the cavity will be totally filled with the expanding rubber, offering a perfect fire seal for a very long duration.
Oxygen index 40% (>30% is flame retardant).
ACTIFOAM® can also be used for other sealing purposes. An advantage is that ACTIFOAM® does not absorb water. Tested at 2.5 bar water pressure during 24 hours.
Due to the closed cell structure, the rubber has good thermal insulation properties. The K value at 10 °C according to NEN-EN 12667 is 12.3 mk/W. The density of the foam rubber at 23 °C is 0.35 g/cm^3 +/- 10% in accordance with ISO 2781. Compression set of the foam rubber is 14% which stands for a good “memory”.
Good weathering, UV and ozone resistance. Temperature range from -15 °C to +70 °C.
The 10 mm thick sheets have 30 pre-cut profiles 10x10 mm, the 15 mm thick sheets 20 (40) profiles 15x15 mm, the 20 mm thick sheets 15 (30) profiles 20x20 mm and the 25 mm thick sheets 12 (24) profiles 25x25 mm. The profiles can easily be torn off.

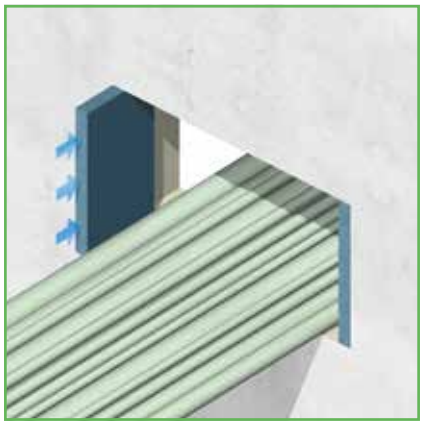
ACTIFOAM® filler sheets		sheet width	article number
300x150x10		150	83.0110
300x150x15		150	83.0111
300x150x20		150	83.0112
300x150x25		150	83.0113
300x200x10	all dimensions in mm	200	83.0120
300x200x15		200	83.0121
300x200x20		200	83.0122
300x200x25		200	83.0123
300x250x10		250	83.0130
300x250x15		250	83.0131
300x250x20		250	83.0132
300x250x25		250	83.0133
600x150x10		150	83.0210
600x150x15		150	83.0211
600x150x20		150	83.0212
600x150x25		150	83.0213
600x200x10		200	83.0220
600x200x15		200	83.0221
600x200x20		200	83.0222
600x200x25		200	83.0223
600x250x10		250	83.0230
600x250x15		250	83.0231
600x250x20		250	83.0232
600x250x25		250	83.0233
500x500x10		-	83.0005
500x500x15		-	83.0006
500x500x20		-	83.0007
500x500x25		-	83.0008
1000x500x10		-	83.0010
1000x500x15		-	83.0011
1000x500x20		-	83.0012
1000x500x25		-	83.0013

ACTIFOAM® slit separation sheets		sheet width	article number
300x150x10		150	83.1110
300x150x15		150	83.1111
300x150x20		150	83.1112
300x150x25		150	83.1113
300x200x10	all dimensions in mm	200	83.1120
300x200x15		200	83.1121
300x200x20		200	83.1122
300x200x25		200	83.1123
300x250x10		250	83.1130
300x250x15		250	83.1131
300x250x20		250	83.1132
300x250x25		250	83.1133
600x150x15		150	83.1211
600x150x20		150	83.1212
600x150x25		150	83.1213
600x200x15		200	83.1221
600x200x20		200	83.1222
600x200x25		200	83.1223
600x250x15		250	83.1231
600x250x20		250	83.1232
600x250x25		250	83.1233

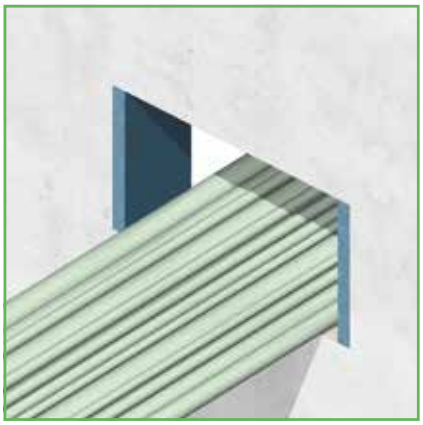
ACTIFOAM® FIRESAFE
MULTI-CABLE & CABLE RUN TRANSIT SEALING SYSTEM



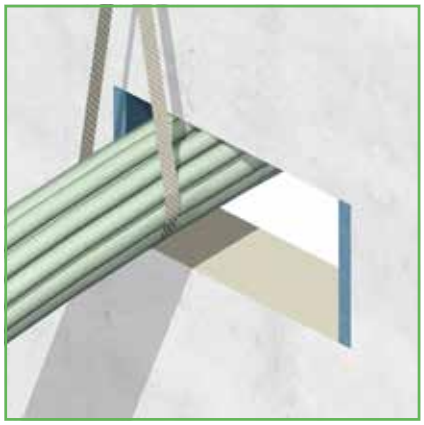
1) The cables can be ducted through the conduit opening in random order.
It is most important that they are not pulled too tight in order not to hamper their separation at a later stage.



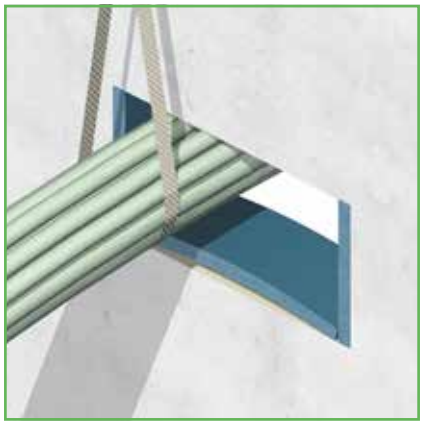
2) ACTIFOAM® rubber sheets are cut into strips fitting to the size of the walls inside the conduit opening.
For this purpose, ACTIFOAM® sheets with a thickness of 25 mm are used.



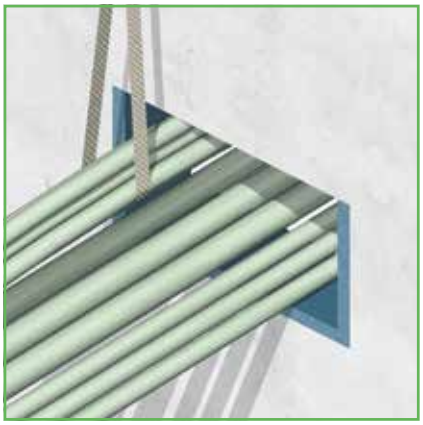
3) The ACTIFOAM® rubber sheets should fit snugly in the conduit opening to ensure a tight fit against the walls. This is important to avoid smoke penetrating between the sheets and the wall.



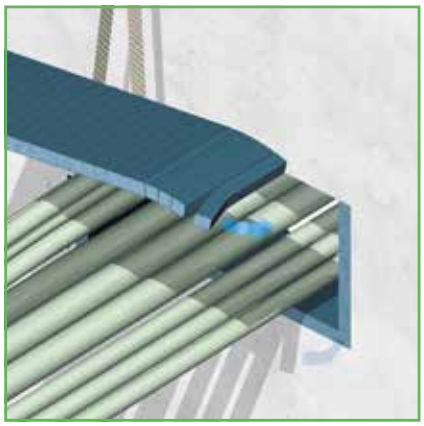
4) An ACTIFOAM® rubber sheet must also be placed in the conduit opening underneath the layer of cables.
A band is placed around the cable bundle to lift the bundle of cables.



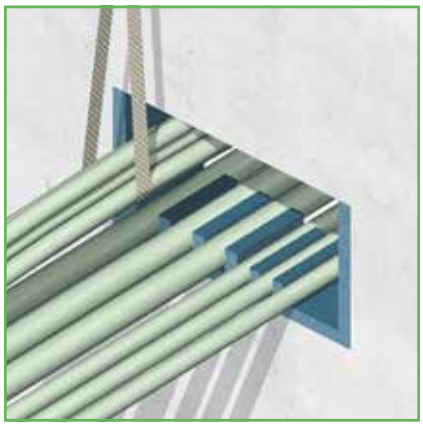
5) A slightly oversized strip of ACTIFOAM® rubber with a thickness of 25 mm is placed inside the conduit opening underneath the cables. The sheet should fit snugly between the sheets against the side walls.



