



INSTALLATION INSTRUCTIONS NOFIRNO[®]/EMC(MULTI-) CABLE TRANSITS

NO FIRNO[®]

|| CONDUCTION ||[®]

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FIRE SAFE, GAS AND WATER TIGHT SEALING SOLUTIONS FOR INSTALLATIONS/CONSTRUCTIONS

Beele campus 45.000 m²
building phase 1 started september 2017



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Edition

: April 2019

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Research & Development

: BEELE Engineering BV, Aalten, the Netherlands.

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brochure code

: installation NOFIRNO/EMC

ASSEMBLY INSTRUCTIONS FOR CONDUCTON® TYPE NOFIRNO®/EMC MULTI-CABLE TRANSITS

NOFIRNO® CABLE INSERT SLEEVES



NOFIRNO® cable insert sleeves are used to separate cables inside the conduit opening. This allows for ease of application of the NOFIRNO® sealant in between and around the ducted cables. The NOFIRNO® cable sleeves are available in 29 sizes and in lengths of 60, 80, 110, 130, 140, 160 and 210 mm. The NOFIRNO® cable insert sleeves are split lengthwise and can therefore be placed around the cables in front of the conduit opening.

ASSEMBLY INSTRUCTIONS FOR CONDUCTION® TYPE NOFIRNO®/EMC MULTI-CABLE TRANSITS

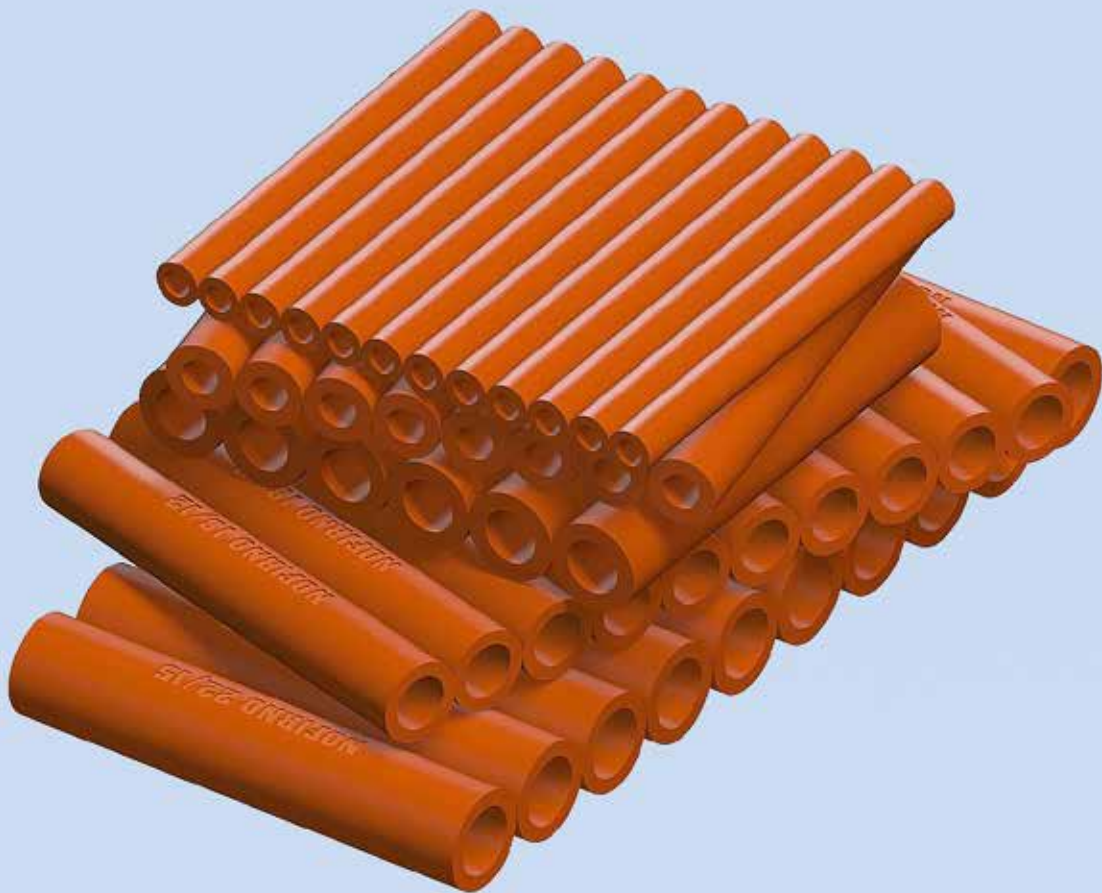
NOFIRNO® CABLE INSERT SLEEVES

NOFIRNO® sleeve	cable diameter	sleeve length	article number	sleeve length	article number	sleeve length	article number	sleeve length	article number
12/6	5 - 7	60	50.1000	80	50.1240	110	50.1040	130	50.1200
14/8	7 - 9		50.1001		50.1241		50.1041		50.1201
16/10	9 - 11		50.1002		50.1242		50.1042		50.1202
18/12	11 - 13		50.1003		50.1243		50.1043		50.1203
20/14	13 - 15		50.1004		50.1244		50.1044		50.1204
22/16	15 - 17		50.1005		50.1245		50.1045		50.1205
26/18	17 - 19		50.1006		50.1246		50.1046		50.1206
28/20	19 - 21		50.1007		50.1247		50.1047		50.1207
30/22	21 - 23		50.1008		50.1248		50.1048		50.1208
32/24	23 - 25		50.1009		50.1249		50.1049		50.1209
34/26	25 - 27		50.1010		50.1250		50.1050		50.1210
36/28	27 - 29		50.1011		50.1251		50.1051		50.1211
38/30	29 - 32		50.1012		50.1252		50.1052		50.1212
42/33	32 - 35		50.1013		50.1253		50.1053		50.1213
46/36	35 - 38		50.1014		50.1254		50.1054		50.1214
49/39	38 - 41		50.1015		50.1255		50.1055		50.1215
52/42	41 - 44		50.1016		50.1256		50.1056		50.1216
55/45	44 - 47		50.1017		50.1257		50.1057		50.1217
58/48	47 - 51		50.1018		50.1258		50.1058		50.1218
62/52	51 - 55		50.1019		50.1259		50.1059		50.1219
66/56	55 - 59		50.1020		50.1260		50.1060		50.1220
70/60	59 - 63		50.1021		50.1261		50.1061		50.1221
74/64	63 - 67		50.1022		50.1262		50.1062		50.1222
78/68	67 - 71		50.1023		50.1263		50.1063		50.1223
82/72	71 - 75		50.1024		50.1264		50.1064		50.1224
86/76	75 - 79		50.1025		50.1265		50.1065		50.1225
95/80	79 - 84		50.1026		50.1266		50.1066		50.1226
100/85	84 - 89		50.1027		50.1267		50.1067		50.1227
110/90	89 - 94	50.1028	50.1268	50.1068	50.1228				

NOFIRNO® sleeve	cable diameter	sleeve length	article number	sleeve length	article number	sleeve length	article number	sleeve length	article number
12/6	5 - 7	140	50.1080	160	50.1120	210	50.1160	210	50.1120
14/8	7 - 9		50.1081		50.1121		50.1161		50.1121
16/10	9 - 11		50.1082		50.1122		50.1162		50.1122
18/12	11 - 13		50.1083		50.1123		50.1163		50.1123
20/14	13 - 15		50.1084		50.1124		50.1164		50.1124
22/16	15 - 17		50.1085		50.1125		50.1165		50.1125
26/18	17 - 19		50.1086		50.1126		50.1166		50.1126
28/20	19 - 21		50.1087		50.1127		50.1167		50.1127
30/22	21 - 23		50.1088		50.1128		50.1168		50.1128
32/24	23 - 25		50.1089		50.1129		50.1169		50.1129
34/26	25 - 27		50.1090		50.1130		50.1170		50.1130
36/28	27 - 29		50.1091		50.1131		50.1171		50.1131
38/30	29 - 32		50.1092		50.1132		50.1172		50.1132
42/33	32 - 35		50.1093		50.1133		50.1173		50.1133
46/36	35 - 38		50.1094		50.1134		50.1174		50.1134
49/39	38 - 41		50.1095		50.1135		50.1175		50.1135
52/42	41 - 44		50.1096		50.1136		50.1176		50.1136
55/45	44 - 47		50.1097		50.1137		50.1177		50.1137
58/48	47 - 51		50.1098		50.1138		50.1178		50.1138
62/52	51 - 55		50.1099		50.1139		50.1179		50.1139
66/56	55 - 59		50.1100		50.1140		50.1180		50.1140
70/60	59 - 63		50.1101		50.1141		50.1181		50.1141
74/64	63 - 67		50.1102		50.1142		50.1182		50.1142
78/68	67 - 71		50.1103		50.1143		50.1183		50.1143
82/72	71 - 75		50.1104		50.1144		50.1184		50.1144
86/76	75 - 79		50.1105		50.1145		50.1185		50.1145
95/80	79 - 84		50.1106		50.1146		50.1186		50.1146
100/85	84 - 89		50.1107		50.1147		50.1187		50.1147
110/90	89 - 94	50.1108	50.1148	50.1188	50.1148				

ASSEMBLY INSTRUCTIONS FOR CONDUCTON® TYPE NOFIRNO®/EMC MULTI-CABLE TRANSITS

NOFIRNO® MULTI-FILLER SLEEVES



filler sleeves are not split lengthwise

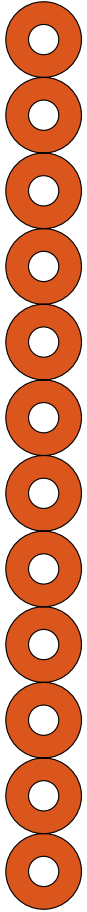
Operating temperatures:
-50 °C up to +180 °C

NOFIRNO® filler sleeves are supplied in multi-sets of 6, 8, 10 and 12 sleeves, depending on the outer dimensions of the sleeves. Single sleeves or smaller sets of sleeves can be torn off easily. To tear off sleeves from the multi-set, the procedure is to do this backwards/forwards and not sideways. This is because of the strength of the intermediate rubber parts.

Note: the 80 mm sleeves are not yet incorporated in the tables.

ASSEMBLY INSTRUCTIONS FOR CONDUCTION® TYPE NOFIRNO®/EMC MULTI-CABLE TRANSITS

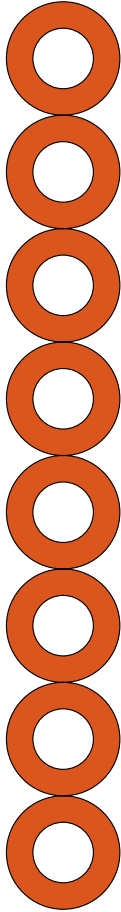
NOFIRNO® MULTI-FILLER SLEEVES



NOFIRNO® filler sleeve 10/4 multi 12

- art. no. 50.0301 for 60 mm length
- art. no. 50.0361 for 80 mm length
- art. no. 50.0311 for 110 mm length
- art. no. 50.0351 for 130 mm length
- art. no. 50.0321 for 140 mm length
- art. no. 50.0331 for 160 mm length
- art. no. 50.0341 for 210 mm length

to be used for smaller conduit openings

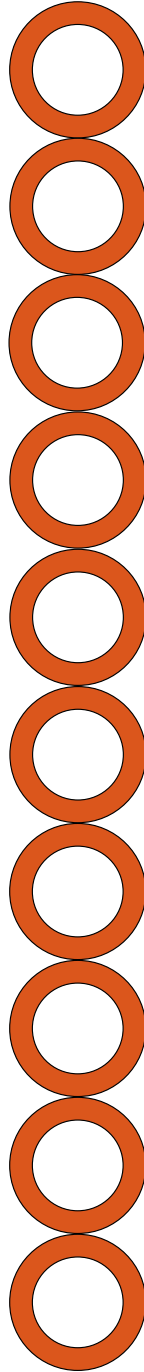


NOFIRNO® filler sleeve 15/8 multi 8

- art. no. 50.0302 for 60 mm length
- art. no. 50.0302 for 80 mm length
- art. no. 50.0362 for 110 mm length
- art. no. 50.0352 for 130 mm length
- art. no. 50.0322 for 140 mm length
- art. no. 50.0332 for 160 mm length
- art. no. 50.0342 for 210 mm length

NOFIRNO® filler sleeve 20/12 multi 6

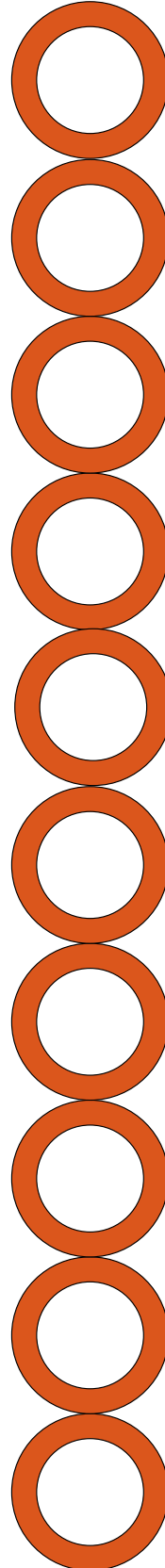
- art. no. 50.0303 for 60 mm length
- art. no. 50.0363 for 80 mm length
- art. no. 50.0313 for 110 mm length
- art. no. 50.0353 for 130 mm length
- art. no. 50.0323 for 140 mm length
- art. no. 50.0333 for 160 mm length
- art. no. 50.0343 for 210 mm length



