

***SAFETY
SEALING
SYSTEMS***



ASSEMBLY INSTRUCTIONS CONTROFIL®/NOFIRNO® (MULTI-) CABLE TRANSITS

CONTROFIL

MULTI-CABLE TRANSITS

NOFIRNO



**TECHNOLOGY DEVELOPED BY BEELE ENGINEERING BV
COMPOUNDING AND PRODUCTION IN THE ULTRA-MODERN
MANUFACTURING FACILITIES IN AALTEN/THE NETHERLANDS
UNDER A STRINGENT ISO 9001:2015 QUALITY SYSTEM
MORE THAN 45 YEARS R&D ON QUALITY, DURABILITY & FUNCTIONALITY**

Beele campus 45.000 m²
building phase 1 starts early 2017



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Edition

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Research & Development

: BEELE Engineering BV, Aalten, the Netherlands.

Note

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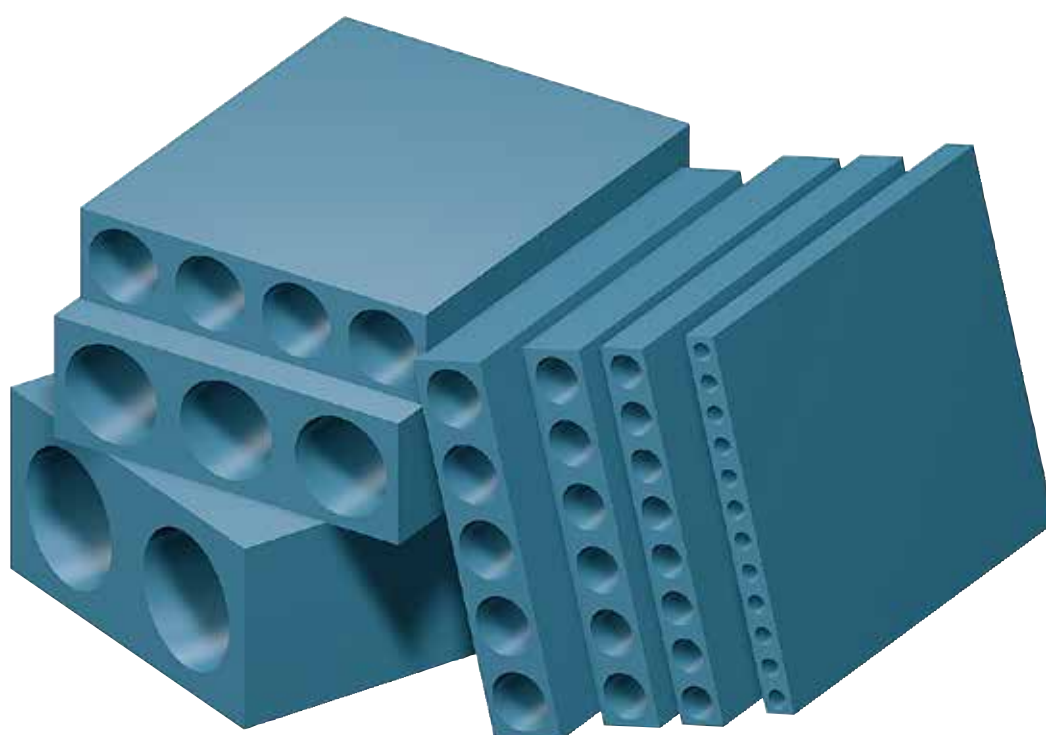
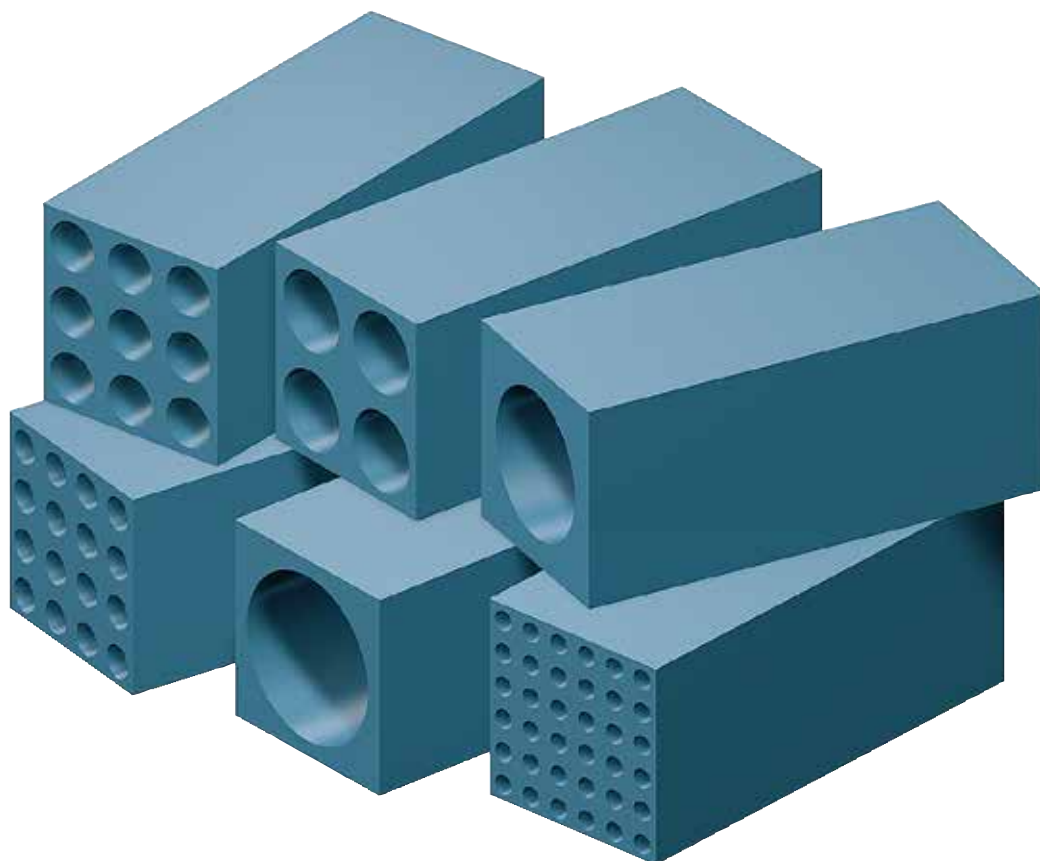
®

: ACTIFOAM, AQUASTOP, BEEBLOCK, BEEBOND, BEELE, BEELE WE CARE, BEESEAL, CONDUCTION, CONTITITE, CONTROFIL, CRUSHER, CRUSHNOF, CSD, CSD THE SIMPLE SEAL SYSTEM, DRIFIL, DYNATITE, FIRAQUA, FIREQUAKE, FIRSTO, FISSIC, FIWA, FYLLOFYS, GLANDMOD, LEAXEAL, MULTI-ALL-MIX, NOFIRNO, profiles NOFIRNO gaskets, RAPID TRANSIT SYSTEM, RIACNOF, RISE, RISWAT, SEALING VALLEY, \$, SLIPSIL, flanges SLIPSIL plugs, ULEPSI, XATTAX and YFESTOS are registered trade marks of BEELE Engineering.

brochure code

: installation CONTROFIL building industry

**ASSEMBLY INSTRUCTIONS FOR CONTROFIL®
DUCT & SEALING SYSTEM TYPE MB/MBR**



ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR

PRODUCT INFORMATION SEALANT

01) colour	blue 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	100%
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

NOFIRNO® blue grey is also absolutely HALOGEN FREE with zero VOC (volatiles organic compounds) according to TÜV report 89207423-01. 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.

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

article number 50.0106



terracotta



article number 50.0102

black



on request, depending on quantity
article number 50.0104

white



on request, depending on quantity
article number 50.0105

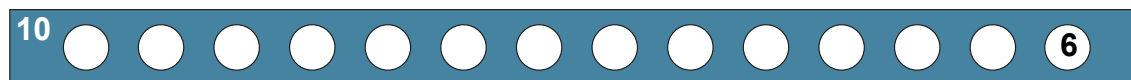
blue grey



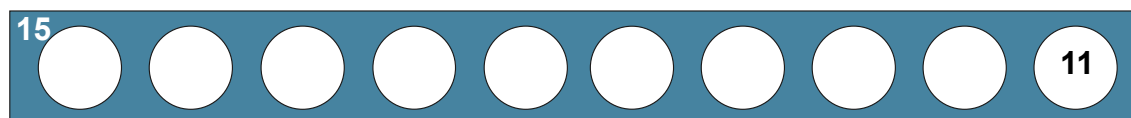
article number 50.0106

ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR

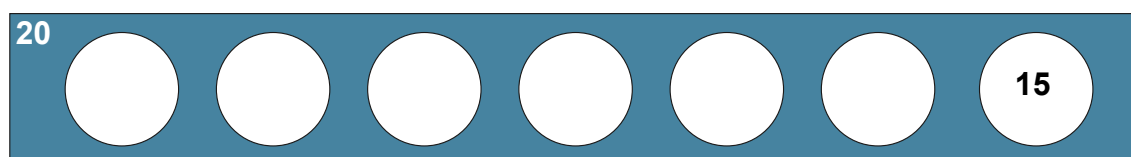
CONTROFIL® MULTI-CABLE PASSAGE BLOCKS 150 mm TYPE MBR



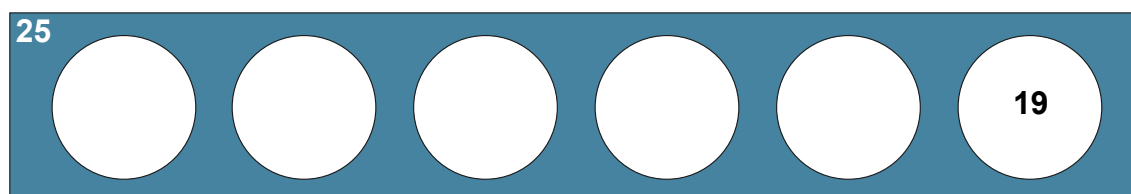
multi MBR 150x10-14x6
cables 1-5 mm
art. no. 70.0101 for 60 mm
art. no. 70.0111 for 110 mm
art. no. 70.0131 for 160 mm



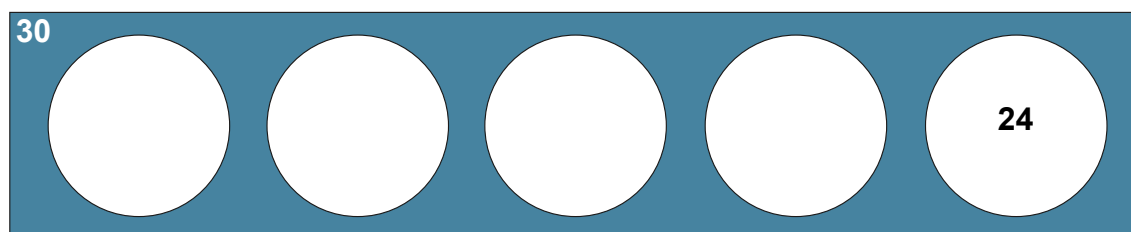
multi MBR 150x15-10x11
cables 5-10 mm
art. no. 70.0102 for 60 mm
art. no. 70.0112 for 110 mm
art. no. 70.0132 for 160 mm



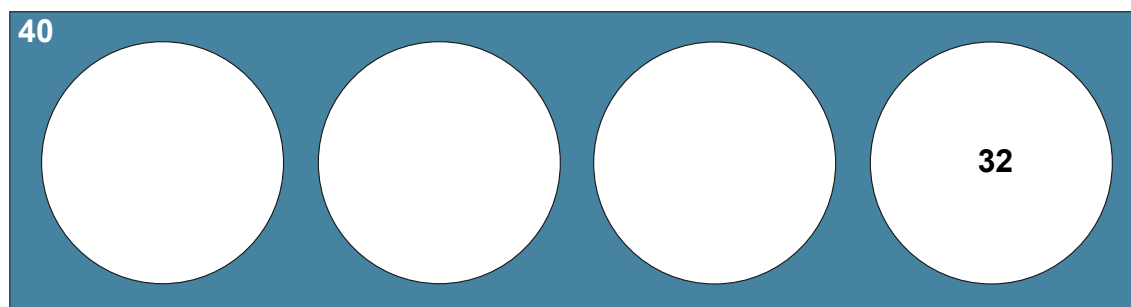
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cables 8-14 mm
art. no. 70.0103 for 60 mm
art. no. 70.0113 for 110 mm
art. no. 70.0133 for 160 mm



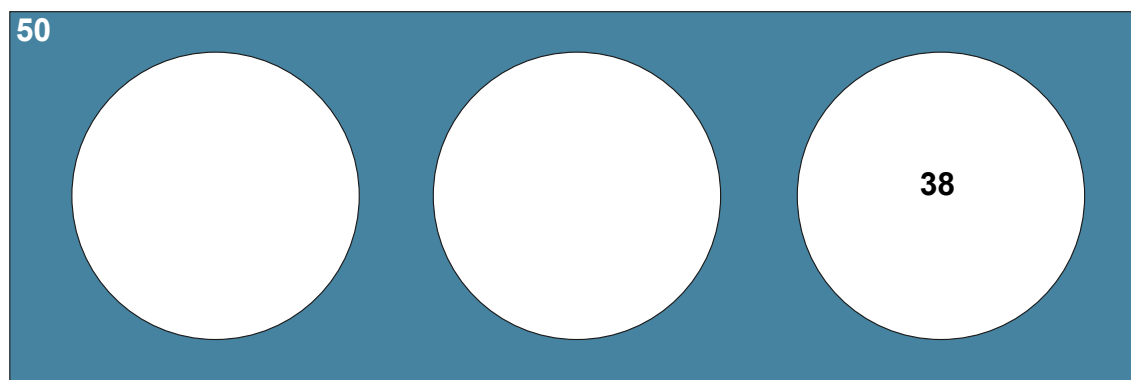
multi MBR 150x25-6x19
cables 12-18 mm
art. no. 70.0104 for 60 mm
art. no. 70.0114 for 110 mm
art. no. 70.0134 for 160 mm



multi MBR 150x30-5x24
cables 14-23 mm
art. no. 70.0105 for 60 mm
art. no. 70.0115 for 110 mm
art. no. 70.0135 for 160 mm



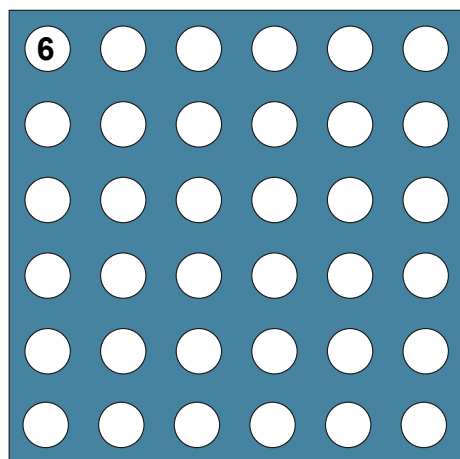
multi MBR 150x40-4x32
cables 22-30 mm
art. no. 70.0106 for 60 mm
art. no. 70.0116 for 110 mm
art. no. 70.0136 for 160 mm



multi MBR 150x50-3x38
cables 28-36 mm
art. no. 70.0107 for 60 mm
art. no. 70.0117 for 110 mm
art. no. 70.0137 for 160 mm

ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR

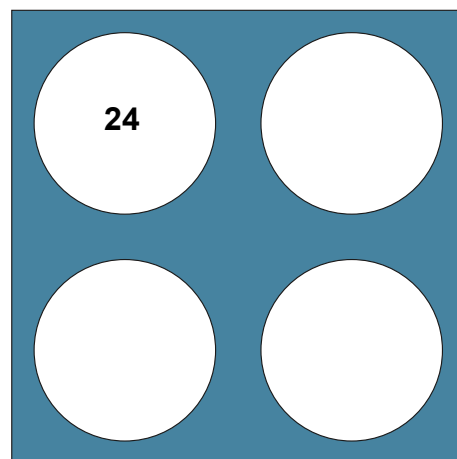
CONTROFIL® MULTI-CABLE PASSAGE BLOCKS 60 x 60 mm TYPE MB



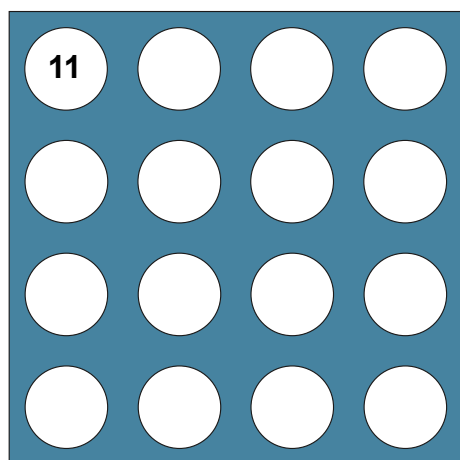
multi MB 60x60-36x6
cables 1-5 mm
art. no. 70.0001 for 60 mm
art. no. 70.0011 for 110 mm
art. no. 70.0031 for 160 mm

60

60

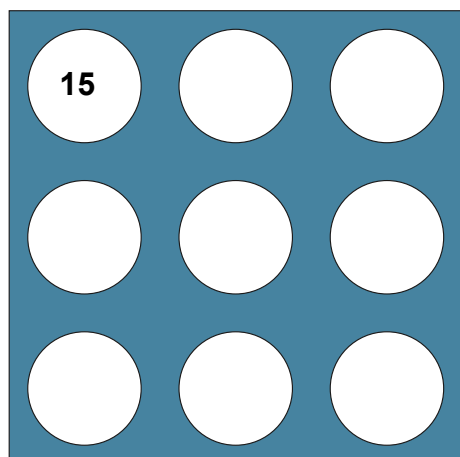
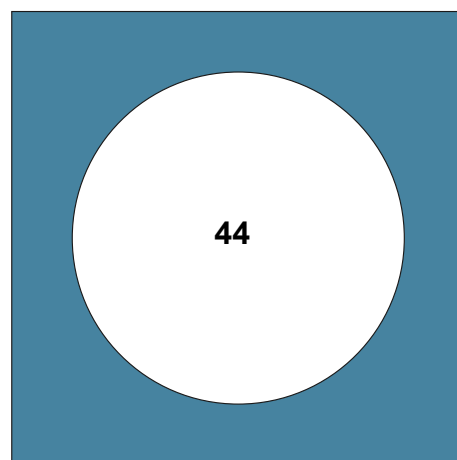


multi MB 60x60-4x24
cables 14-23 mm
art. no. 70.0004 for 60 mm
art. no. 70.0014 for 110 mm
art. no. 70.0034 for 160 mm



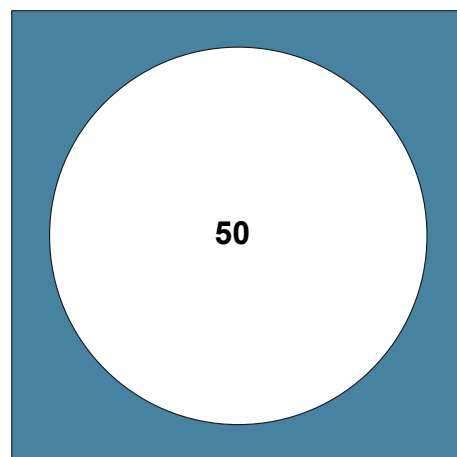
multi MB 60x60-16x11
cables 5-10 mm
art. no. 70.0002 for 60 mm
art. no. 70.0012 for 110 mm
art. no. 70.0032 for 160 mm

multi MB 60x60-1x44
cables 23-42 mm
art. no. 70.0005 for 60 mm
art. no. 70.0015 for 110 mm
art. no. 70.0035 for 160 mm



multi MB 60x60-9x15
cables 8-14 mm
art. no. 70.0003 for 60 mm
art. no. 70.0013 for 110 mm
art. no. 70.0033 for 160 mm

multi MB 60x60-1x50
cables 38-48 mm
art. no. 70.0006 for 60 mm
art. no. 70.0016 for 110 mm
art. no. 70.0036 for 160 mm



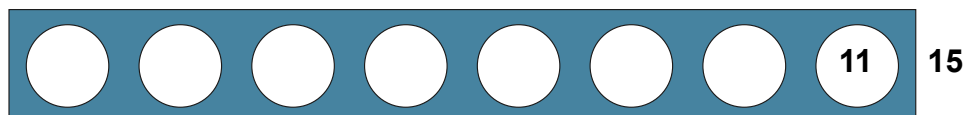
ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR

CONTROFIL® MULTI-CABLE PASSAGE BLOCKS 120 mm TYPE MBR



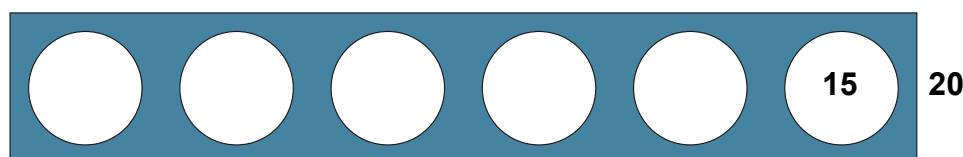
multi MBR 120x10-12x6

cables 1-5 mm
art. no. 70.0051 for 60 mm
art. no. 70.0061 for 110 mm
art. no. 70.0081 for 160 mm



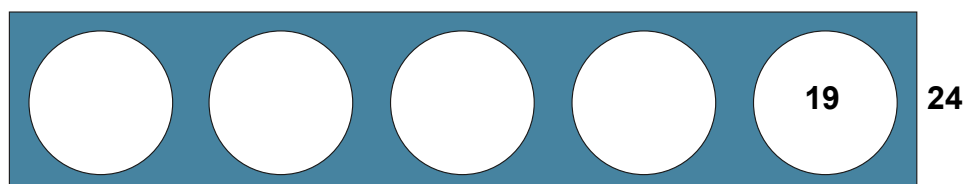
multi MBR 120x15-8x11

cables 5-10 mm
art. no. 70.0052 for 60 mm
art. no. 70.0062 for 110 mm
art. no. 70.0082 for 160 mm



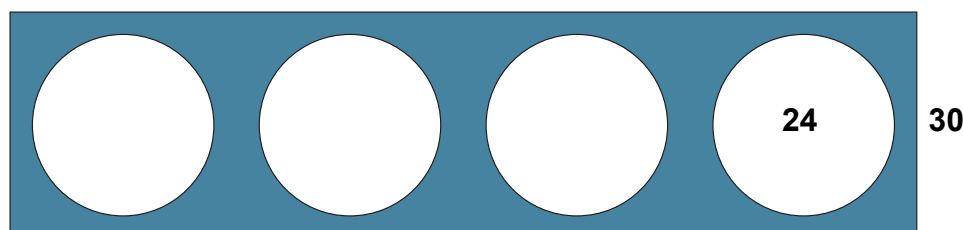
multi MBR 120x20-6x15

cables 8-14 mm
art. no. 70.0053 for 60 mm
art. no. 70.0063 for 110 mm
art. no. 70.0083 for 160 mm



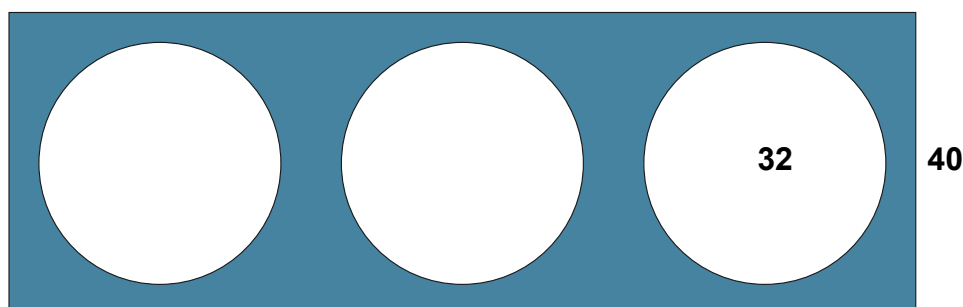
multi MBR 120x24-5x19

cables 12-18 mm
art. no. 70.0054 for 60 mm
art. no. 70.0064 for 110 mm
art. no. 70.0084 for 160 mm



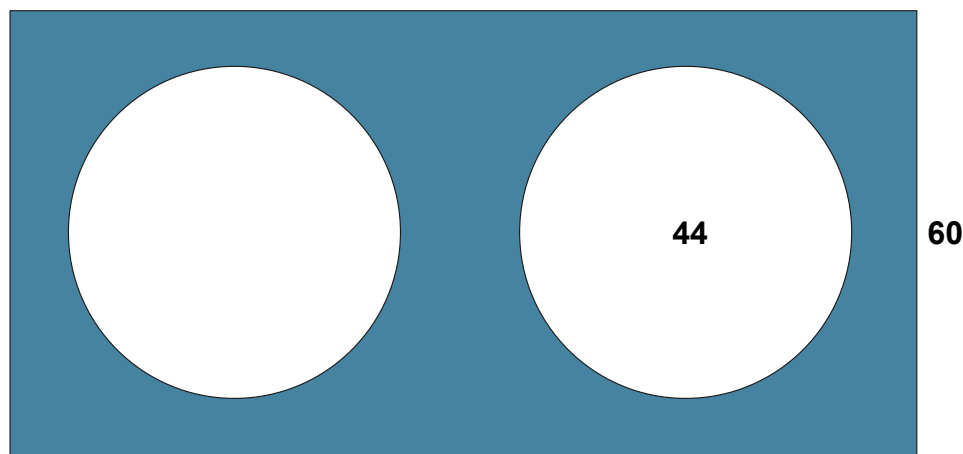
multi MBR 120x30-4x24

cables 14-23 mm
art. no. 70.0055 for 60 mm
art. no. 70.0065 for 110 mm
art. no. 70.0085 for 160 mm



multi MBR 120x40-3x32

cables 22-30 mm
art. no. 70.0056 for 60 mm
art. no. 70.0066 for 110 mm
art. no. 70.0086 for 160 mm



multi MBR 120x60-2x44

cables 28-42 mm
art. no. 70.0057 for 60 mm
art. no. 70.0067 for 110 mm
art. no. 70.0087 for 160 mm

ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR

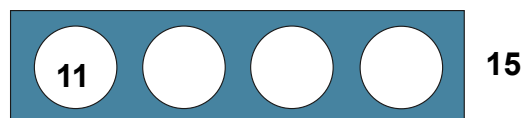
CONTROFIL® MULTI-CABLE PASSAGE BLOCKS 60 mm TYPE MBR

60



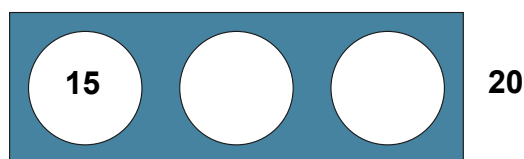
multi MBR 60x10/6x6 sl

cables 1-5 mm
art. no. 70.0251 for 60 mm
art. no. 70.0261 for 110 mm
art. no. 70.0281 for 160 mm



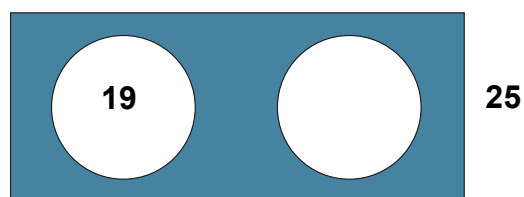
multi MBR 60x15/4x11 sl

cables 5-10 mm
art. no. 70.0252 for 60 mm
art. no. 70.0262 for 110 mm
art. no. 70.0282 for 160 mm



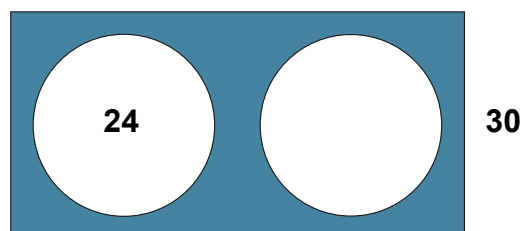
multi MBR 60x20/3x15 sl

cables 8x14 mm
art. no. 70.0253 for 60 mm
art. no. 70.0263 for 110 mm
art. no. 70.0283 for 160 mm



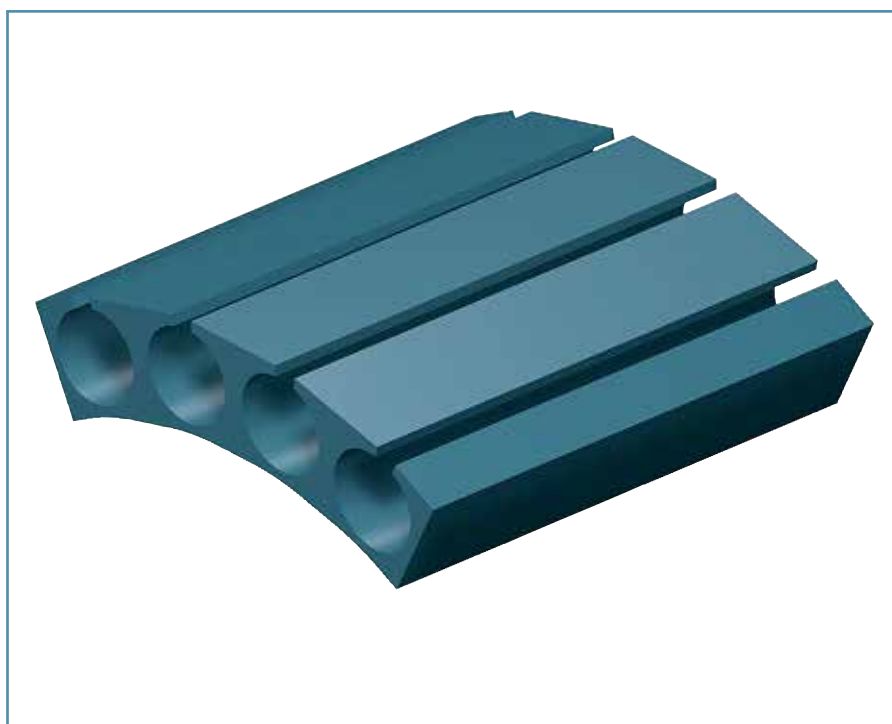
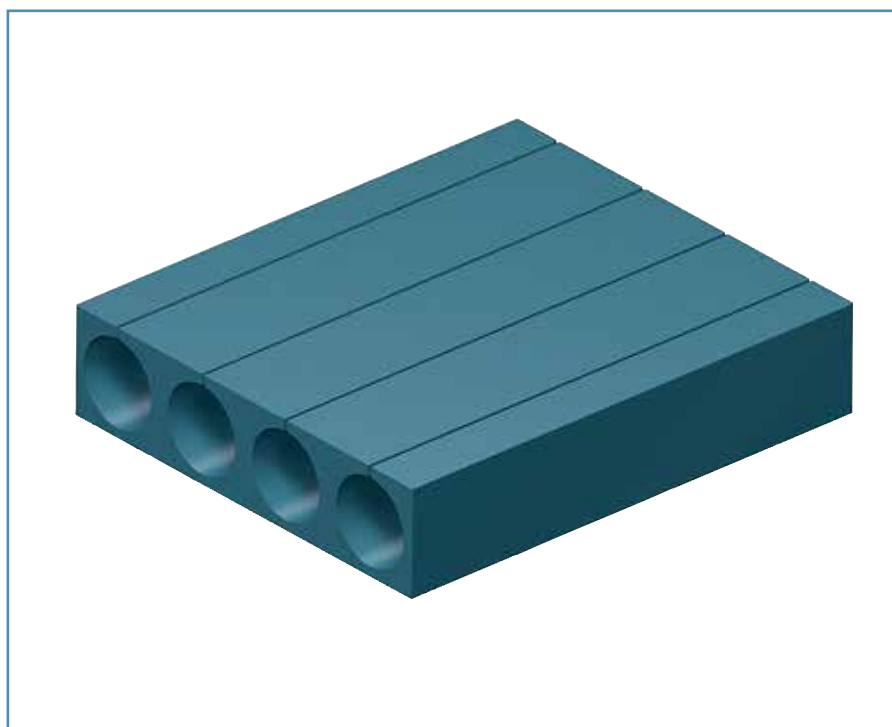
multi MBR 60x25/2x19 sl

cables 12-18 mm
art. no. 70.0254 for 60 mm
art. no. 70.0264 for 110 mm
art. no. 70.0284 for 160 mm



multi MBR 60x30/2x24 sl

cables 14-23 mm
art. no. 70.0255 for 60 mm
art. no. 70.0265 for 110 mm
art. no. 70.0285 for 160 mm



CONTROFIL® multi-cable blocks type MBR are available in a split version. These blocks are used when cables have been ducted already prior to positioning the multi-passage blocks in the frames. Article numbers are similar, only commencing with 70.1xxx.

ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR

CONTROFIL® MULTI-CABLE PASSAGE FILLERS



CONTROFIL® block fillers and filler sleeves are used for the filling of the larger openings in the multi-passage blocks which are not occupied with cables.

Multi-passage blocks with openings 19 mm and larger should be filled with block fillers in case no cables are passed through. In case of later extensions the block fillers can easily be removed.

ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR

CONTROFIL® MULTI-FILLER SLEEVES 120 & 150 mm & BLOCK FILLER



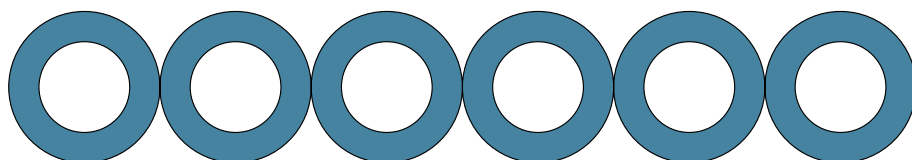
multi filler 12x10-10/4

art. no. 70.0301 for 60 mm
art. no. 70.0311 for 110 mm
art. no. 70.0331 for 160 mm



multi filler 8x15-15/8

art. no. 70.0302 for 60 mm
art. no. 70.0312 for 110 mm
art. no. 70.0332 for 160 mm



multi filler 6x20-20/12

art. no. 70.0303 for 60 mm
art. no. 70.0313 for 110 mm
art. no. 70.0333 for 160 mm



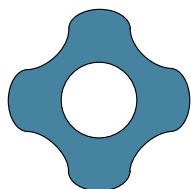
multi filler 15x10-10/4

art. no. 70.0306 for 60 mm
art. no. 70.0316 for 110 mm
art. no. 70.0336 for 160 mm



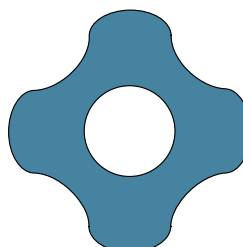
multi filler 10x15-15/8

art. no. 70.0307 for 60 mm
art. no. 70.0317 for 110 mm
art. no. 70.0337 for 160 mm



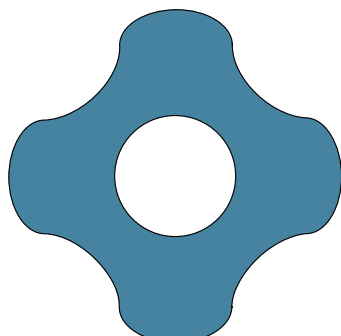
block filler 24/10

art. no. 70.0352 for 60 mm
art. no. 70.0362 for 110 mm
art. no. 70.0382 for 160 mm



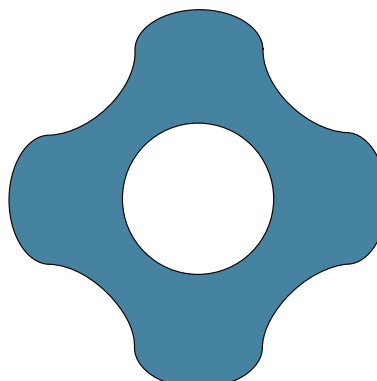
block filler 32/12

art. no. 70.0353 for 60 mm
art. no. 70.0363 for 110 mm
art. no. 70.0383 for 160 mm



block filler 44/16

art. no. 70.0354 for 60 mm
art. no. 70.0364 for 110 mm
art. no. 70.0384 for 160 mm

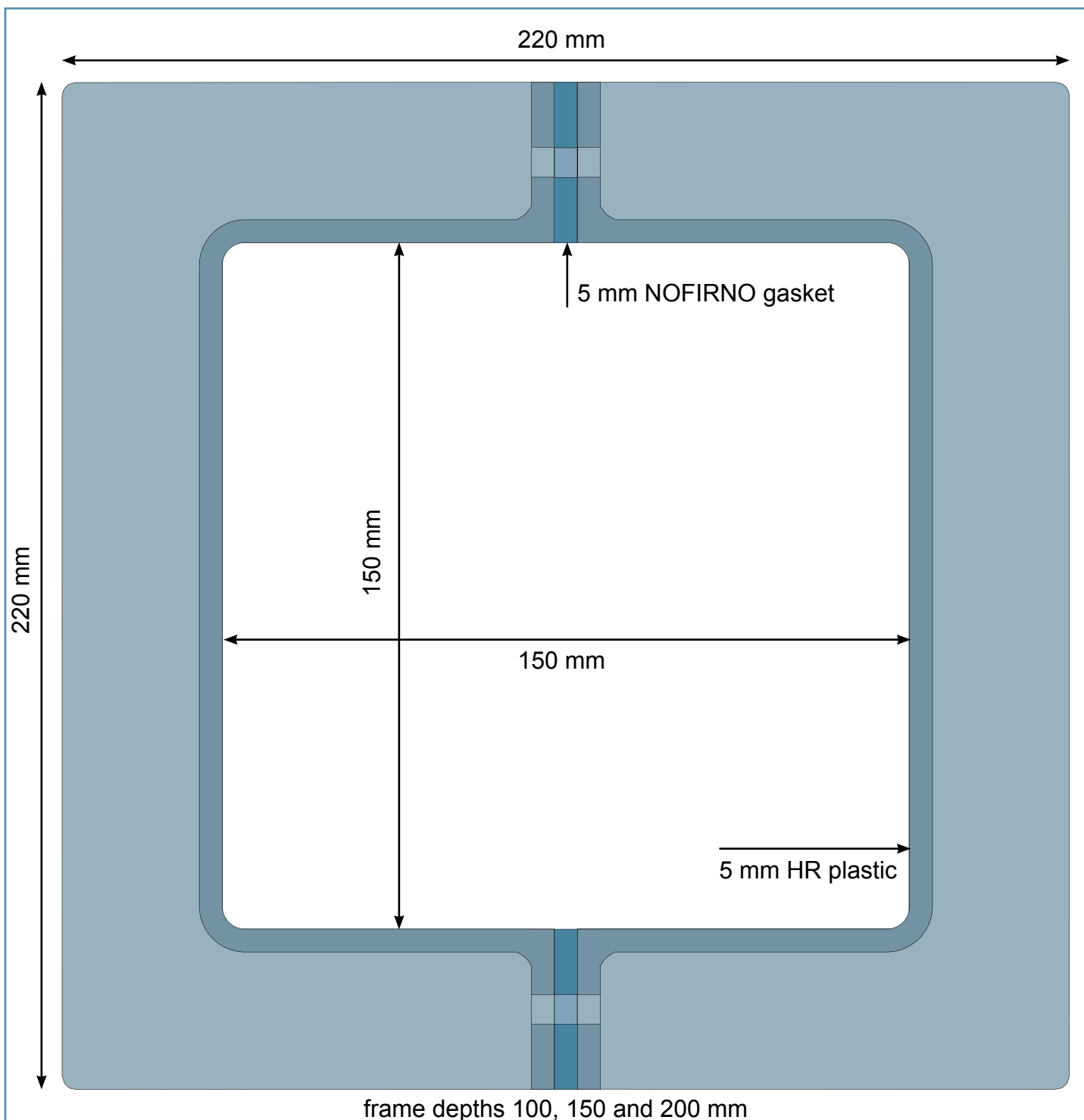


block filler 50/20

art. no. 70.0355 for 60 mm
art. no. 70.0365 for 110 mm
art. no. 70.0385 for 160 mm

ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR

CONTROFIL® MULTI-CABLE PASSAGE FRAMES 1x150 mm TYPE CTF



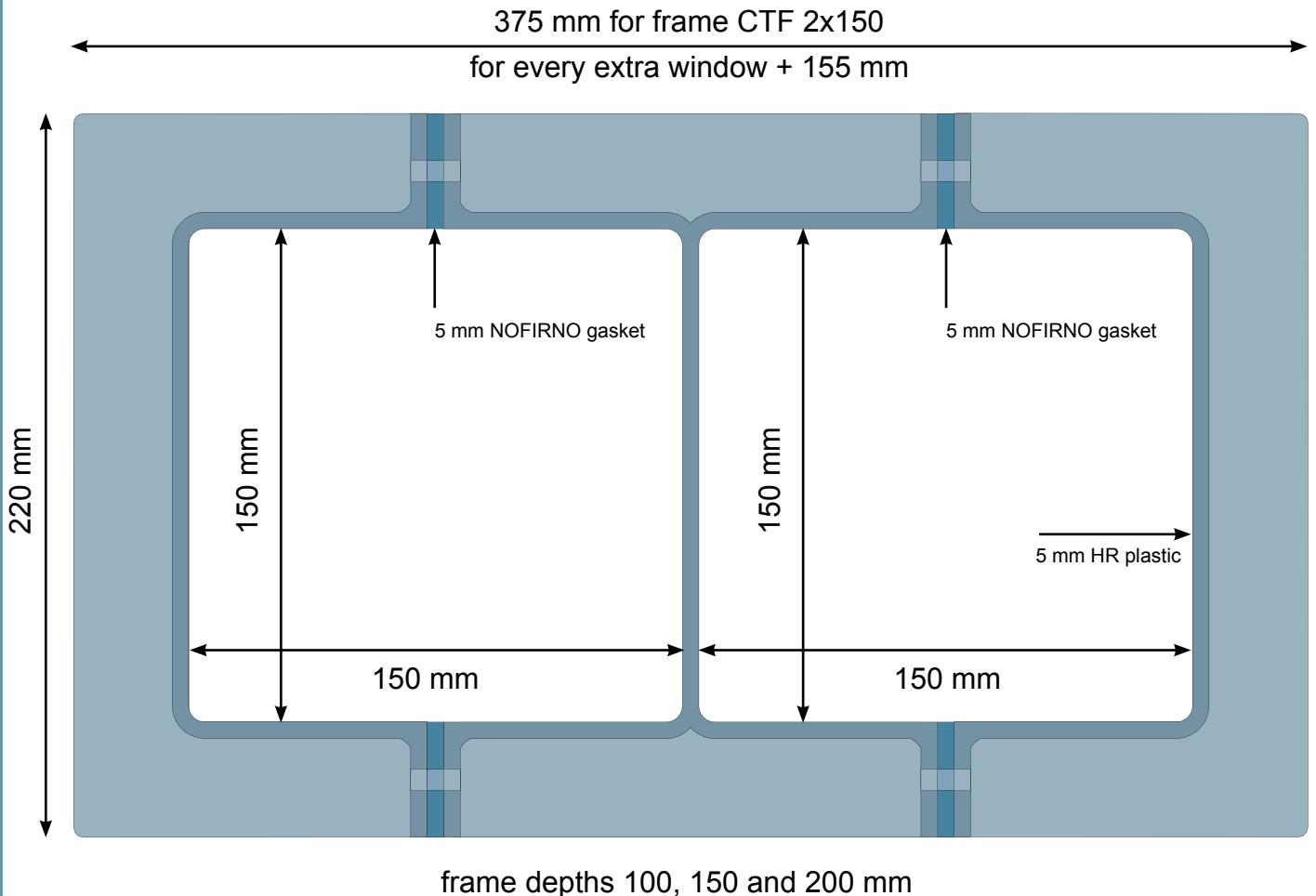
frame depths 100, 150 and 200 mm

type CTF 1x150-100 mm art. nr. 60.9550
type CTF 1x150-150 mm art. nr. 60.9551
type CTF 1x150-200 mm art. nr. 60.9552

frames are delivered assembled

ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR

CONTROFIL® MULTI-CABLE PASSAGE FRAMES nx150 mm TYPE CTF



frame depths 100, 150 and 200 mm

type CTF 2x150-100 mm art. nr. 60.9555
type CTF 2x150-150 mm art. nr. 60.9556
type CTF 2x150-200 mm art. nr. 60.9557

type CTF 3x150-100 mm art. nr. 60.9560
type CTF 3x150-150 mm art. nr. 60.9561
type CTF 3x150-200 mm art. nr. 60.9562

type CTF 4x150-100 mm art. nr. 60.9565
type CTF 4x150-150 mm art. nr. 60.9566
type CTF 4x150-200 mm art. nr. 60.9567

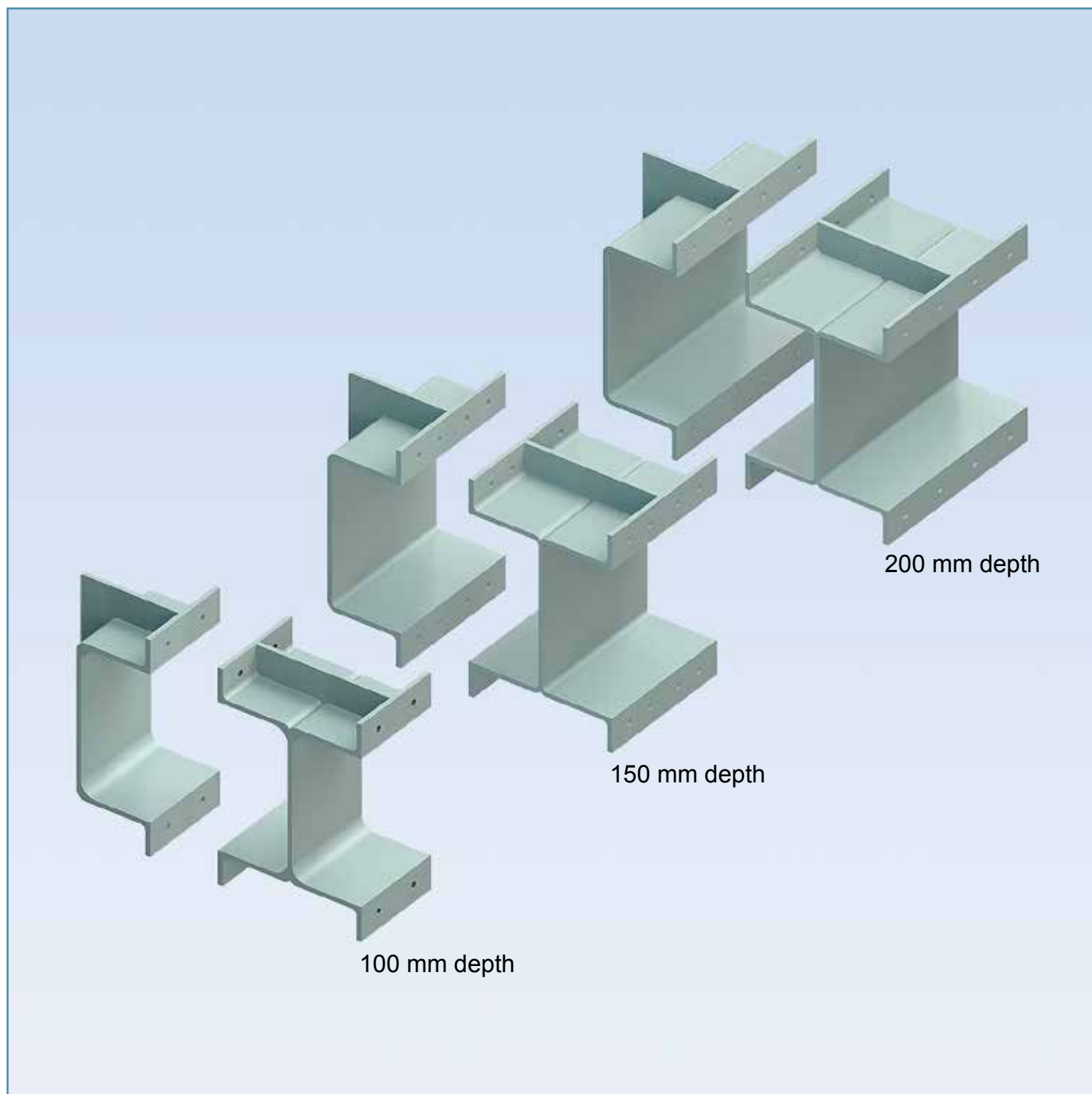
type CTF 5x150-100 mm art. nr. 60.9570
type CTF 5x150-150 mm art. nr. 60.9571
type CTF 5x150-200 mm art. nr. 60.9572

type CTF 6x150-100 mm art. nr. 60.9575
type CTF 6x150-150 mm art. nr. 60.9576
type CTF 6x150-200 mm art. nr. 60.9577

frames are delivered assembled
larger combinations are available

ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR

CONTROFIL® MULTI-CABLE PASSAGE FRAME TYPE CTF (parts)



The CONTROFIL® CTF frames are assembled to single or multi-windows transits. Side parts and intermediate parts are used for this purpose.

The CONTROFIL® CTF frames are supplied with a depth of 100, 150 or 200 mm.

The frames are made from the BEELE HR fire and heat resistant plastic.

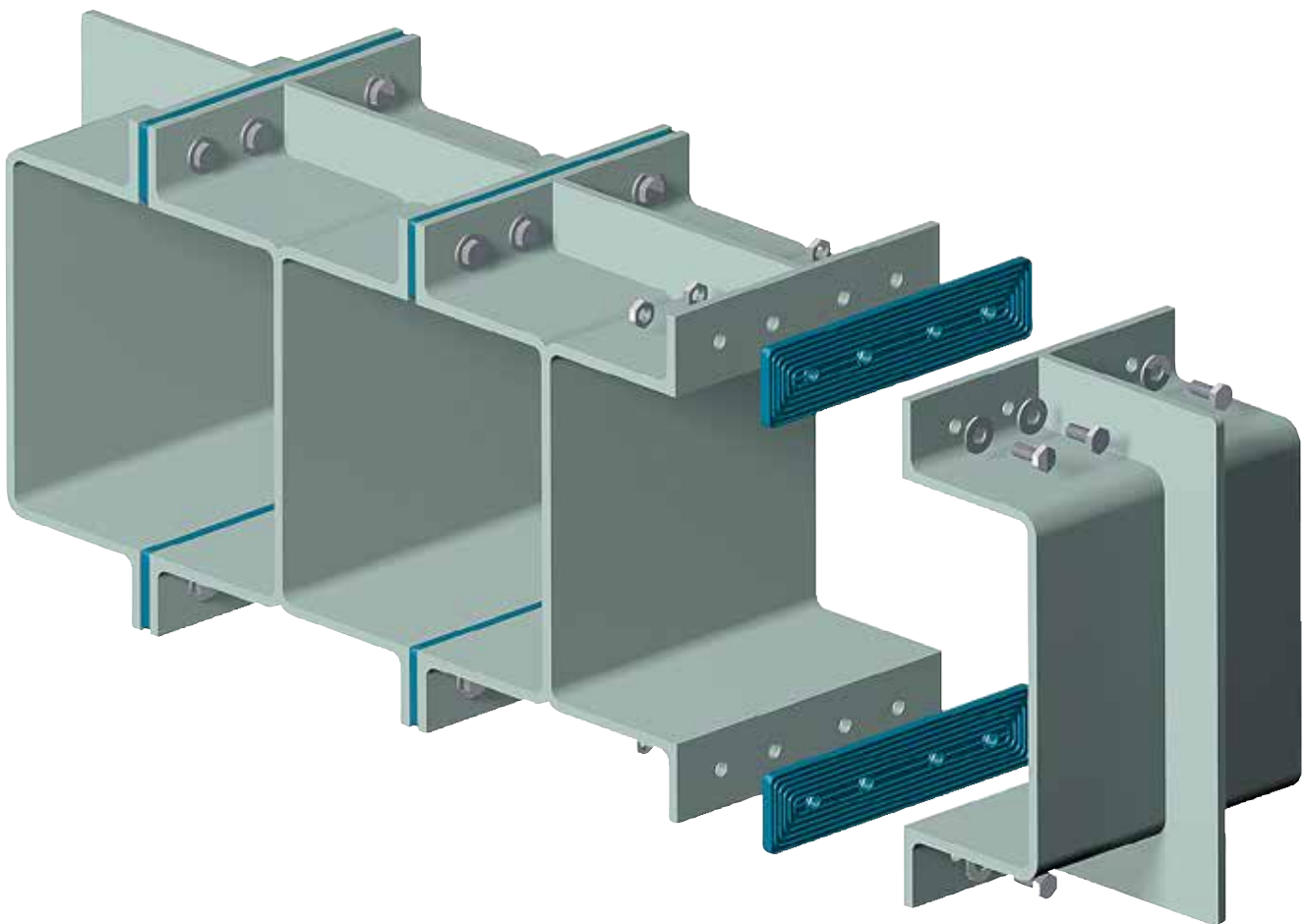
ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR

CONTROFIL® MULTI-CABLE PASSAGE FRAME TYPE CTF (gaskets)



CONTROFIL® gaskets 5 mm thick are used in between the connecting frame flanges. The NO-FIRNO® gaskets have lengths of 100, 150 and 200 mm in accordance with the depth of the transit frames. They are all 35 mm wide with 6 mm fixation holes. The gaskets have the unique profiling as used for all BEELE Engineering gaskets. The torque to obtain maximum sealing capacity is only 6 Nm.

ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR



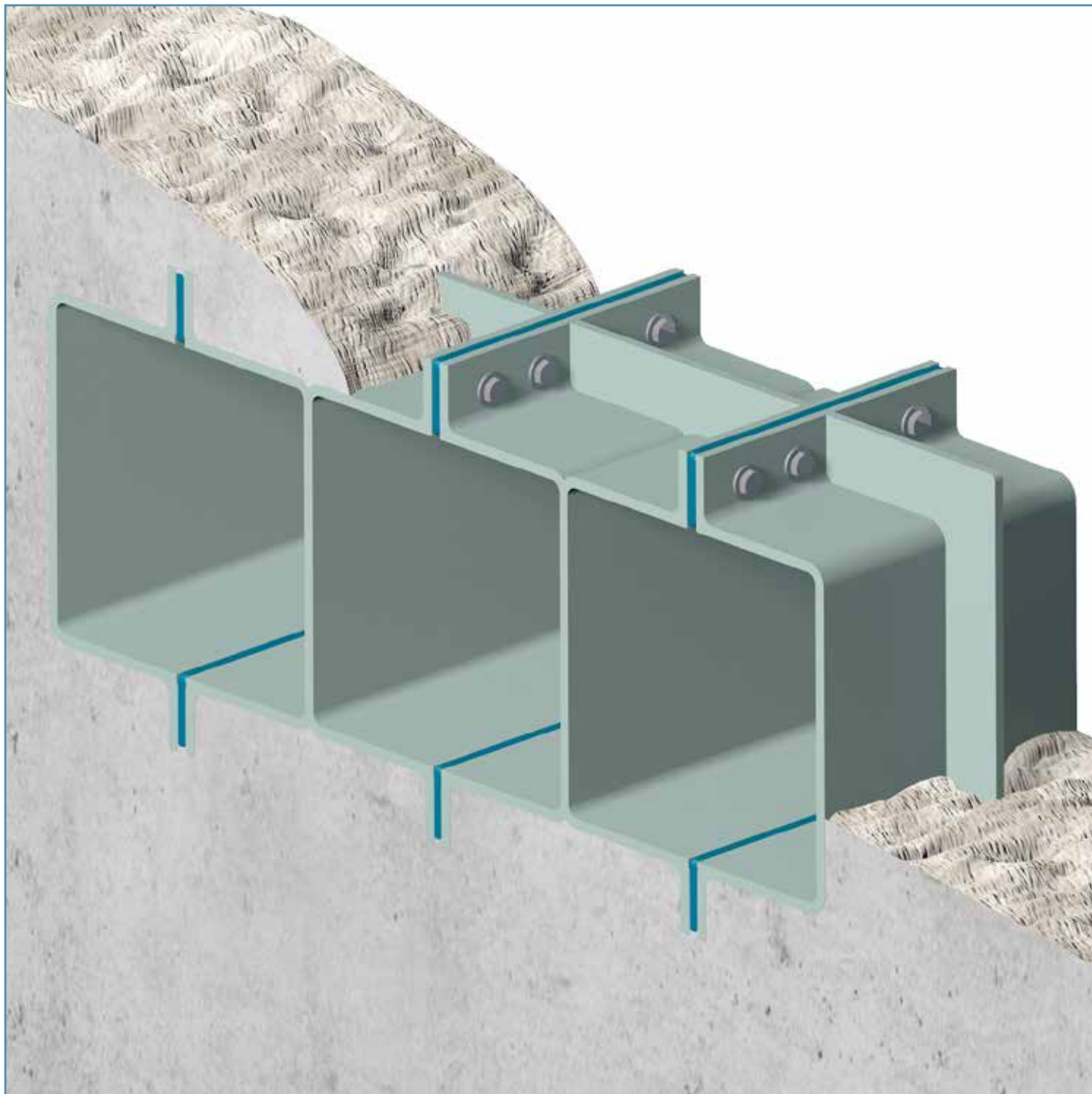
For optimum performance of the CONTROFIL® block type multi-cable transits, the inner dimensions of the transit frames are of utmost importance. CONTROFIL® CTF frames are supplied single and as multi-window combinations. The frames have a flange all around in the centre, acting as a water barrier when cast into concrete. The inner dimensions of the single frames are 150x150 mm. The frame parts are bolted together with CONTROFIL® gaskets in between. The wall thickness of the frames is 5 mm. No corrosion, light weight.

ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR



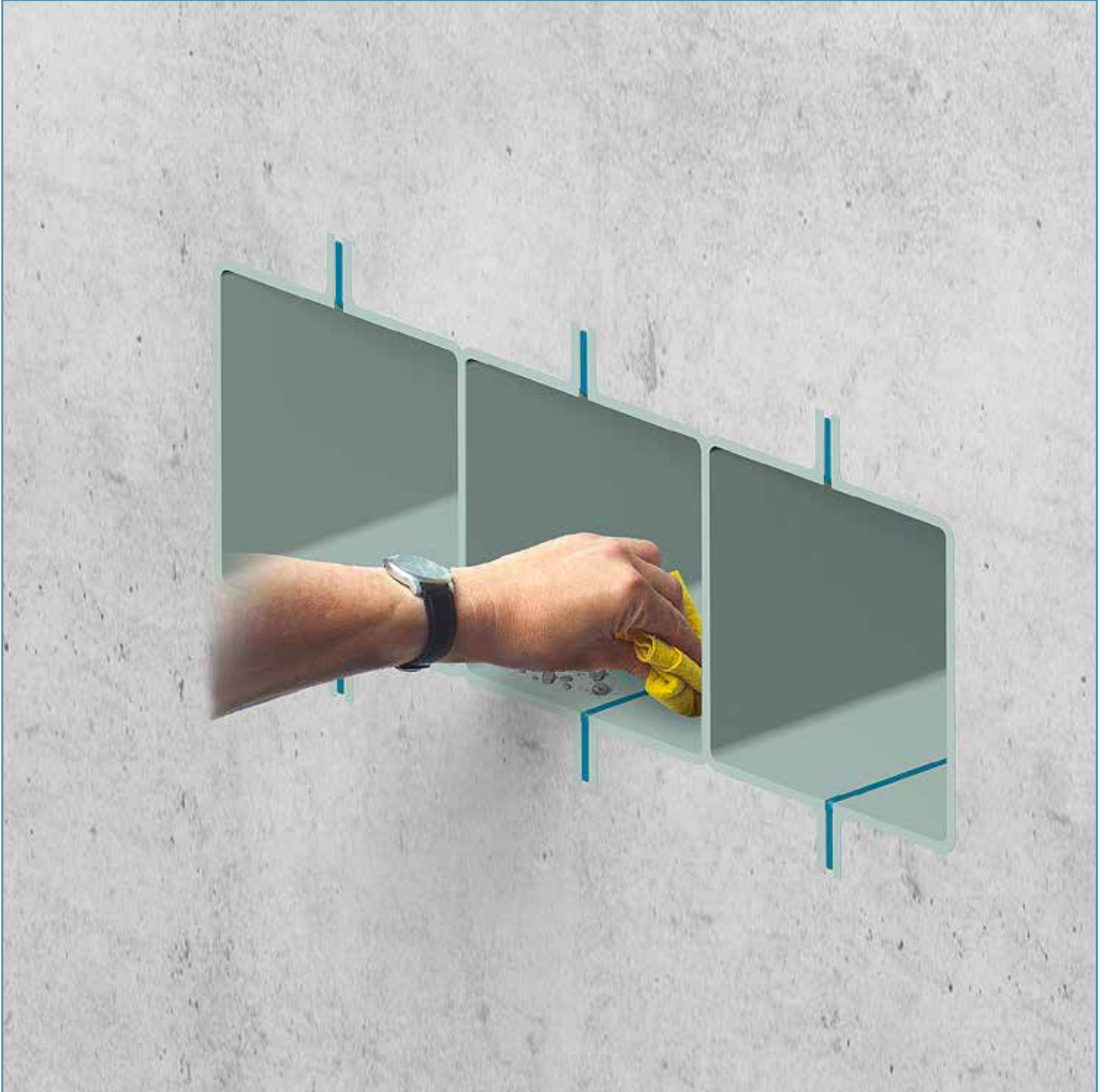
The tools needed for the installation are a cutter for the nozzles of the sealant cartridges, a block set adjuster, a tool for pressing the sealant layer in between the cables, cloths for cleaning and compression of the sealant layer, a cable cleaner, wet soap, a bucket with water and a professional sealant dispenser.

ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR



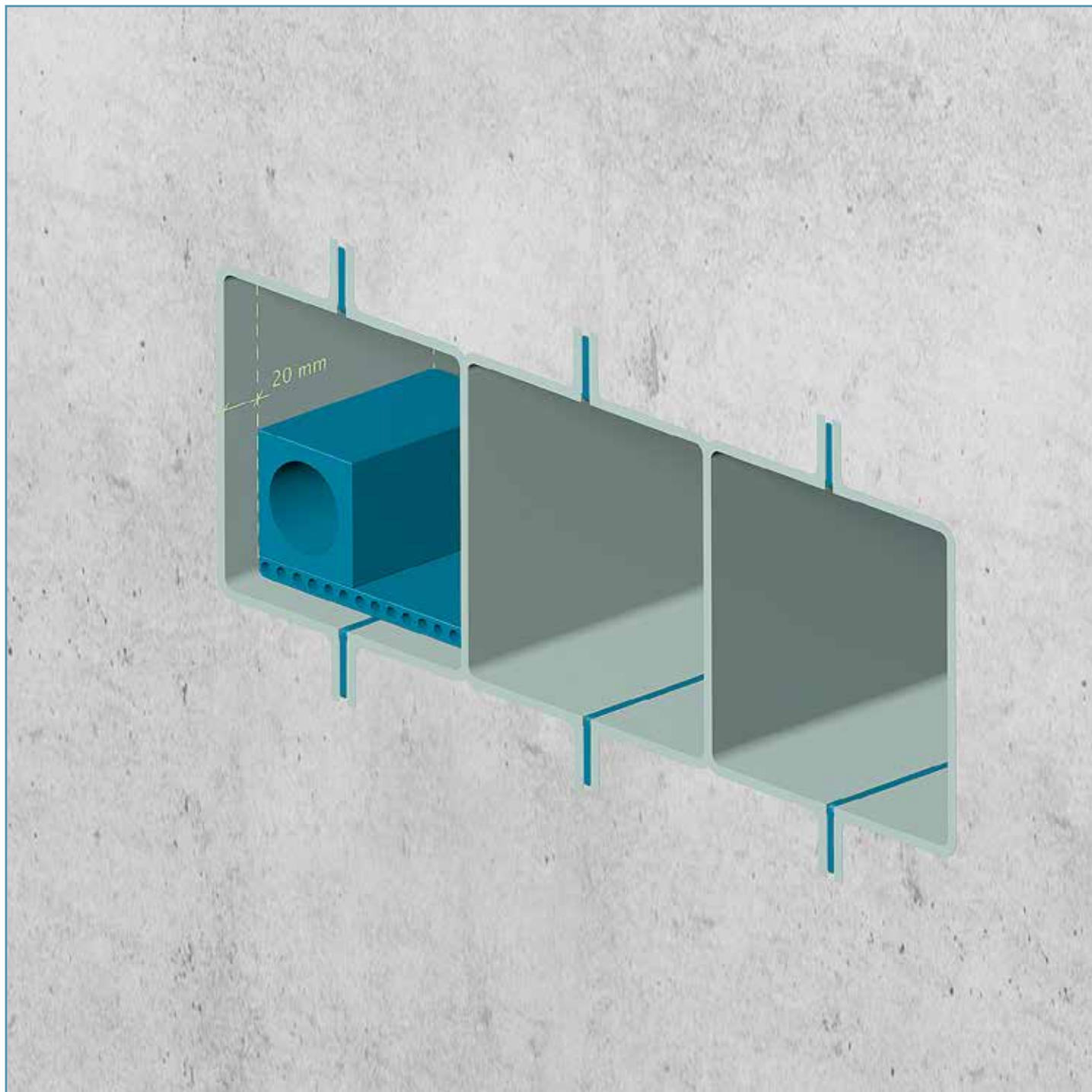
The CONTROFIL® CTF transit frames, single or multi-window, have depths of 100, 150 and 200 mm.

ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR



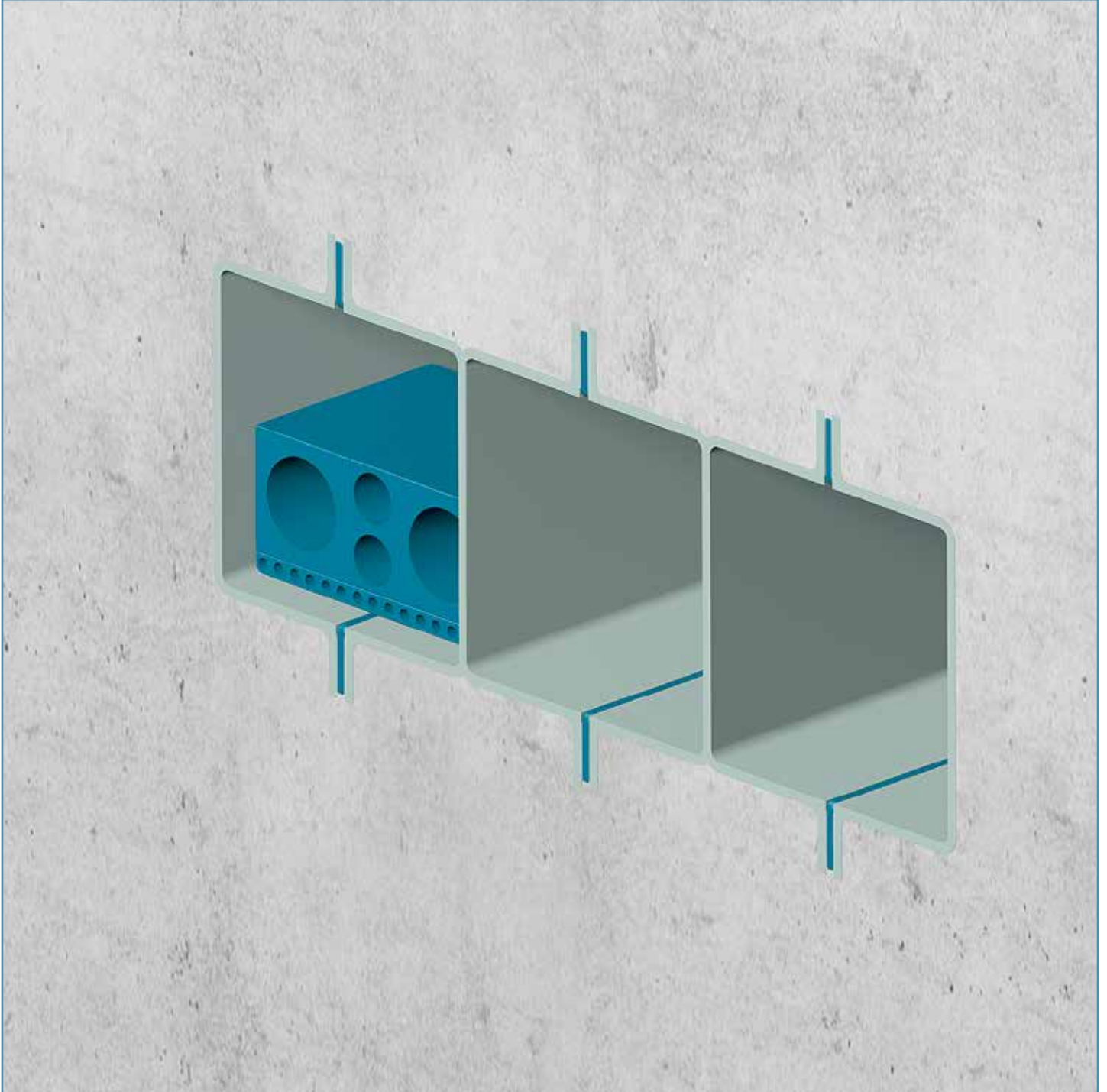
The transit frames might be cast into concrete long before cable pulling will start. For this reason, the status of the inside of the frames has to be checked when starting cable pulling. Before insertion of the CONTROFIL® multi-blocks, the inside of the transit frames have to be cleaned and any dirt, oil, grease and other residues should be removed from the inside of the CONTROFIL® CTF transit frame.

ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR



CONTROFIL® multi-block (MB/MBR) type multi-cable transits are specially developed to avoid overfilling of multi-cable transits. Cable lay-outs that are based on published cable diameters face the risk that the actual cable diameters on site are totally different. Open transits at site allow for pulling more cables through than planned. Sealing the multi-cable penetration will then be difficult or not possible at all. With the CONTROFIL® multi-block system, these risks are minimized. The lay-out can be determined at site, based on the actual cables to be ducted. Ultimately, this system “self-governs” the cable fill, and prevents overfilling. The blocks have to be inserted leaving 20 mm free space inside the frame at both sides.

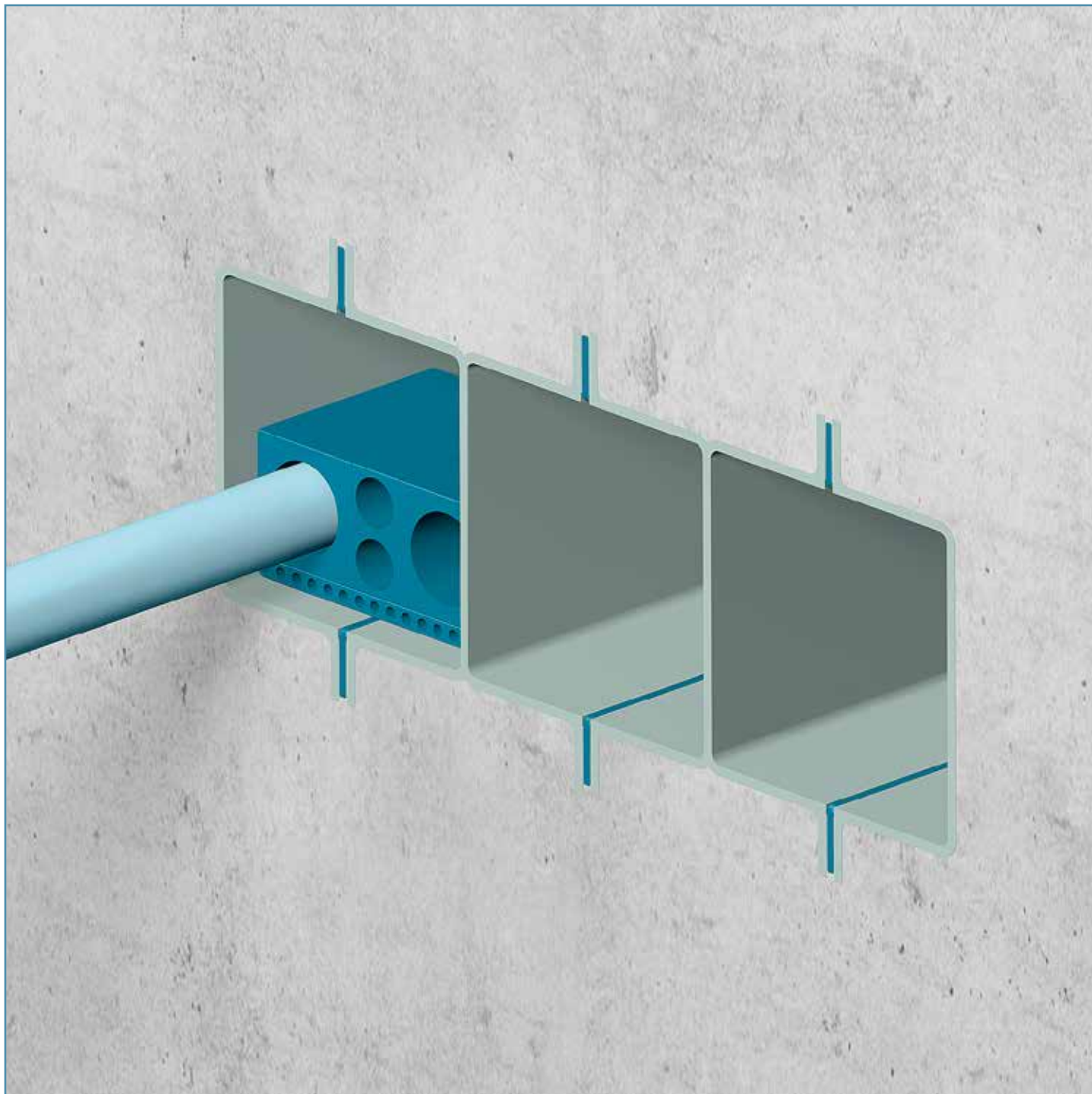
ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR



CONTROFIL® multi-blocks are easily stacked inside the transit frames. Multi-blocks type MB are 60x60 mm; multi-blocks type MBR have different heights and a widths of 60, 120 and 150 mm. The lengths of the multi-blocks are 60 mm, 110 mm and 160 mm, corresponding for frame depths respectively 100, 150 and 200 mm.

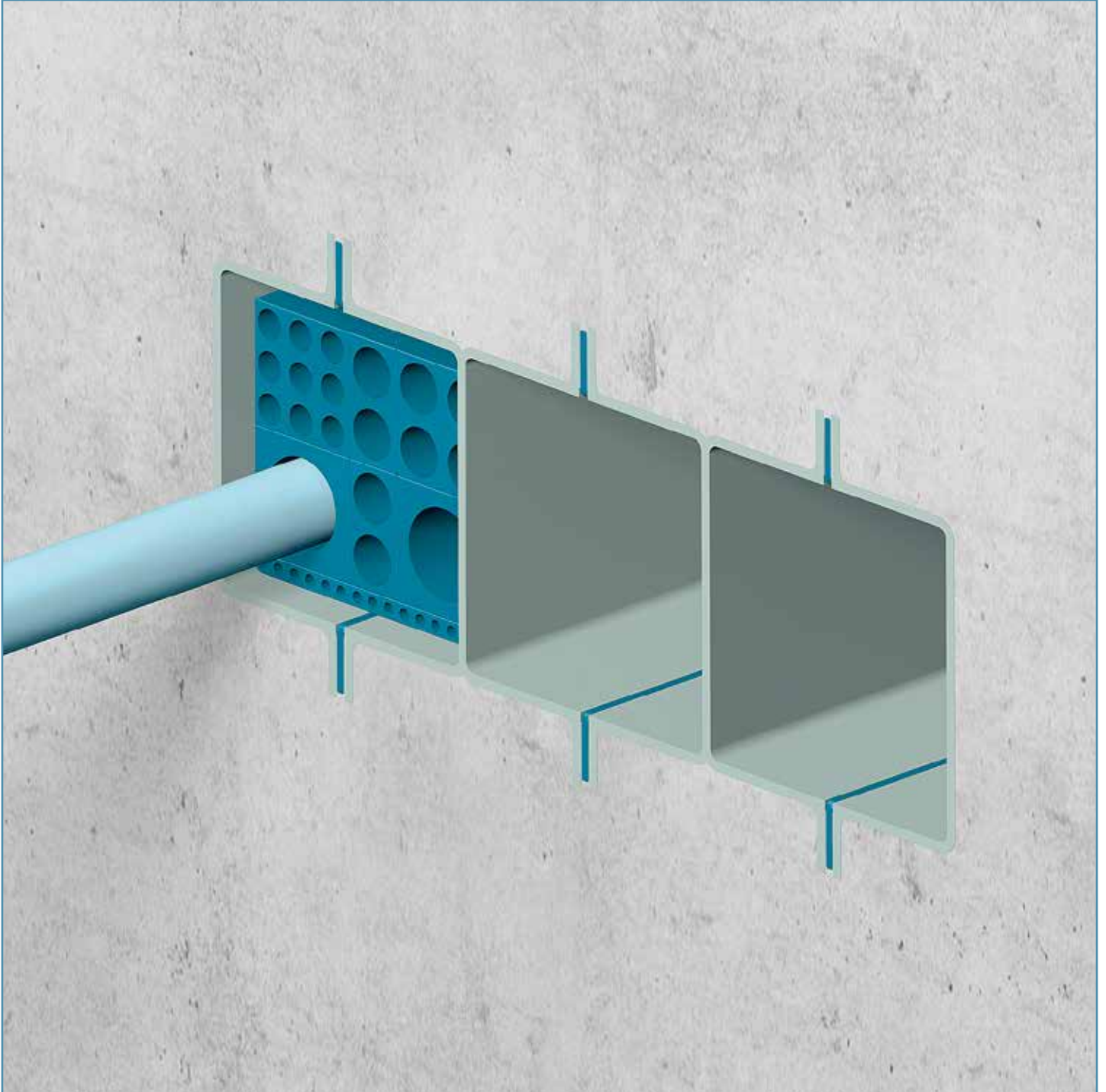
Note: multi-blocks are not used for final sealing of the multi-cable transit; they are a ducting facility.

ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR



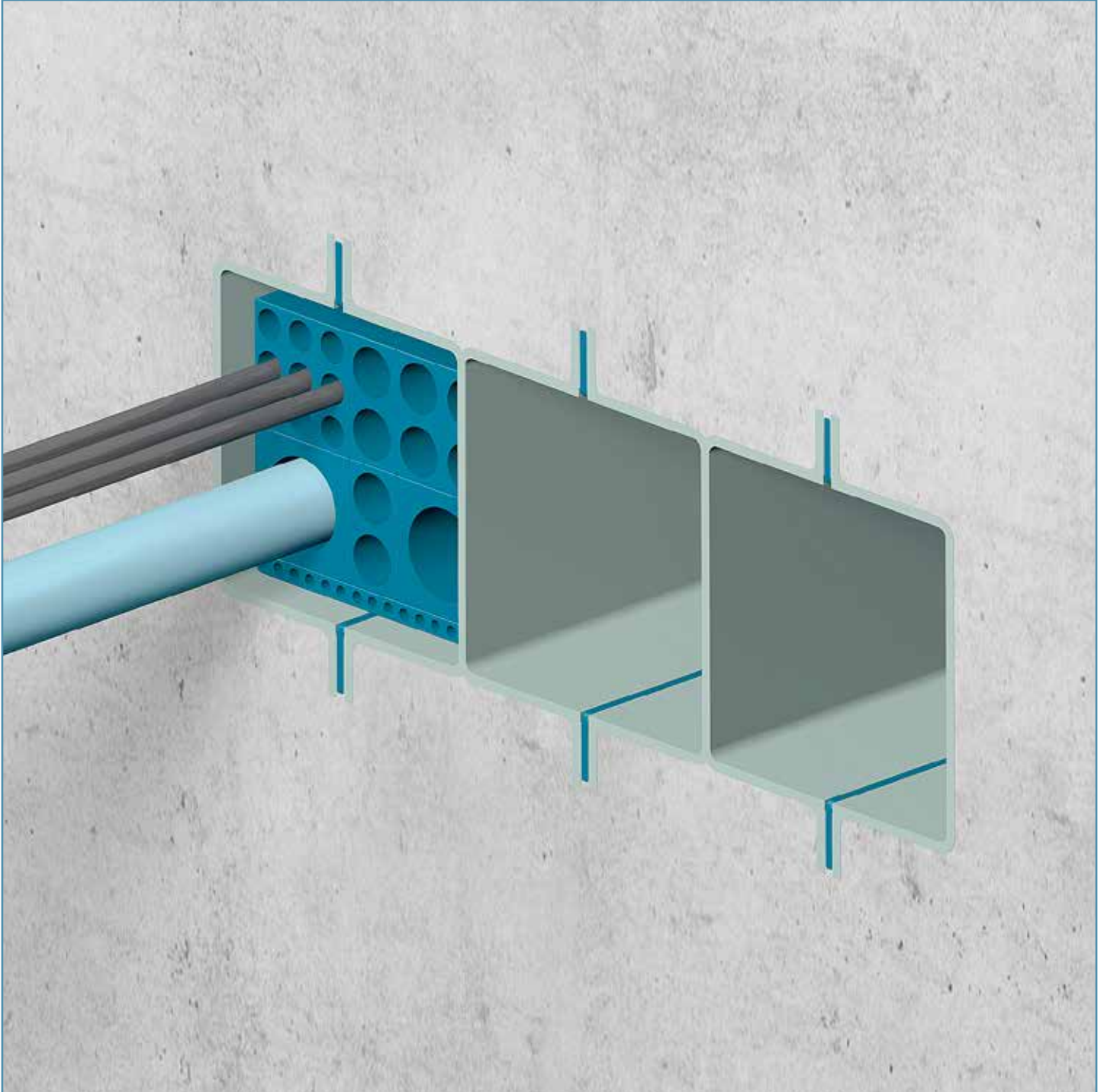
The CONTROFIL® multi-block passage holes allow for ducting cables with a range of cable diameters. Since the blocks are ducting facilities, there is no need for a tight fit. For this reason, it is not necessary to measure the diameters of all cables and to select or make a fitting block as is the case with traditional block type systems.

ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR



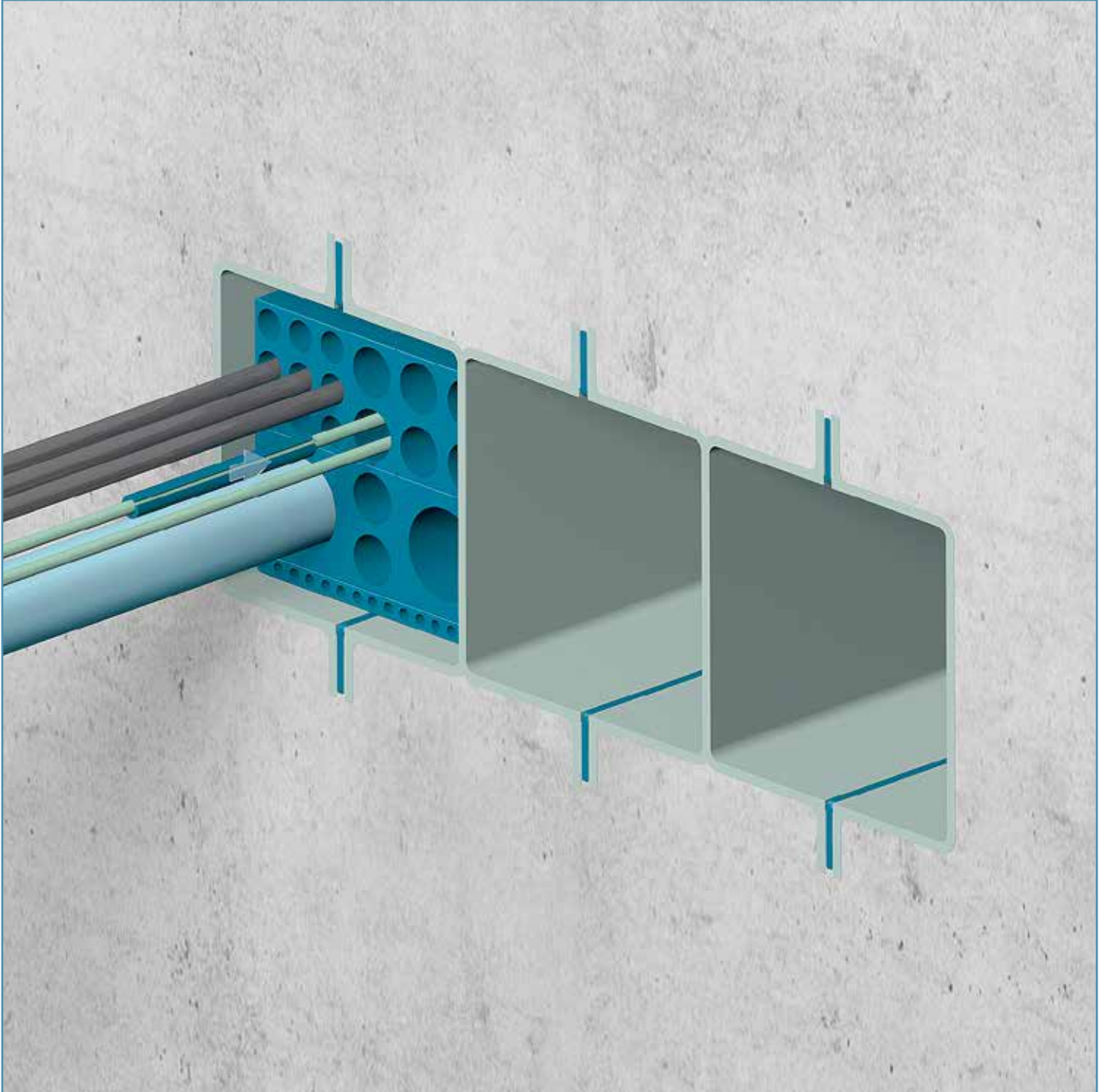
The CONTROFIL® multi-blocks are dimensioned to enable ease of installation without heavy forces. The optimized hardness and the smooth surface of the blocks contribute also to ease of installation. The required clamping properties of the blocks inside the frame are obtained by the quality of the CONTROFIL® rubber, of which the blocks are made, and the engineered dimensions of the blocks. In case an incorrect block type has been selected, the blocks can be removed/replaced easily during installation, as long as there are no cables ducted.

ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR



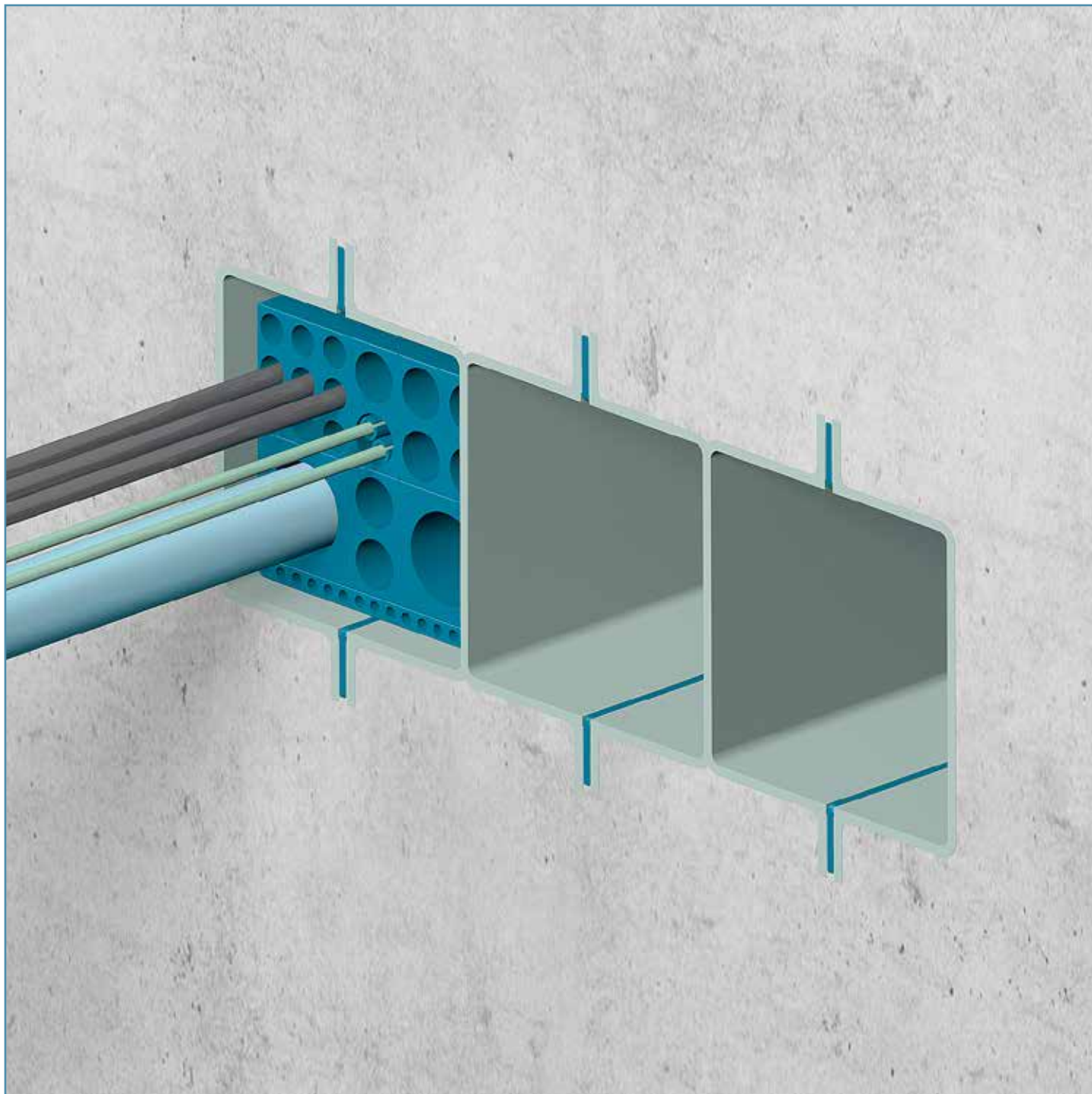
The system allows for maximum flexibility. There are several block types MB 60x60 mm and several block types single row version type MBR with widths of 60, 120 and 150 mm available. This allows for a wide variety of configurations. Once a set of blocks is clamped into the transit frames, cables can be pulled through easily.

ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR



Cables can be pulled through in random order. There is always sufficient separation of the cables provided by the predetermined hole configurations of the multi-blocks. The passage holes are designed for a wide variety of cable diameters to be pulled through. It allows also to duct more than one cable through a passage opening. In such cases, it is recommended to install a cable sleeve around these cables to obtain sufficient separation for applying the sealant in a later stage.

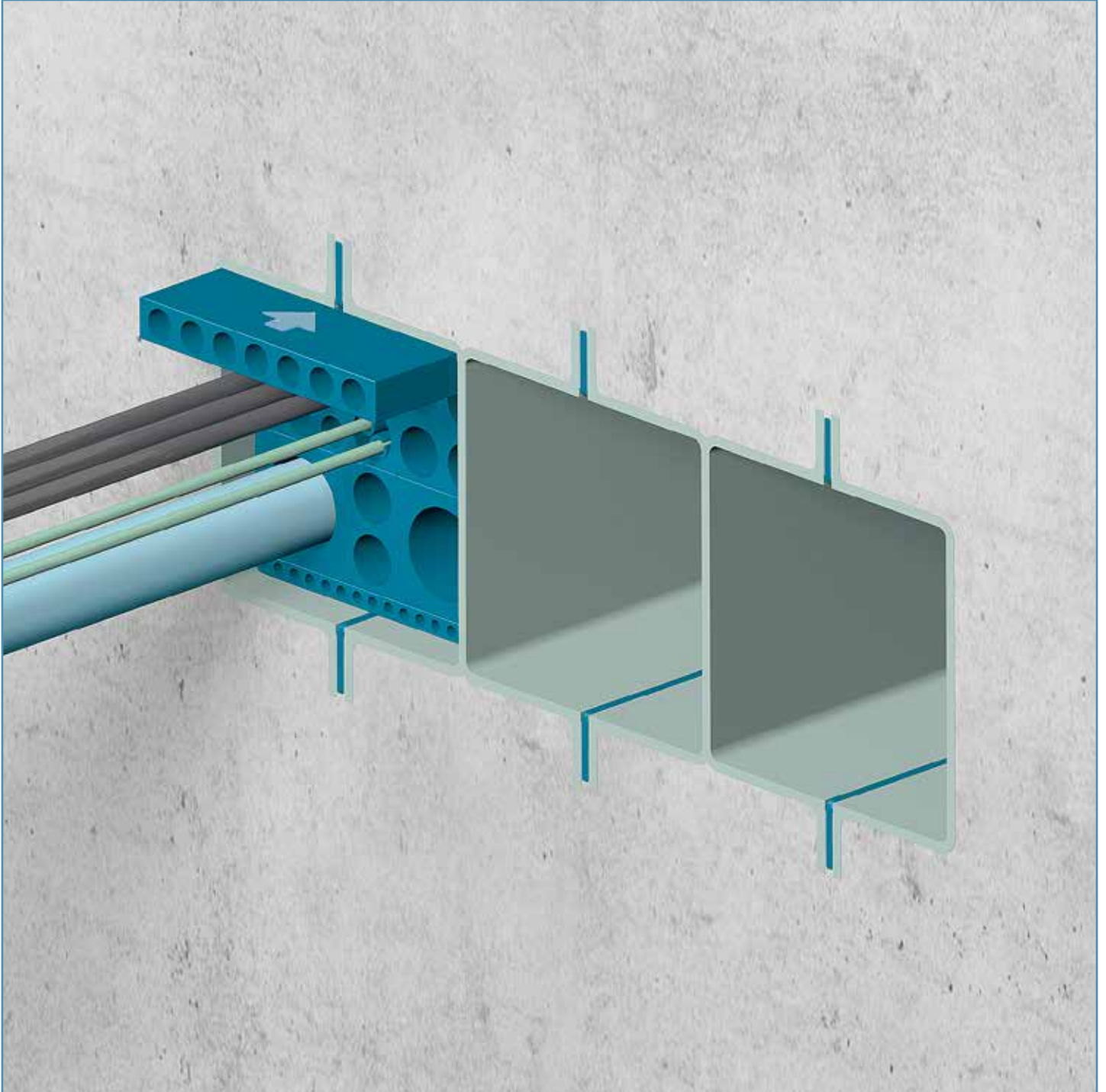
ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR



The cable sleeves around the cables fill the passage opening and limit undesired displacement inside the passage openings.