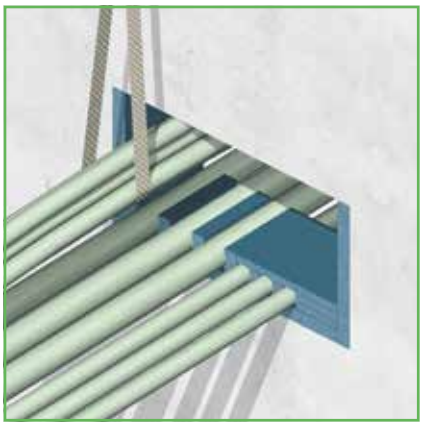
6) One layer of cables is spread out on the ACTIFOAM® rubber sheet at the bottom of the conduit opening.
The other cables are lifted to make room for further finishing of the first layer.



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

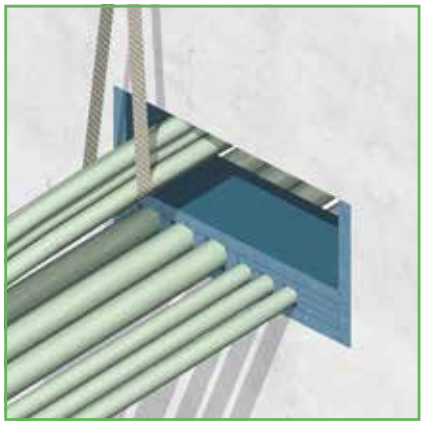


8) Profiles are slit in sizes of 10x10, 15x15, 20x20 and 25x25 mm. This enables an easy fit for corresponding cable sizes. Cables larger than 25 mm should be separated by a minimum of 25 mm.

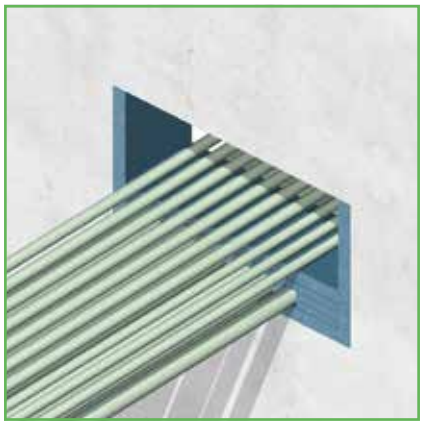


9) Adjacent to the first layer of cables and profiles, one or more extra sheets of ACTIFOAM® rubber are fitted to create a level layer for further filling the conduit opening.

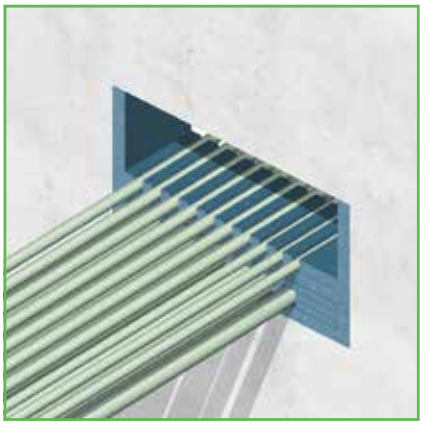
ACTIFOAM® FIRESAFE
MULTI-CABLE & CABLE RUN TRANSIT SEALING SYSTEM



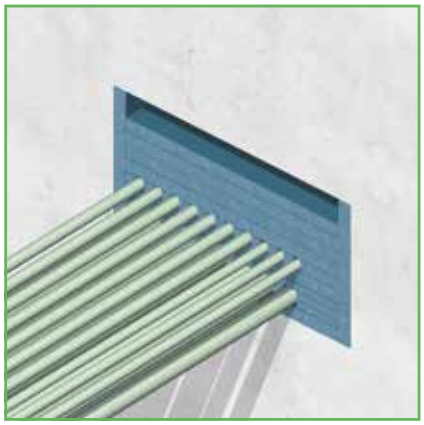
10) An intermediate ACTIFOAM® rubber sheet is inserted in the conduit opening on top of the levelled first layer.
The thickness of the intermediate layer is dependent on the maximum cable diameter.



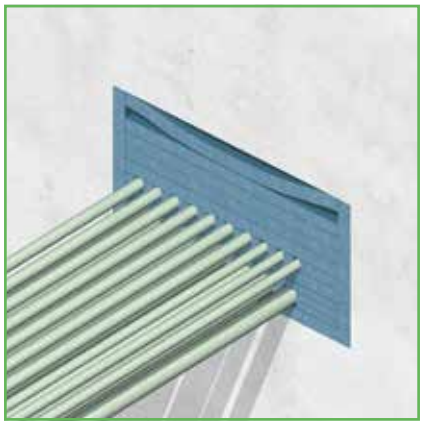
11) The next layer of cables is spread out on the ACTIFOAM® intermediate rubber sheet. As indicated before, the cables should not be pulled too tight to enable this.



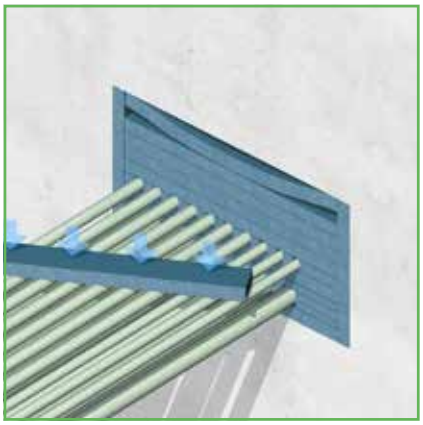
12) In the same way as with the first layer of cables, the cables are separated with the ACTIFOAM® pre-slit profiles and levelled with one or more ACTIFOAM® sheets. Take care for a tight fit.



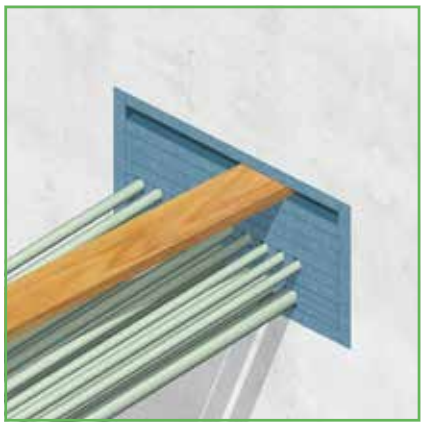
13) The remaining space is filled with one or more ACTIFOAM® sheets. All sheets should fit tightly in the conduit opening to obtain a fair degree of smoke tightness.



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

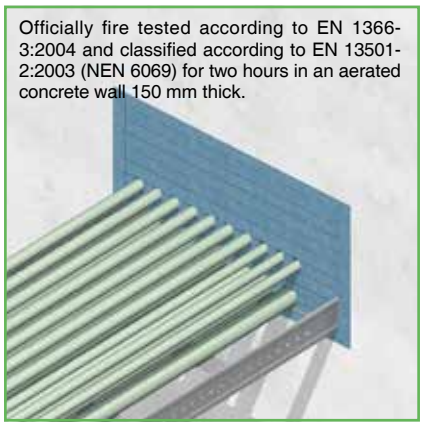


15) Compression of the filling is necessary to obtain stability. For this purpose it is easier to insert a couple of strips instead of sheets. The strips are greased all around with CSD® lubricant.

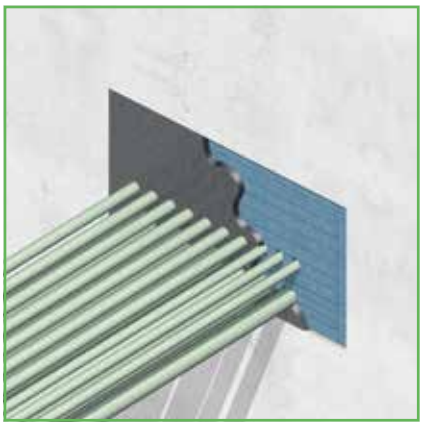


16) The first strip is inserted into the opening between the layers by hand. For a wall thickness of 150 mm it is advisable to cut three strips 50 mm wide to enable easier insertion.

Officially fire tested according to EN 1366-3:2004 and classified according to EN 13501-2:2003 (NEN 6069) for two hours in an aerated concrete wall 150 mm thick.