NOFIRNO® filler sleeve 18/12 multi 10

- art. no. 80.5050 for 60 mm length
- art. no. 80.5056 for 80 mm length
- art. no. 80.5051 for 110 mm length
- art. no. 80.5055 for 130 mm length
- art. no. 80.5052 for 140 mm length
- art. no. 80.5053 for 160 mm length
- art. no. 80.5054 for 210 mm length

to be used for larger conduit openings



NOFIRNO® filler sleeve 22/15 multi 10

- art. no. 80.5070 for 60 mm length
- art. no. 80.5076 for 80 mm length
- art. no. 80.5071 for 110 mm length
- art. no. 80.5075 for 130 mm length
- art. no. 80.5072 for 140 mm length
- art. no. 80.5073 for 160 mm length
- art. no. 80.5074 for 210 mm length

to be used for larger conduit openings

filler sleeves are supplied non-split

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

ASSEMBLY INSTRUCTIONS FOR CONDUCTON® TYPE NOFIRNO®/EMC MULTI-CABLE TRANSITS

PRODUCT INFORMATION SEALANT

01) colour	red brown, blue, black, white, grey
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	12 months when stored properly. Since we have no control on storage, we can only guarantee for 6 months. when applied later than 6 months after date of manufacturing, curing and adhesive properties have to be checked before application

NOFIRNO® is absolutely HALOGEN FREE with zero VOC (volatiles organic compounds) according to TÜV report 89206405-01. Furthermore NOFIRNO® has a low smoke index and a high oxygen index (ISO 4589-2: 1996), and low flame spread characteristics according to IMO Resolution A.653(16). NOFIRNO® is a paste-like compound which is simple to use. NOFIRNO® has a balanced viscosity and can be applied overhead.

article number 50.0102



black



article number 50.0104

white



article number 50.0105

blue grey



article number 50.0106

concrete grey



article number 50.0111

ASSEMBLY INSTRUCTIONS FOR CONDUCTON® TYPE NOFIRNO®/EMC MULTI-CABLE TRANSITS

CONDUCTON® FLEXIBLE ELECTRICALLY CONDUCTIVE RUBBER

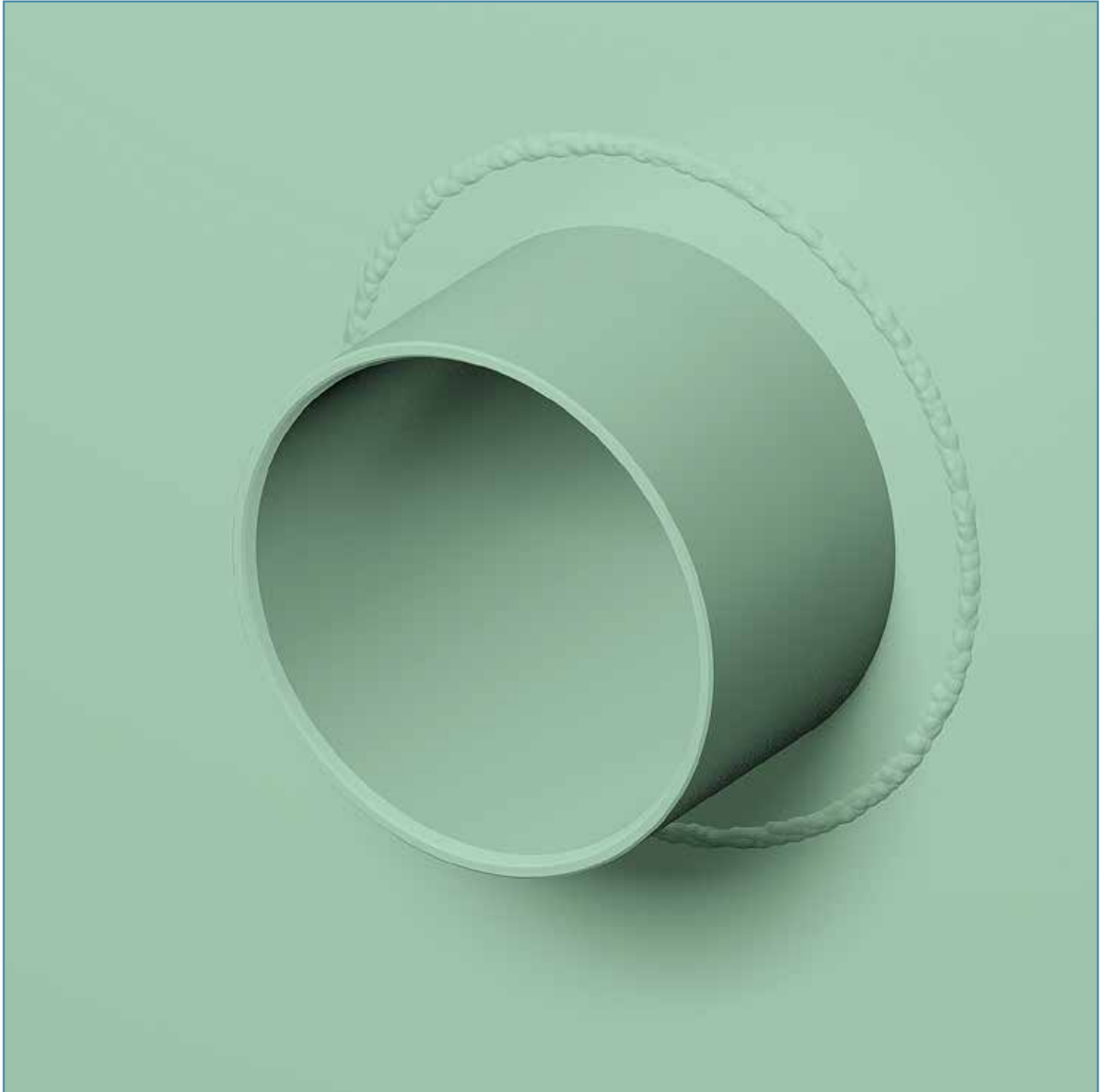


CONDUCTON® flexible rubber is used to fill the cavity around the ducted cables in the conduit sleeve. This rubber can be molded by hand and offers the highest attenuation.

CONDUCTON® flexible rubber is absolutely HALOGEN FREE and has a toxicity index of 0,00 (tested according to Naval Engineering Standard NES 713: Issue 3). Furthermore CONDUCTON® has a low smoke index (NES 711: Issue 2: 1981), an oxygen index of 38,2% (ISO 4589-2: 1996), and a temperature index of 294 °C (ISO 4589-3: 1996).

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

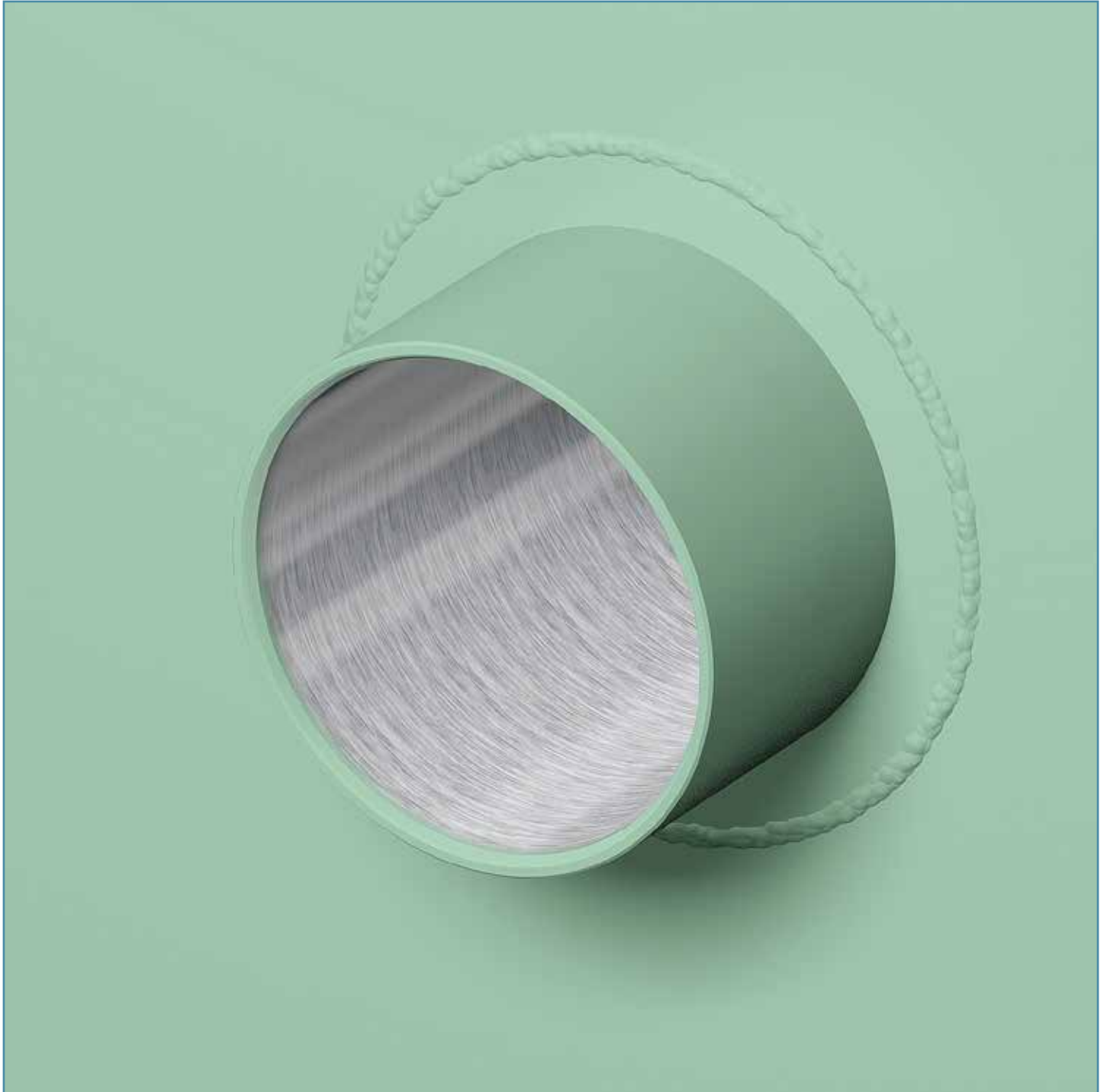
ASSEMBLY INSTRUCTIONS FOR CONDUCTON® TYPE NOFIRNO®/EMC MULTI-CABLE TRANSITS



A conduit length of 280 mm and applying layers of 40 mm CONDUCTON® flexible compound at both sides, has proven optimum attenuation. The NOFIRNO®/EMC system in this configuration has been tested officially. Attenuation: 52->100 dB.

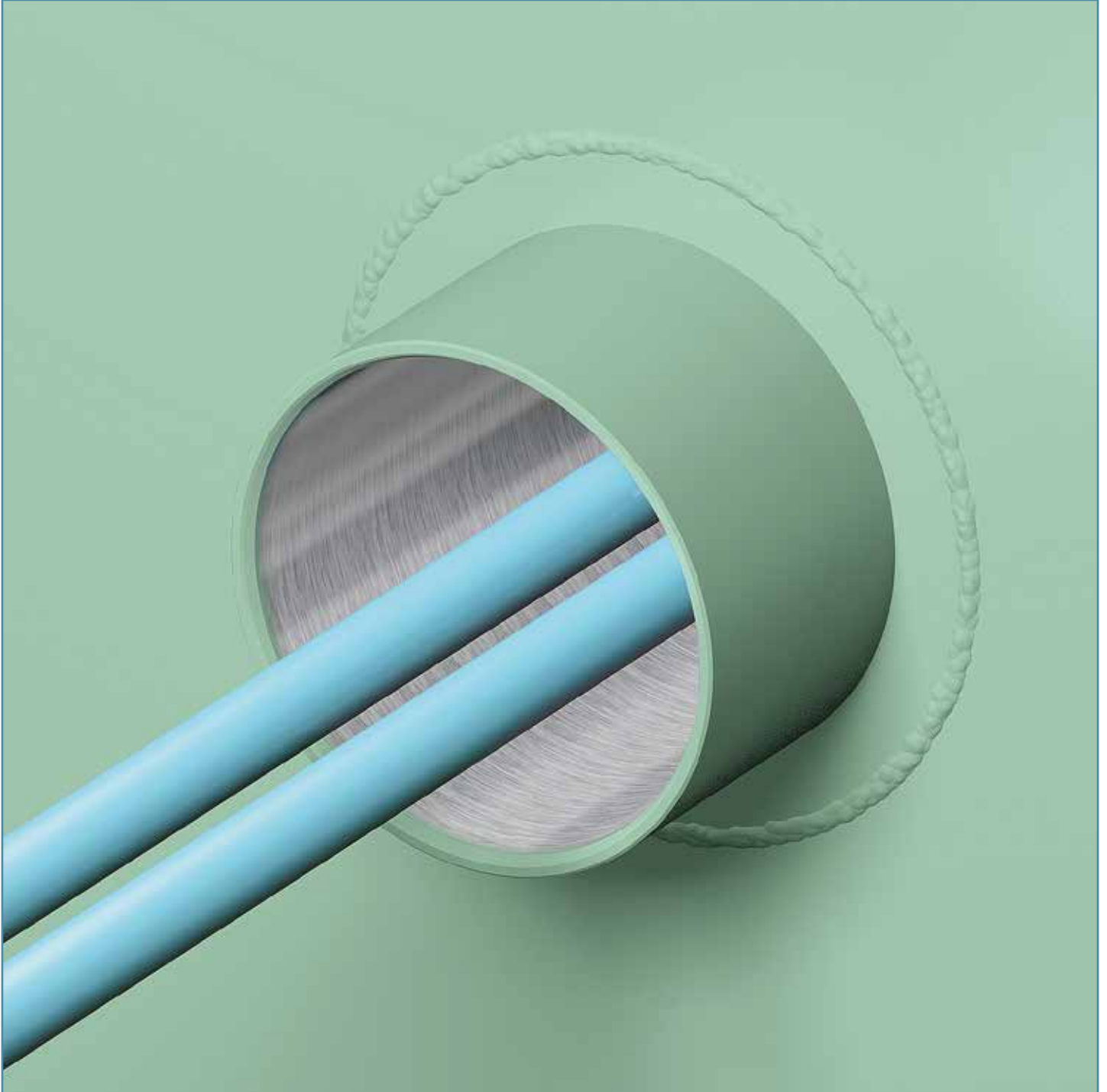
In case lower attenuation ratings are acceptable, the RISE®/EMC system with shorter conduits and a single layer of 40 mm CONDUCTON® flexible compound can be applied. Attenuation: 35-85 dB.