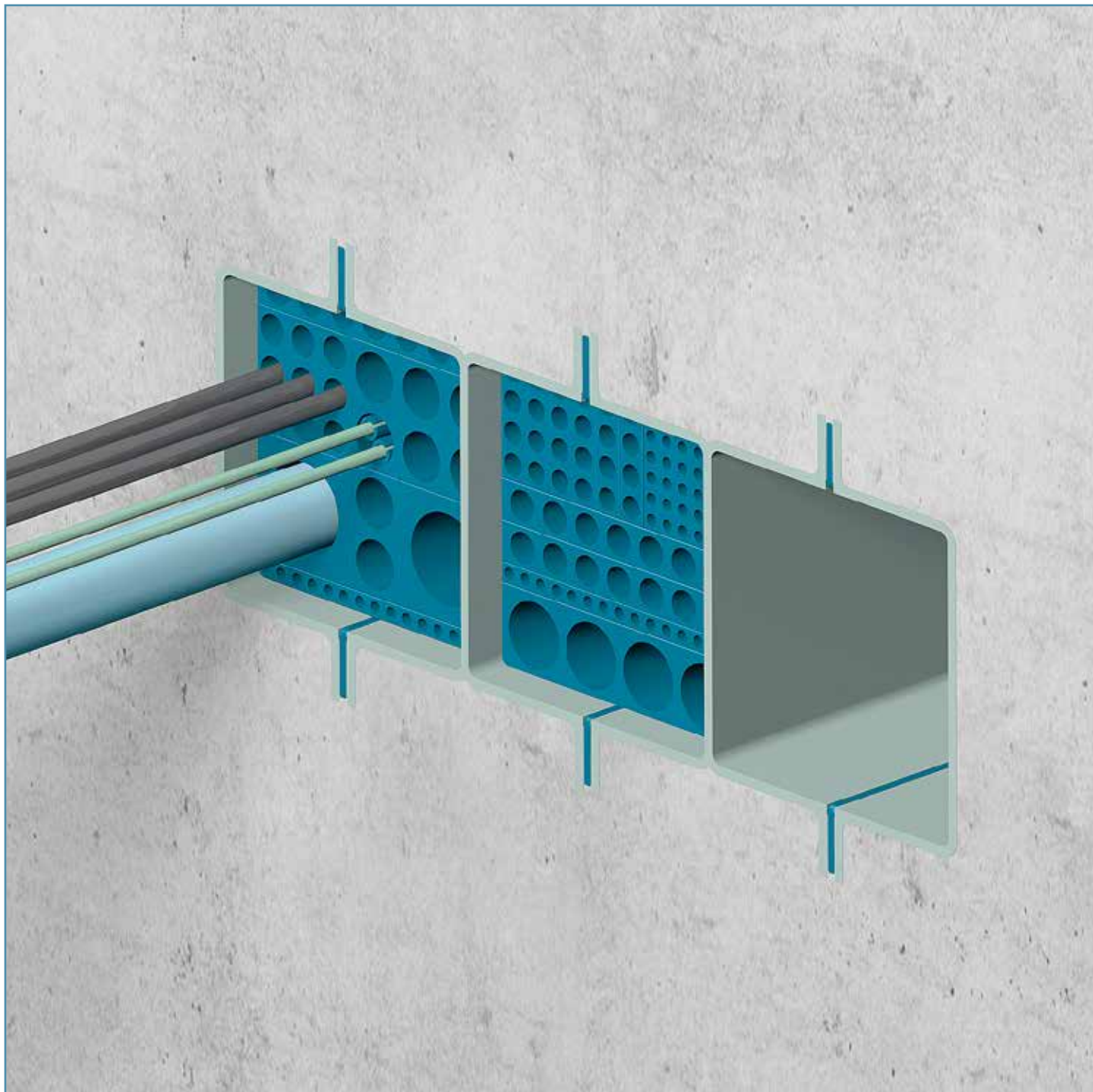
The passage holes of the multi-blocks allow for some limited bending of the cables since they are generally larger in diameter than the outer diameters of the ducted cables.

ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR



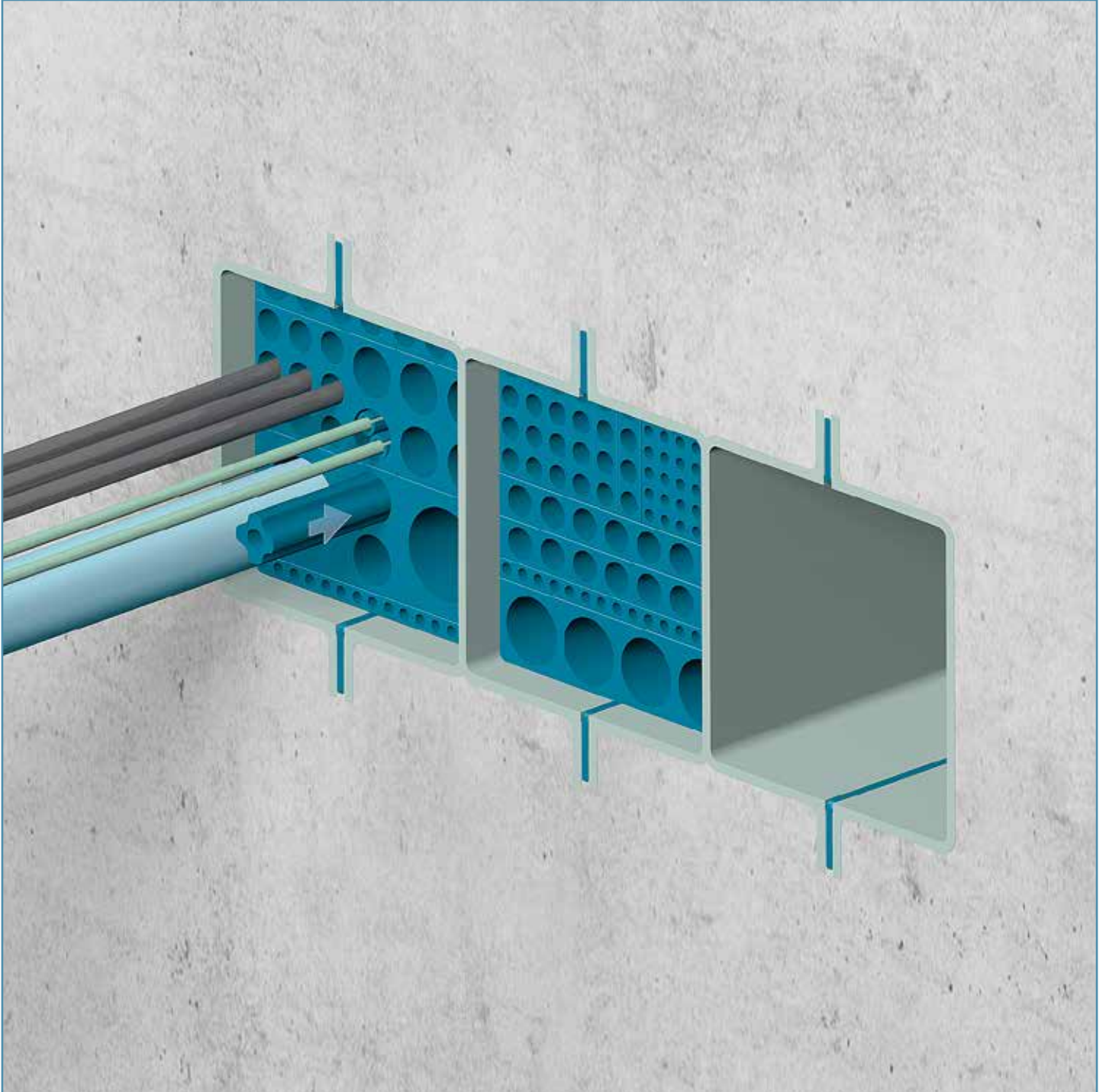
When designing the configuration during the process of pulling cables, the upper multi-passage block should be inserted tightly. Due to the fact that cable dimensions are not influencing the height of the blocks, the insertion is easy. No compression devices are required and generally no lubricant is needed to insert the blocks into the transit frames.

ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR



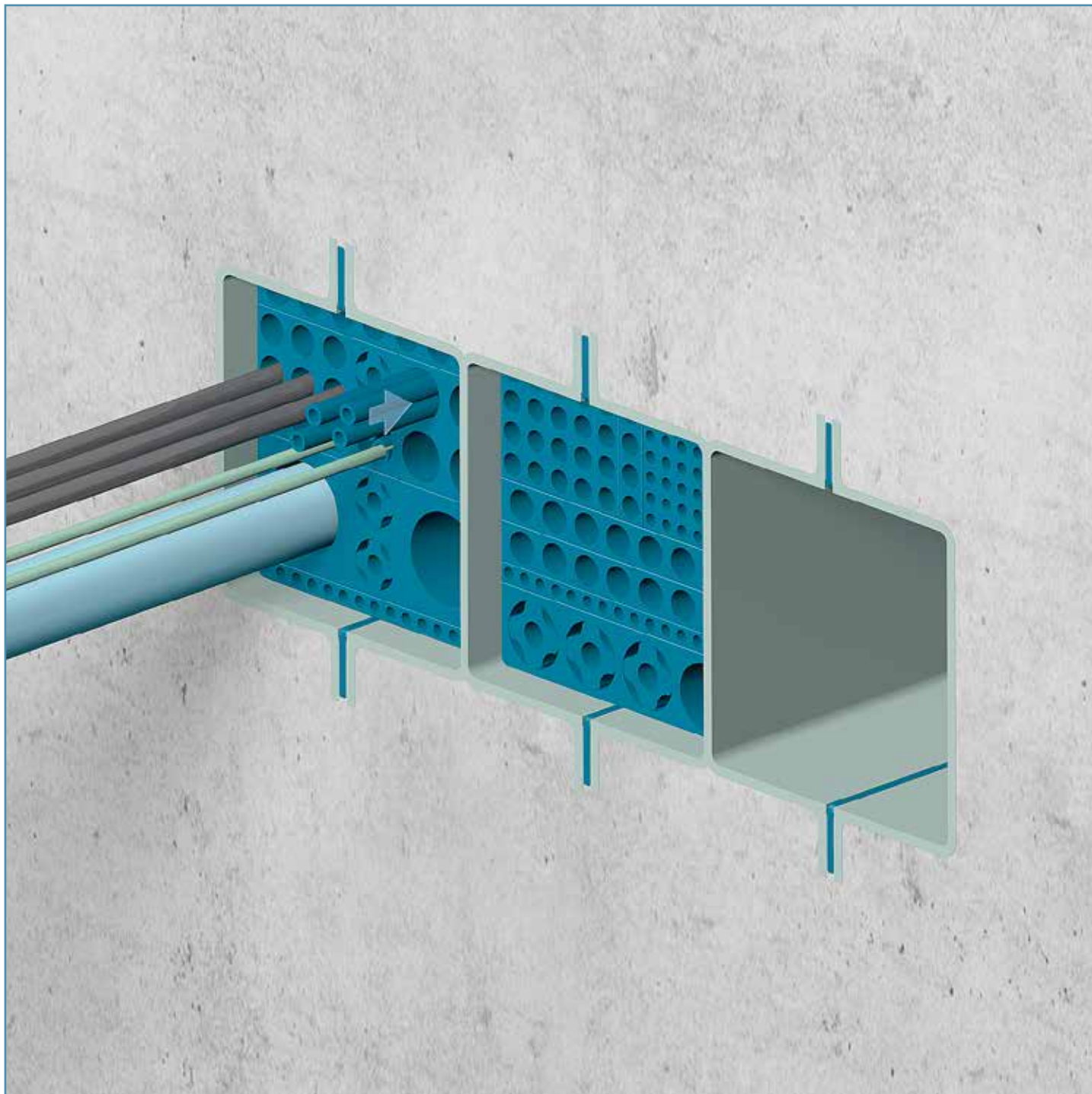
The CONTROFIL® block type sealing system is specially developed for a controlled filling of multi-cable transits. Conduit openings create not only the risk of overfilling, but also the risk of pulling cables through in a tangled, bent, oblique or bundled way, with the result that final sealing will be complicated, or impossible. Tightness ratings, but also fire ratings, are questionable in such cases. By inserting all the CONTROFIL® multi-blocks into the transit frame before pulling the cables, these problems can be ruled out easily.

ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR



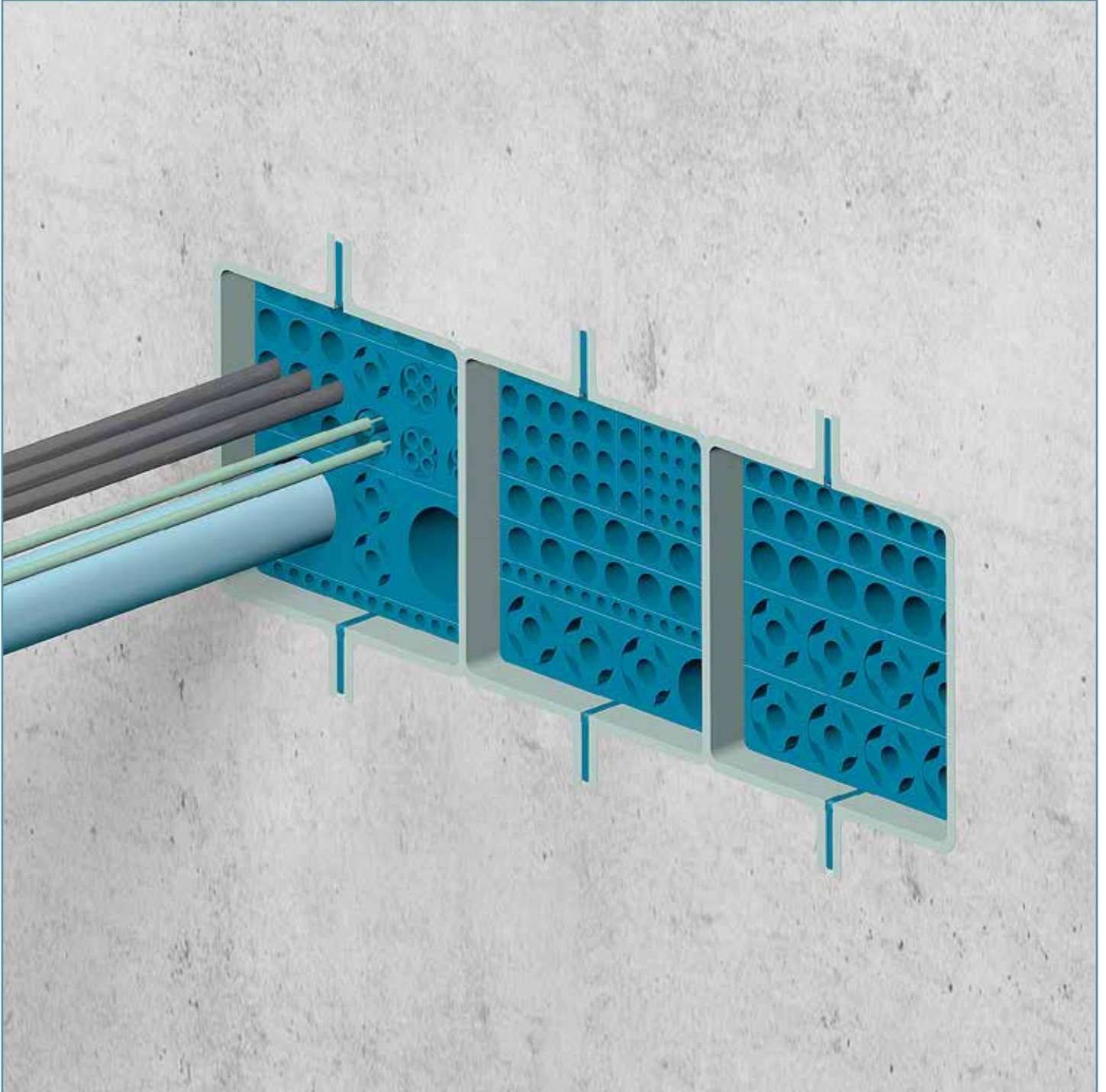
CONTROFIL® block fillers must be used for unused passage holes in the CONTROFIL® multi-blocks with sizes of the passage holes 19 up to 44 mm. In a later stage, the block fillers can be removed for extensions of the cable set. The block fillers are applied with a view to improve mechanical stability. Due to the extra amount of the under-fire-load expanding CONTROFIL® rubber, the block fillers contribute to a rapid filling of the open spaces in case of fire.

ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR



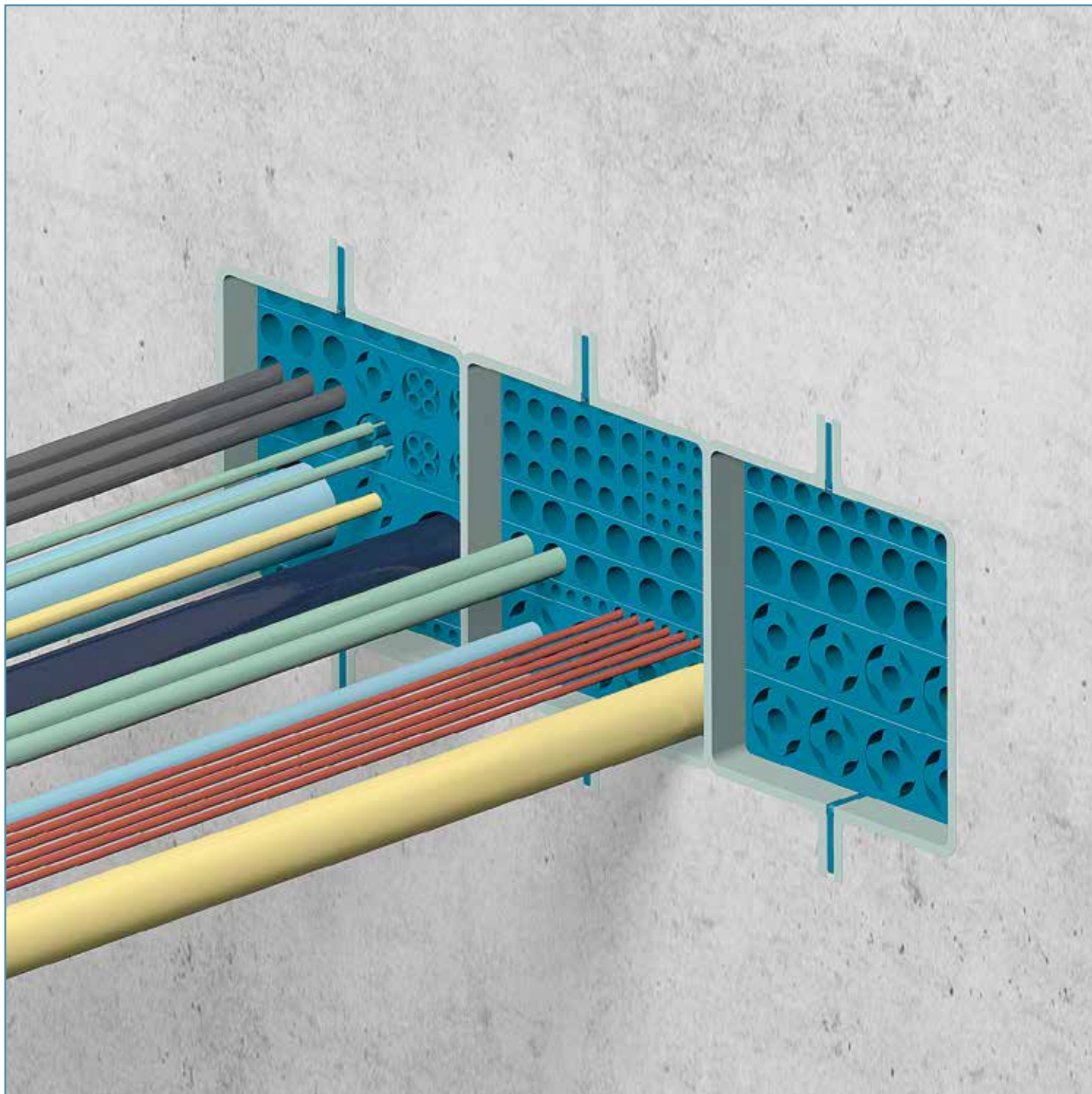
The other possibility to fill these openings (partly) is to place one or several CONTROFIL® filler sleeves in the non-used openings. The CONTROFIL® rubber of which the blocks are made, is a combination of the best properties of the NOFIRNO® and CRUSHER® rubber grades, developed by BEELE Engineering. The CONTROFIL® rubber has a controlled expansion rate under fire exposure to fill up open spaces in the blocks/transit and to compensate for the melting cable sheathings. Even during construction, the system is fire safe. The CONTROFIL® rubber will ultimately form a stiff ceramic char inside the penetration, holding all parts together.

ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR



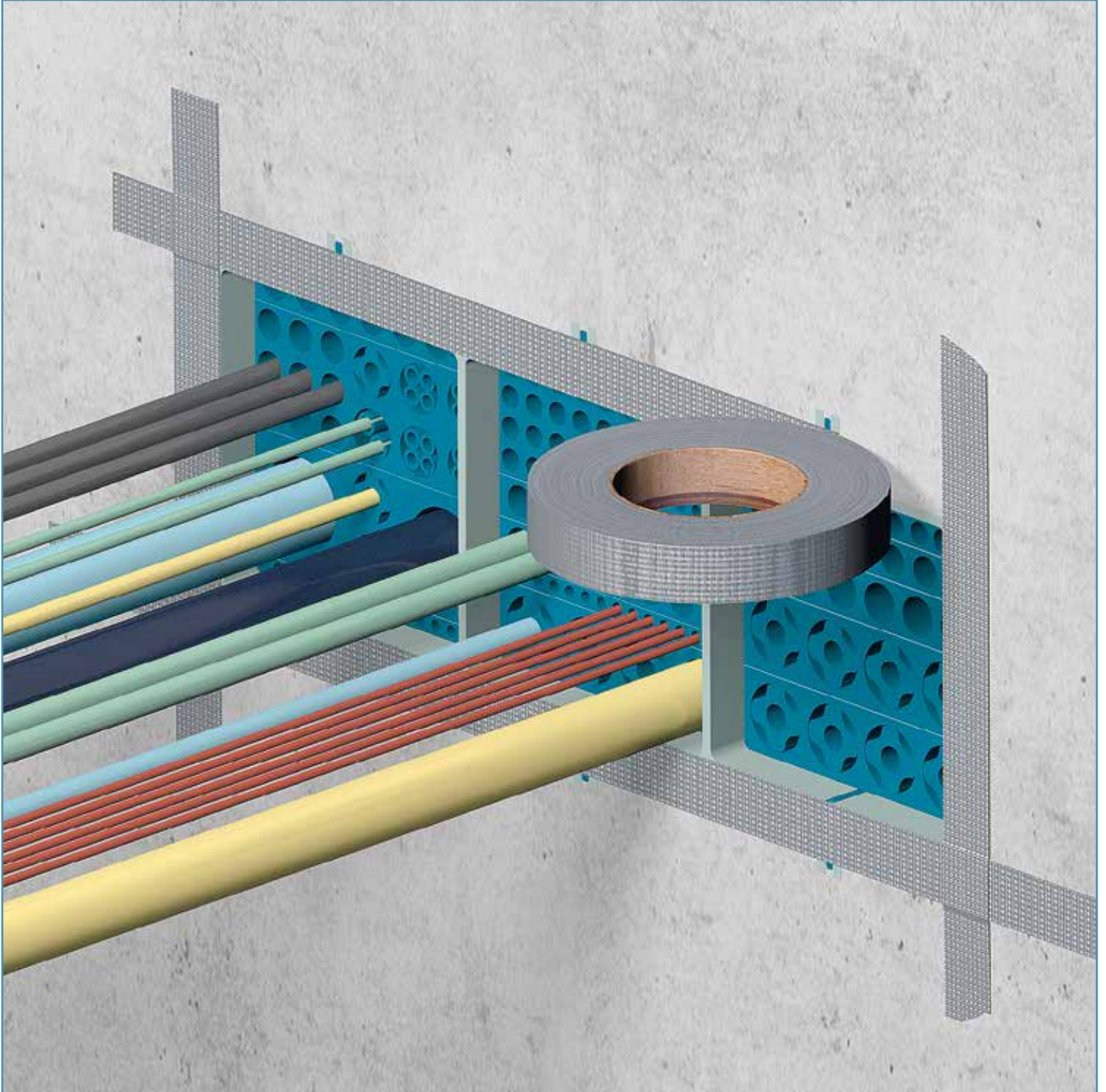
The block fillers are inserted into the larger passage holes to complete the filling of the transit. Installation at this stage is not a matter of ultimate sealing. Final smoke, gas and watertight sealing of the CONTROFIL® multi-cable transits is carried out with the application of NOFIRNO® sealant. NOFIRNO® sealant has proven ultimate performance with regard to mechanical and fire resistance properties, even by exposure to jet fires. The sealant is available in a blue grey colour in line with the colour of the CONTROFIL® multi-blocks.

ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR



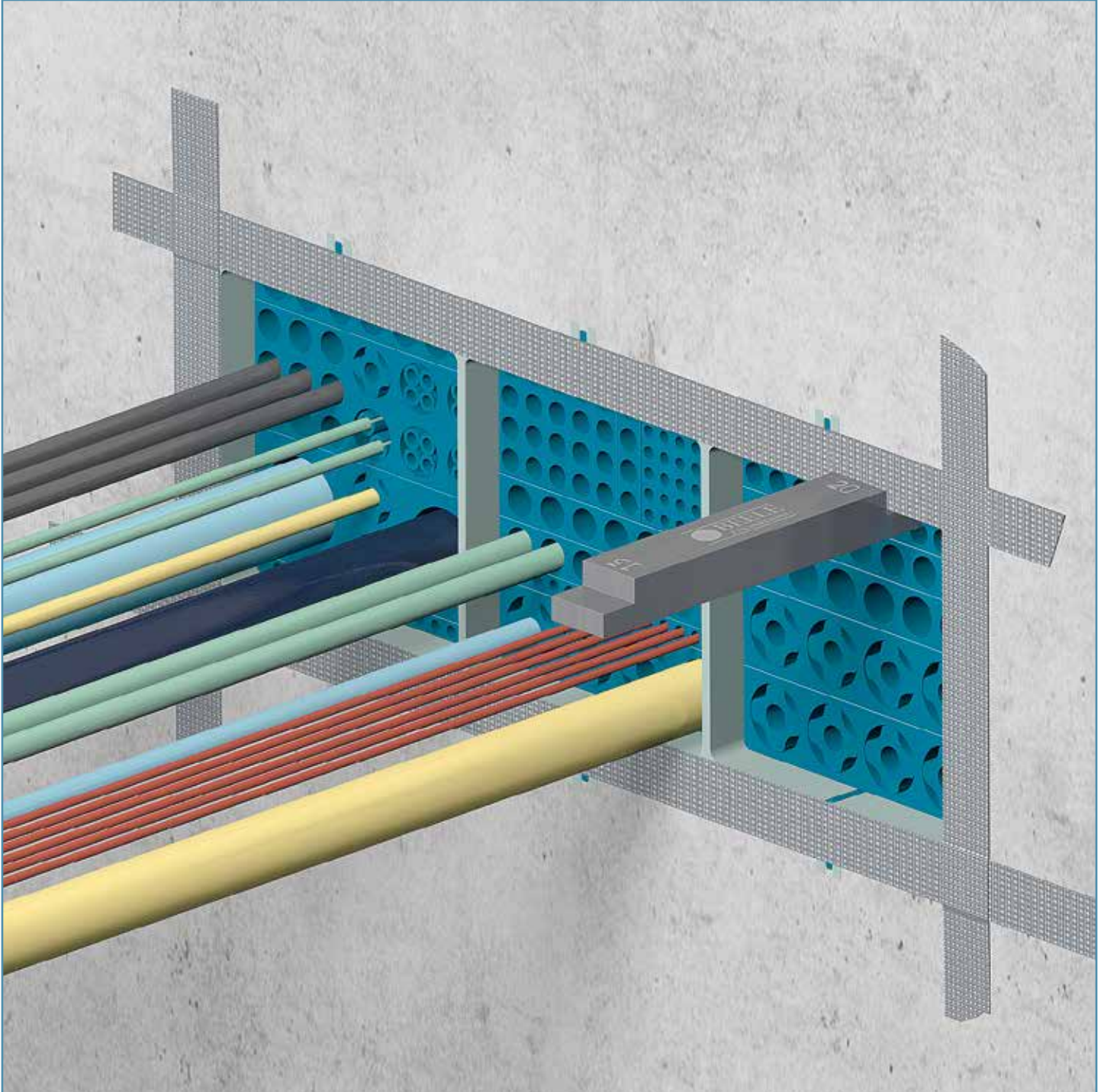
Cables are pulled through in a controlled way, preventing any “spaghetti” look of cable transits. CONTROFIL® also prevents overfilling of transits. Non-compressive sealing prevents heavy loads on cable sheathings, which causes cold creep and stress relaxation of the rubber parts, causing permanent deformation and loss of sealing capacity. CONTROFIL® multi-cable transits are optimizing the quality of installation work.

ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR



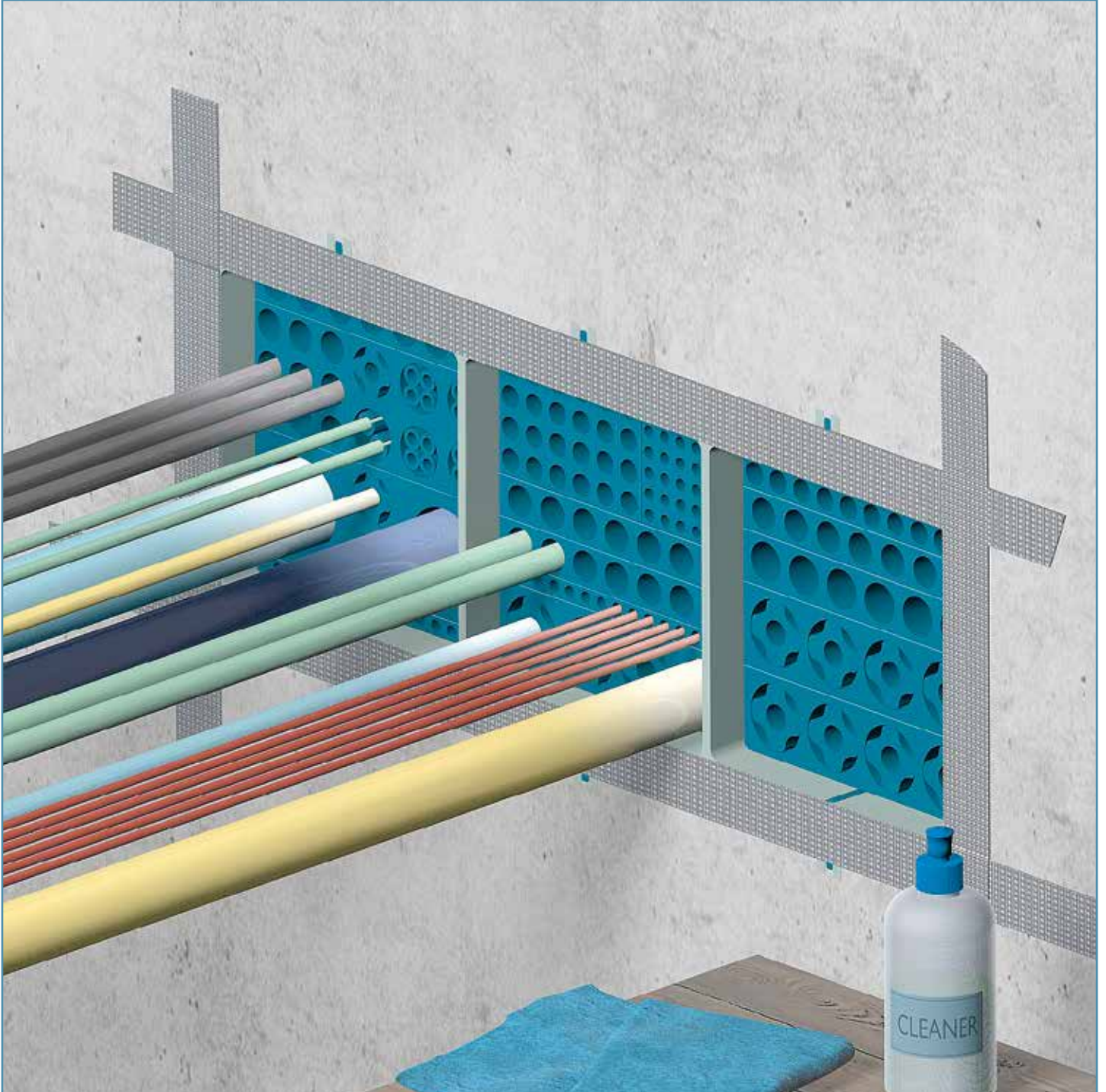
Before applying the NOFIRNO® sealant, it is advisable to tape the wall all around the conduit opening to keep the wall free from any sealant residues.

ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR



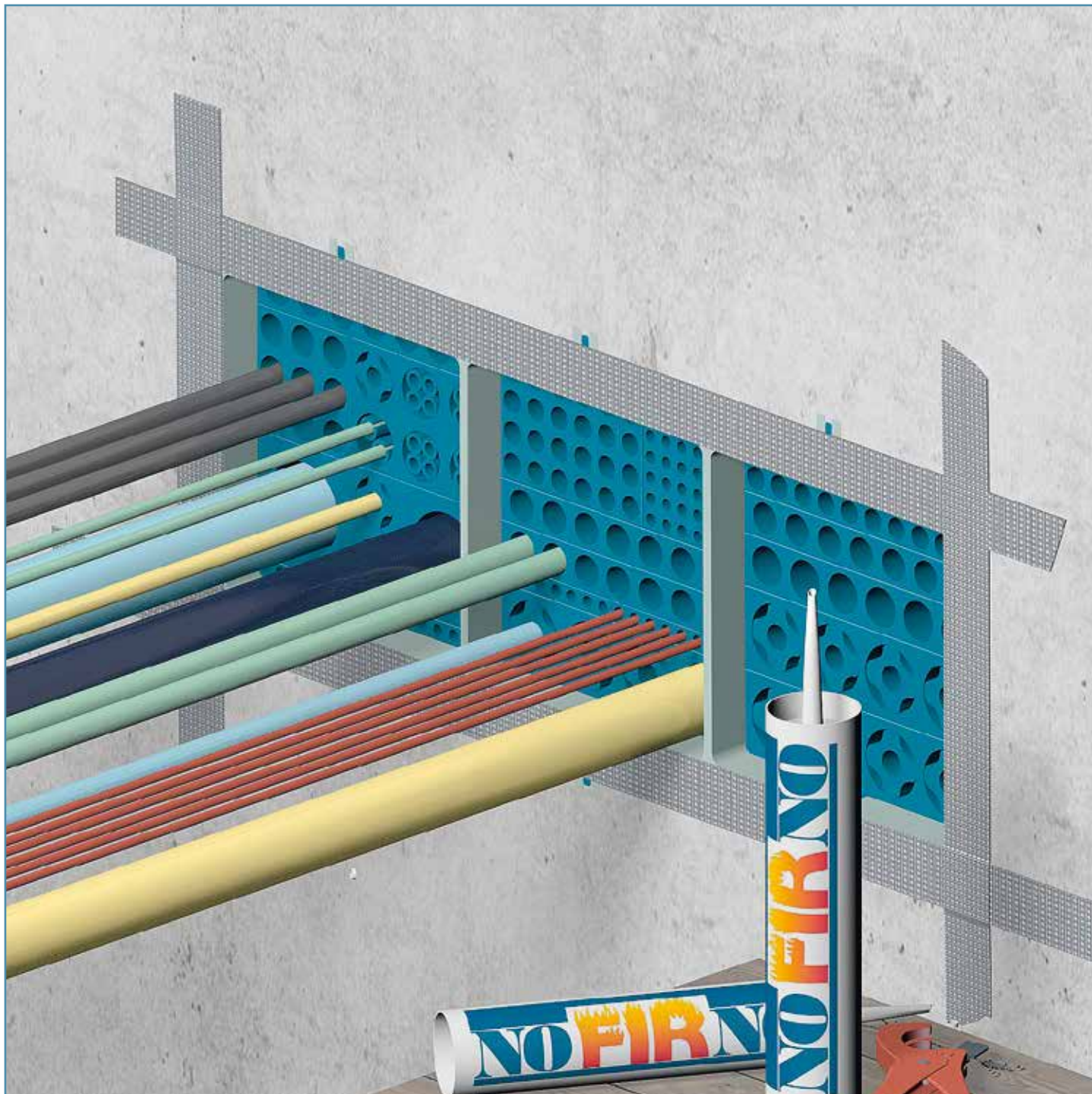
With the BEELE Engineering developed aluminum adjuster, the set of multi-blocks can be adjusted to the required 20 mm recess inside the conduit opening. Use a plastic hammer to adjust the set of blocks with the NOFIRNO® adjuster. A piece of wood can of course be used for this purpose as well.

ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR



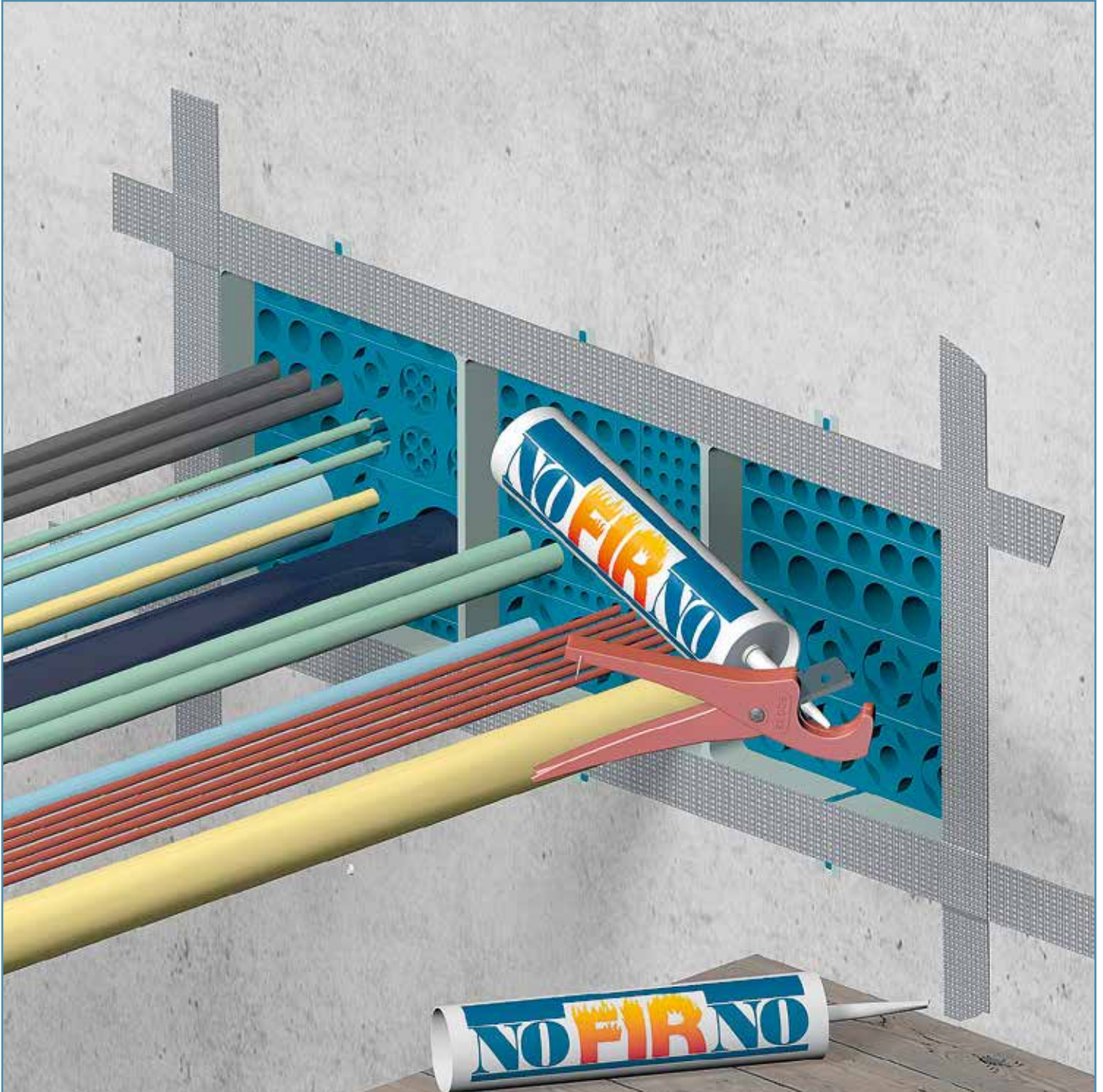
Clean and dry the inside wall of the transit frame and the cables thoroughly, and remove any dirt or oil residues before applying the sealant.

ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR



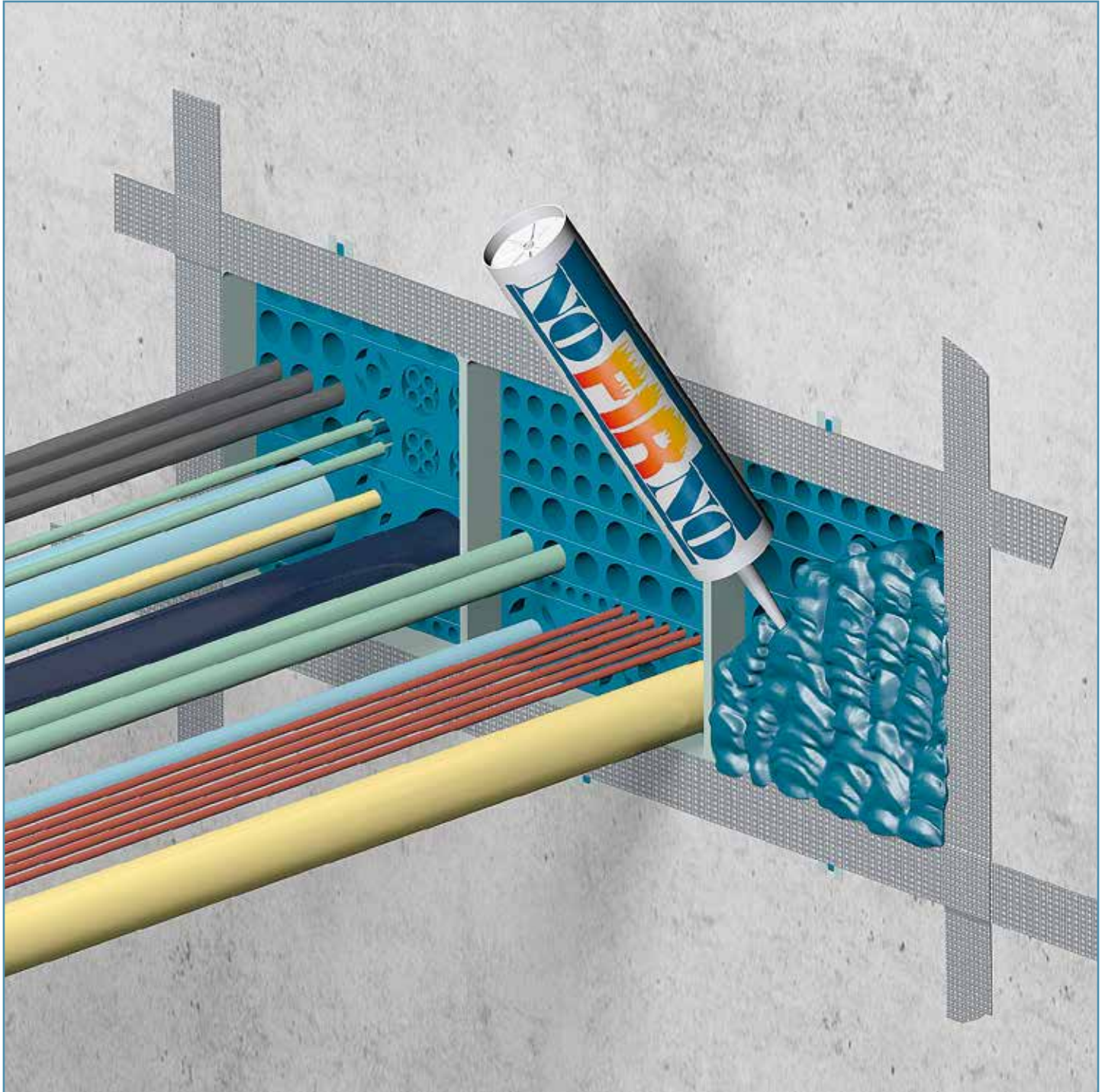
Final smoke, gas and watertight sealing of the CONTROFIL® multi-cable transits is achieved with the application of NOFIRNO® sealant. NOFIRNO® sealant has proven excellent performance with regard to mechanical and fire resistance requirements.

ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR



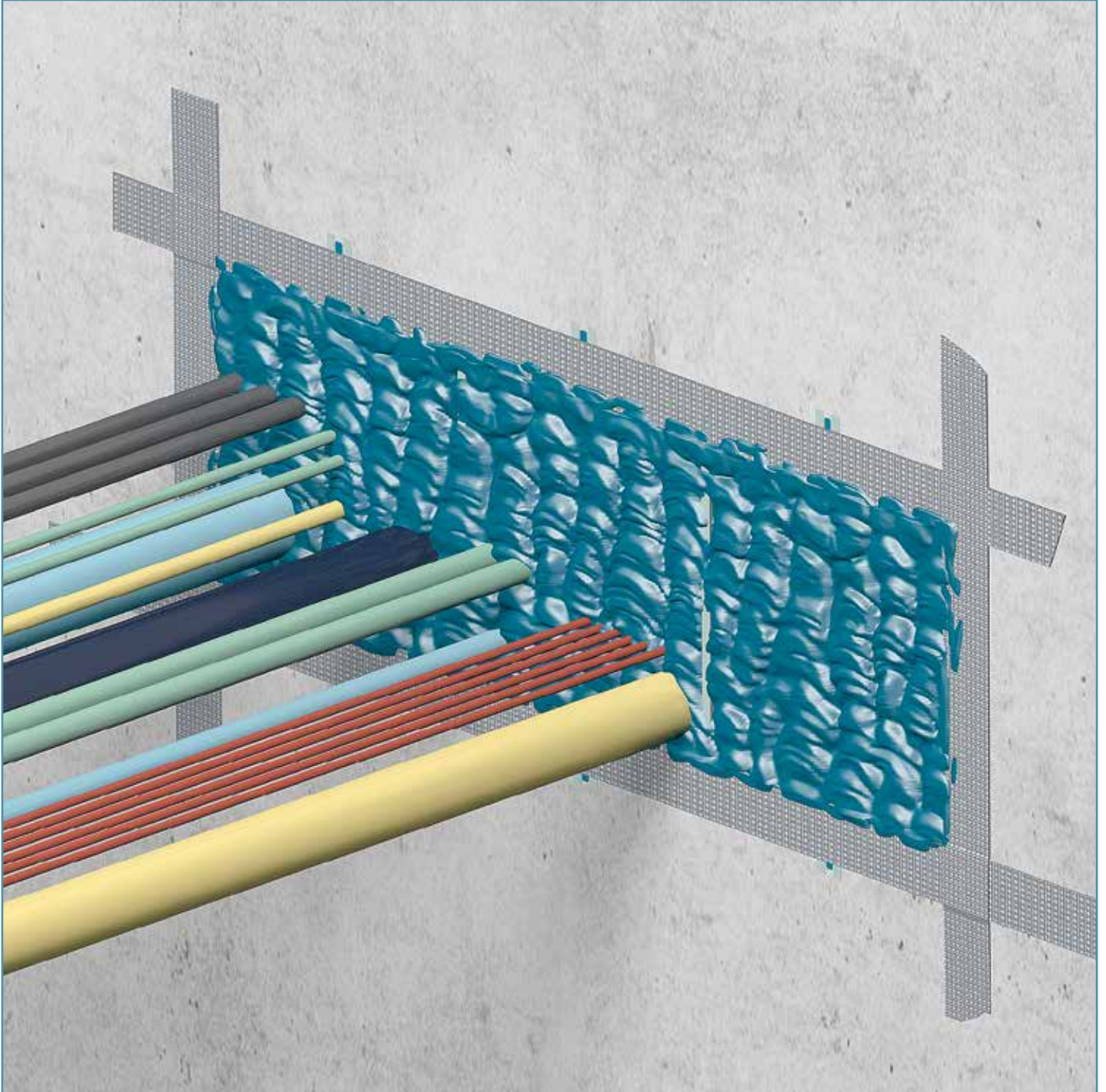
Cut the injection nozzles of the cartridges in an angled way to create a medium sized dispersing opening. This will improve the flow of the sealant in between the set of cables. Furthermore, it is advisable to use professional sealant guns. Hand fatigue is prevented, and an optimum flow of the sealant is obtained. For larger penetrations, electric or pneumatic dispensers should be used.

ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR



A 20 mm thick layer of NOFIRNO® sealant is applied at each side of the CONTROFIL® multi-cable transit. Clean and dry the inside wall of the transit frame and the cables thoroughly, and remove any dirt or oil residues before applying the sealant. Use our professional sealant guns. Hand fatigue is prevented and optimum flow of the sealant is obtained. Skin formation of the sealant takes place after ca. 10-15 minutes. Apply only such an amount of sealant which can be finished within this time span. People with sensitive skin should use gloves when working with NOFIRNO®. Please refer to the Safety Data Sheet for more information.

ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR



The transit should be overfilled with NOFIRNO® sealant, because some sealant will be pushed into the non-used passages of the CONTROFIL® multi-blocks during further finishing. This will contribute to obtain higher tightness ratings. NOFIRNO® sealant has an engineered viscosity, preventing the sealant from sagging and also allowing for a perfect flow of the sealant between the cables during injection. The NOFIRNO® sealant can be applied overhead for deck/floor transits without dripping or sagging. For cable transits with a high filling rate, longer nozzles for the sealant cartridges are available.

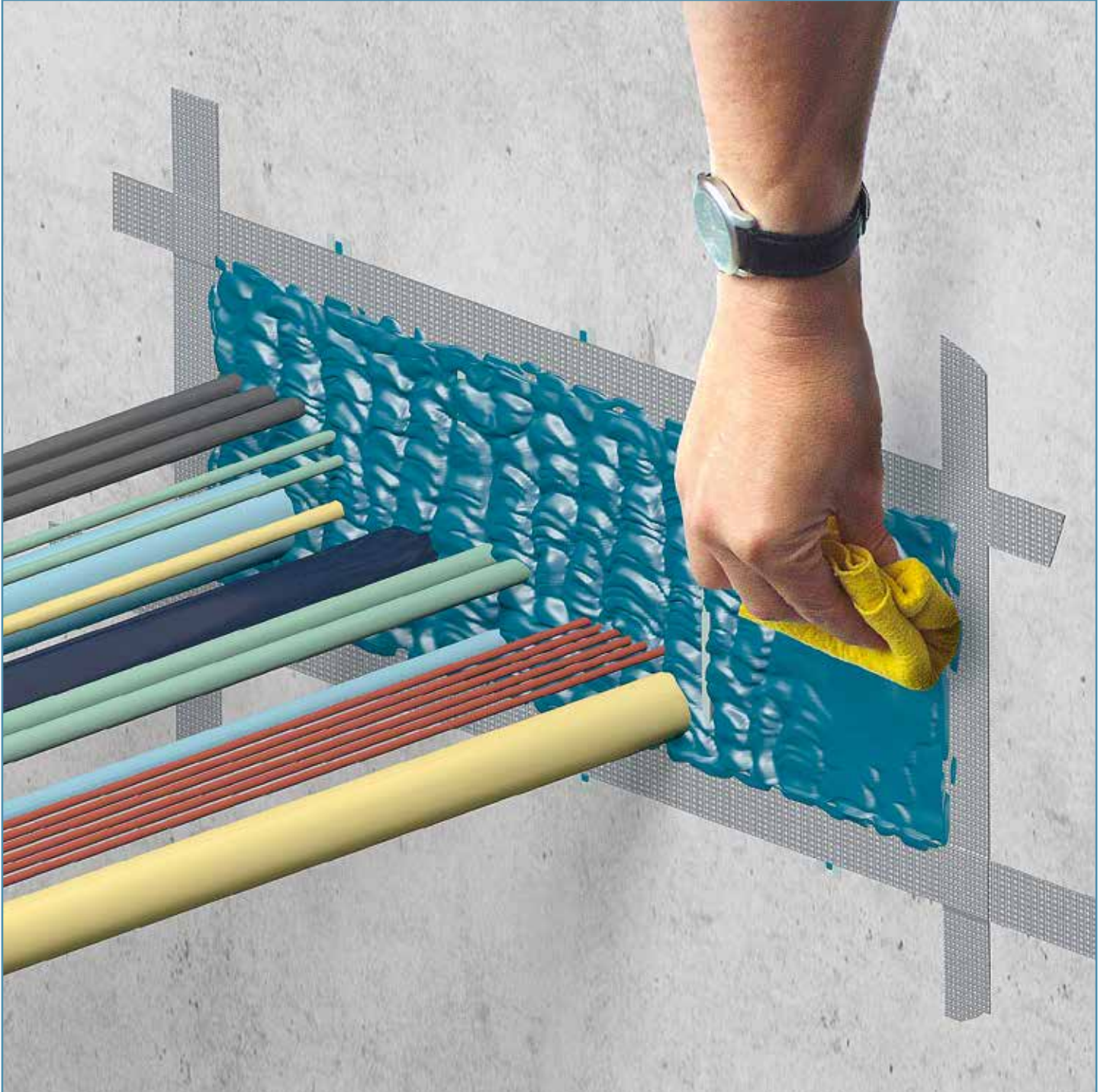
ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR



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! Soap water will have a negative impact on the adhesive properties of the sealant.

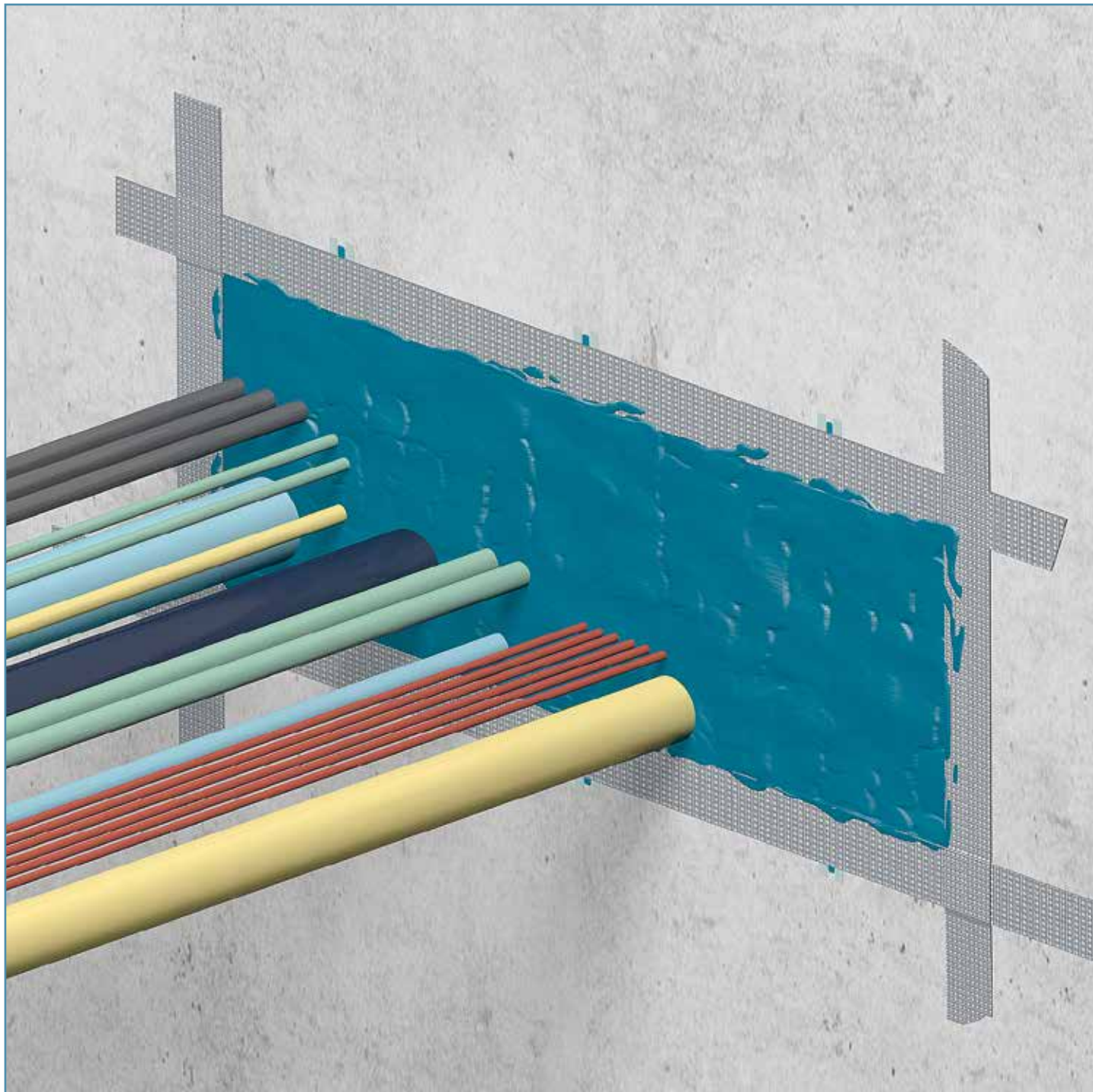
ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR



The cloth is then used to press down the sealant layer flush with the wall. It is of utmost importance to ensure that the sealant is compressed very tightly so that the sealant is pressed into all empty spaces of the CONTROFIL® blocks set. The larger the adhesive surfaces of the sealant, the higher the performance of the system.

Note: do not use soap water! Soap water will have a negative impact on the adhesive properties of the sealant.

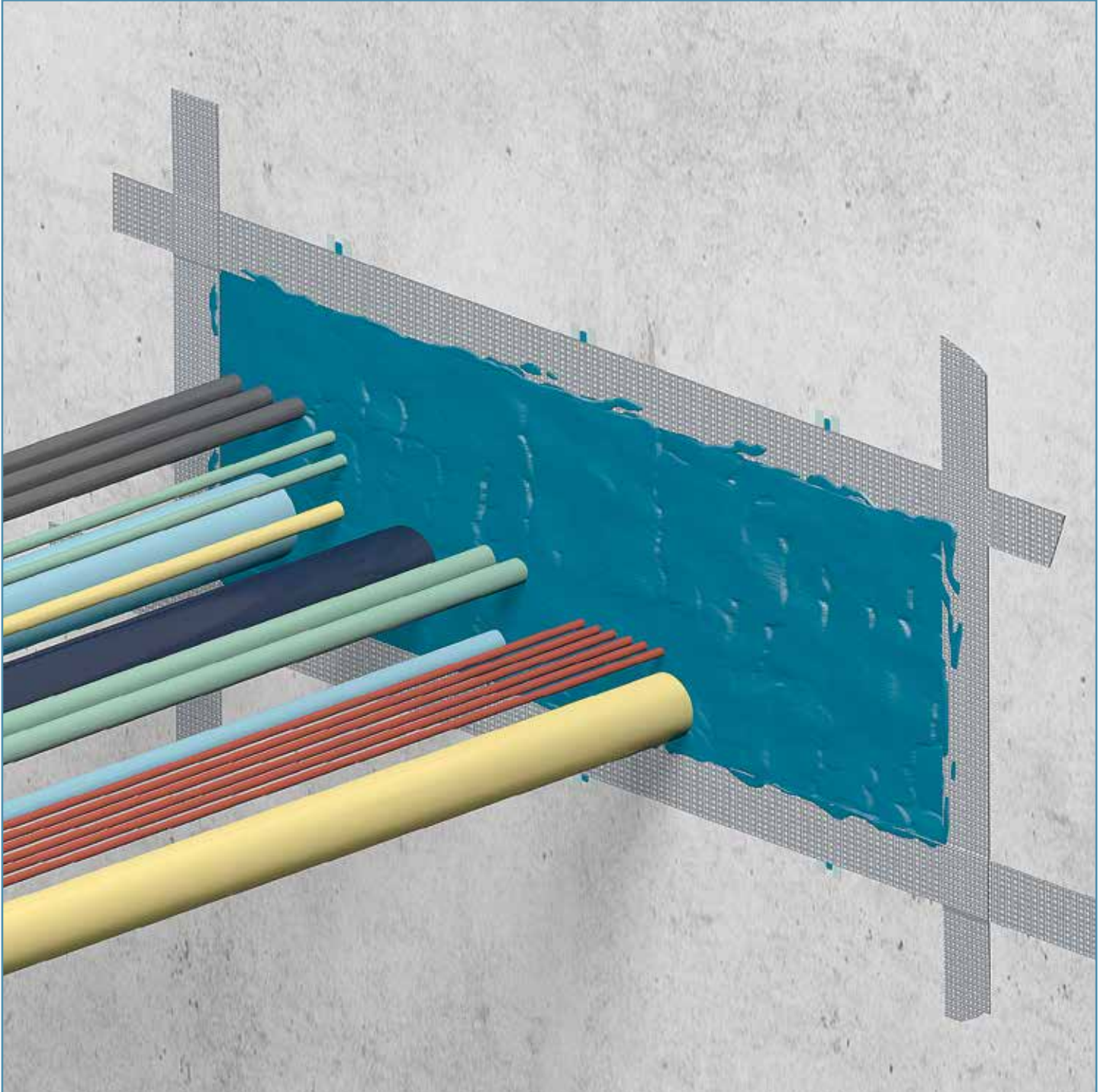
ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR



Due to the rapid skin formation of the sealant, smoothing should take place directly after compression of the sealant layer. As soon as skin formation has taken place, a very neat smoothing of the sealant layer is not possible anymore.

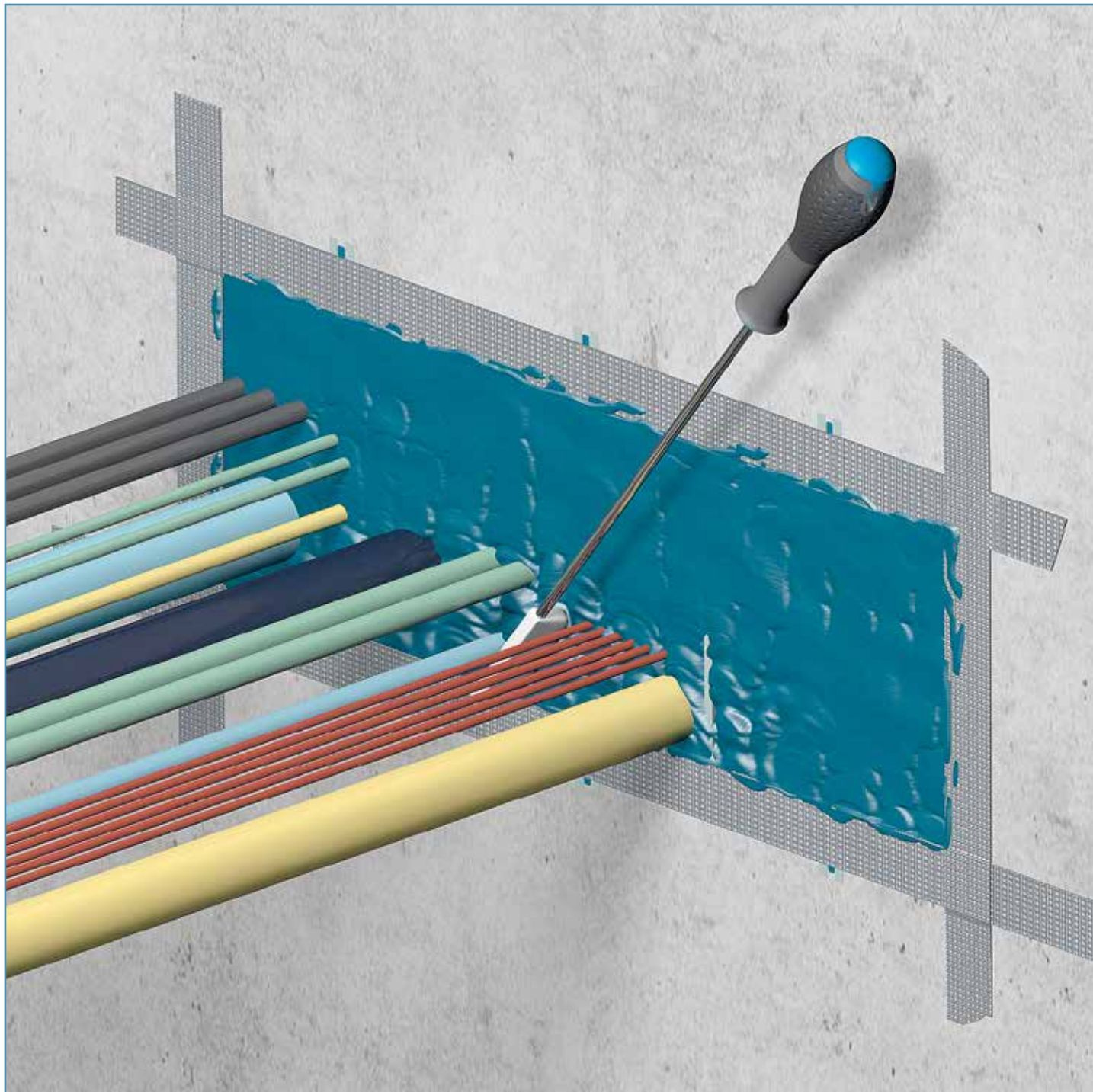
Note: the NOFIRNO® sealant is water repellent so that water will drip off. Neat smoothing is helpful in this respect. The NOFIRNO® sealant is also seawater, UV, ozone and weathering resistant, and offers a durability of decades.

ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR



A last check should be made to ensure that the sealant layer is pressed down tightly. Air enclosure within the individual layer of sealant should be prevented during finishing, because this would have a negative impact on the performance of the sealant layer under fire exposure.

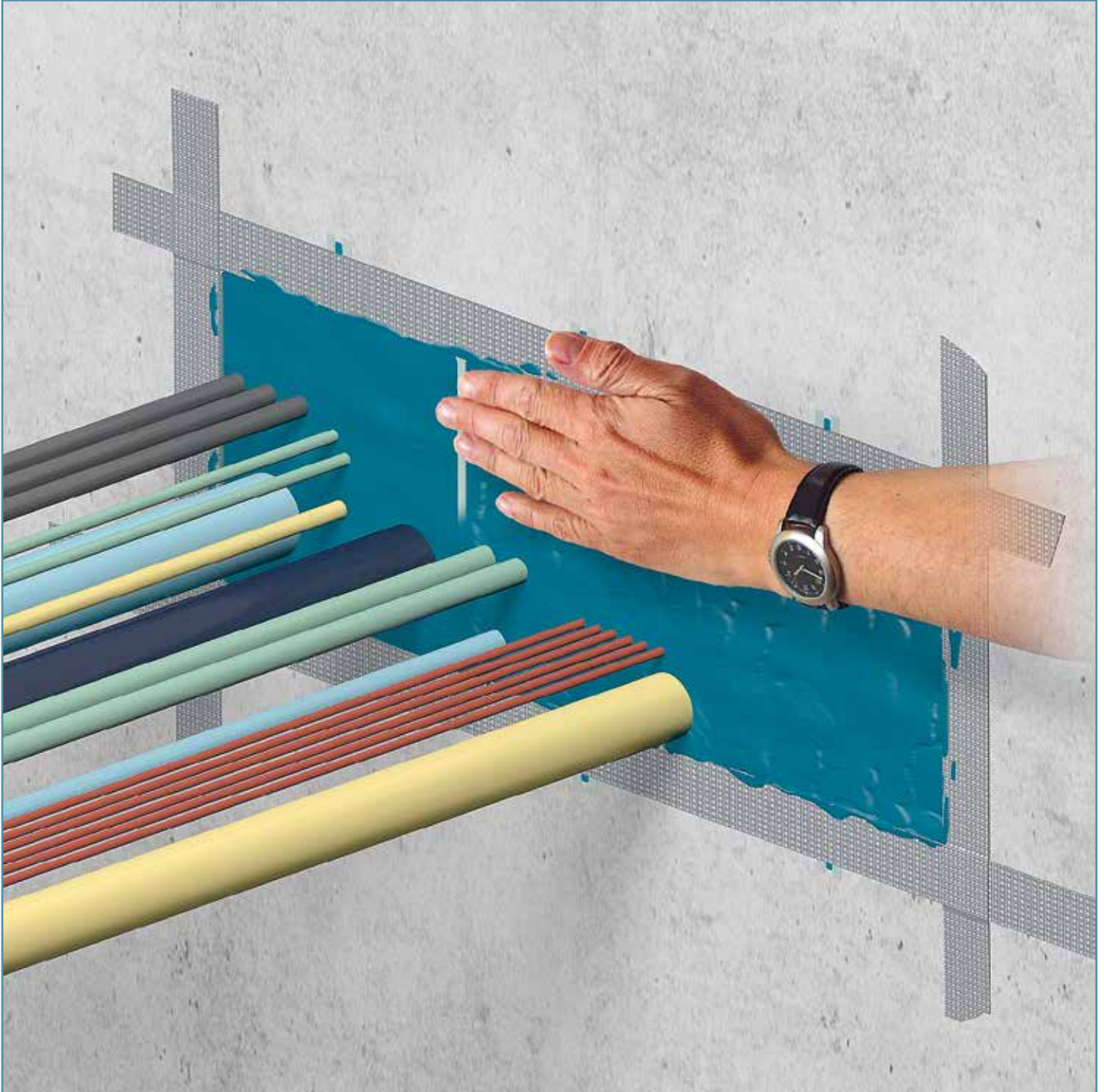
ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR



The NOFIRNO® sealant between the cables is pressed down and smoothed by hand or with a spatula or putty knife. A special tool, developed by BEELE Engineering, with a PTFE compression/smoothing part is available. The sealant will not stick to the PTFE.

Compression and smoothing is essential to obtain an effective gas and water tightness.

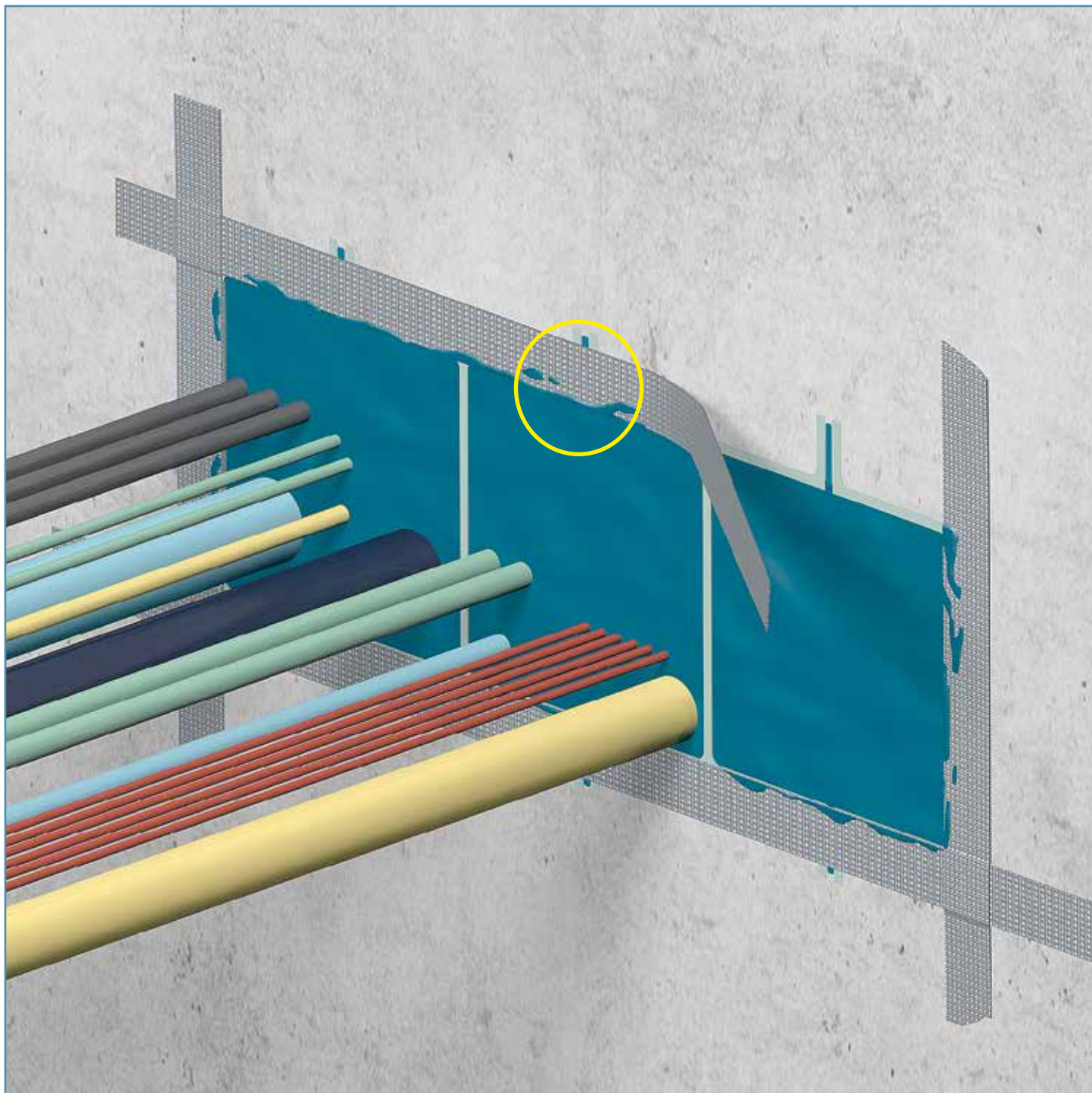
ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR



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. Note: this should only be a smoothing procedure. Do not pack or compress the sealant further when using soap water.

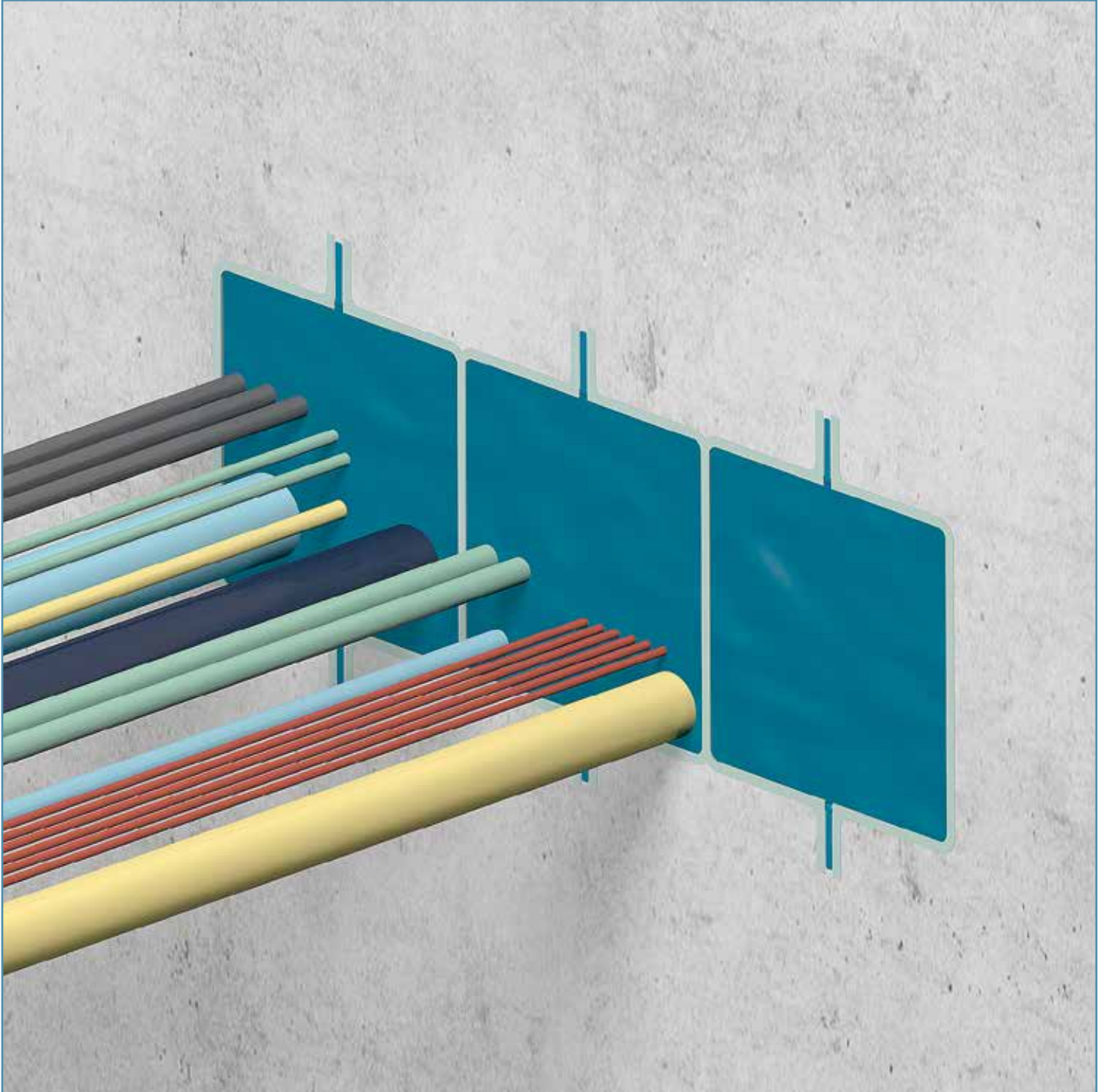
People with sensitive skin should use gloves when working with NOFIRNO®. Please refer to the Safety Data Sheet for more information.

ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR



Directly after finishing the sealing system, the tape should be removed. Once the sealant is fully cured there will be no other option than to cut away the overlapping sealant due to the mechanical strength of the cured sealant. The wall will be clean and without any sealant residues.

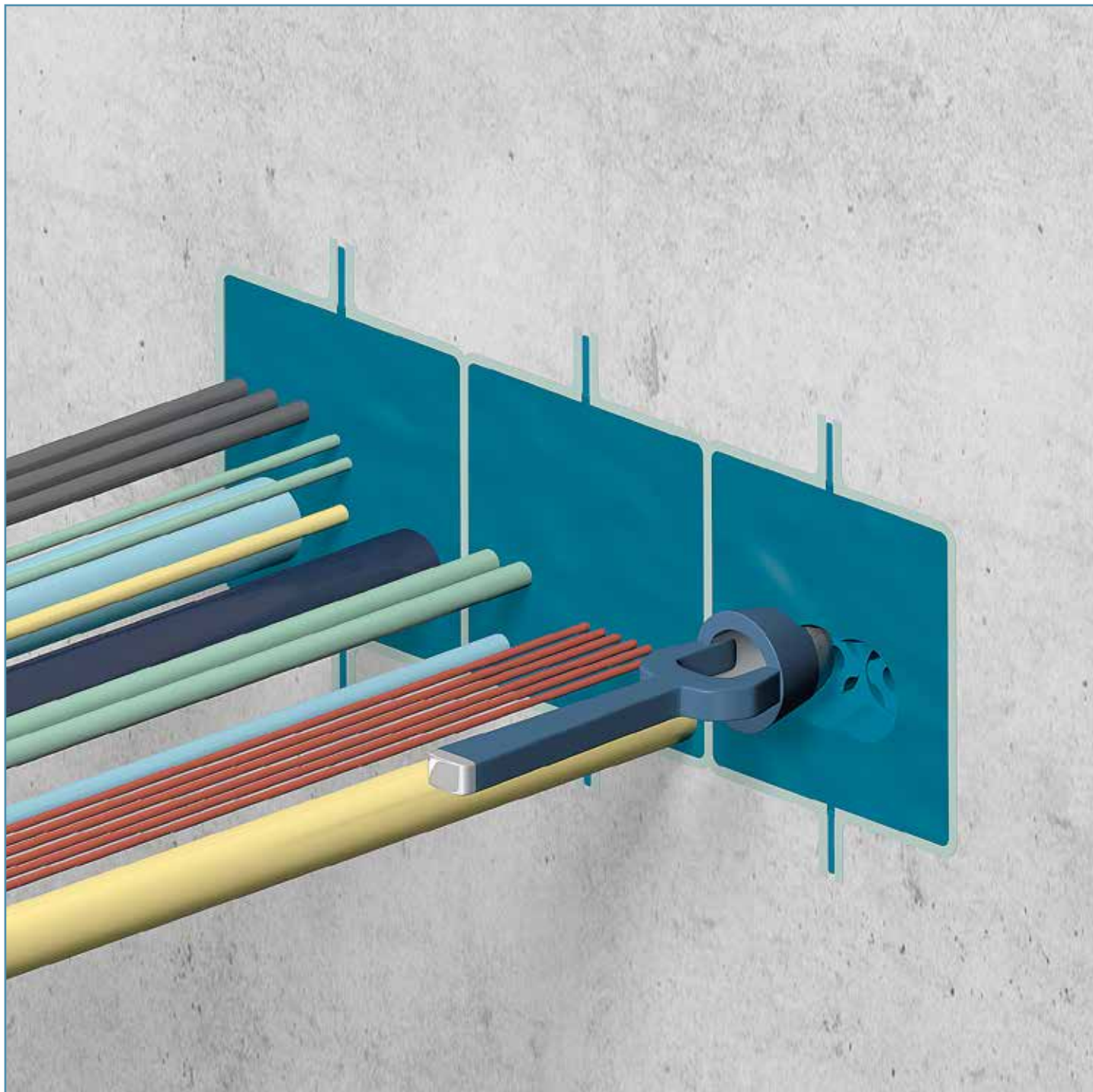
ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR



To obtain optimum adhesion during the curing process of the sealant, all the cables should be tightly fixed at both sides of the transit, as close as possible to the transit, and immediately after finishing the transit. Movement of the cables during the curing process will impair the adhesion process to the cable sheathings.

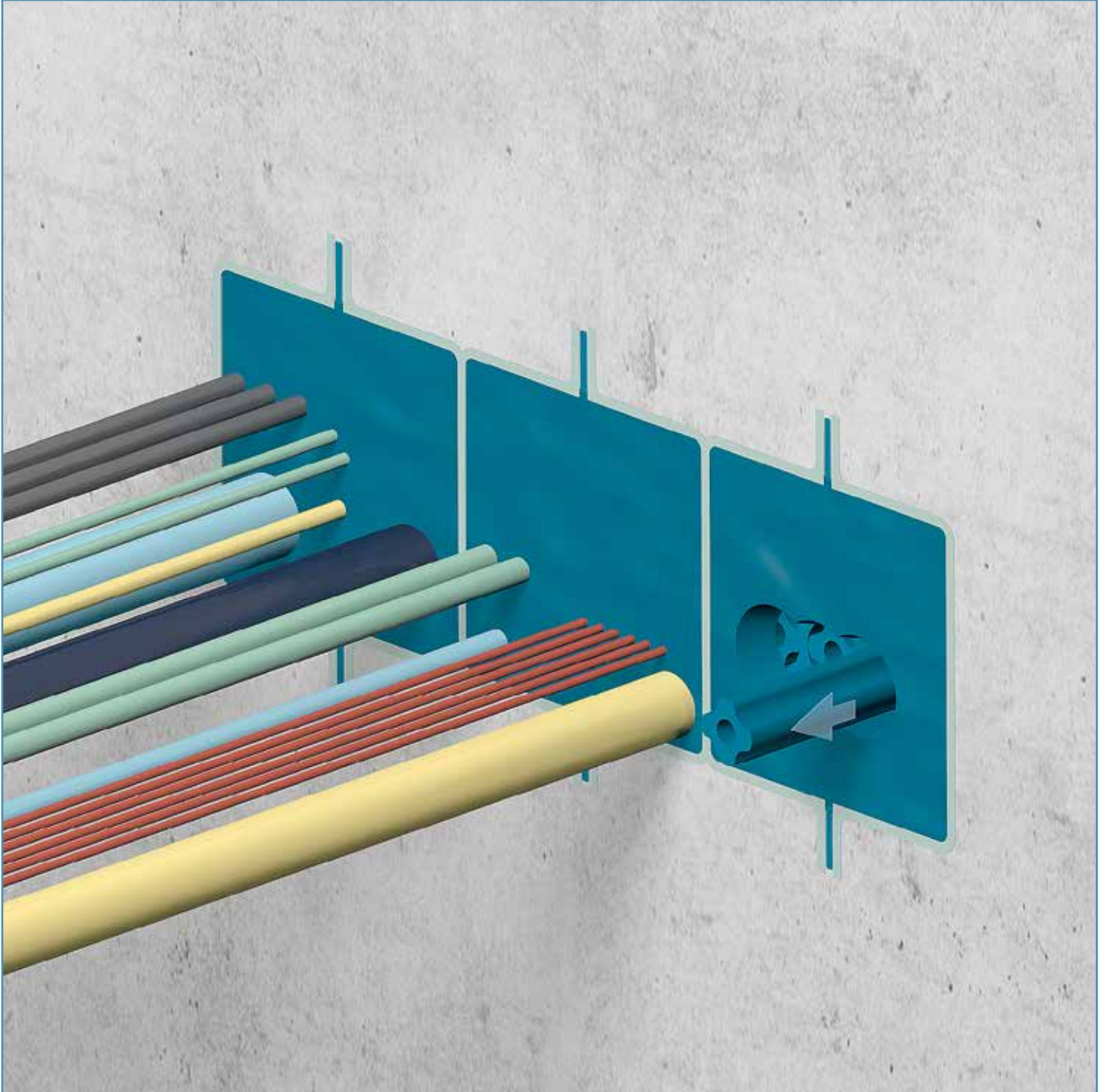
Note: time needed for curing of the sealant is dependent on air humidity in combination with the environmental temperature. It is advisable to place a sticker near the finished transit, stating that the transit has been recently installed, and should not be touched or damaged.

ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR



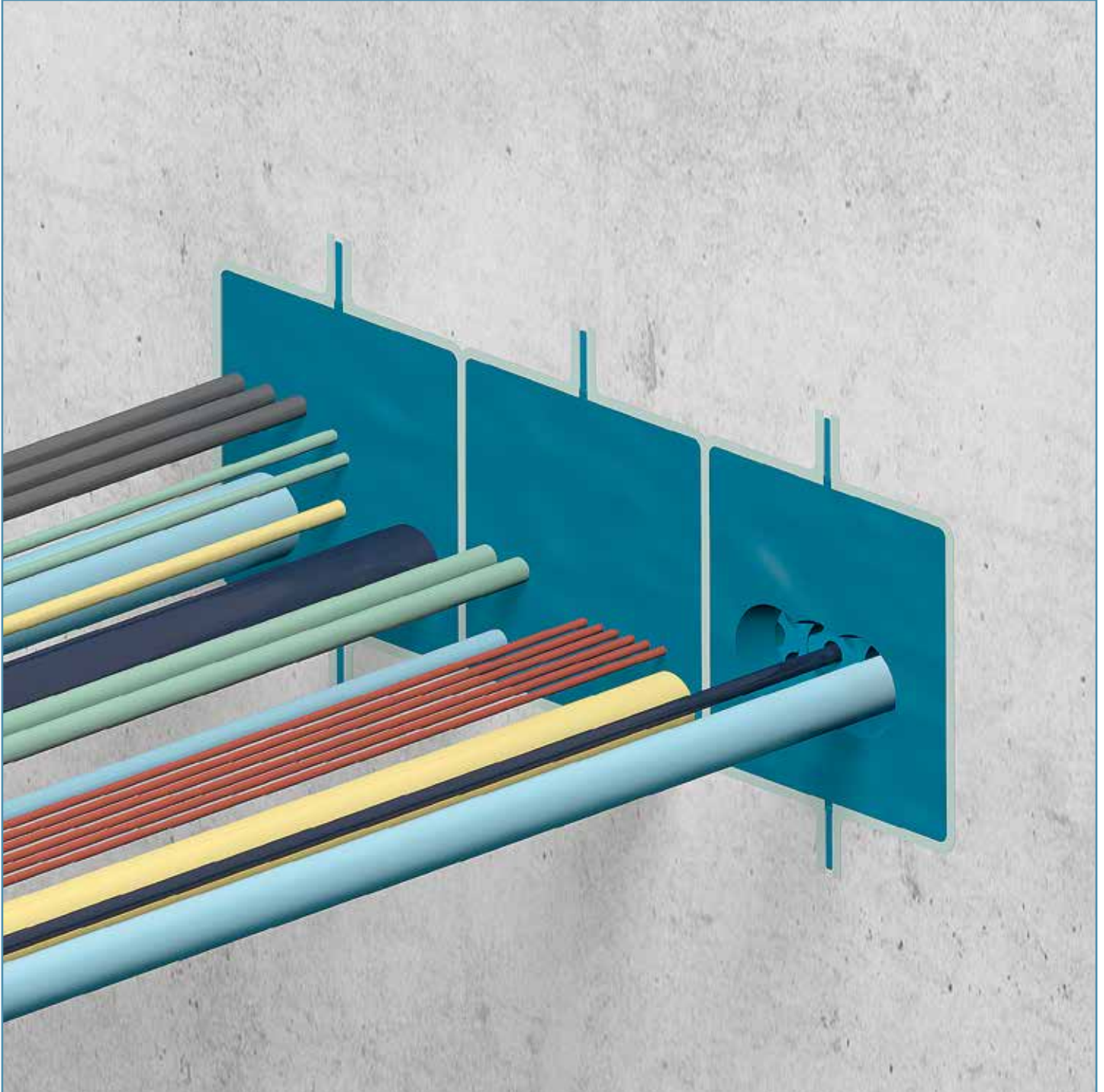
Adding extra cables through a finished CONTROFIL® multi-cable transit is an easy job. With CONTROFIL®, no permanent deformation of the rubber parts will occur and the cables are ducted individually. This means there is no need to disassemble the whole transit. Note: CONTROFIL® is not a compressive sealing system. Cut away the sealant layer at both sides of the penetration with a plastic knife or a hollow punch in a tapering shape at a spot where there is sufficient spare space visible on the surface of the sealant layer. To locate the multi-blocks for certain dimensions of cables, CONTROFIL® markers (not shown) could be installed in the passages not used for cables.

ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR



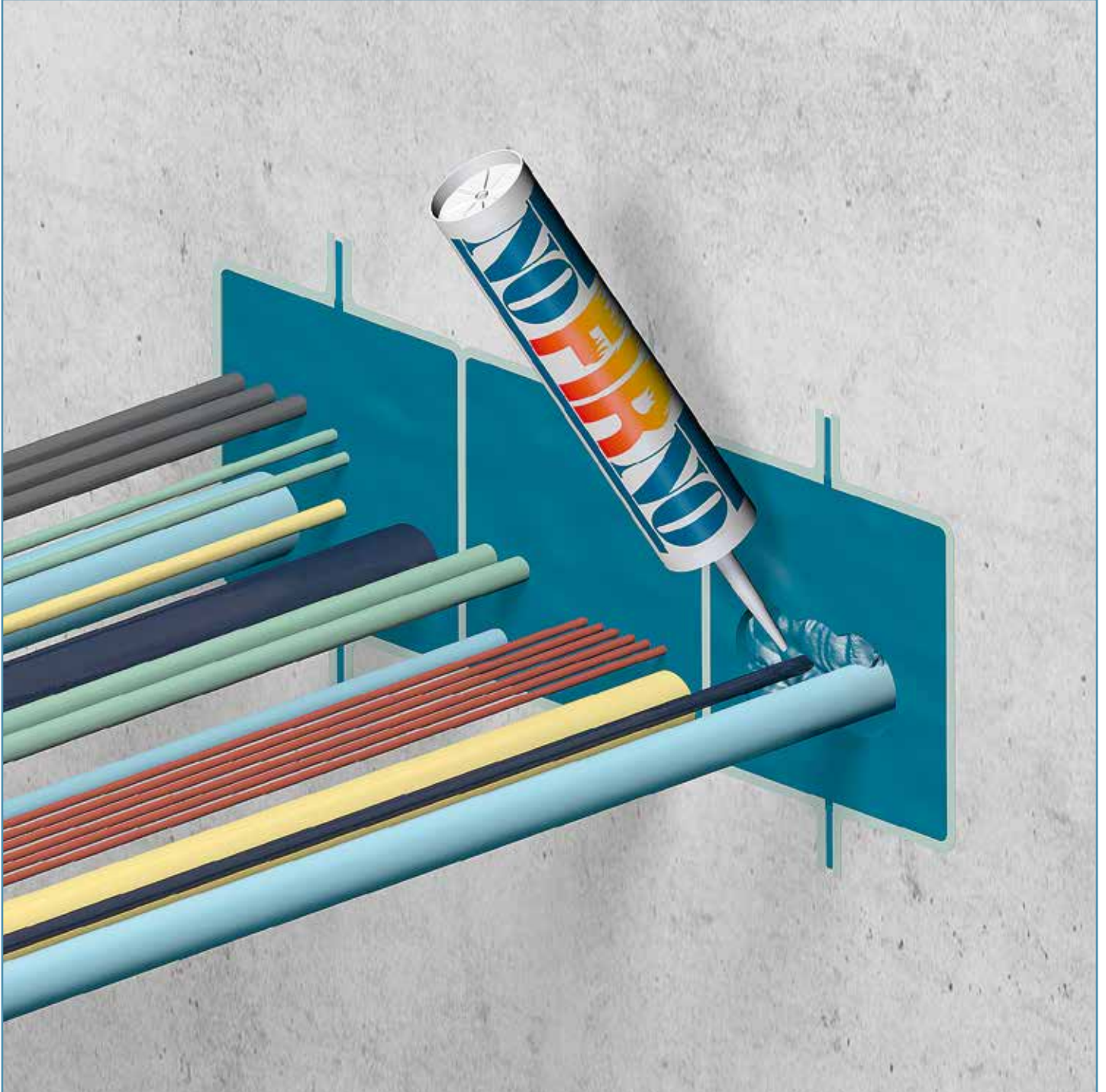
A CONTROFIL® block filler has to be removed, depending on the size of the cable to be pulled through. These block fillers can be used for other CONTROFIL® multi-cable transits which might be under construction in the project.

ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR



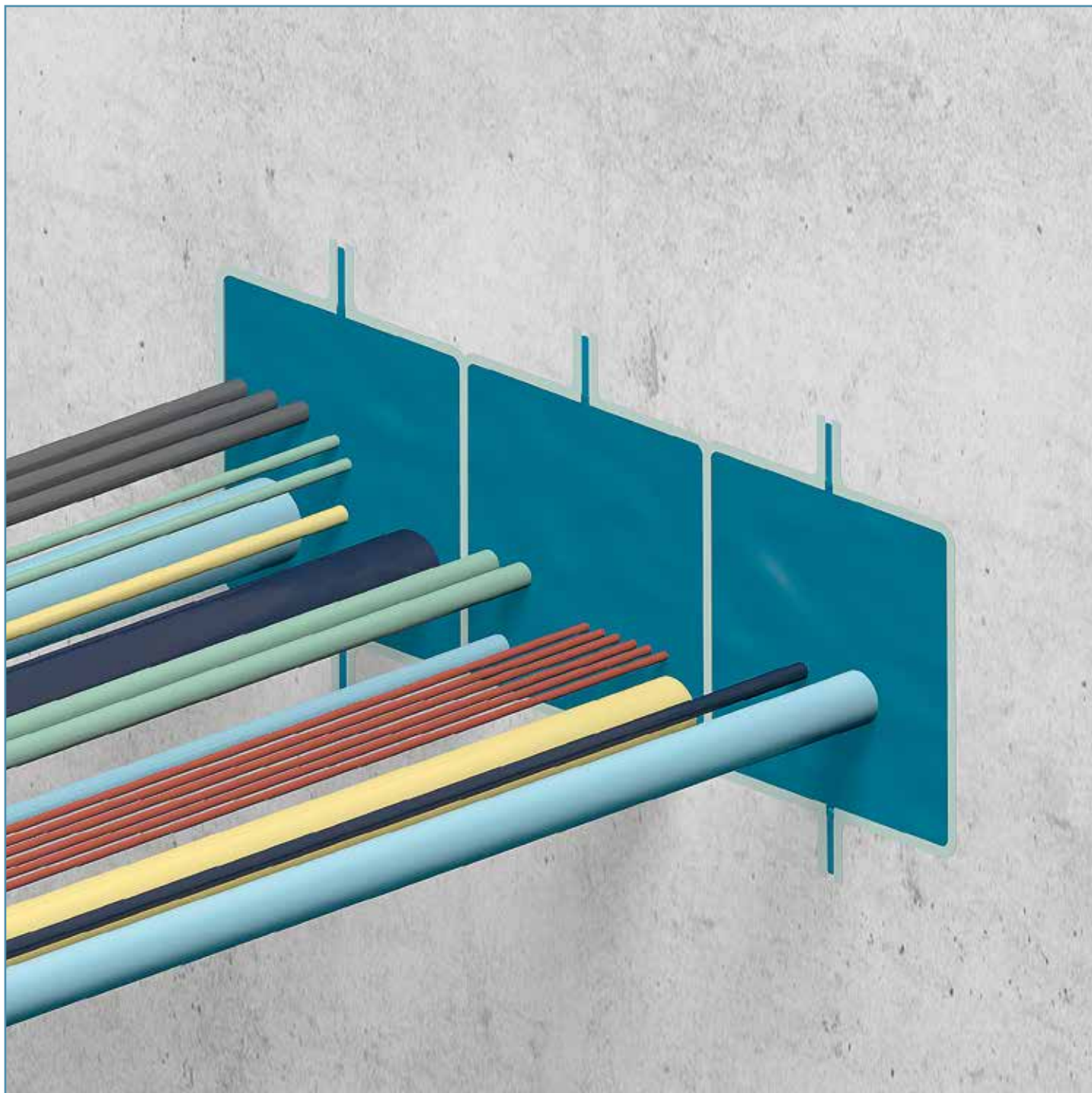
In case a small diameter cable has to be pulled through, the free space around or in the center of a CONTROFIL® block filler can be used. The blocks with smaller passage openings have no filler blocks and the cable can be pulled through the open passage hole.

ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR



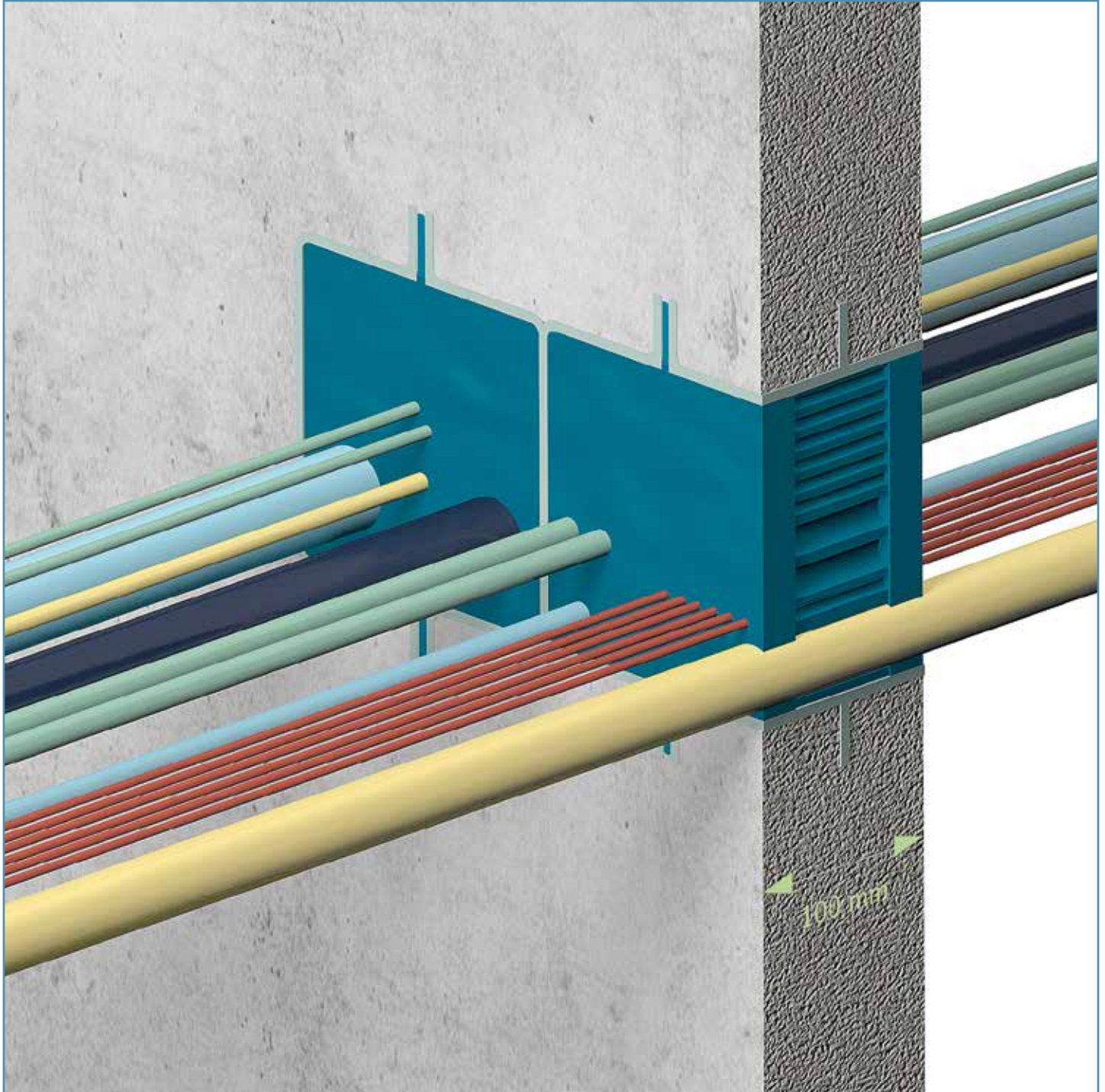
Refill the opening in the sealant layer at both sides of the transit with NOFIRNO® sealant. The fresh sealant adheres very well to the already cured sealant. Finish the new sealant layer in the same way as done for the initial sealant layer.

ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR



For adding cables, there is in fact no more disassembling needed than removing a block filler. No extra costs for the extension of the cable set other than some new sealant to be applied.

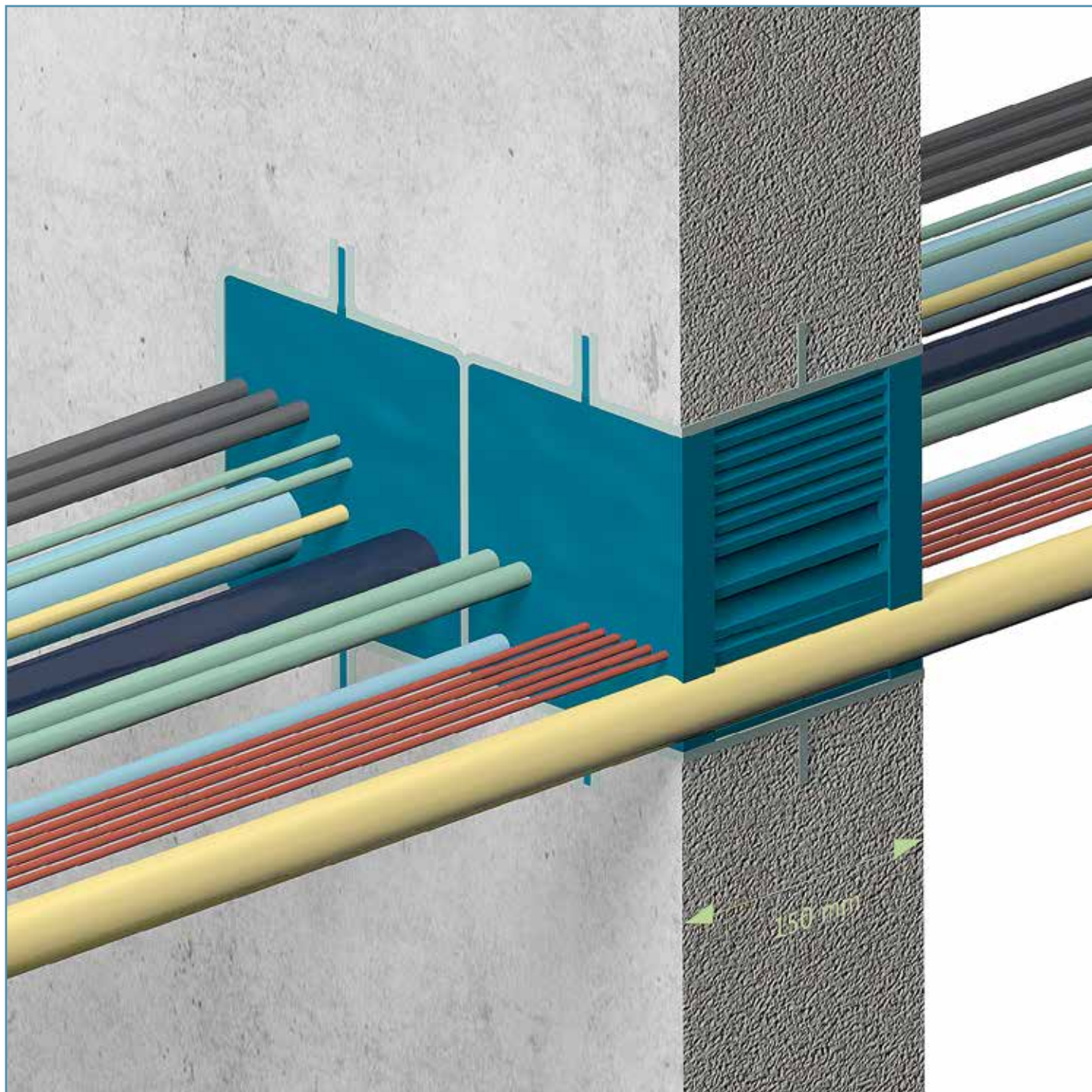
ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR



The CONTROFIL® system has been successfully tested according to EN 1366-3:2009 for 4 hours in a wall of 100 mm, obtaining a fire classification of EI60/E240.

The CONTROFIL® multi-cable transits are very good UV, Ozone and weathering resistant. No metal parts are incorporated in the sealing system. No corrosion of the sealing system itself can take place.

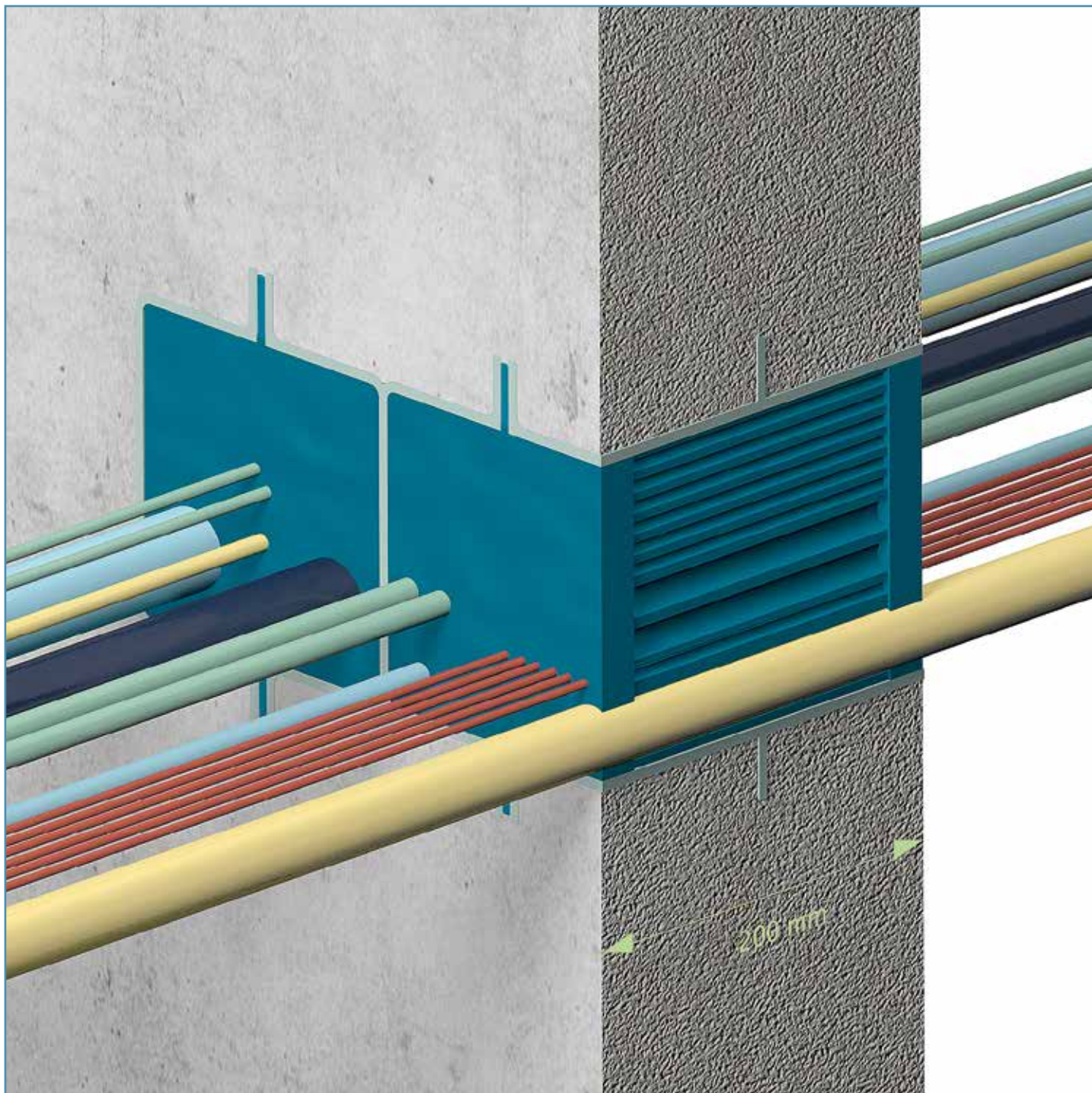
ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR



The CONTROFIL® system has been successfully tested according to EN 1366-3:2009 for 4 hours in a wall with a thickness of 150 mm, obtaining a fire classification of EI90/E240.

The CONTROFIL® multi-cable transits are very good UV, Ozone and weathering resistant. No metal parts are incorporated in the sealing system. No corrosion of the sealing system itself can take place.

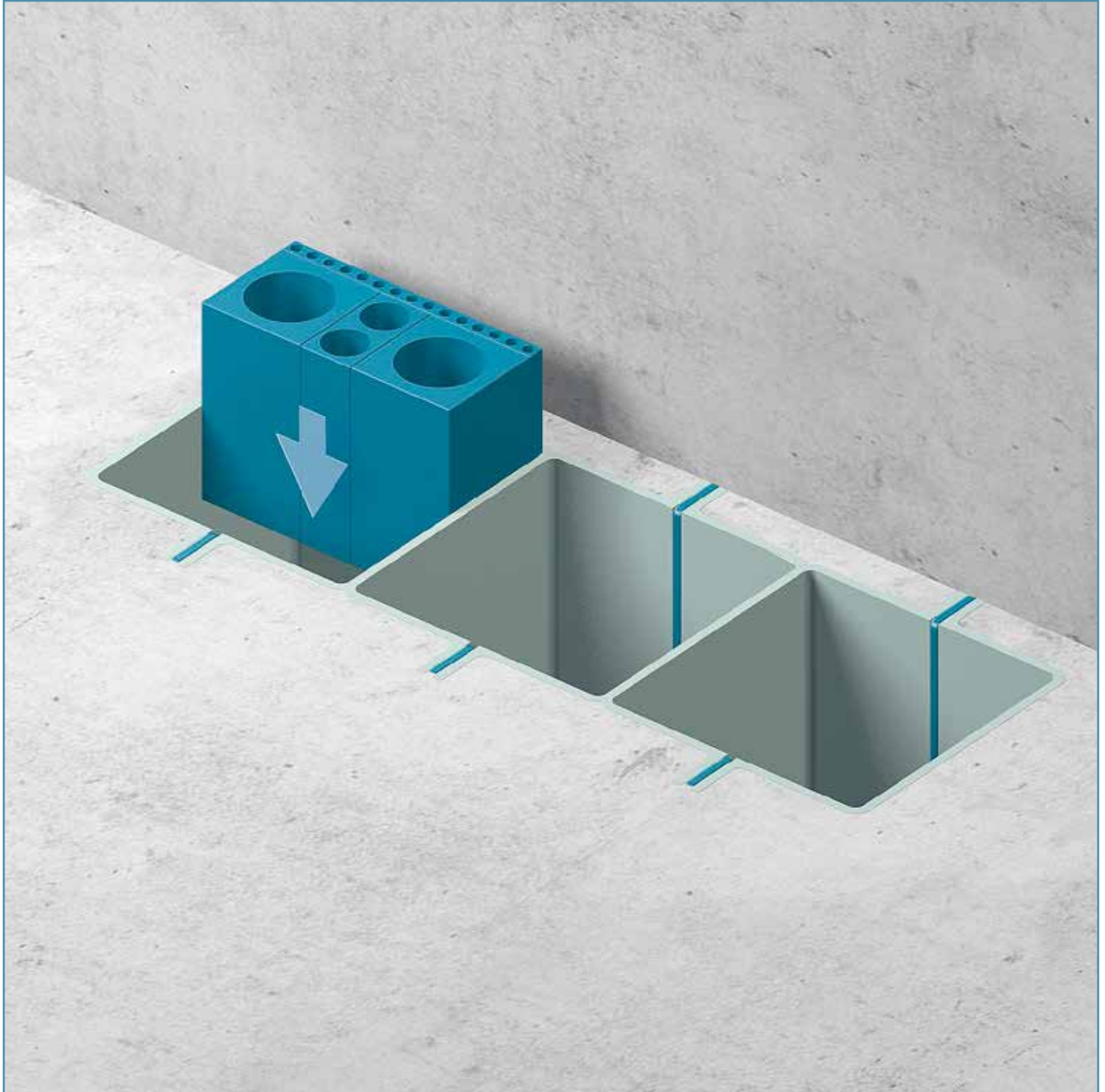
ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR



The CONTROFIL® system has been successfully tested according to EN 1366-3:2009 for 4 hours in walls with a thickness of 100 mm, obtaining a fire classification of EI60/E240 and with a wall thickness of 150 mm, obtaining a fire classification of EI90/E240. With a wall thickness of 200 mm, the EI rating will be higher, since the EI rating is determined by the quality of the ducted cables and the heat transmission by the copper conductors of the cables.

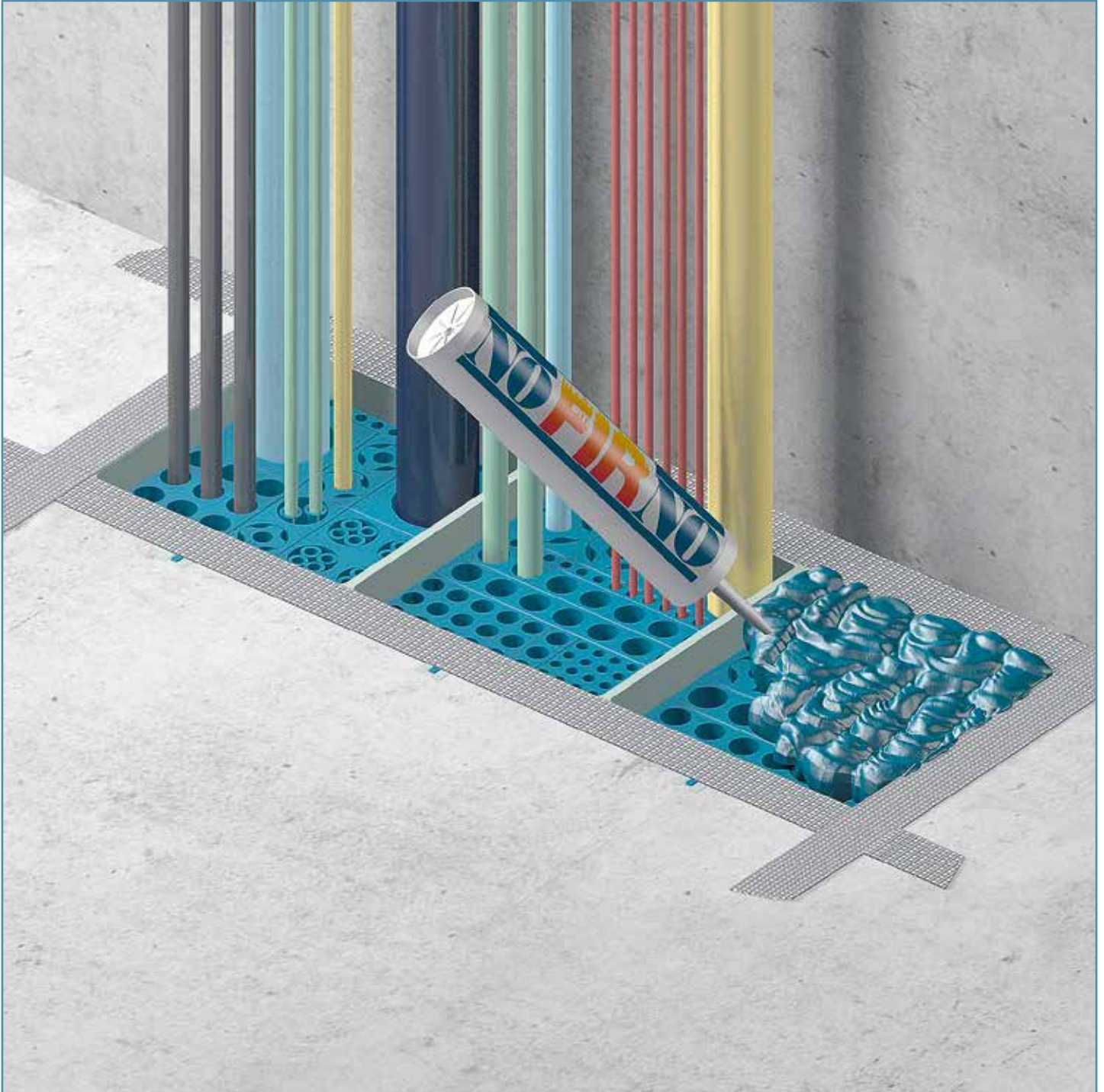
CONTROFIL® blind transits 935x150 mm have EI240/E240 ratings both in 100 and 150 mm walls.

ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR



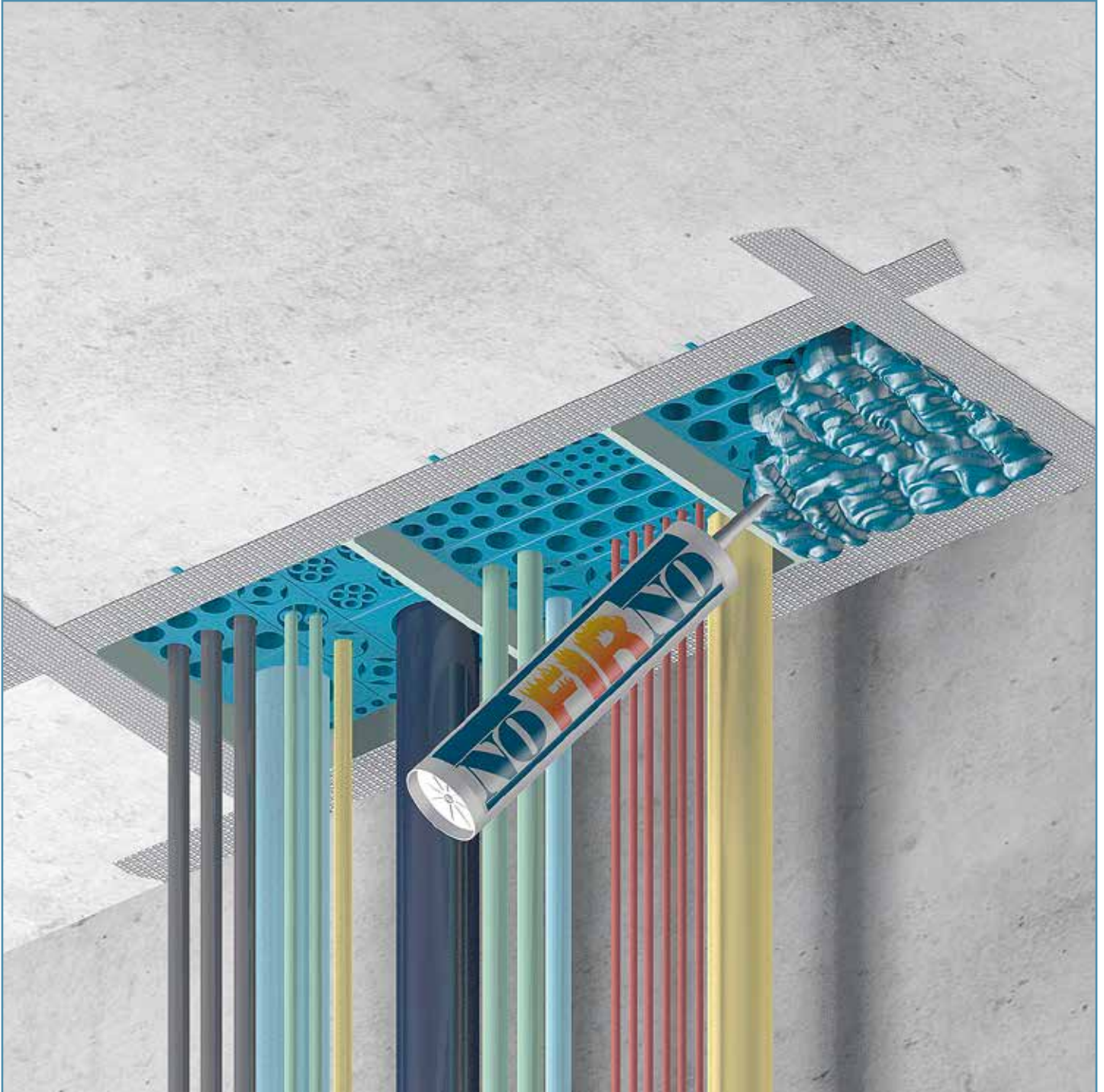
Floor penetrations are also easy to install with the CONTROFIL® system. The multi-passage blocks are exactly fitting in the CONTROFIL® transit frames.

ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR



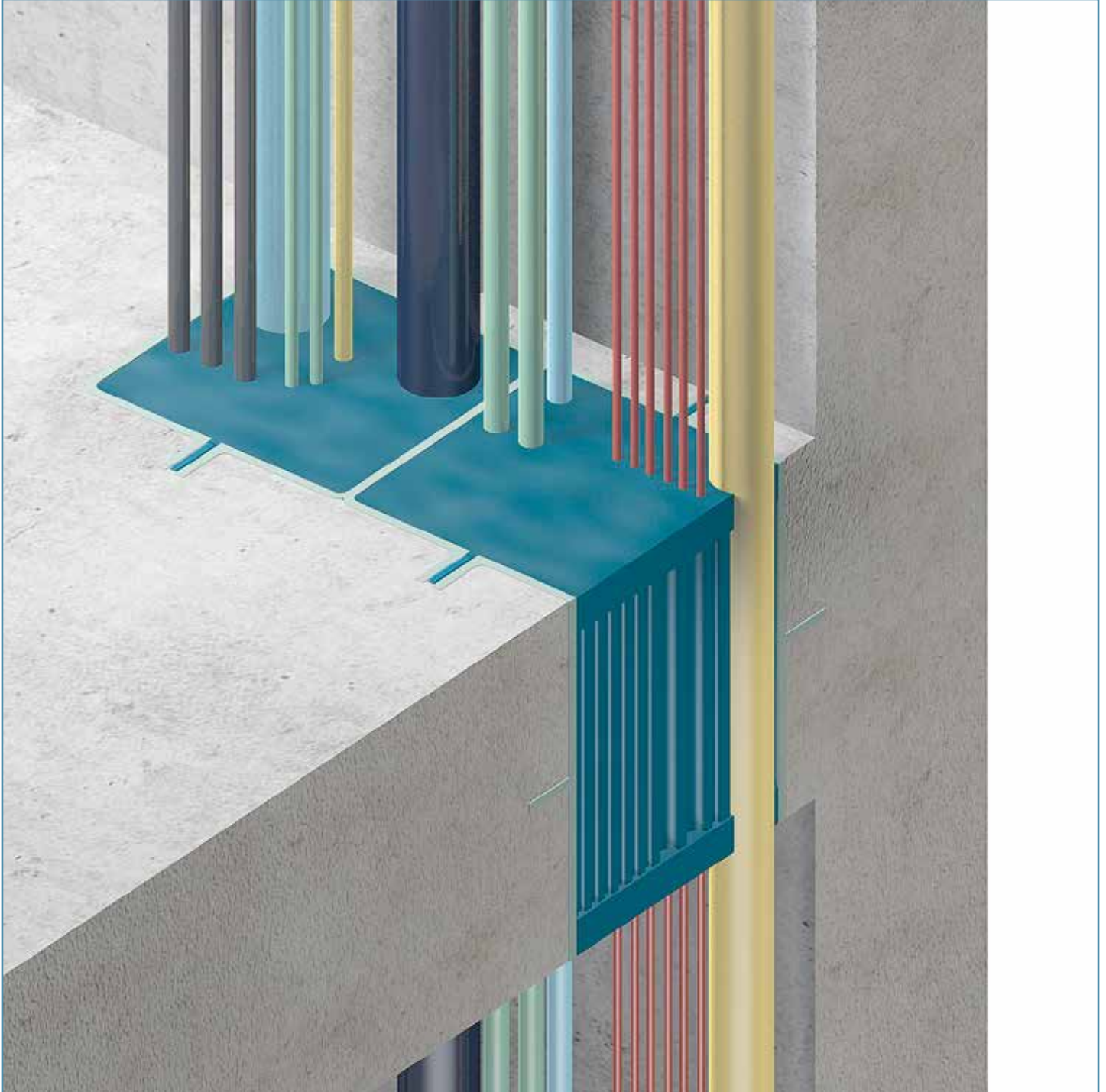
With the Beele® adjuster or a marked piece of wood, the set of blocks is adjusted inside the transit. The surrounding surfaces of the conduit opening are taped and then the NOFIRNO® sealant is applied in the same way as for wall conduits.

ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR



The NOFIRNO® sealant can be applied overhead for floor conduits without dripping or sagging. For cable transits with a high filling rate, longer nozzles for the sealant cartridges are available.

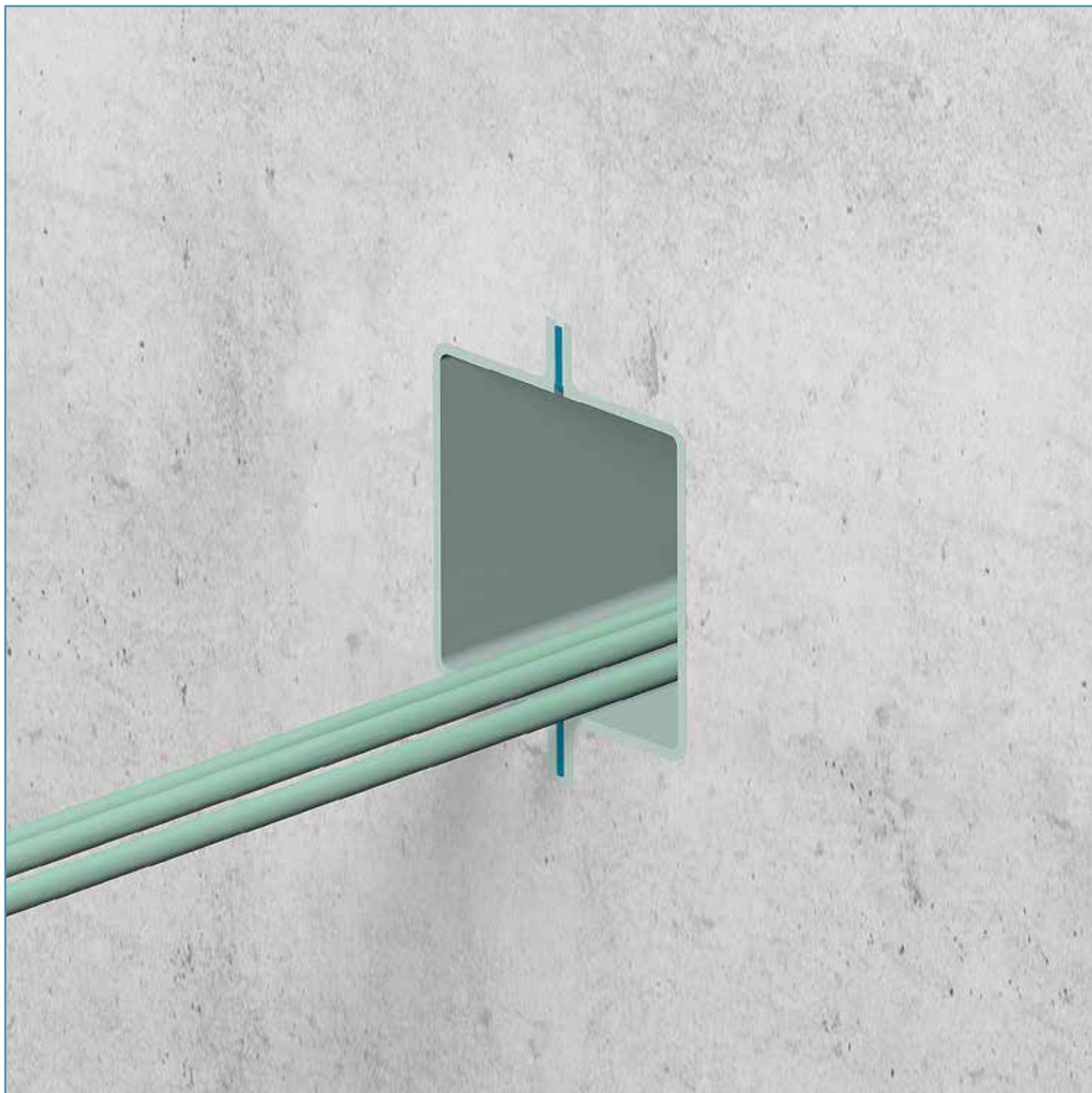
ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR



The CONTROFIL® system has been successfully tested according to EN 1366-3:2009 for 2 hours in floors with a thickness of 150 mm, obtaining a fire classification of EI90/E120. According to the test institute, the risk with a 150 mm floor for 4 hours exposure was too high and for this reason the fire test was carried out for two hours.