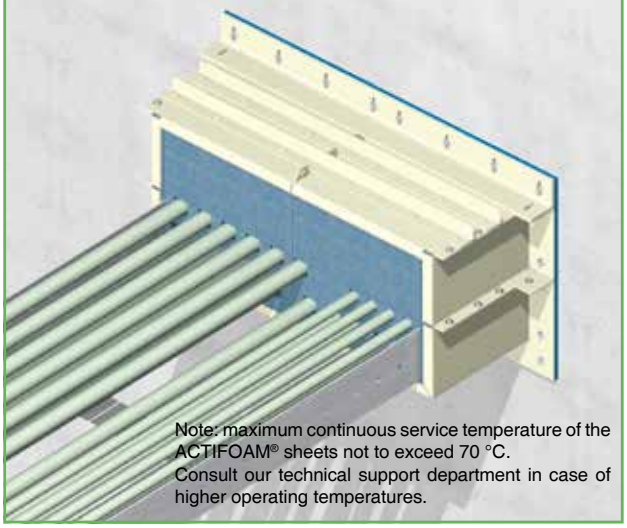
17) It is not necessary to interrupt the cable tray. ACTIFOAM® allows, if required, the tray to be passed through the conduit opening. ACTIFOAM® sheets are placed all around the cable tray.



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

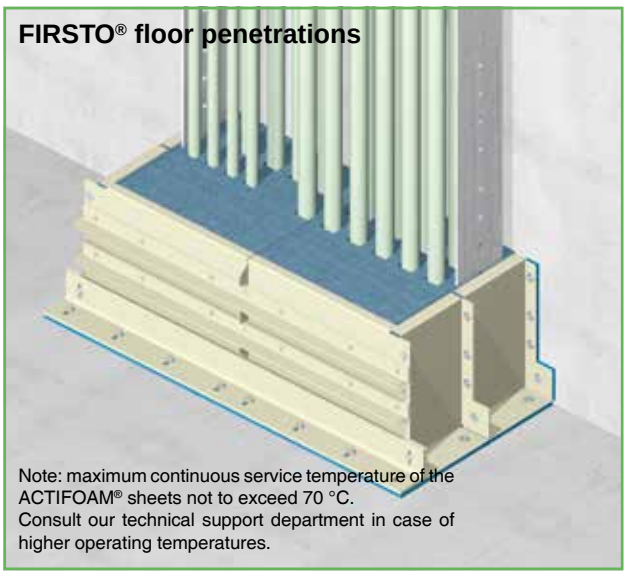
FIRSTO®/ACTIFOAM® FIRESAFE MULTI-CABLE & CABLE RUN TRANSIT SEALING SYSTEM

FIRSTO® wall penetrations



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

FIRSTO® floor penetrations



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

ACTIFOAM® filler sheets	sheet width	article number
300x250x10	250	83.0130
300x250x15	250	83.0131
300x250x20	250	83.0132
300x250x25	250	83.0133
600x250x10	250	83.0230
600x250x15	250	83.0231
600x250x20	250	83.0232
600x250x25	250	83.0233

ACTIFOAM® slit separation sheets	sheet width	article number
300x250x10	250	83.1130
300x250x15	250	83.1131
300x250x20	250	83.1132
300x250x25	250	83.1133
600x250x15	250	83.1231
600x250x20	250	83.1232
600x250x25	250	83.1233

FIRSTO® wall casings	conduit opening max.	article number
FSP 300	300 x 100	81.0105
FSP 300/1	300 x 150	81.0106
FSP 300/2	300 x 200	81.0107
FSP 300/3	300 x 250	81.0108
FSP 450	450 x 100	81.0115
FSP 450/1	450 x 150	81.0116
FSP 450/2	450 x 200	81.0117
FSP 450/3	450 x 250	81.0118
FSP 600	600 x 100	81.0125
FSP 600/1	600 x 150	81.0126
FSP 600/2	600 x 200	81.0127
FSP 600/3	600 x 250	81.0128
FSP 750	750 x 100	81.0135
FSP 750/1	750 x 150	81.0136
FSP 750/2	750 x 200	81.0137
FSP 750/3	750 x 250	81.0138
FSP 900	900 x 100	81.0145
FSP 900/1	900 x 150	81.0146
FSP 900/2	900 x 200	81.0147
FSP 900/3	900 x 250	81.0148
FSP 1050	1050 x 100	81.0155
FSP 1050/1	1050 x 150	81.0156
FSP 1050/2	1050 x 200	81.0157
FSP 1050/3	1050 x 250	81.0158
FSP 1200	1200 x 100	81.0165
FSP 1200/1	1200 x 150	81.0166
FSP 1200/2	1200 x 200	81.0167
FSP 1200/3	1200 x 250	81.0168

all dimensions in mm

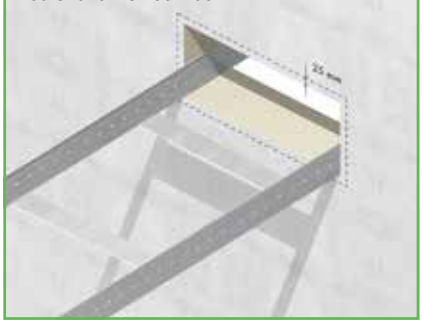
standard: metal parts steel 37.2, powder-coated
casings: the casings of the firestops are delivered assembled
filling: not included in the casings; has to be ordered separately
gaskets: are supplied as a complete set for the types of firestops: not included in the casings; they have to be ordered separately

FIRSTO® floor casings	conduit opening max.	article number
FSP 300-F	300 x 125	81.0205
FSP 300/1-F	300 x 175	81.0206
FSP 300/2-F	300 x 225	81.0207
FSP 300/3-F	300 x 275	81.0208
FSP 450-F	450 x 125	81.0215
FSP 450/1-F	450 x 175	81.0216
FSP 450/2-F	450 x 225	81.0217
FSP 450/3-F	450 x 275	81.0218
FSP 600-F	600 x 125	81.0225
FSP 600/1-F	600 x 175	81.0226
FSP 600/2-F	600 x 225	81.0227
FSP 600/3-F	600 x 275	81.0228
FSP 750-F	750 x 125	81.0235
FSP 750/1-F	750 x 175	81.0236
FSP 750/2-F	750 x 225	81.0237
FSP 750/3-F	750 x 275	81.0238
FSP 900-F	900 x 125	81.0245
FSP 900/1-F	900 x 175	81.0246
FSP 900/2-F	900 x 225	81.0247
FSP 900/3-F	900 x 275	81.0248
FSP 1050-F	1050 x 125	81.0255
FSP 1050/1-F	1050 x 175	81.0256
FSP 1050/2-F	1050 x 225	81.0257
FSP 1050/3-F	1050 x 275	81.0258
FSP 1200-F	1200 x 125	81.0265
FSP 1200/1-F	1200 x 175	81.0266
FSP 1200/2-F	1200 x 225	81.0267
FSP 1200/3-F	1200 x 275	81.0268

all dimensions in mm

FIRSTO®/ACTIFOAM® FIRESAFE MULTI-CABLE & CABLE RUN TRANSIT SEALING SYSTEM

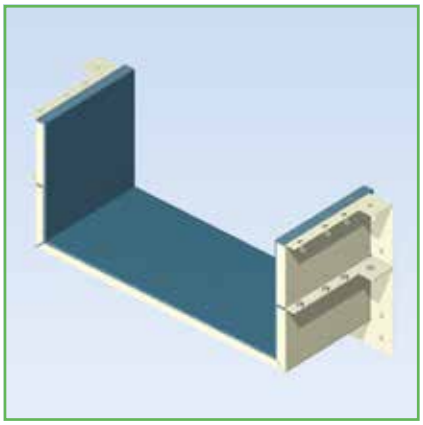
FIRSTO® firestops are successfully tested at Underwriters Laboratories in USA. Approved for walls and floors for an F- and T-rating of 2 hours for units 750x400 mm.