ASSEMBLY INSTRUCTIONS FOR CONDUCTON® TYPE NOFIRNO®/EMC MULTI-CABLE TRANSITS



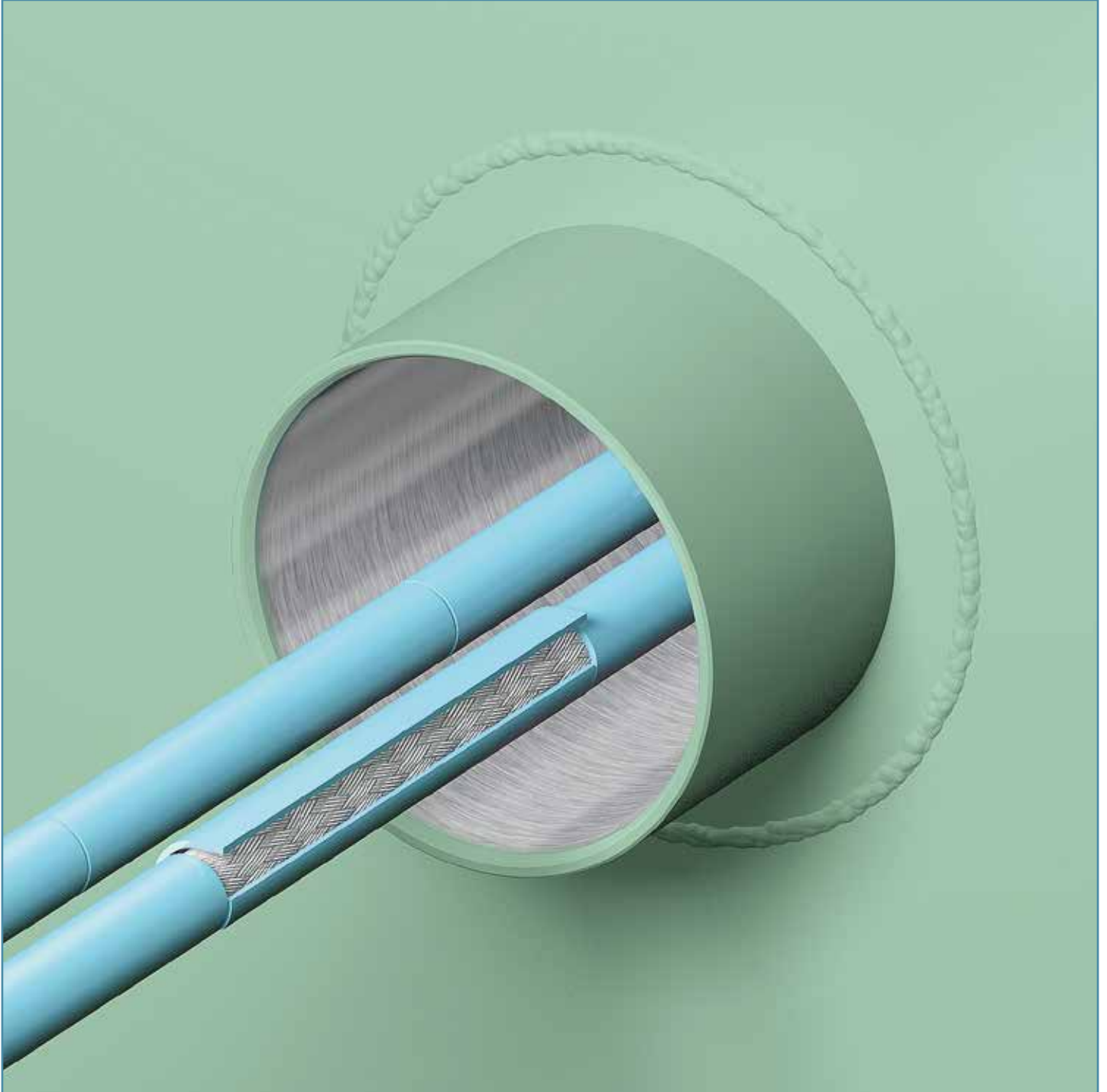
At the location where the CONDUCTON® flexible compound is to be applied, the penetration should be bare steel without primer and thoroughly cleaned to ensure effective connection to earth. Any protective coating and/or any corrosion, dirt or oil residues have to be removed before starting the installation of the NOFIRNO®/EMC cable penetration.

ASSEMBLY INSTRUCTIONS FOR CONDUCTON® TYPE NO FIRNO®/EMC MULTI-CABLE TRANSITS



The cable(s) should be ducted in a such way which leaves enough play to move the cable(s) to carry out installation work in front of the conduit sleeve.

ASSEMBLY INSTRUCTIONS FOR CONDUCTON® TYPE NOFIRNO®/EMC MULTI-CABLE TRANSITS



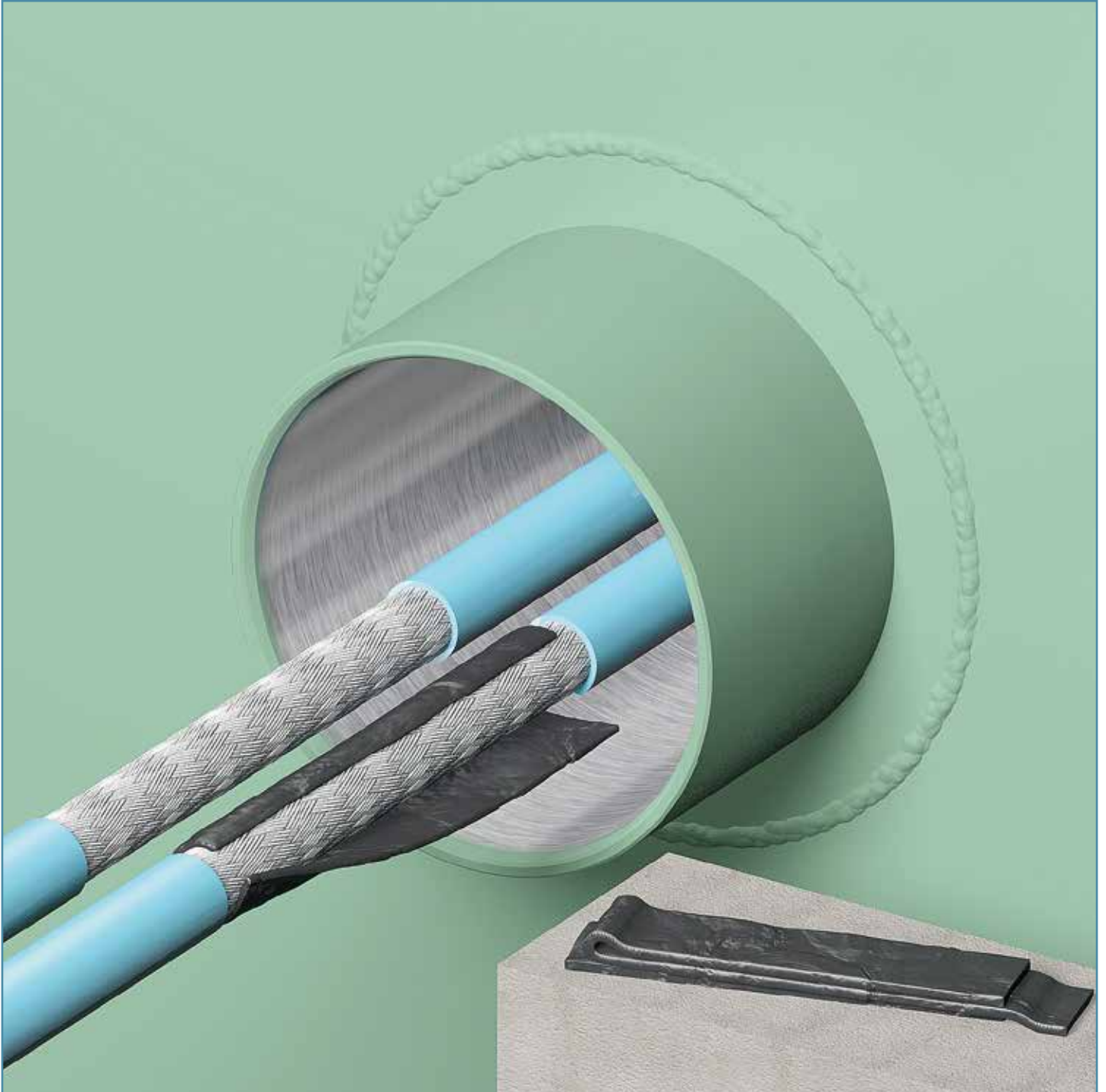
Remove the cable sheathing over a length that is 35-40 mm shorter than the length of the penetration. At both sides of the penetration, a layer of 20 mm sealant will be applied to the surface of the cable sheathings. This means that the front face of the exposed braiding should be situated about 20 mm inside the conduit at both sides.

ASSEMBLY INSTRUCTIONS FOR CONDUCTON® TYPE NO FIRNO®/EMC MULTI-CABLE TRANSITS



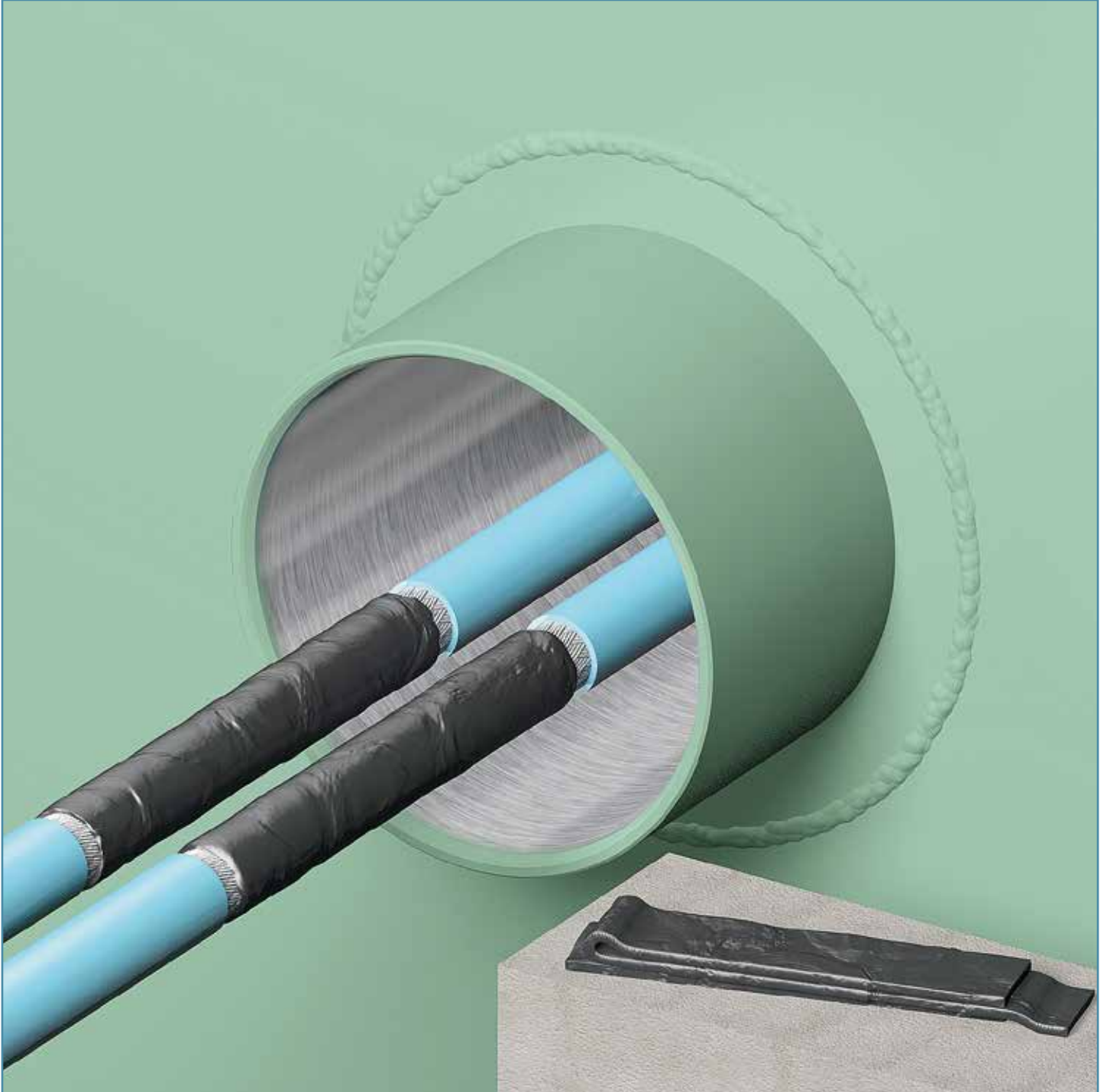
Removal of the cable sheathings has to be done carefully to prevent damaging the braiding. For this reason, it should be done in front of the penetration. Although the required contact surface with the CONDUCTON® flexible compound is only 40 mm at both sides of the transit, it might be easier to remove the cable sheathing over the entire length as shown. If f 40 mm removal of the sheathing at both sides is deemed easier, this is also acceptable.

ASSEMBLY INSTRUCTIONS FOR CONDUCTON® TYPE NOFIRNO®/EMC MULTI-CABLE TRANSITS



A thin layer of the CONDUCTON® flexible compound is folded around the braiding of the cable.
Note: the braiding has to be clean and should not be corroded or polluted.

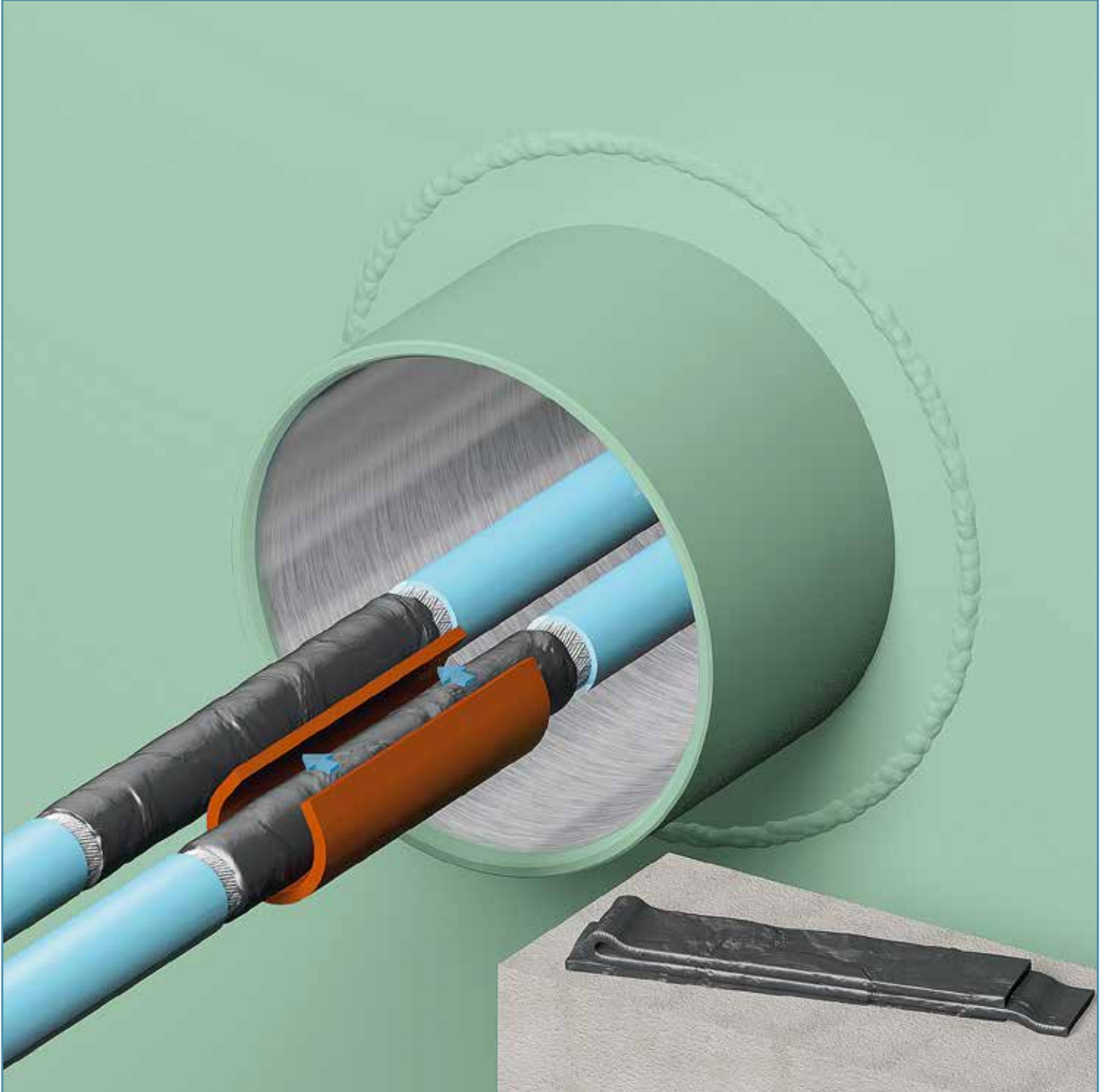
ASSEMBLY INSTRUCTIONS FOR CONDUCTON® TYPE NO FIRNO®/EMC MULTI-CABLE TRANSITS



The CONDUCTON® flexible compound around the braidings is firmly compressed by hand to obtain overall contact with the braiding. This is vital to reach highest attenuation values.

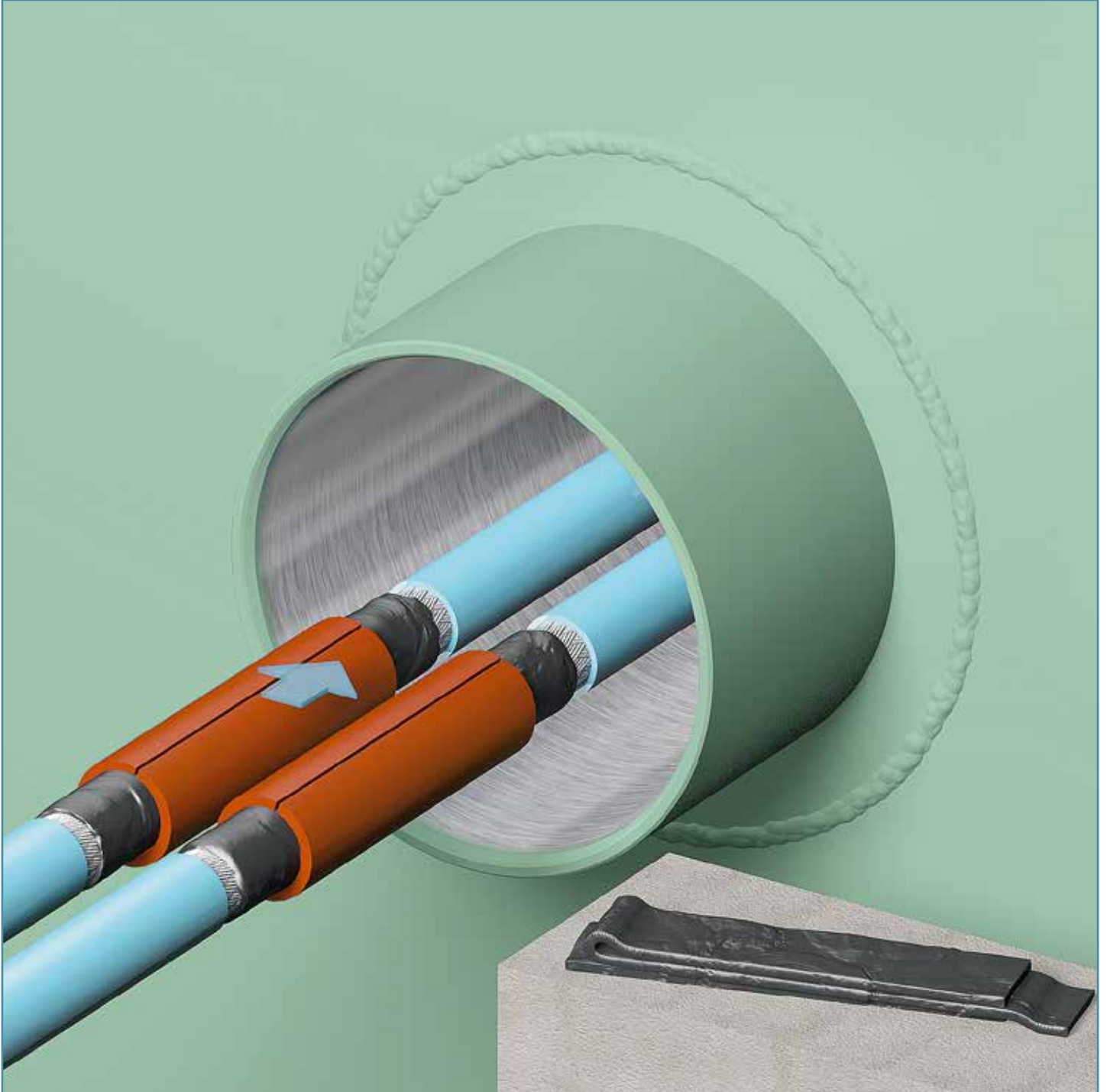
Note: the overall thickness of the layer CONDUCTON® flexible compound should be in the range of the OD of the ducted cables, including the sheathing.

ASSEMBLY INSTRUCTIONS FOR CONDUCTON® TYPE NOFIRNO®/EMC MULTI-CABLE TRANSITS



NOFIRNO® insert sleeves 120 mm shorter in length than the penetration are then fitted around the CONDUCTON® flexible compound applied on the braiding of the ducted cables. The CONDUCTON® flexible compound should extend 40 mm at both sides outside the NOFIRNO® insert sleeves. To enable measuring the electrical resistance after completion of the penetration, a small part of the braiding should be free from the CONDUCTON® flexible compound.

ASSEMBLY INSTRUCTIONS FOR CONDUCTON® TYPE NOFIRNO®/EMC MULTI-CABLE TRANSITS



Then the cables, with the CONDUCTON® flexible compound and the NOFIRNO® insert sleeves applied, are pulled back into the conduit sleeve.

ASSEMBLY INSTRUCTIONS FOR CONDUCTON® TYPE NOFIRNO®/EMC MULTI-CABLE TRANSITS



The cables should be positioned with ca. 20 mm cable sheathing inside the conduit sleeve to provide sufficient surface for application of the sealant in a later stage. This is important to obtain a water/moisture tight penetration, which prevents any corrosion inside the penetration.

Corrosion will have a very negative impact on the EMC performance of the penetration. Due to the sealant layers at both sides of the penetration, corrosion inside the penetration is prevented also during service life of the penetration.

ASSEMBLY INSTRUCTIONS FOR CONDUCTON® TYPE NOFIRNO®/EMC MULTI-CABLE TRANSITS



The remaining space inside the penetration is then packed with NOFIRNO® filler sleeves. Push the filler sleeves into the penetration in such a way as to leave about 60 mm free space at both sides. Take care that the exposed braiding with the CONDUCTON® flexible compound extends ca. 40 mm outside the set of filler sleeves at each side. Make sure that the filler sleeves fit tightly. NOFIRNO® multi-filler sleeves (set of 10) are available for filling larger empty spaces.

ASSEMBLY INSTRUCTIONS FOR CONDUCTON® TYPE NOFIRNO®/EMC MULTI-CABLE TRANSITS



Before applying the electrically conductive compound, it is advisable to perform a final check on the packing of NOFIRNO® insert and filler sleeves. Then apply layers of CONDUCTON® flexible compound strips 40 mm wide against the inside wall of the penetration.

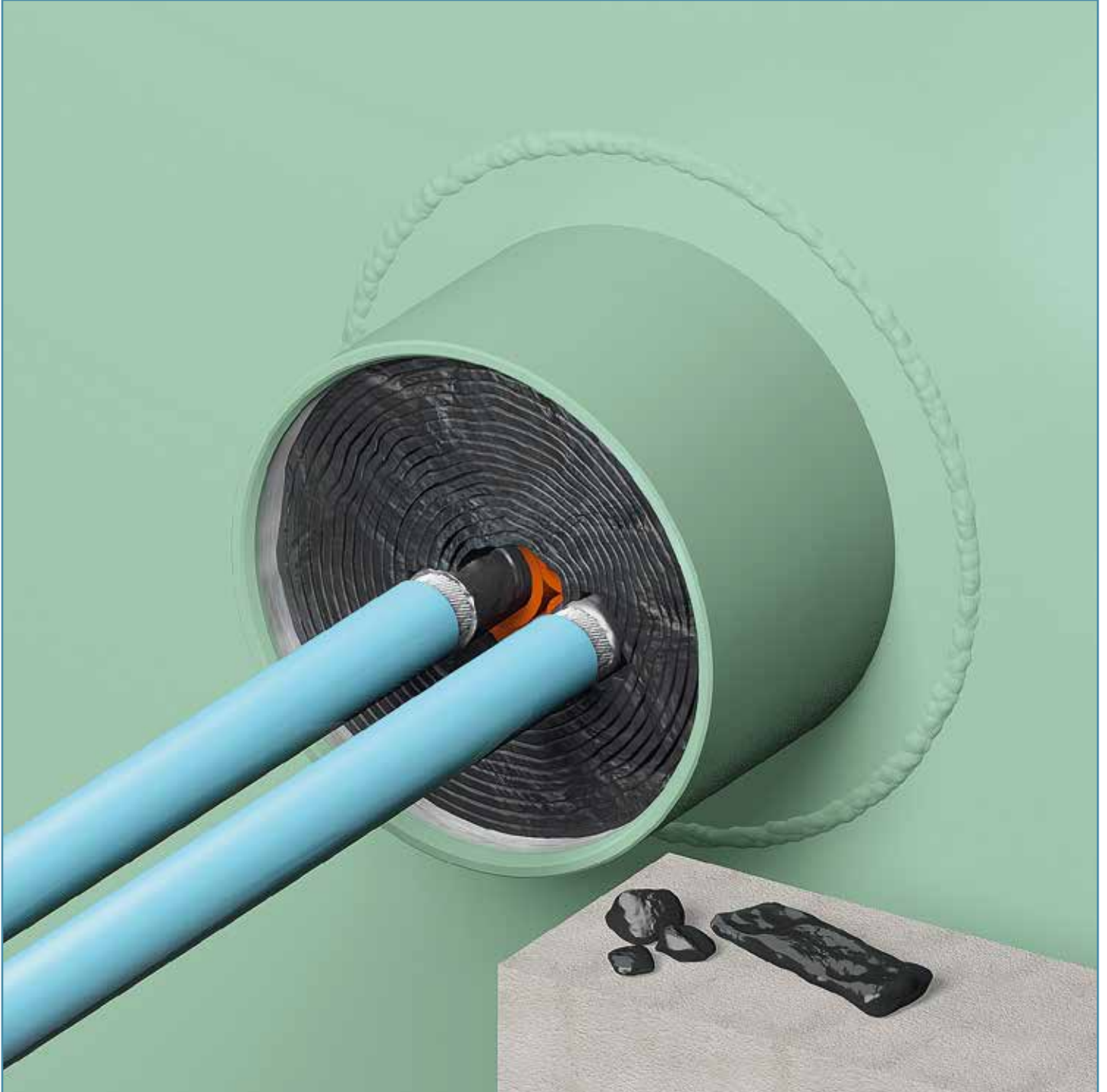
People with sensitive skin should use gloves when working with CONDUCTON®. Please refer to the Safety Data Sheet for more information.