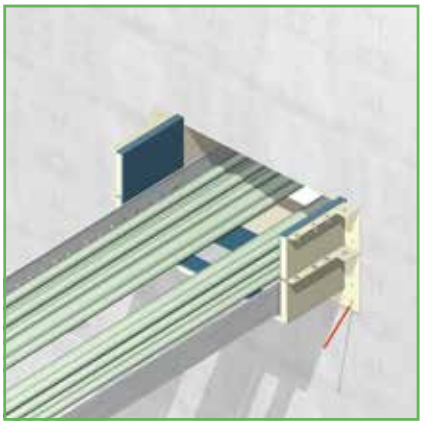
1) The conduit opening has to be 25 mm smaller all around than the inner dimensions of the firestop. This will keep the ACTIFOAM® pads against the walls inside the firestop in place during fire exposure.

Officially fire tested according to DIN 4102 for F-90 in a gypsum wall 100 mm thick and according to EN 1366-3:2004 for F-90 in a 150 thick aerated concrete wall

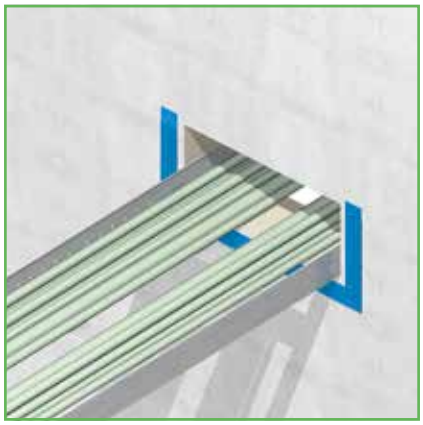
2) If the wall around the conduit opening exhibits large irregularities, they should be locally smoothed with FIWA® or NOFIRNO® fire safe sealant. This to prevent smoke emission between the firestop and the wall.



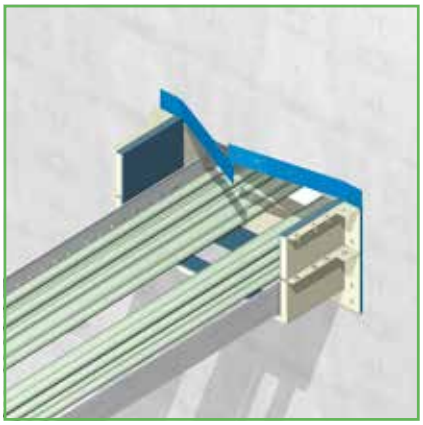
3) Remove the attachment bracket and the cover of the firestop. Place ACTIFOAM® rubber pads on the bottom and against the side walls of the casing.



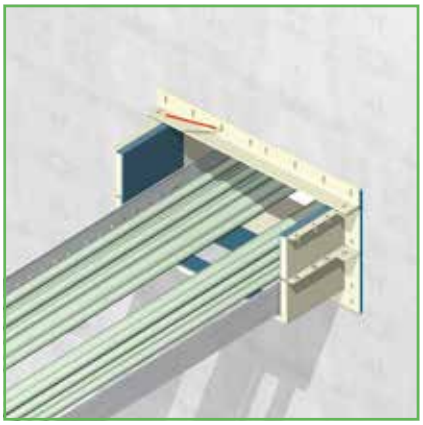
4) The casing is used as a template to mark off the attachment holes.
The rubber pads against the inside walls of the firestop are 25 mm thick and should be flush with the conduit opening.



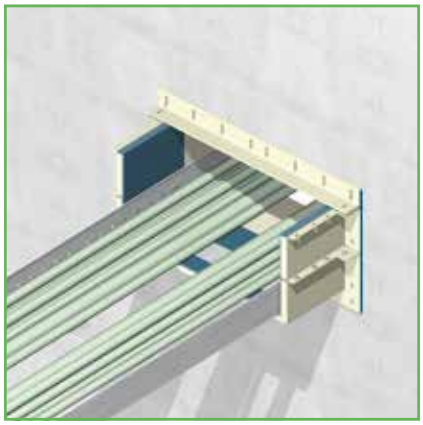
5) Then drill the holes for the anchoring bolts. After the bolts have been positioned, push all parts of the fire resistant FRR/HF gasket over the anchoring bolts and lay them against the wall.



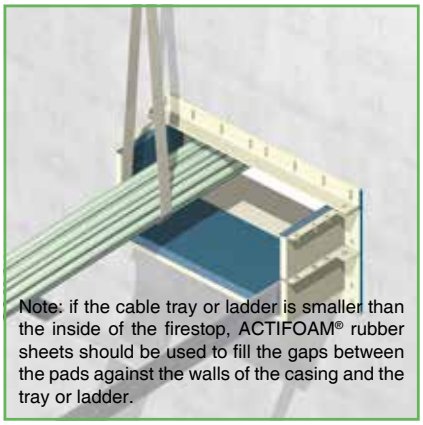
6) The casing containing the bottom layer of ACTIFOAM® rubber pads and the ACTIFOAM® rubber pads against the side walls is pushed over the anchoring bolts against the wall and firmly tightened.



7) Position the attachment bracket on the casing against the wall and mark off the attachment holes. If necessary, the holes in the upper parts of the gasket can also be used for this purpose.



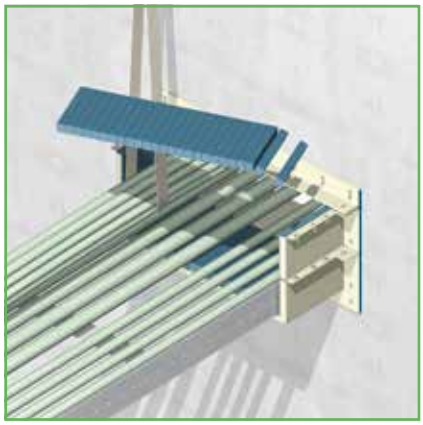
8) After drilling, position the anchoring bolts and the attachment bracket. Do not tighten the bracket firmly, in order to facilitate insertion of the top layer of rubber pads later during installation.



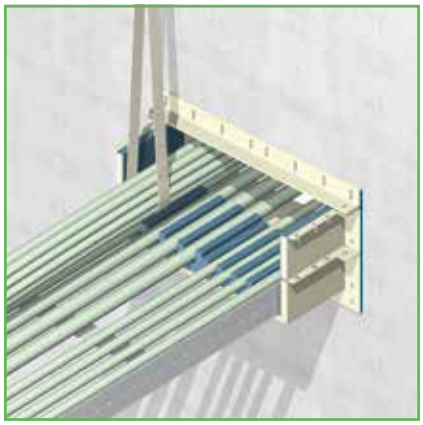
Note: if the cable tray or ladder is smaller than the inside of the firestop, ACTIFOAM® rubber sheets should be used to fill the gaps between the pads against the walls of the casing and the tray or ladder.

9) In case of larger amounts of cables, a band is placed around the cable bundle to lift the bundle of cables.
ACTIFOAM® rubber pads are placed in the firestop underneath the layer of cables.

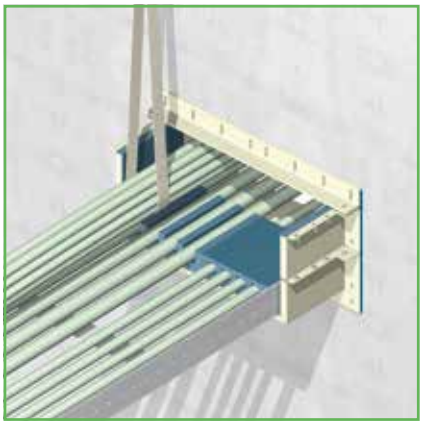
FIRSTO®/ACTIFOAM® FIRESAFE MULTI-CABLE & CABLE RUN TRANSIT SEALING SYSTEM



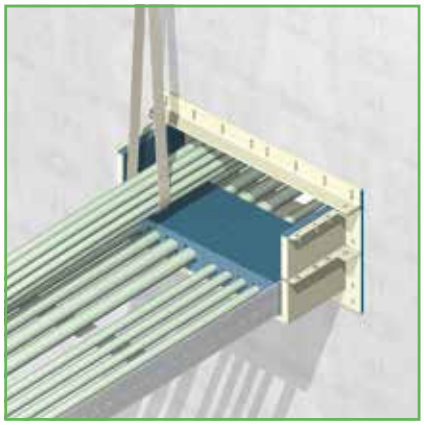
10) A layer of cables is spread out. For proper cable separation, square profiles are torn off the pre-slit ACTIFOAM® rubber sheets. The sizes of the profiles should be equivalent to the cable diameters.