ASSEMBLY INSTRUCTIONS FOR CONDUCTON® TYPE NO FIRNO®/EMC MULTI-CABLE TRANSITS



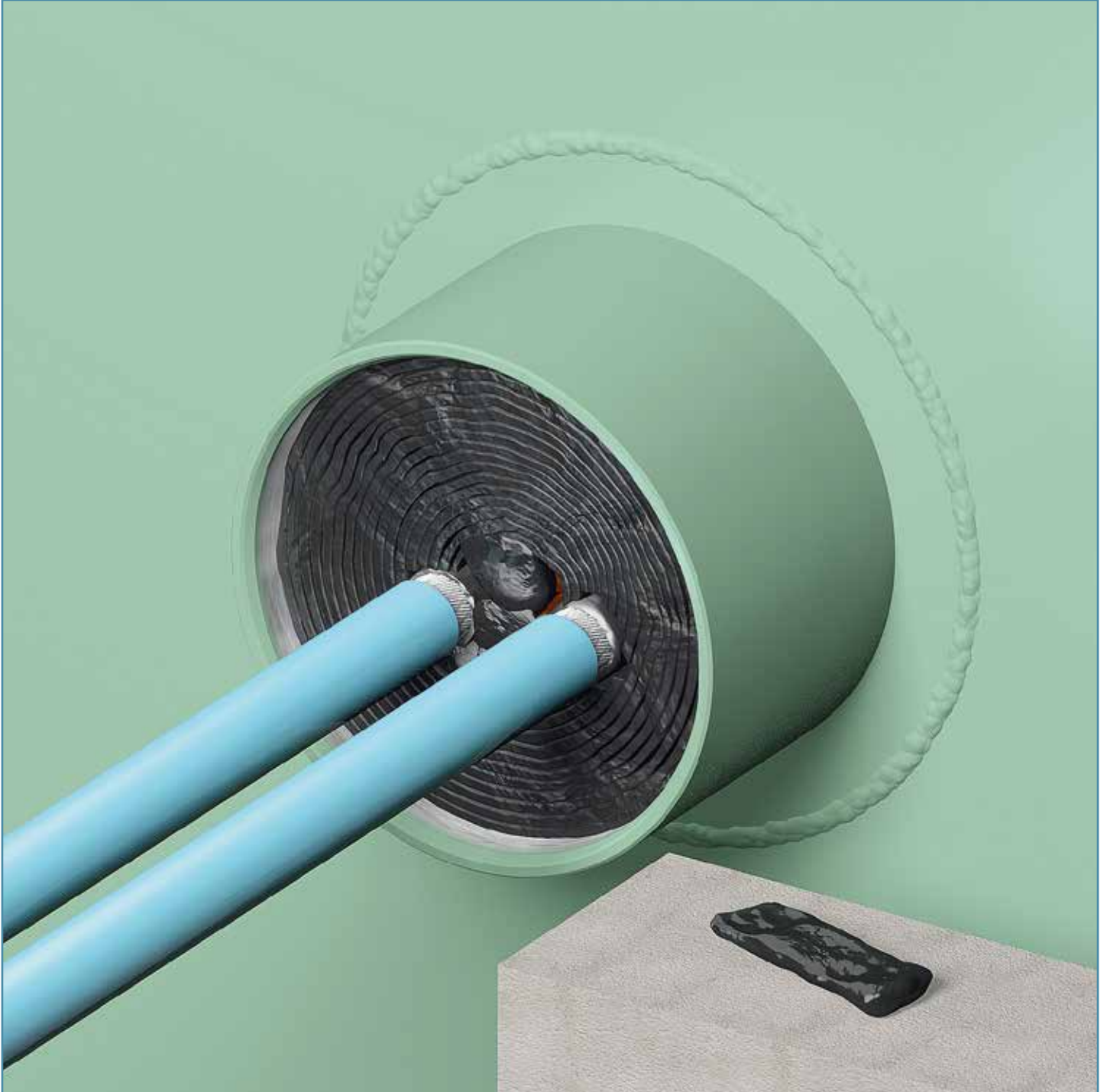
Pack the free space inside the penetration with lengths of strip. Compress the filling from time to time firmly to obtain a solid mass of flexible rubber and a good contact with the coaming/sleeve.

ASSEMBLY INSTRUCTIONS FOR CONDUCTON® TYPE NOFIRNO®/EMC MULTI-CABLE TRANSITS



CONDUCTON® flexible compound strips are applied in this way as far as possible.

ASSEMBLY INSTRUCTIONS FOR CONDUCTON® TYPE NO FIRNO®/EMC MULTI-CABLE TRANSITS



Pack the remaining small spaces around the cables with spare pieces of CONDUCTON® flexible compound strip.

ASSEMBLY INSTRUCTIONS FOR CONDUCTON® TYPE NOFIRNO®/EMC MULTI-CABLE TRANSITS



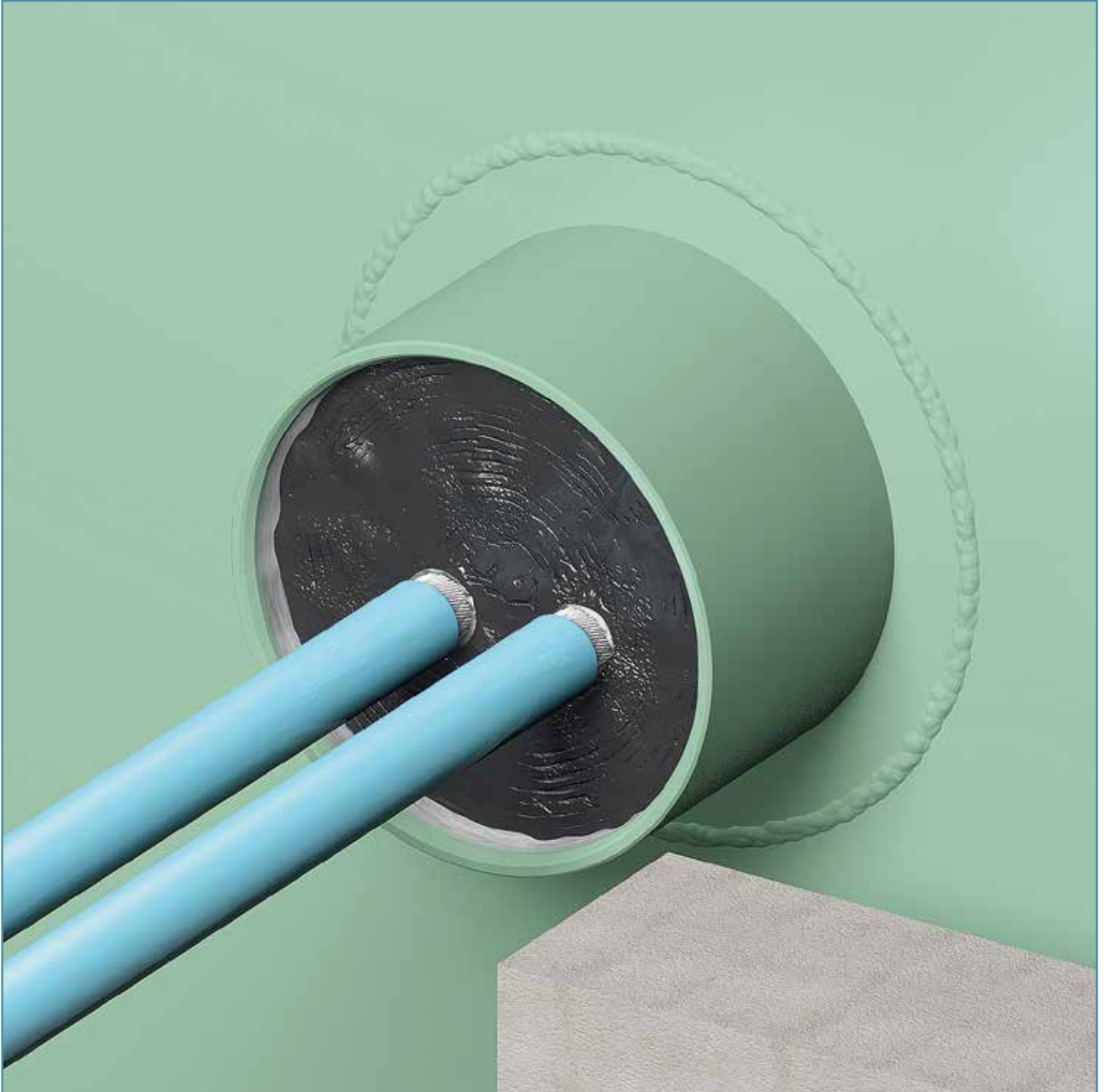
Then press them down firmly with a piece of wood in order to obtain a good contact with the flexible compound which was applied before around the braiding of the ducted cable(s).

ASSEMBLY INSTRUCTIONS FOR CONDUCTON® TYPE NO FIRNO®/EMC MULTI-CABLE TRANSITS



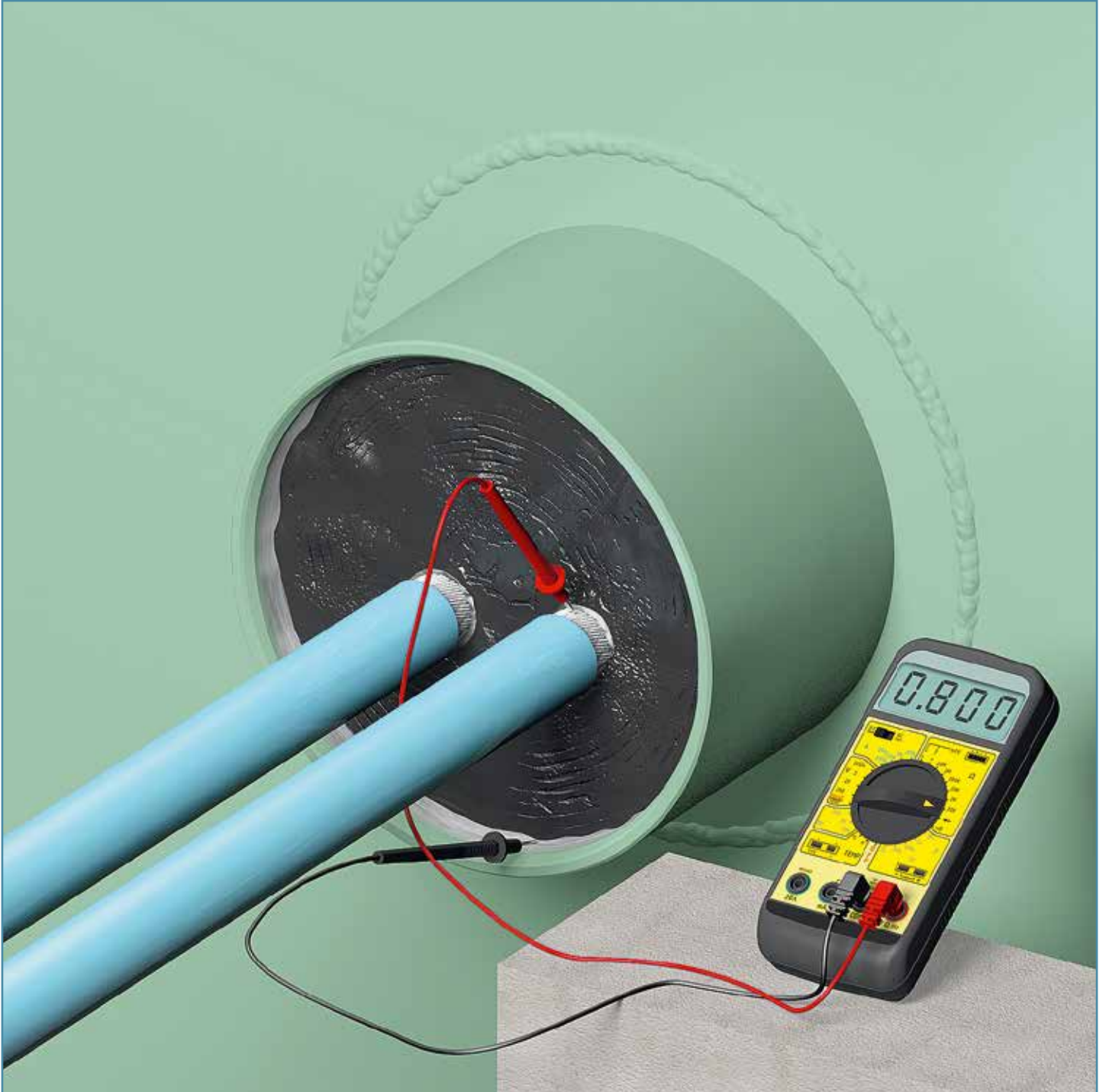
Firmly press down the mass once more by hand. This is extremely important to ensure effective electrical conductivity.

ASSEMBLY INSTRUCTIONS FOR CONDUCTON® TYPE NOFIRNO®/EMC MULTI-CABLE TRANSITS



After compression, a small part of the braiding should be accessible for a measurement of the achieved electrical resistance. The lower the resistance, the higher the attenuation.
Then apply the CONDUCTON® flexible compound at the other side of the penetration in a similar way.

ASSEMBLY INSTRUCTIONS FOR CONDUCTON® TYPE NO FIRNO®/EMC MULTI-CABLE TRANSITS



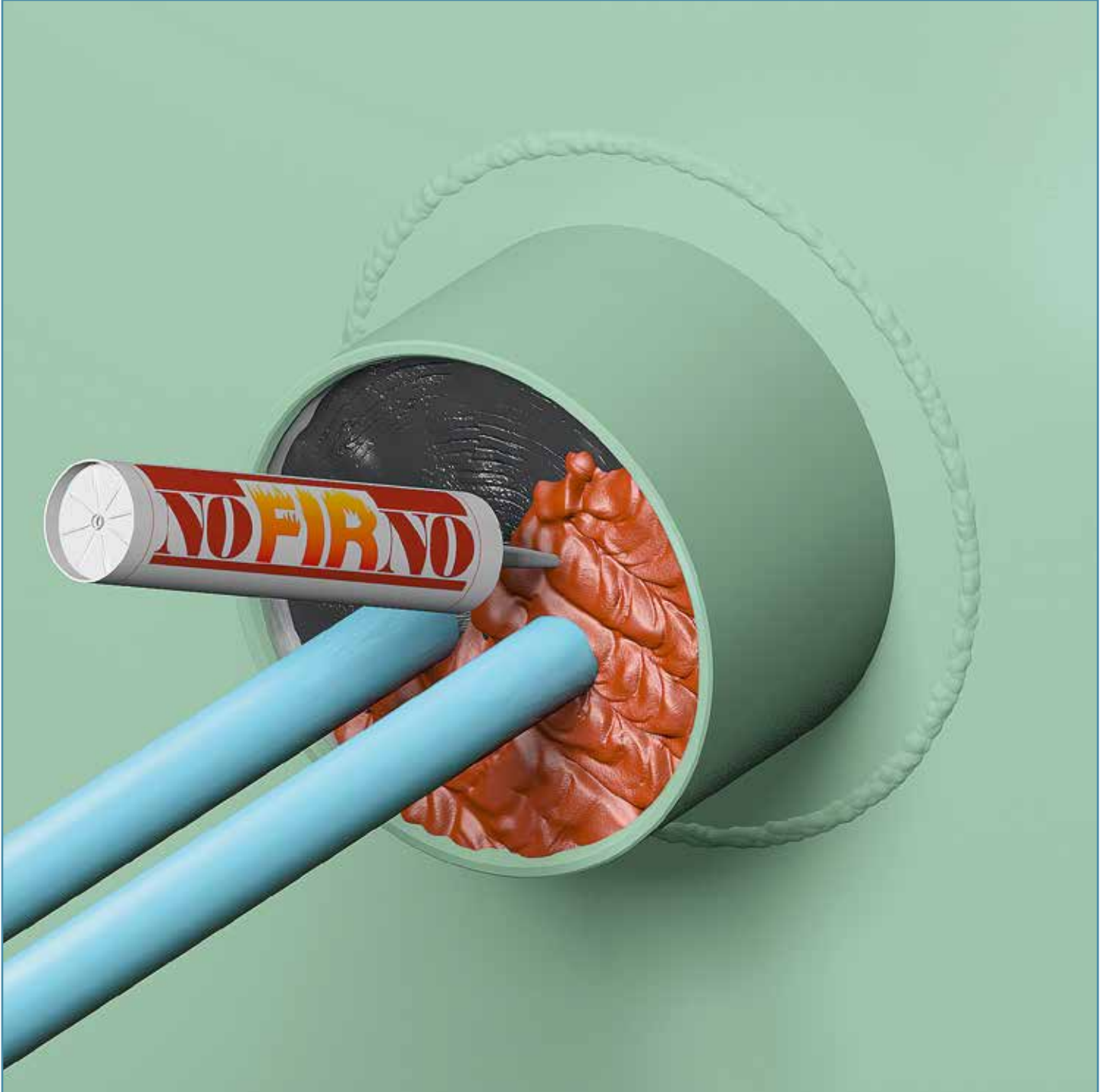
Before finishing the penetration with the sealant, a measurement of the achieved electrical resistance takes place. A resistance of 0.8 - 1 Ohm is achievable with the CONDUCTON® flexible compound when the compound is compressed to a very compact mass.

ASSEMBLY INSTRUCTIONS FOR CONDUCTON® TYPE NOFIRNO®/EMC MULTI-CABLE TRANSITS



At both sides of the penetration, about 20 mm free space should be present to enable the application of the NOFIRNO® fire safe, water tight sealing compound.

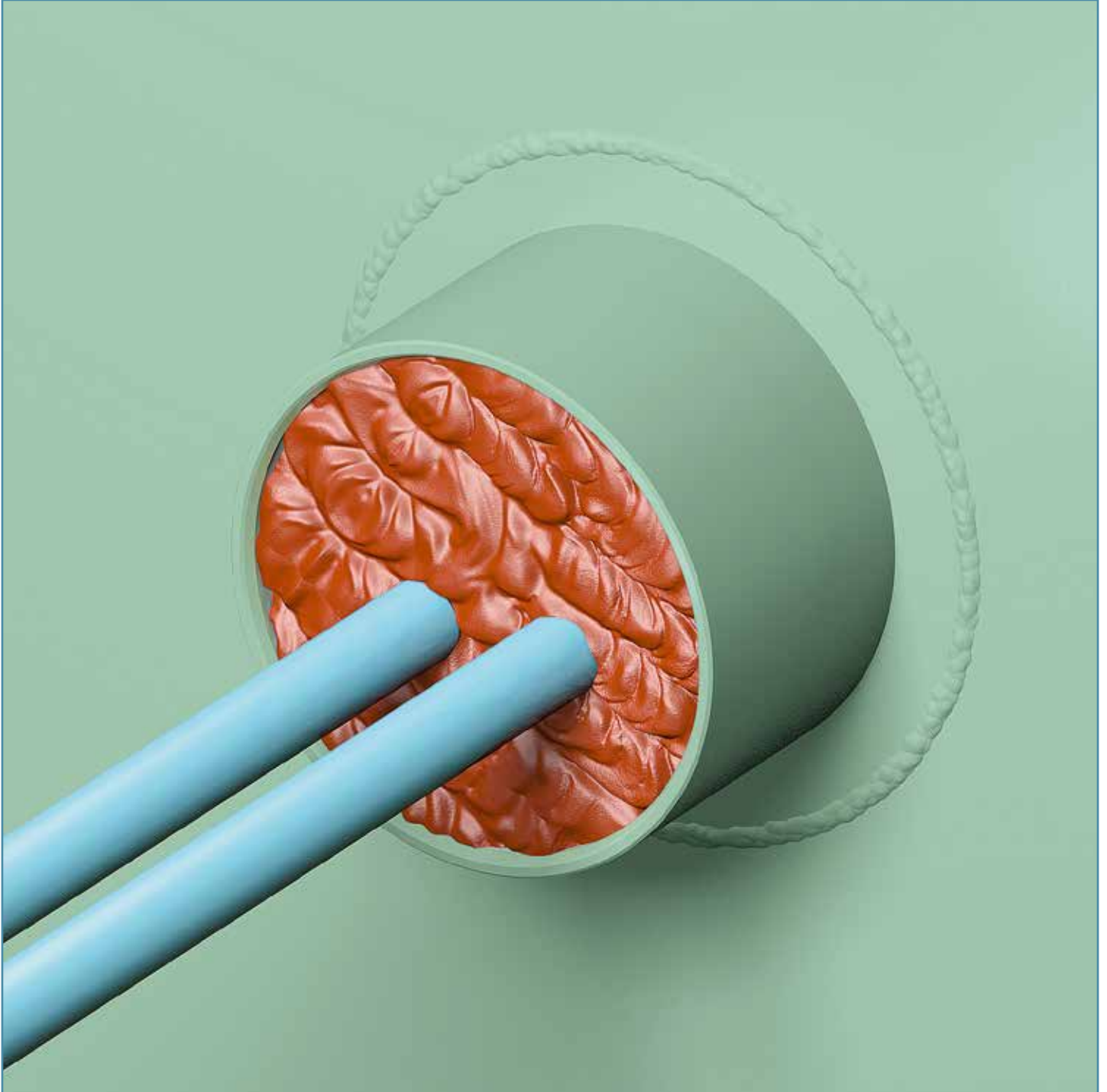
ASSEMBLY INSTRUCTIONS FOR CONDUCTON® TYPE NOFIRNO®/EMC MULTI-CABLE TRANSITS



Clean and dry the conduit opening and the cables thoroughly, and 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.

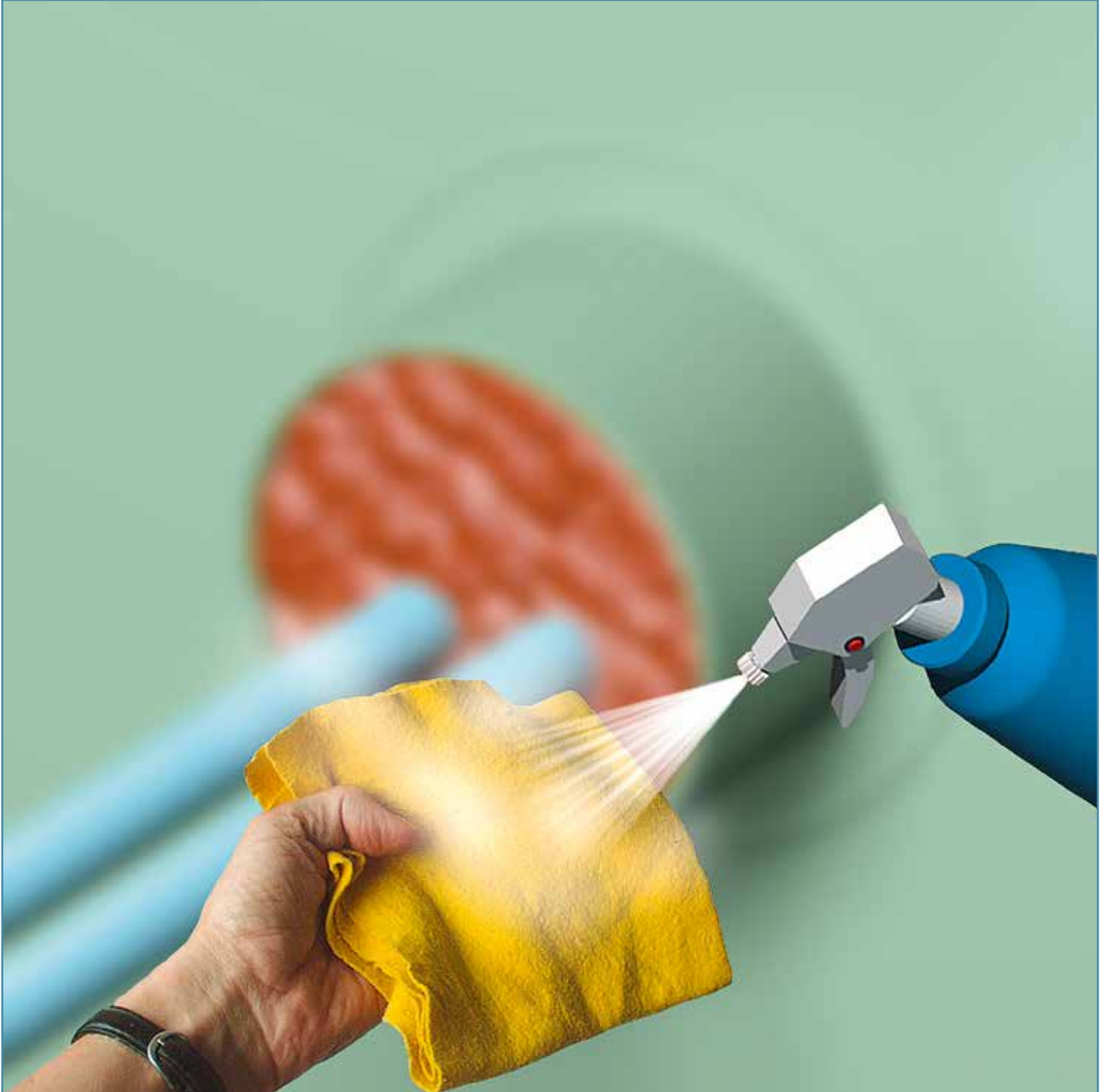
People with sensitive skin should use gloves when working with NOFIRNO®. Please refer to the Safety Data Sheet for more information.