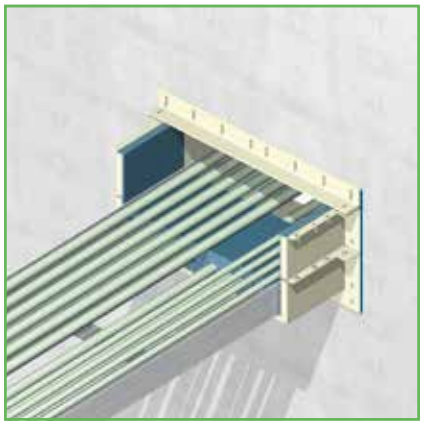
11) Profiles are slit in sizes of 10x10, 15x15, 20x20 and 25x25 mm. This enables an easy fit for corresponding cable sizes. Cables larger than 25 mm should be separated by a minimum of 25 mm.



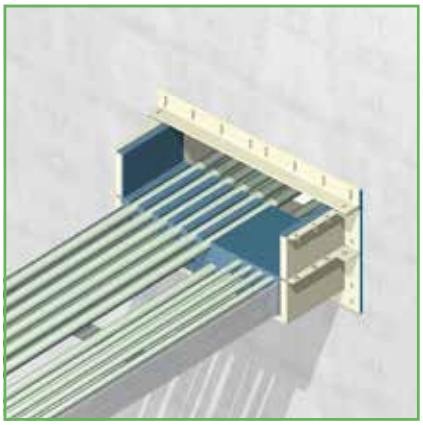
12) Adjacent to the first layer of cables and profiles, one or more extra sheets of ACTIFOAM® rubber are fitted to create a level layer for further filling the firestop.



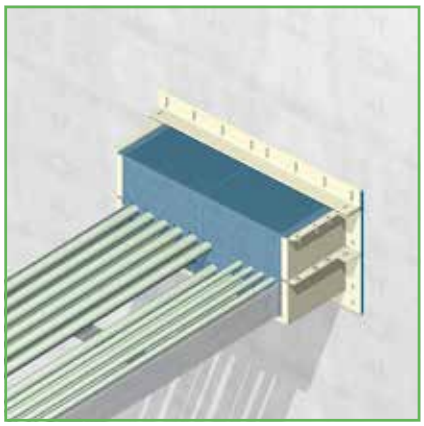
13) A layer of intermediate ACTIFOAM® rubber pads is inserted in the firestop on top of the levelled first layer. The thickness of the intermediate layer is dependent on the maximum cable diameter.



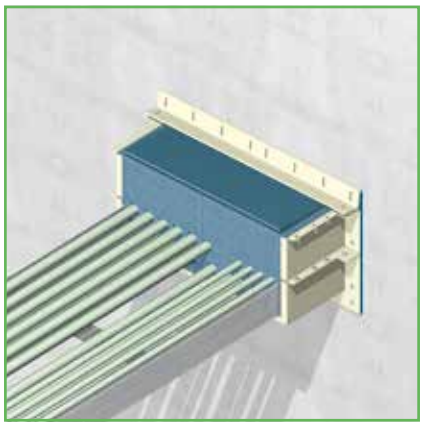
14) The next layer of cables is spread out on the layer of ACTIFOAM® intermediate rubber pads.
It is most important that the cables are not pulled too tight to enable this.



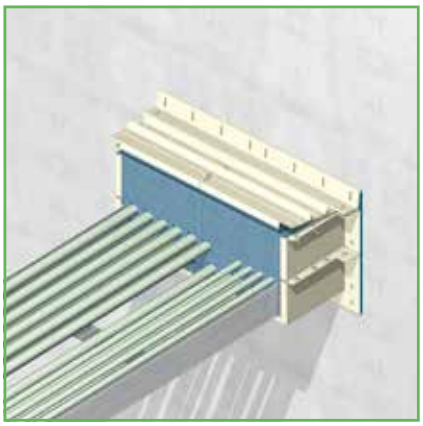
15) In the same way as with the first layer of cables, the cables are separated with the ACTIFOAM® pre-slit profiles and levelled with one or more ACTIFOAM® sheets.
Take care for a tight fit.



16) The remaining space is filled with layers of ACTIFOAM® pads. The filling should be flush with the top side of the firestop casing. For this purpose the pads are available 10, 15, 20 and 25 mm thick.

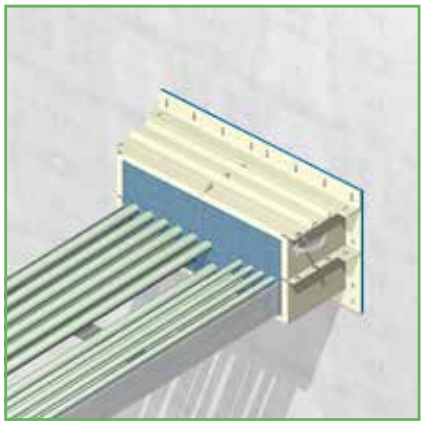


17) On top of the filling, overfill pads of minimum 10 mm should be placed. They are pushed below the attachment bracket. The bracket has not been tightened firmly yet, in order to leave sufficient play.

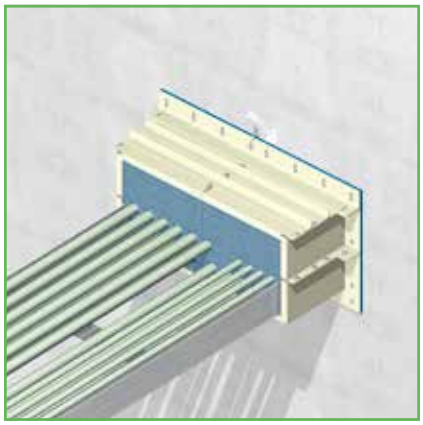


18) Place the cover on the firestop casing and fit the attachment bolts in the holes. The attachment bolts are long enough to allow easy installation of the nuts, despite the overfill of 10 mm ACTIFOAM®.

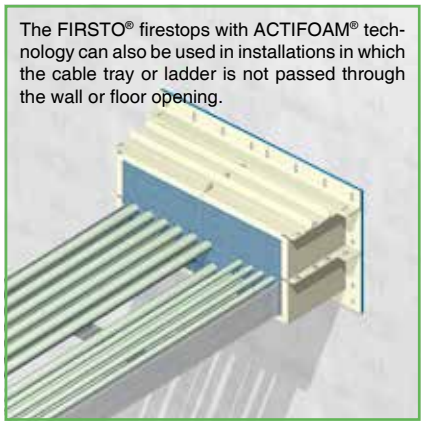
FIRSTO®/ACTIFOAM® FIRESAFE MULTI-CABLE & CABLE RUN TRANSIT SEALING SYSTEM



19) Tighten the attachment bolts firmly. With respect to mechanical stability and tightness, it is very important to check if the overfill is sufficient to obtain an optimum compressibility.

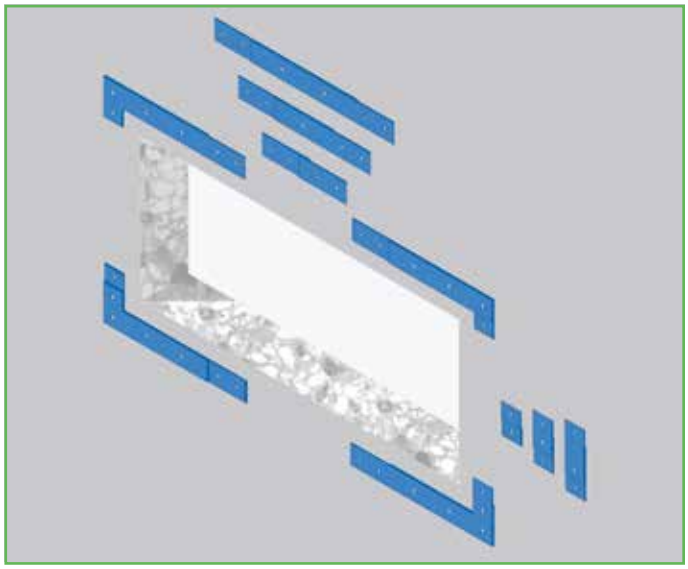


20) Place rings and nuts on all the remaining anchor bolts and tighten the attachment bolts of the attachment bracket firmly.