ASSEMBLY INSTRUCTIONS FOR CONDUCTON® TYPE NOFIRNO®/EMC MULTI-CABLE TRANSITS



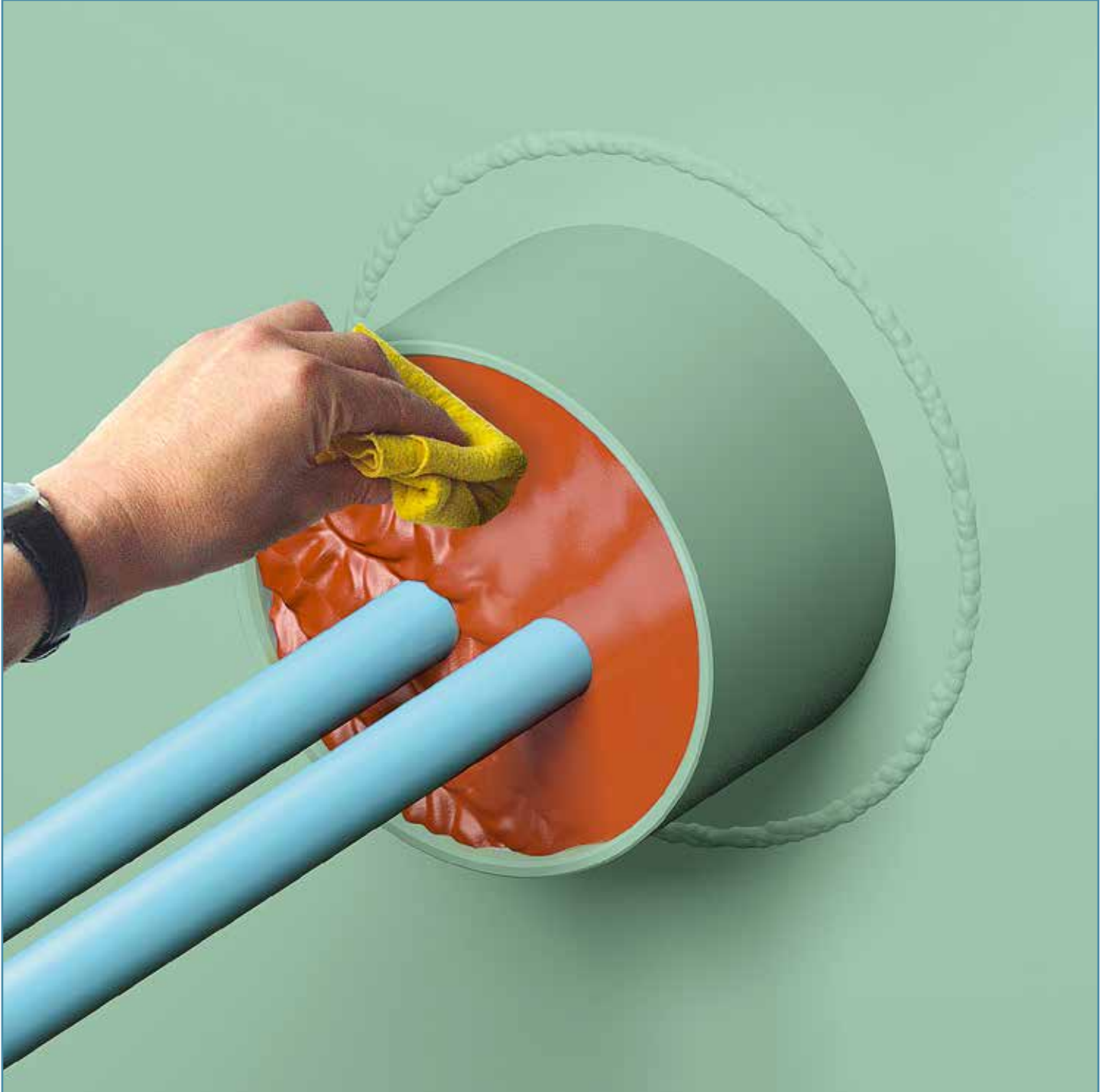
The conduit should be overfilled with some NOFIRNO® sealant for further finishing.

ASSEMBLY INSTRUCTIONS FOR CONDUCTON® TYPE NOFIRNO®/EMC MULTI-CABLE TRANSITS



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!

ASSEMBLY INSTRUCTIONS FOR CONDUCTON® TYPE NOFIRNO®/EMC MULTI-CABLE TRANSITS



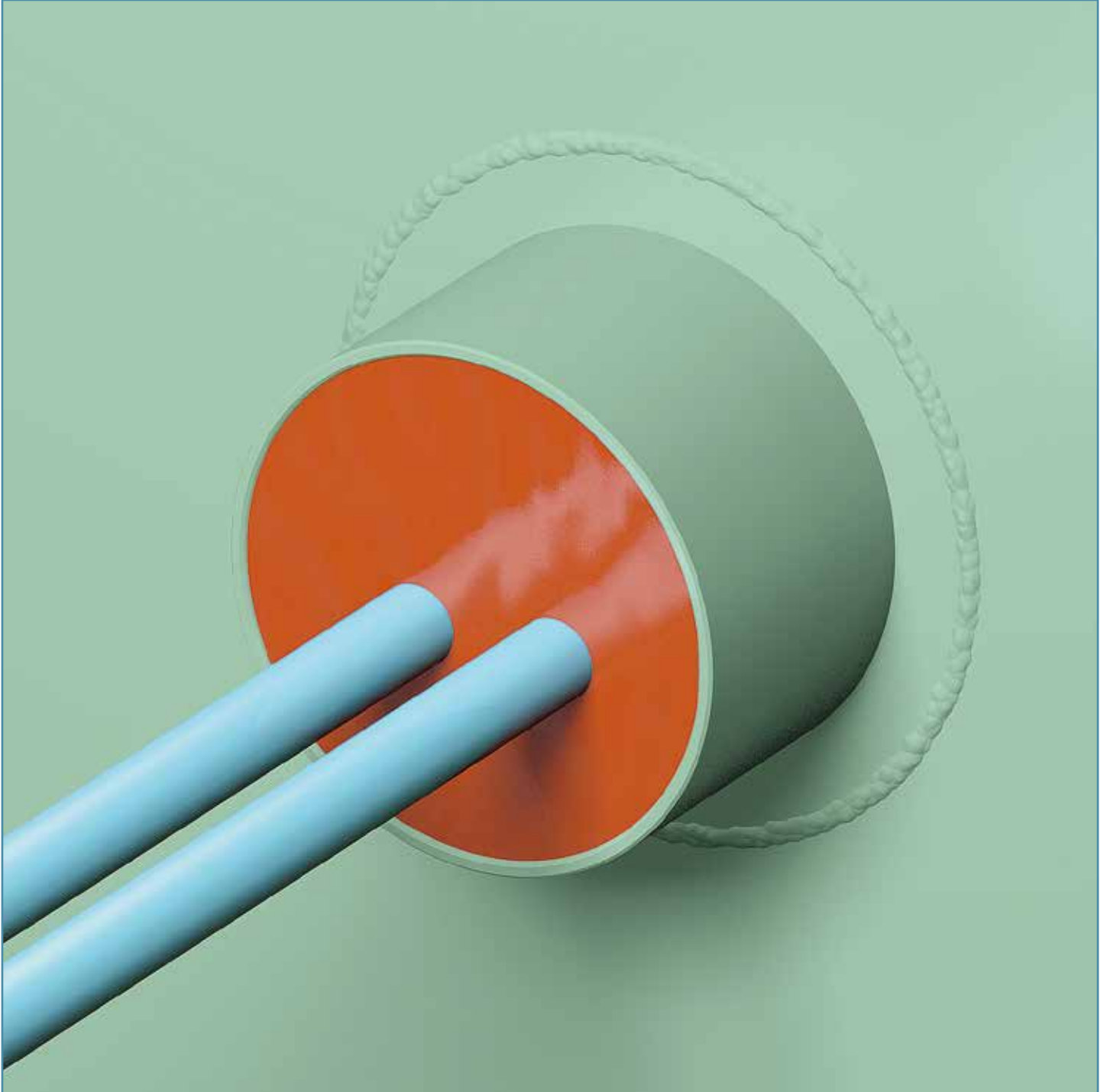
The cloth is then used to press down the sealant layer.

ASSEMBLY INSTRUCTIONS FOR CONDUCTON® TYPE NOFIRNO®/EMC MULTI-CABLE TRANSITS



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

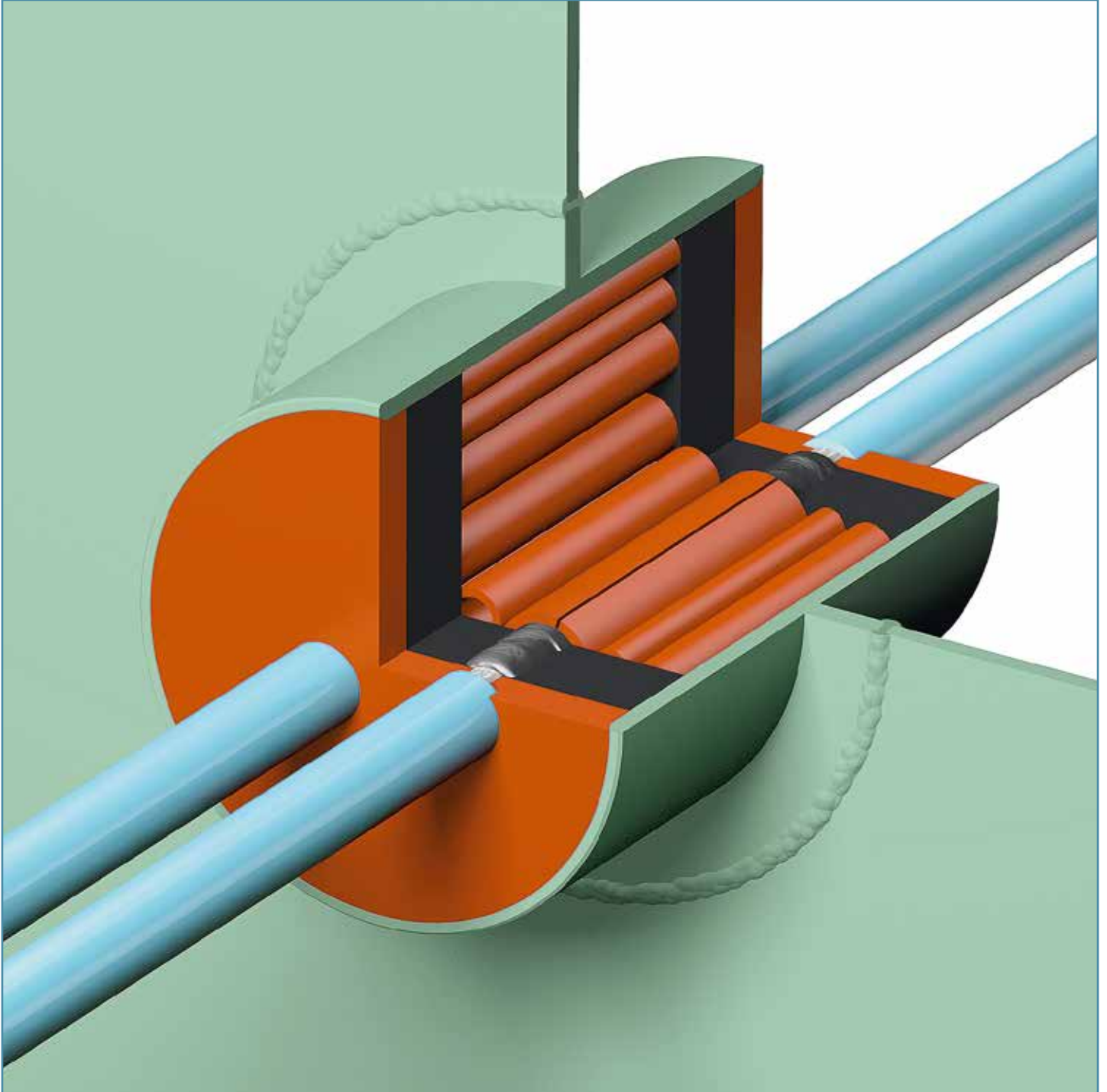
ASSEMBLY INSTRUCTIONS FOR CONDUCTON® TYPE NOFIRNO®/EMC MULTI-CABLE TRANSITS



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

To obtain optimum adhesion during the curing process of the sealant, the cables should be tightly fixed immediately after finishing the transit. Note: time needed for curing of the sealant is dependent on air humidity in combination with the environmental temperature

ASSEMBLY INSTRUCTIONS FOR CONDUCTON® TYPE NO FIRNO®/EMC MULTI-CABLE TRANSITS



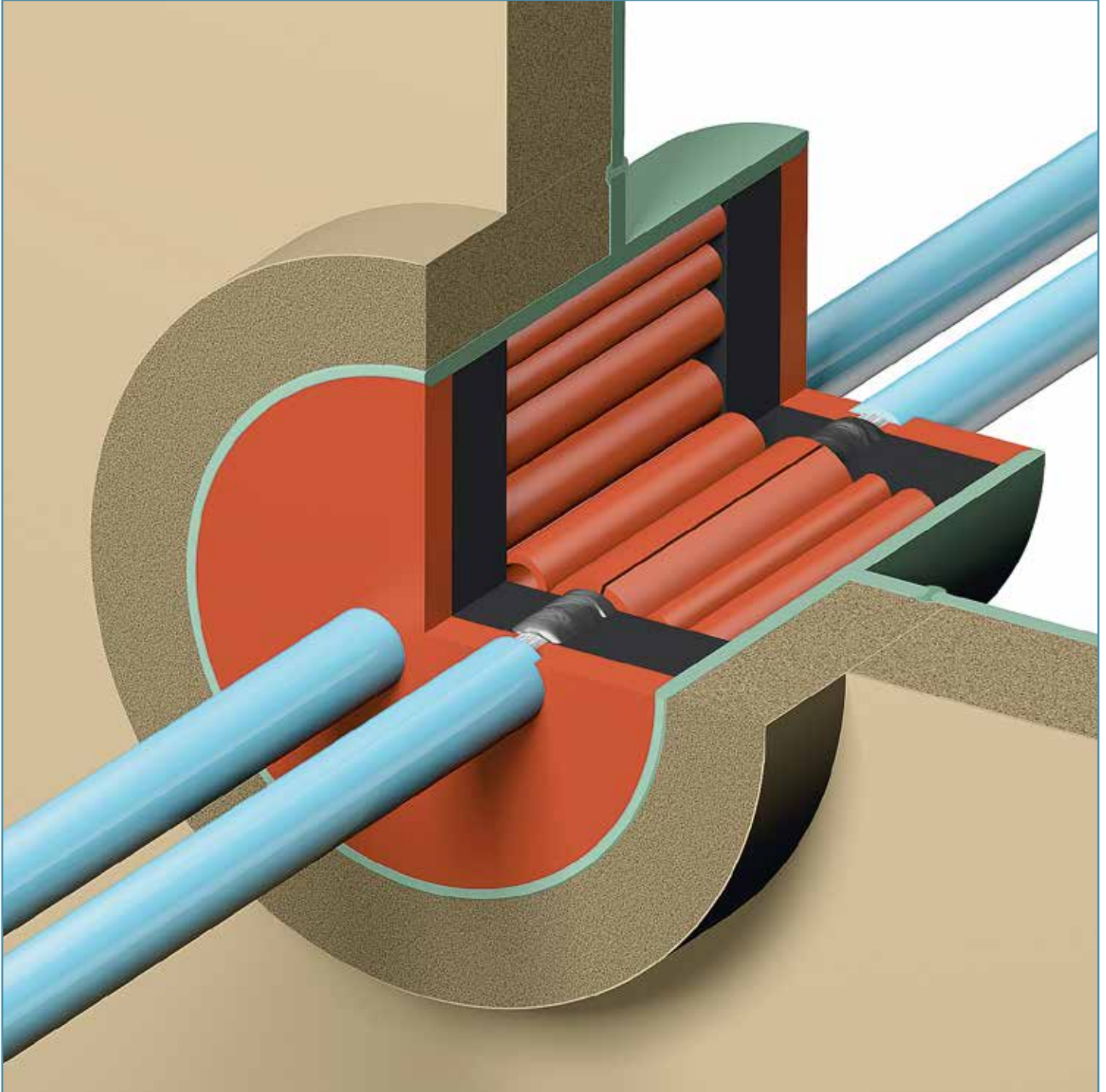
Attenuation tests have been carried out successfully on the CONDUCTON®-EMC system at DELTA Electronics Testing/Denmark:

The composition of the CONDUCTON®/EMC cable penetrations for highest attenuation:

20 mm sealant - 40 mm CONDUCTON® flexible compound - 160 mm insert and filler sleeves - 40 mm CONDUCTON® flexible compound - 20 mm sealant. Damping: **52->100 dB**.

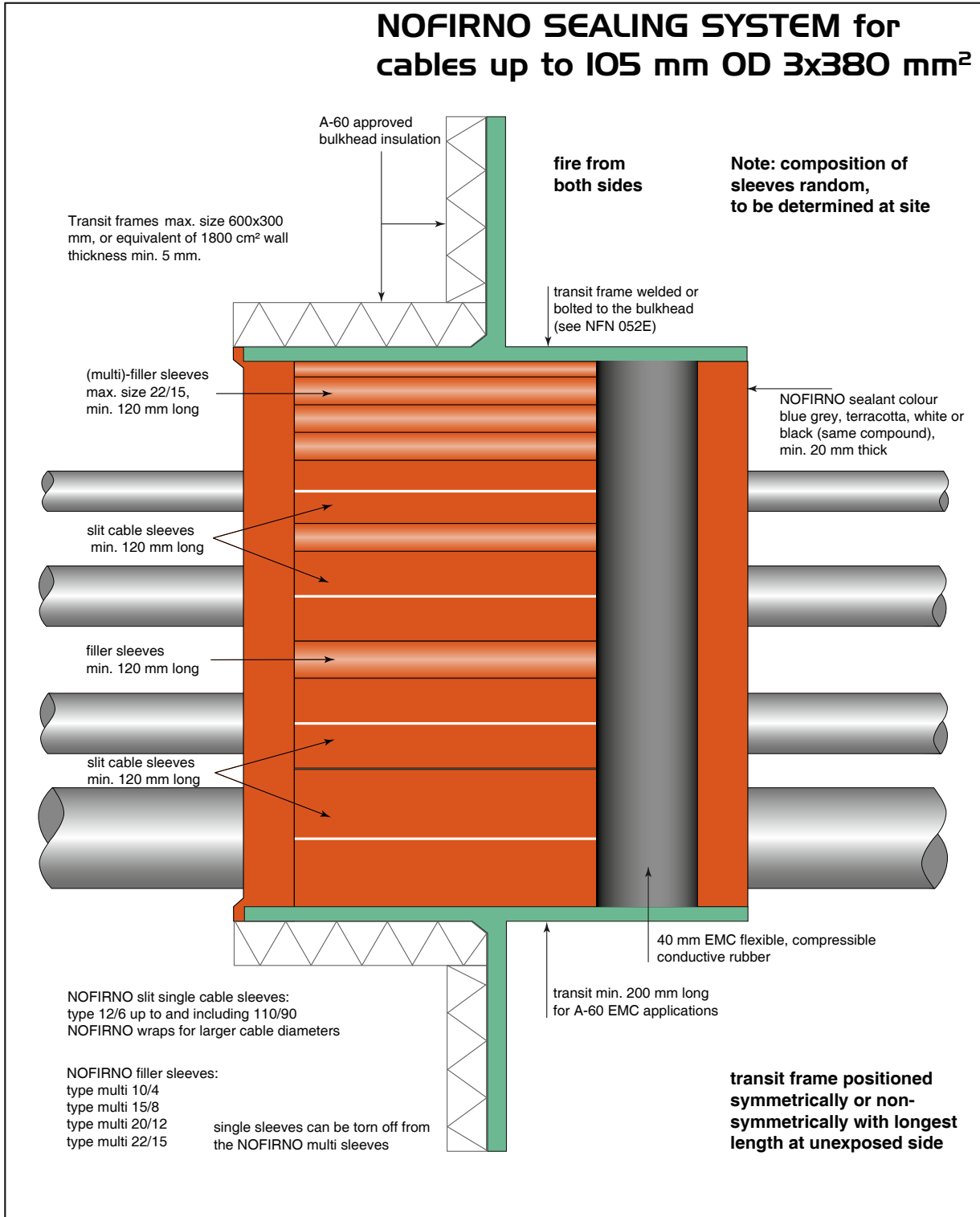
The composition of the CONDUCTON®-EMC system for medium attenuation:
based on a single layer of CONDUCTON® flexible rubber. Damping: **35-85 dB**.


ASSEMBLY INSTRUCTIONS FOR CONDUCTON® TYPE NOFIRNO®/EMC MULTI-CABLE TRANSITS



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

ASSEMBLY INSTRUCTIONS FOR CONDUCTION® TYPE NOFIRNO®/EMC MULTI-CABLE TRANSITS



	Description: NOFIRNO sleeve type multi-cable transit system for A-60 class EMC bulkhead transits		
	Mat.: NOFIRNO rubber/sealant, CONDUCTION rubber		
Ref.: JAB	Date:	22-04-17	Scale: 1 : 2
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	Rev. 2		

ASSEMBLY INSTRUCTIONS FOR CONDUCTON® TYPE NOFIRNO®/EMC MULTI-CABLE TRANSITS

Page 1 / 3



**BUREAU
VERITAS**

Marine & Offshore

Certificate number: 50891/A0 MED

File number: ACI4000/041/013

Item number: MED/3.26a

USCG Module B number: 164.138 / EC2690

*This certificate is not valid when presented without the full
attached schedule composed of 7 sections*

www.veristar.com

Notified Body 2690 - MARINE EQUIPMENT DIRECTIVE 2014/90/EU

EC TYPE EXAMINATION CERTIFICATE

as per Module B of Directive 2014/90/EU of the European Parliament and of the Council of 23 July 2014 as transposed in the French Regulations and Commission Implementing Regulation (EU) 2017/306 of 06 Feb. 2017

This certificate is issued to:

BEELE ENGINEERING

Aalten - NETHERLANDS

for the type of product

PENETRATIONS THROUGH "A" CLASS DIVISIONS : ELECTRIC CABLE TRANSITS
NOFIRNO Multi-cable transits

Requirements:

SOLAS 74 convention as amended, Regulations II-2/9

IMO Res MSC.307(88) -(2010 FTP Code)-

IMO MSC.1/Circ.1488

This certificate is issued on behalf of the French Maritime Authorities to attest that Bureau Veritas Marine & Offshore did undertake the relevant type-examination procedures for the product identified above which was found to comply with the relevant requirements of the Directive 2014/90/EU of the European Parliament and of the Council of 23 July 2014 as transposed in the French Regulations.


This certificate will expire on: 22 Nov 2022

For Bureau Veritas Marine & Offshore Notified Body 2690,

At BV GRONINGEN, on 22 Nov 2017,

John Mondt



This certificate does not allow to issue the Declaration of Conformity and to affix the mark of conformity (wheelmark ) to the products corresponding to this type. To this end, the production-control phase module (D, E or F) of Annex II of the Directive is to be complied with and controlled by a written inspection agreement with a notified body.

This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with Bureau Veritas Marine & Offshore. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. Bureau Veritas Marine & Offshore is designated by the French Maritime Authority as a "notified body" under the terms of the French Regulations Division 140 Chapter 140-2. This certificate is issued within the scope of the General Conditions of Bureau Veritas Marine & Offshore available on the internet site www.veristar.com. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against Bureau Veritas Marine & Offshore for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

The electronic version is available at: <http://www.veristamb.com/veristamb/jsp/viewPublicPdfTypec.jsp?id=jjobitjyq>

STATE-OF-THE ART MULTI-CABLE TRANSIT SEALING SYSTEMS

The logo for RISE, featuring the word "RISE" in a stylized, bold, red font with a white outline and a slight shadow effect.The logo for RISE, featuring the word "RISE" in a stylized, bold, red font with a white outline and a slight shadow effect.The logo for CONDUCTION, featuring the word "CONDUCTION" in a red, outlined font with a double-line border.The logo for NO FIRNO, featuring the word "NO FIRNO" in a bold, orange font with a white outline, set against a background of a stylized fire.The logo for CONTROFIL, featuring the word "CONTROFIL" in a bold, blue font with a white outline, and "MULTI-CABLE TRANSITS" in a smaller, white font below it, all on a dark blue background.The logo for CET-A-SIL, featuring the word "CET-A-SIL" in a bold, blue font with a white outline.

RISE®

- For fire, gas, smoke and watertight sealing of multi-cable penetrations.
- Compact system. No precise fitting parts.
- No metal parts, no corrosion.
- Most cost-effective way of installation.
- No pre-engineering or special conduit frames.
- No restrictions on cable types and sizes, no insulation in front of the penetration needed.
- Adding or removing cables an easy matter.
- RISE® EXTEND-A-FRAME for upgrading block systems - doubles the usable space!
- RISE® CONDUCTION® for EMC penetrations - high attenuation values - no galvanic corrosion - no aging.
- **Proven - for new and upgraded installations.**
- The system of choice in shipyards worldwide for more than 25 years!

NOFIRNO®

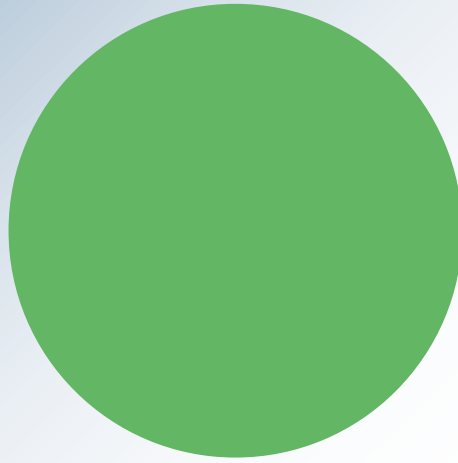
- System technology based on RISE®.
- Even easier installation.
- Even higher pressure ratings.
- Jet Fire tested for harshest applications.
- Bundled cable sets approved
- **Breakthrough - A-class with 15 mm both sides.**
- The system of choice for highest fire ratings and harshest environment!

CONTROFIL®

- Newest technology for cable ducting and sealing.
- Newest rubber technology - CRUSHNOF® rubber.
- Shorter conduit depths - flexible composition.
- Prevents overfilling of cable transits.
- Fire tight - watertight.
- **Breakthrough - controlled filling of transits.**
- The system of choice for neat cable routing in installations.

CET-A-SIL®

- Multi-gland system for electrical cabinets.
- Modular system - sealing plugs and modules.
- Suitable for IP 68 rated equipment.
- Watertight up to 4 meter water column.
- No compression on cable sheathings.
- No metal parts - no corrosion - no O-rings.
- **Breakthrough - no disassembling to add cables.**
- The alternative system for cable glands.



WE CARE

**BEELE ENGINEERING:
A COMPANY DEDICATED
TO SAFETY
FOR OVER 45 YEARS**



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