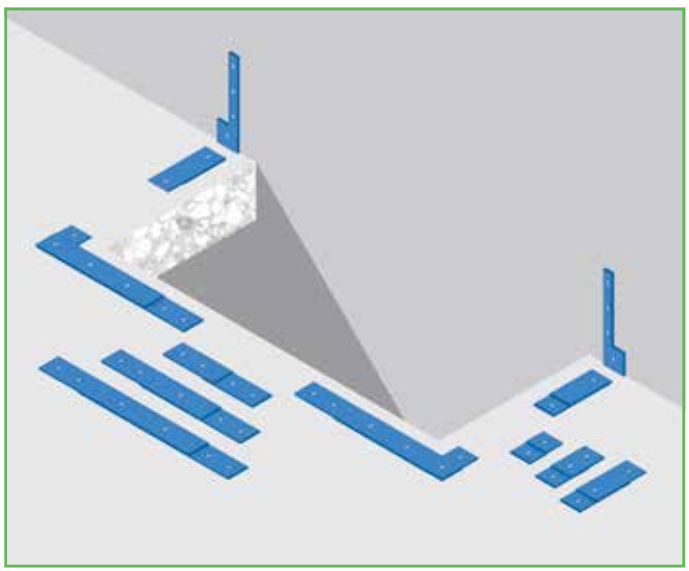


The FIRSTO® firestops with ACTIFOAM® technology can also be used in installations in which the cable tray or ladder is not passed through the wall or floor opening.

21) The installation procedure has now been completed. Firestops based on ACTIFOAM® need only to be placed at one side of the wall.



FIRSTO® wall gaskets	article number	FIRSTO® wall gaskets	article number
FSP 300	81.1105	FSP 900	81.1145
FSP 300/1	81.1106	FSP 900/1	81.1146
FSP 300/2	81.1107	FSP 900/2	81.1147
FSP 300/3	81.1108	FSP 900/3	81.1148
FSP 450	81.1115	FSP 1050	81.1155
FSP 450/1	81.1116	FSP 1050/1	81.1156
FSP 450/2	81.1117	FSP 1050/2	81.1157
FSP 450/3	81.1118	FSP 1050/3	81.1158
FSP 600	81.1125	FSP 1200	81.1165
FSP 600/1	81.1126	FSP 1200/1	81.1166
FSP 600/2	81.1127	FSP 1200/2	81.1167
FSP 600/3	81.1128	FSP 1200/2	81.0167
FSP 750	81.1135		
FSP 750/1	81.1136		
FSP 750/2	81.1137		
FSP 750/3	81.1138		



FIRSTO® floor gaskets	article number	FIRSTO® floor gaskets	article number
FSP 300-F	81.1305	FSP 900-F	81.1345
FSP 300/1-F	81.1306	FSP 900/1-F	81.1346
FSP 300/2-F	81.1307	FSP 900/2-F	81.1347
FSP 300/3-F	81.0208	FSP 900/3-F	81.1348
FSP 450-F	81.1315	FSP 1050-F	81.1355
FSP 450/1-F	81.1316	FSP 1050/1-F	81.1356
FSP 450/2-F	81.1317	FSP 1050/2-F	81.1357
FSP 450/3-F	81.1318	FSP 1050/3-F	81.1358
FSP 600-F	81.1325	FSP 1200-F	81.1365
FSP 600/1-F	81.1326	FSP 1200/1-F	81.1366
FSP 600/2-F	81.1327	FSP 1200/2-F	81.1367
FSP 600/3-F	81.1328	FSP 1200/3-F	81.1368
FSP 750-F	81.1335		
FSP 750/1-F	81.1336		
FSP 750/2-F	81.1337		
FSP 750/3-F	81.1338		

ACTIFOAM®/NOFIRNO®-BRD FIRESAFE MULTI-CABLE & CABLE RUN TRANSIT SEALING SYSTEM

NOFIRNO® mineral wool boards are supplied measuring 1000 x 600 mm with a 1.2 - 1.5 mm thick layer of NOFIRNO® coating on *one* or *both* sides.
The NOFIRNO® mineral wool boards are 60 mm thick (without coating) and have a density of 152 kg/m^3. The boards can easily cut to size at site.
In case of fire the NOFIRNO® coating will form a ceramic protective shield at the exposed side. This shield is also a thermal barrier. Furthermore it prevents moisture from escaping from the inside of the mineral wool board so that no shrinkage will occur during fire exposure.
The NOFIRNO® coating is water resistant. To avoid water absorption of the mineral wool at the sides and where cutted, NOFIRNO® sealant has to be applied all around against the wall of the penetration. For mechanical stability, it is of the utmost importance that the boards fit snugly in the conduit opening and that the boards are sealed all around with NOFIRNO® sealant.

For oversized penetrations, the NOFIRNO® mineral wool boards are used to fill the remaining open space in the most economic way. For the fire rated filling around the cables, preferably ACTIFOAM® sheets are used. To obtain a fair degree of tightness, the foam filling should be compressed. To achieve sufficient compression, a NOFIRNO® fire proof plate is placed between the ACTIFOAM® filing and the NOFIRNO® mineral wool board(s). In this way also the mechanical stability of the fire safe penetration is improved.
In cases of limited wall thickness, NOFIRNO® rubber insert sleeves are applied around each of the cables at both sides of the penetration to obtain the required thermal insulation.
In case that ACTIFOAM® will not been used, sufficient NOFIRNO® sealant has to be applied in between the cables and around the cable set and also in between the parts of the NOFIRNO® boards.

article number 50.0104

Fire resistant board 12 mm thick.
To be cut to size of the conduit opening.
Supplied in sizes 1000x1000 mm.
Larger quantities can be supplied to size.

PRODUCT INFORMATION SEALANT

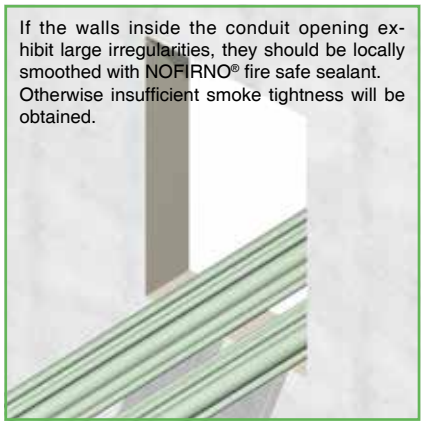
01)	colour	red brown
02)	specific gravity	1.40 ± 0.03 g/cm^3
03)	curing of top layer	0.5 - 1 hour depending on temperature and air humidity
04)	service temperature	-50 °C up to +180 °C
05)	tensile strength	1.5 MPa
06)	elongation at break	200%
07)	hardness	45 Shore A
08)	elastic deformation	approx. 50%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

article number 50.0102

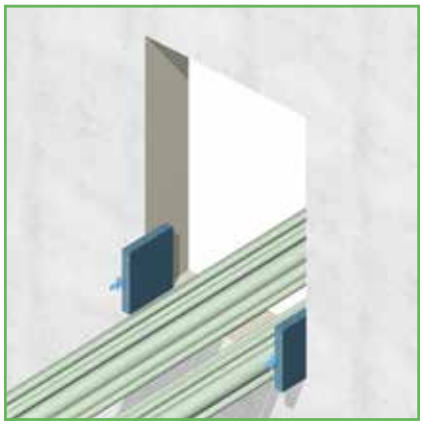
NOFIRNO® is a paste-like compound which is simple to use. NOFIRNO® has a balanced viscosity and can be applied overhead.
After applying the sealant, it can be smoothed by means of a wet cloth or by hand. Because the sealant adheres very tightly, the cloth and hands should be wetted with water before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

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

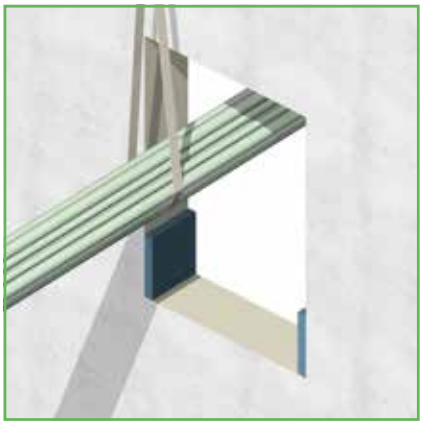
ACTIFOAM®/NOFIRNO®-BRD FIRESAFE MULTI-CABLE & CABLE RUN TRANSIT SEALING SYSTEM



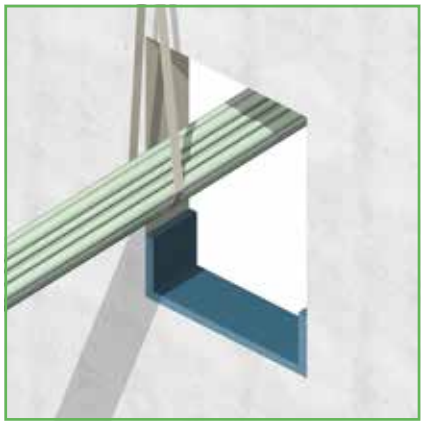
1) The cables can be ducted through the conduit opening in random order.
It is most important that they are not pulled too tight in order not to hamper their separation at a later stage.



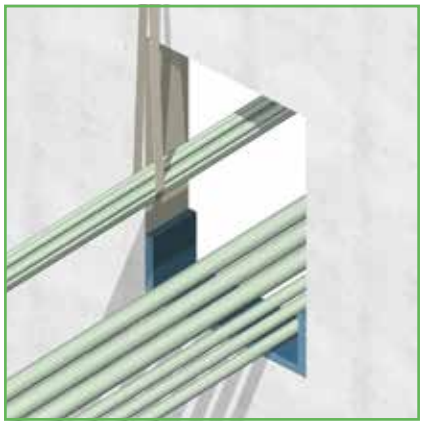
2) ACTIFOAM® rubber sheets are cut into strips fitting to the size of the walls inside the conduit opening and the expected height of the cable set. For this purpose, ACTIFOAM® sheets with a thickness of 25 mm are used.



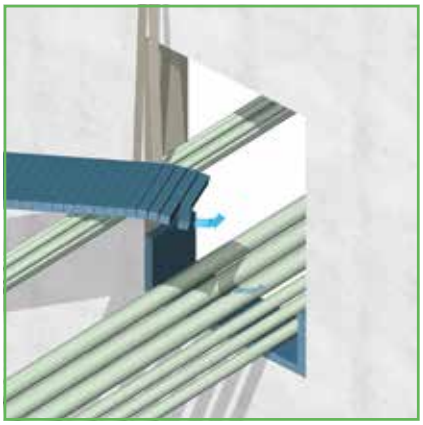
3) An ACTIFOAM® rubber sheet must also be placed in the conduit opening underneath the layer of cables.
A band is placed around the cable bundle to lift the bundle of cables.



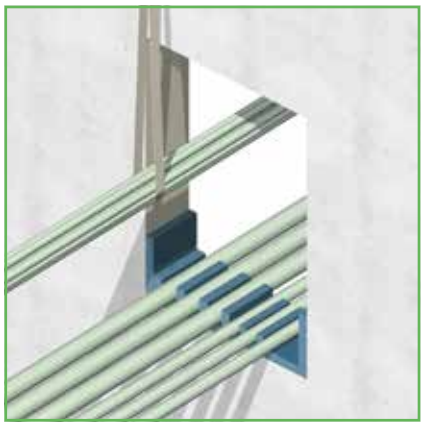
4) A slightly oversized strip of ACTIFOAM® rubber with a thickness of 25 mm is placed inside the conduit opening underneath the cables. The sheet should fit snugly between the sheets against the side walls.



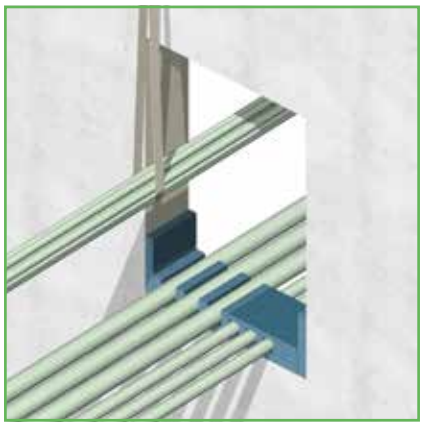
5) One layer of cables is spread out on the ACTIFOAM® rubber sheet at the bottom of the conduit opening.
The other cables are lifted to make room for further finishing the first of layer.



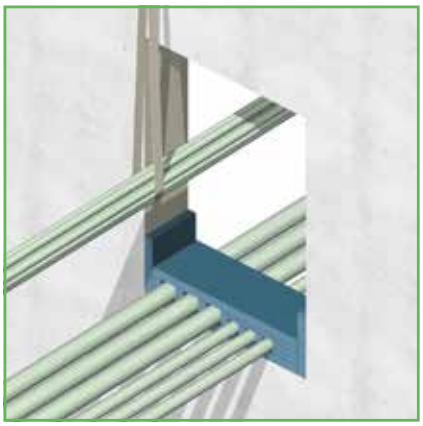
6) For proper cable separation, square profiles are torn off the pre-slit ACTIFOAM® rubber sheets.
The sizes of the profiles should be equivalent to the cable diameters.



7) Profiles are slit in sizes of 10x10, 15x15, 20x20 and 25x25 mm. This enables an easy fit for corresponding cable sizes. Cables larger than 25 mm should be separated by a minimum of 25 mm.

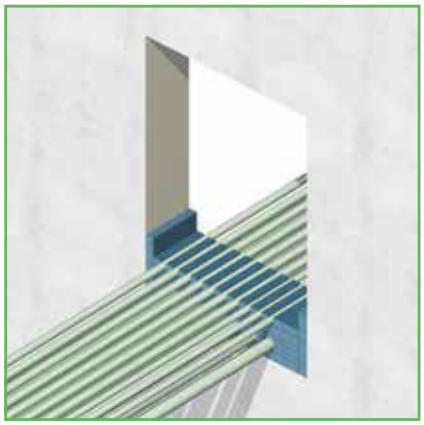


8) Adjacent to the first layer of cables and profiles, one or more extra sheets of ACTIFOAM® rubber are fitted to create a level layer for further filling the conduit opening.

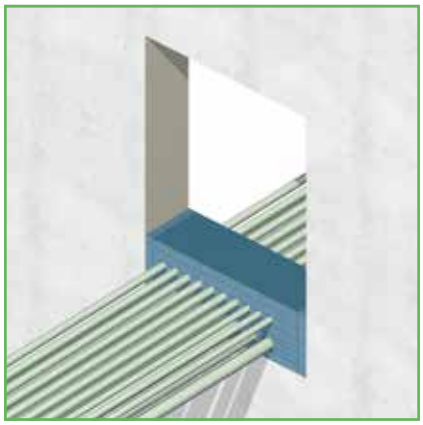


9) An intermediate ACTIFOAM® rubber sheet is inserted in the conduit opening on top of the levelled first layer. The thickness of the intermediate layer is dependent on the maximum cable diameter.

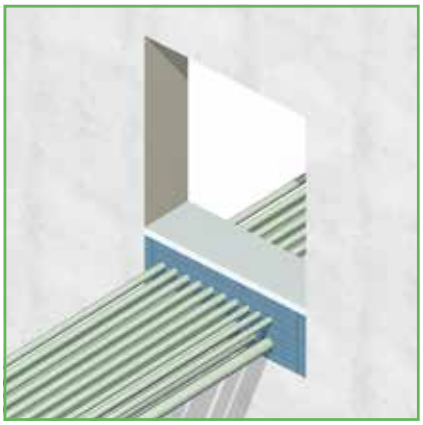
ACTIFOAM®/NOFIRNO®-BRD FIRESAFE MULTI-CABLE & CABLE RUN TRANSIT SEALING SYSTEM



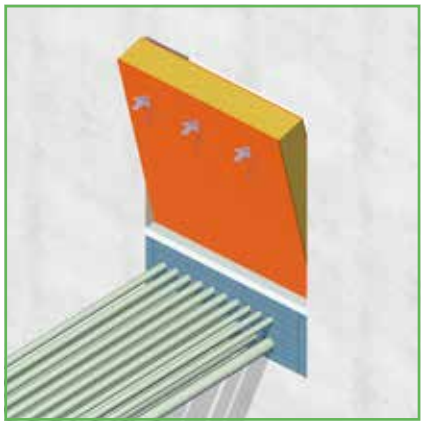
10) The next layer of cables is spread out and in the same way as with the first layer of cables, the cables are separated with the ACTIFOAM® pre-slit profiles and levelled with one or more ACTIFOAM® sheets.



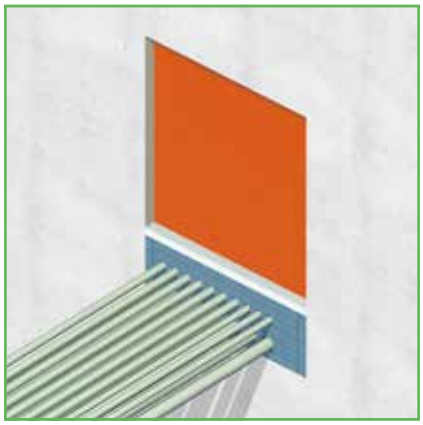
11) The remaining space between the sheets, placed against the walls, is filled with one or more ACTIFOAM® sheets.
All sheets should fit tightly in the conduit opening to obtain a fair degree of smoke tightness.



12) A fire safe compression plate is placed on top of the ACTIFOAM® filling to obtain controlled expansion during fire exposure.
The plate is also needed to compress the ACTIFOAM® filling in order to improve tightness.

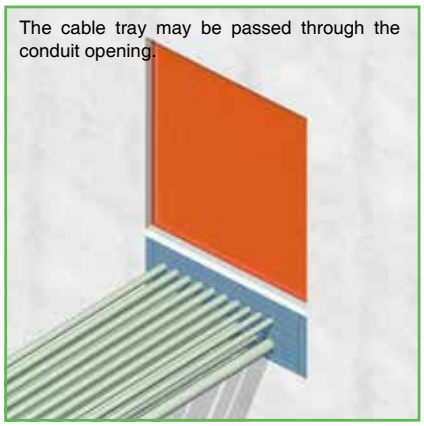


13) A NOFIRNO® coated board is cut to size and tightly fitting inserted into the open space of the conduit opening. The NOFIRNO® board should be a bit oversized in height with a view to compress the ACTIFOAM® filling.

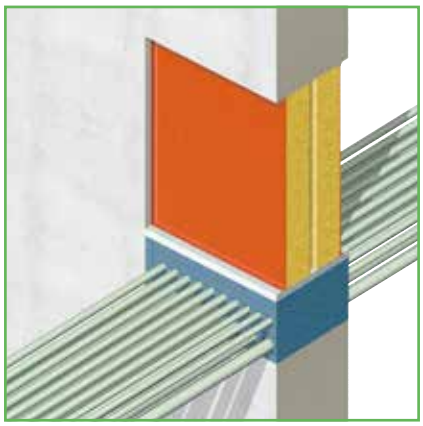


14) Depending on the required fire rating, a single NOFIRNO® board coated on both sides can be inserted in the conduit opening. For higher fire ratings two boards coated on one side only can be placed on top of the compression plate.

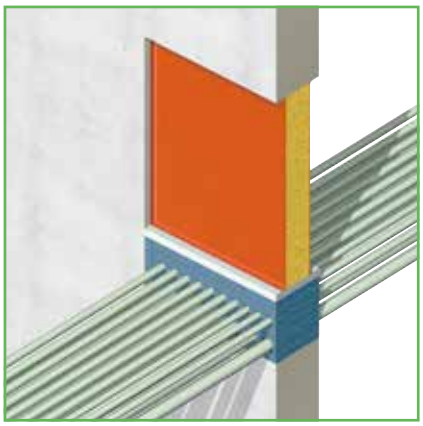
15) The NOFIRNO® board is sealed all around with NOFIRNO® sealant to obtain optimum tightness and to avoid dehydration of the mineral wool. This will also improve mechanical stability. The sealant can be smoothed by hand.



16) The finished NOFIRNO® - ACTIFOAM® multi-cable penetration. For adding extra cables the NOFIRNO® board can be removed and the fire safe compression plate lifted. The ACTIFOAM® filling allows easy access for ducting more cables.

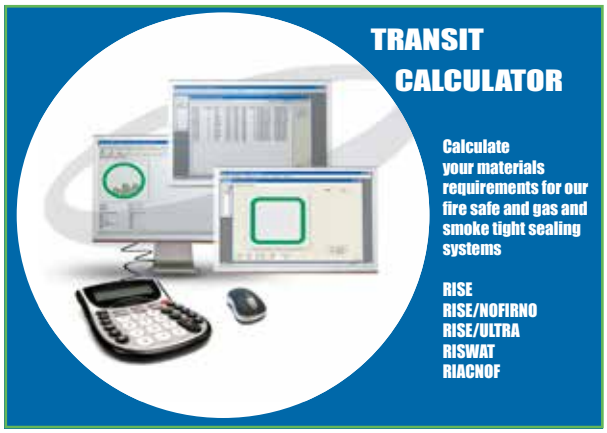


17) The finished NOFIRNO® - ACTIFOAM® multi-cable penetration with two NOFIRNO® boards coated on one side only.
Fire rating is dependent on wall thickness and the amount of NOFIRNO® boards applied.



18) The finished NOFIRNO® - ACTIFOAM® multi-cable penetration with a single NOFIRNO® board coated on both sides. For installations where a lower fire rating is applicable a single NOFIRNO® board can be applied.

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



Free material calculation software. Download at our web-site http://www.beele.com.
After entering the dimensions of the conduit opening and the amount and outer diameters of the ducted cables or pipes, the software calculates the amount of RISE® or RISWAT® insert sleeves, the RISE® , RISWAT® or 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.

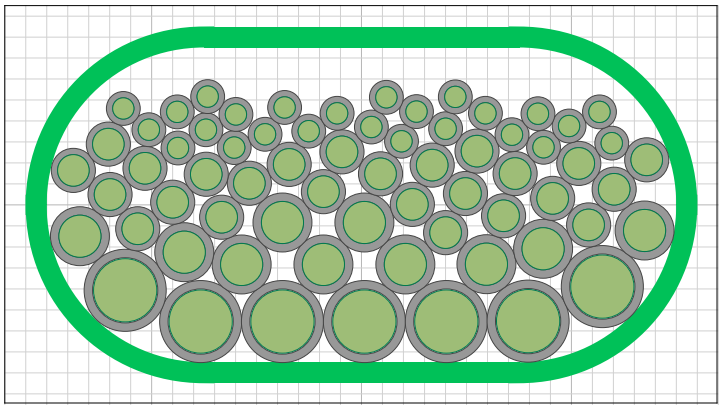
The material list of a transit shows the options which can be entered to make a calculation of the materials needed:

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 'NOFIRNO multi-cable transit'



Created on:	20-1-2010 13:55:32
Created by:	Jansen
Last modified:	24-2-2010 10:40:34
Modified by:	Dickson

Transit specifications:	**(All dimensions in mm)**
Width:	300,00
Height:	150,00
Corner radius:	75,00
Depth:	180,00
Transit type:	Cable
Transit used in this project:	1 time
Filling rate:	36%
Spare on cable set:	0%
Class:	A-class
EMC:	None
Sealant:	20mm (both sides)

Check the Type Approval Certificates for limitations in sizes !

Material specifications:
Type of filler sleeves: standard
NOFIRNO sealant: cartridges 310 ml

Cable specifications:

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

Total amount of cables: 67

NOFIRNO materials needed:

Filler sleeves	Amount	Length
18/12	7	140,00 mm
27/19	16	140,00 mm

NOFIRNO sealant
(incl. overfill) 1354 ml (5 cartridges)

RISE materials needed:

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

ACTIFOAM®/ULTRA GAP SEAL

ACTIFOAM® foam rubber layered with RISE®/ULTRA rubber
extremely high thermal insulation under fire load
highest fire ratings with a 20 mm thick layer NOFIRNO® sealant

Escape corridor protected against fire and smoke with ACTIFOAM®/ULTRA.

> 3 km ACTIFOAM®/ULTRA installed in the tunnel.

fire test 135 minutes at >1200 °C continuously for the Victoria Park tunnel in Auckland/NZ:

1) no smoke during the full test duration.
2) temperature rise after 135 minutes fire exposure only 10 °C on the foam rubber at the unexposed side.
3) after cooling down it showed that the layered foam rubber had fully adhered to the concrete. Still offering smoke tightness.
4) mechanical stability still intact after a harsh fire.

WE CARE

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

BEELE ENGINEERING

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