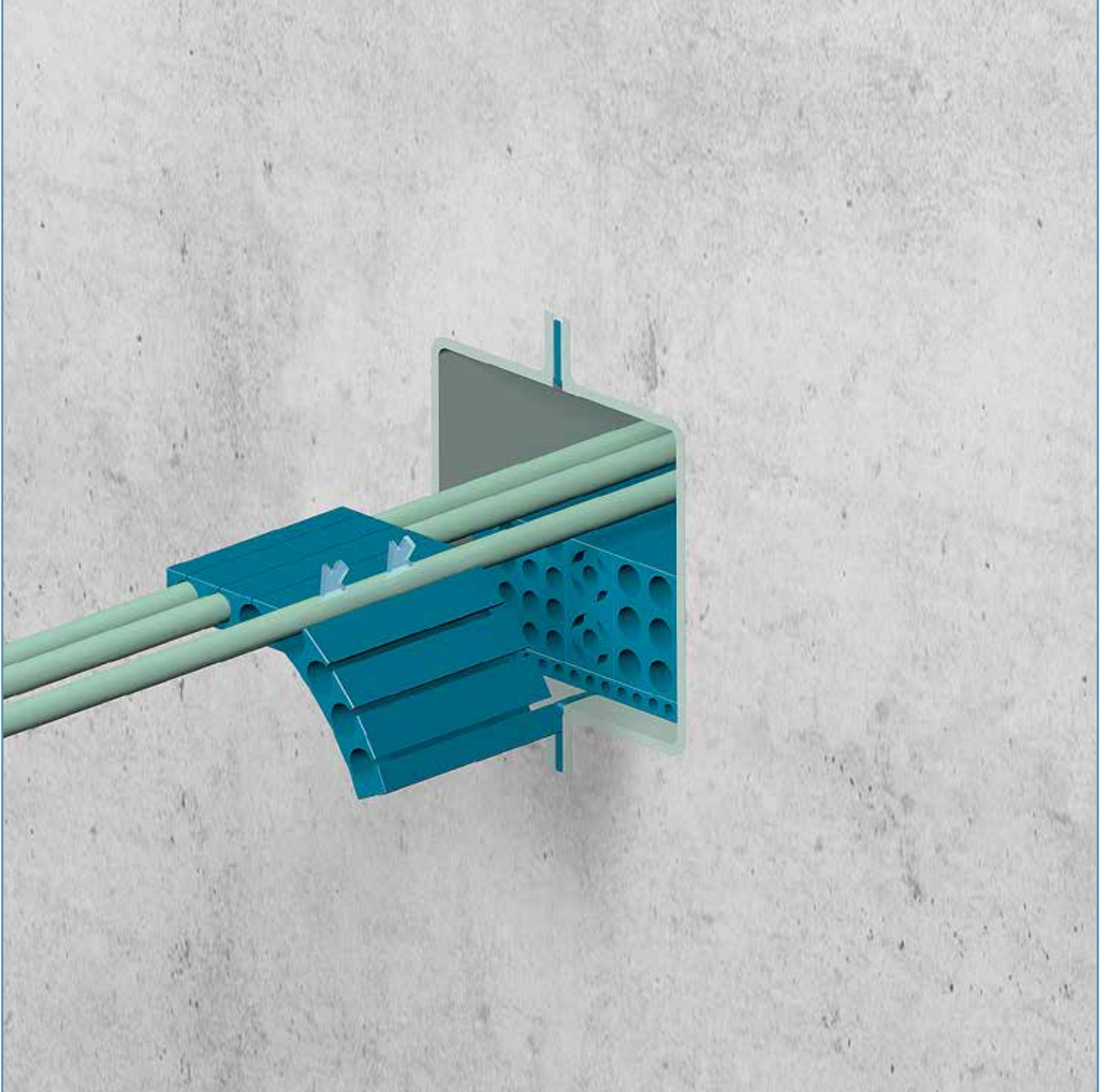
CONTROFIL® blind transits 935x150 mm have EI120/E120 ratings in 150 mm floors.

ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR



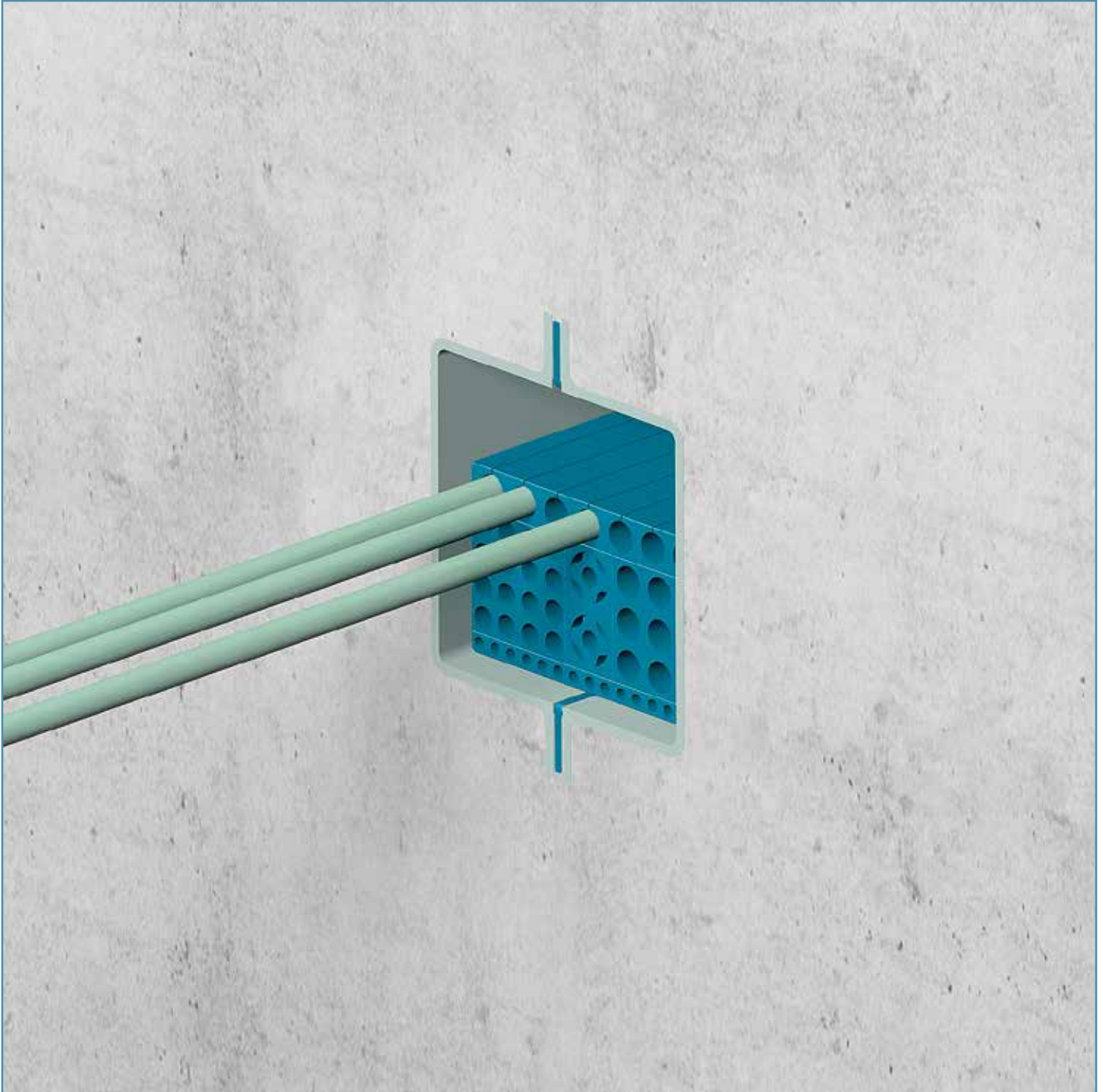
When cables are ducted before the multi-passage blocks are placed, it is still possible to finish the transit with the CONTROFIL® multi-passage blocks.

ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR



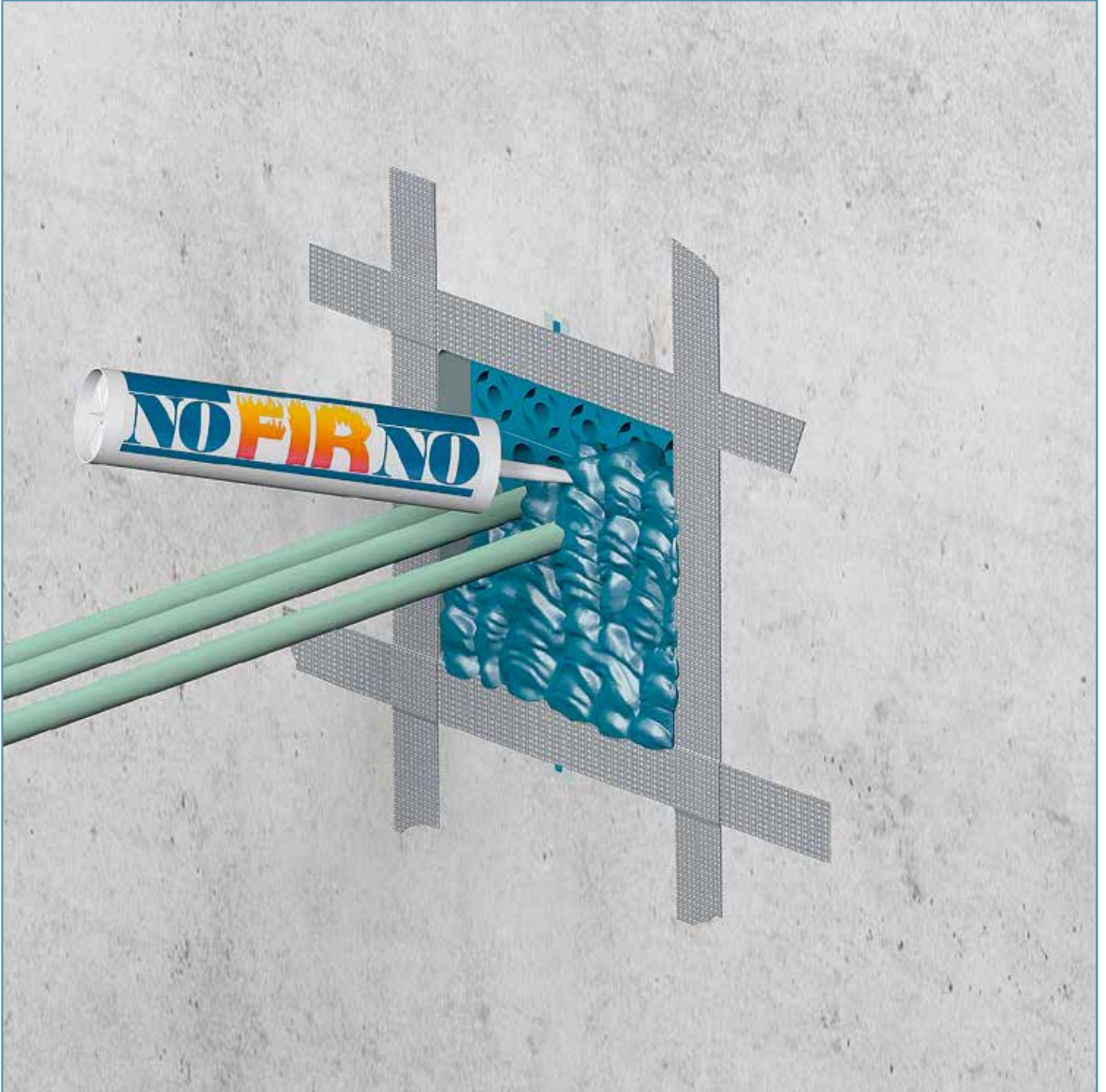
Position the ducted cables and insert CONTROFIL® multi-passage blocks inside the transit frame. Use a slit CONTROFIL® multi-passage block and place the ducted cables in the openings of the multi-passage block.

**ASSEMBLY INSTRUCTIONS FOR CONTROFIL®
DUCT & SEALING SYSTEM TYPE MB/MBR**



Place the slit CONTROFIL® multi-passages block inside the transit frame.

ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR



Finish the multi-cable transit in the usual way.

ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR



Another situation is when too many cables or cables with a variety of cable dimensions are already ducted. The CONTROFIL® multi-cable transit can then be finished with CONTROFIL® insert (cable) sleeves in 29 different sizes, CONTROFIL® (multi-) filler sleeves (see page 8) and NOFIRNO® sealant.

ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR

CONTROFIL® CABLE INSERT SLEEVES

CONTROFIL® sleeve	cable diameter	sleeve length	article number	CONTROFIL® sleeve	cable diameter	sleeve length	article number	CONTROFIL® sleeve	cable diameter	sleeve length	article number
12/6	5 - 7	60	70.1000	12/6	5 - 7	110	70.1040	12/6	5 - 7	160	70.1120
14/8	7 - 9	60	70.1001	14/8	7 - 9	110	70.1041	14/8	7 - 9	160	70.1121
16/10	9 - 11	60	70.1002	16/10	9 - 11	110	70.1042	16/10	9 - 11	160	70.1122
18/12	11 - 13	60	70.1003	18/12	11 - 13	110	70.1043	18/12	11 - 13	160	70.1123
20/14	13 - 15	60	70.1004	20/14	13 - 15	110	70.1044	20/14	13 - 15	160	70.1124
22/16	15 - 17	60	70.1005	22/16	15 - 17	110	70.1045	22/16	15 - 17	160	70.1125
26/18	17 - 19	60	70.1006	26/18	17 - 19	110	70.1046	26/18	17 - 19	160	70.1126
28/20	19 - 21	60	70.1007	28/20	19 - 21	110	70.1047	28/20	19 - 21	160	70.1127
30/22	21 - 23	60	70.1008	30/22	21 - 23	110	70.1048	30/22	21 - 23	160	70.1128
32/24	23 - 25	60	70.1009	32/24	23 - 25	110	70.1049	32/24	23 - 25	160	70.1129
34/26	25 - 27	60	70.1010	34/26	25 - 27	110	70.1050	34/26	25 - 27	160	70.1130
36/28	27 - 29	60	70.1011	36/28	27 - 29	110	70.1051	36/28	27 - 29	160	70.1131
38/30	29 - 32	60	70.1012	38/30	29 - 32	110	70.1052	38/30	29 - 32	160	70.1132
42/33	32 - 35	60	70.1013	42/33	32 - 35	110	70.1053	42/33	32 - 35	160	70.1133
46/36	35 - 38	60	70.1014	46/36	35 - 38	110	70.1054	46/36	35 - 38	160	70.1134
49/39	38 - 41	60	70.1015	49/39	38 - 41	110	70.1055	49/39	38 - 41	160	70.1135
52/42	41 - 44	60	70.1016	52/42	41 - 44	110	70.1056	52/42	41 - 44	160	70.1136
55/45	44 - 47	60	70.1017	55/45	44 - 47	110	70.1057	55/45	44 - 47	160	70.1137
58/48	47 - 51	60	70.1018	58/48	47 - 51	110	70.1058	58/48	47 - 51	160	70.1138
62/52	51 - 55	60	70.1019	62/52	51 - 55	110	70.1059	62/52	51 - 55	160	70.1139
66/56	55 - 59	60	70.1020	66/56	55 - 59	110	70.1060	66/56	55 - 59	160	70.1140
70/60	59 - 63	60	70.1021	70/60	59 - 63	110	70.1061	70/60	59 - 63	160	70.1141
74/64	63 - 67	60	70.1022	74/64	63 - 67	110	70.1062	74/64	63 - 67	160	70.1142
78/68	67 - 71	60	70.1023	78/68	67 - 71	110	70.1063	78/68	67 - 71	160	70.1143
82/72	71 - 75	60	70.1024	82/72	71 - 75	110	70.1064	82/72	71 - 75	160	70.1144
86/76	75 - 79	60	70.1025	86/76	75 - 79	110	70.1065	86/76	75 - 79	160	70.1145
95/80	79 - 84	60	70.1026	95/80	79 - 84	110	70.1066	95/80	79 - 84	160	70.1146
100/85	84 - 89	60	70.1027	100/85	84 - 89	110	70.1067	100/85	84 - 89	160	70.1147
110/90	89 - 94	60	70.1028	110/90	89 - 94	110	70.1068	110/90	89 - 94	160	70.1148

CONTROFIL® 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 CONTROFIL® cable sleeves are available in 29 sizes and in lengths of 60, 110, and 160 mm. The CONTROFIL® cable insert sleeves are split lengthwise and can therefore be placed around the cables in front of the conduit opening.

cable insert sleeves are split lengthwise

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



ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR

CONTROFIL® MULTI-FILLER SLEEVES 120 AND 150 mm WIDE



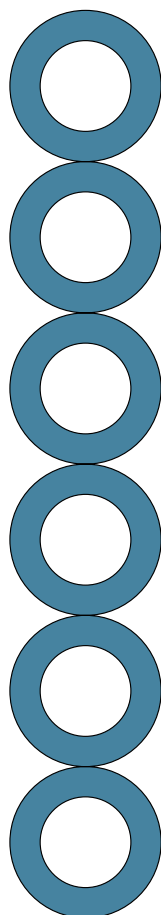
CONTROFIL® multi filler 12x10-10/4

art. no. 70.0301 for 60 mm
art. no. 70.0311 for 110 mm
art. no. 70.0331 for 160 mm



CONTROFIL® multi filler 8x15-15/8

art. no. 70.0302 for 60 mm
art. no. 70.0312 for 110 mm
art. no. 70.0332 for 160 mm



CONTROFIL® multi filler 6x20-20/12

art. no. 70.0303 for 60 mm
art. no. 70.0313 for 110 mm
art. no. 70.0333 for 160 mm



CONTROFIL® multi filler 15x10-10/4

art. no. 70.0306 for 60 mm
art. no. 70.0316 for 110 mm
art. no. 70.0336 for 160 mm



CONTROFIL® multi filler 10x15-15/8

art. no. 70.0307 for 60 mm
art. no. 70.0317 for 110 mm
art. no. 70.0337 for 160 mm

filler sleeves are supplied non-split

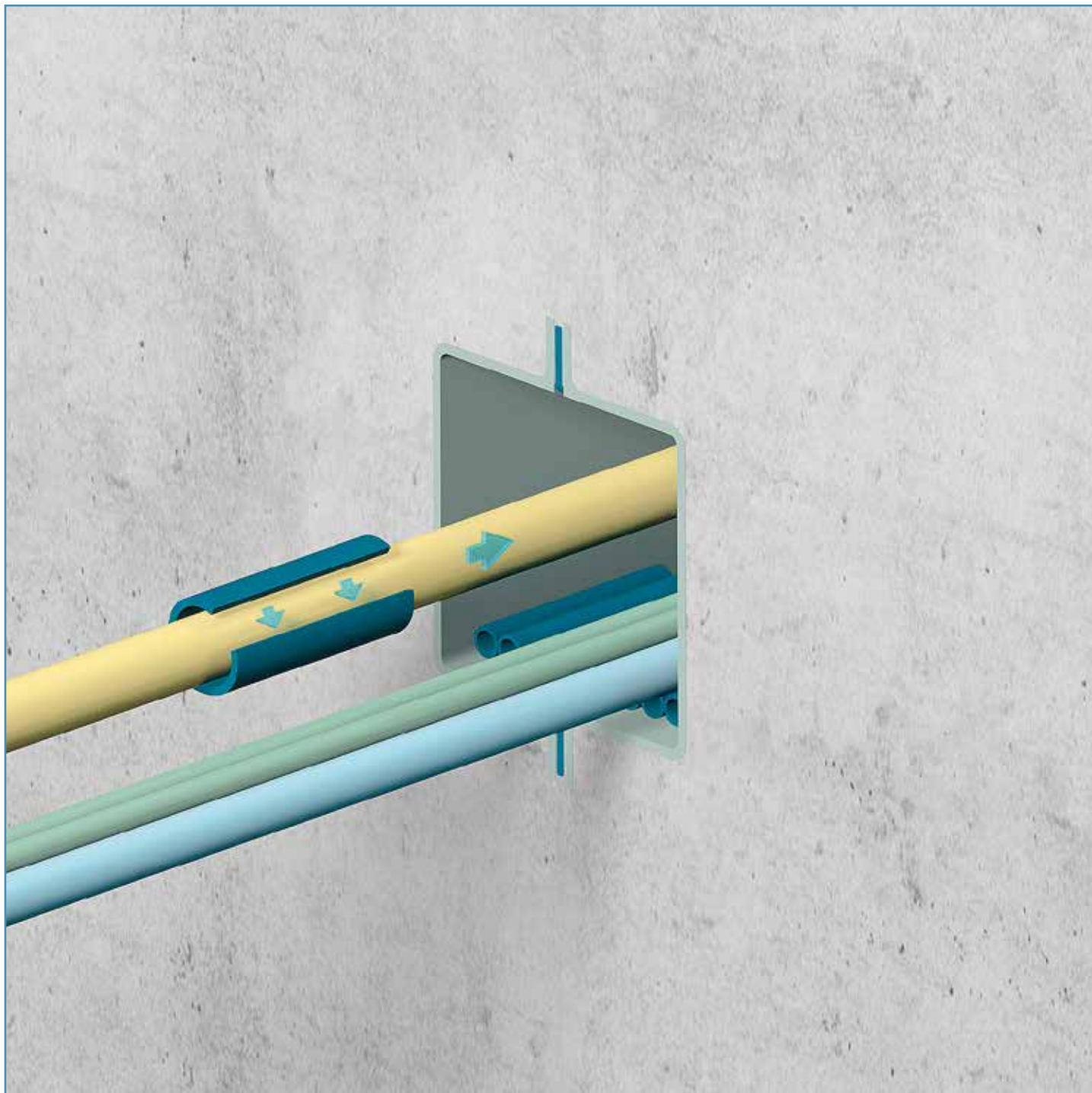
Operating temperatures:
-50 °C up to +180 °C

ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR



When too many cables or cables with a variety of cable dimensions are already ducted, there is no other option than to make use of the CONTROFIL® cable and filler sleeves.

ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR



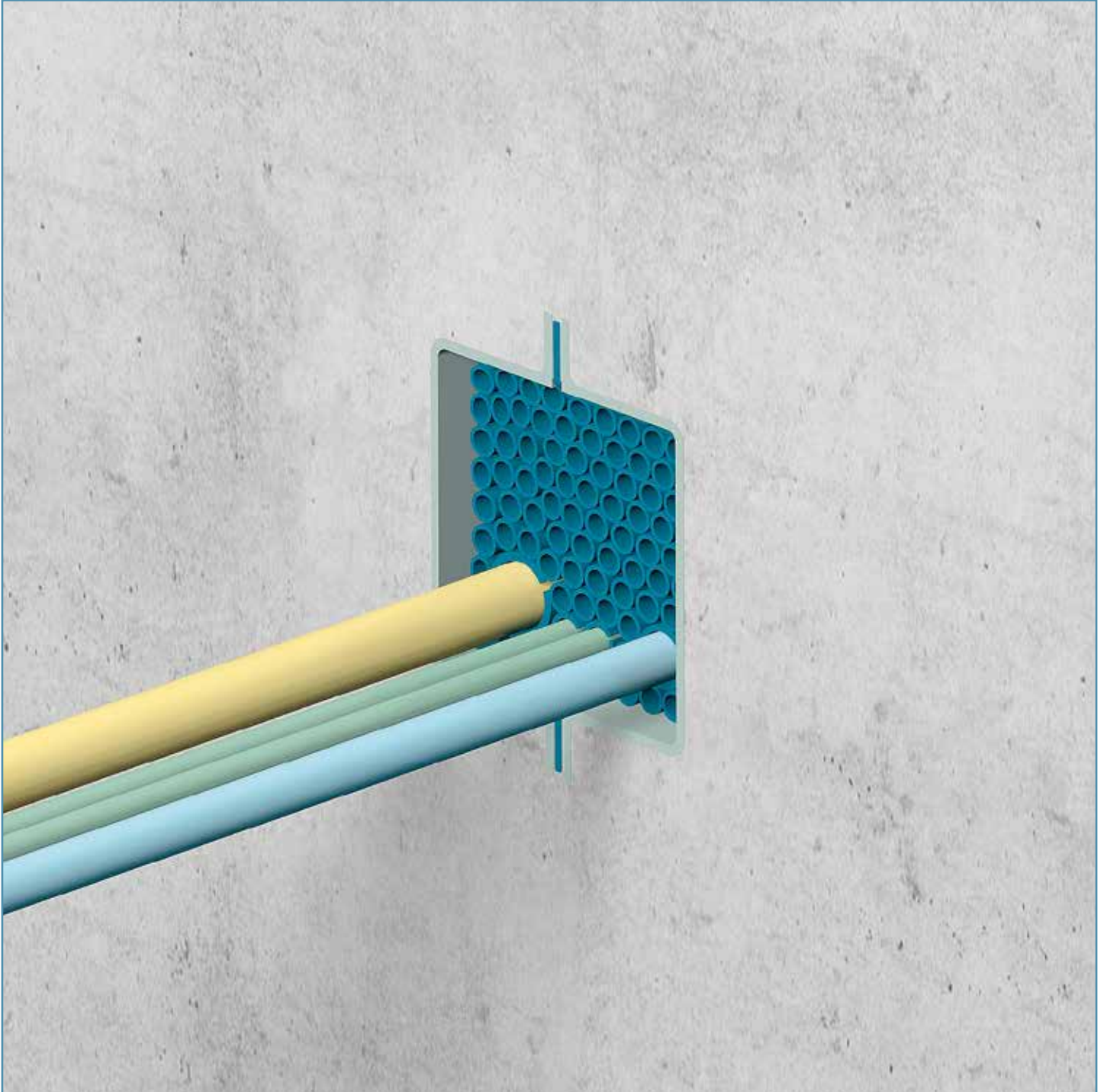
CONTROFIL® cable insert sleeves are applied around each cable. The cable insert sleeves are split lengthwise and can therefore be placed around the cables in front of the conduit opening. A precise fit of the CONTROFIL® cable sleeves around the cables is not required, however it is not allowed to use undersized cable sleeves leaving a larger open space around the cable. See the tables on page 62.

ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR



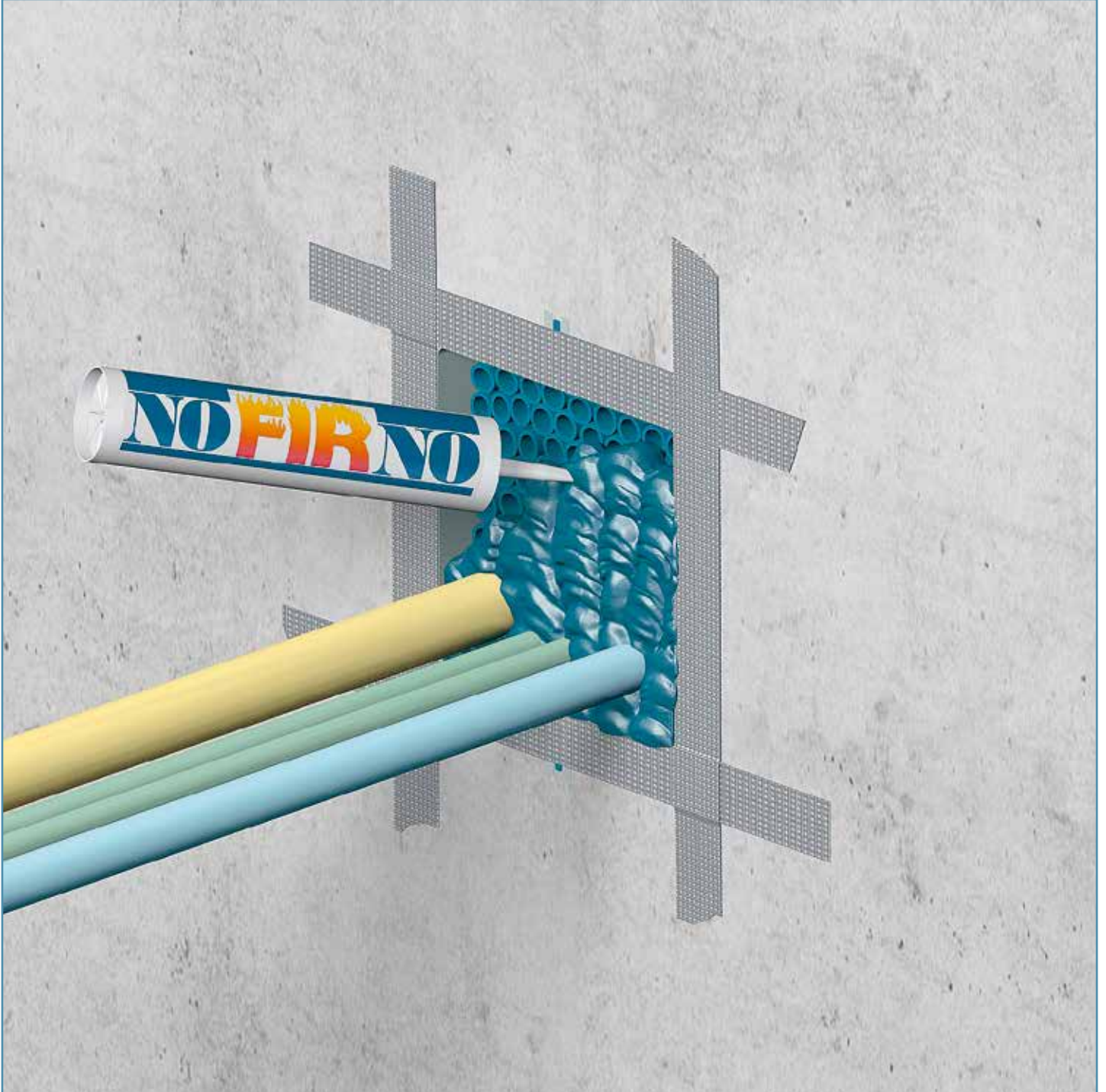
Push the cable insert sleeves into the transit frame in such a way as to leave about 20 mm free space at the front and the back.

ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR



The remaining free space in the transit frame is filled with CONTROFIL® multi-filler sleeves. The smaller sleeves sizes 10/4 and 15/8 are used to fill smaller open spaces present in the complete set of filler sleeves. For ease of filling, the CONTROFIL® filler sleeves are supplied non-split.

ASSEMBLY INSTRUCTIONS FOR CONTROFIL® DUCT & SEALING SYSTEM TYPE MB/MBR



Finish the multi-cable transit in the usual way.

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



#CONDUCTION



CONTROFIL
MULTI-CABLE TRANSITS

CET-A-SIL

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®

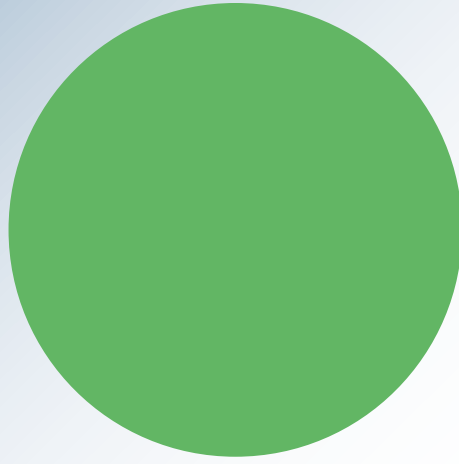
- System technology based on RISE®.
- Even easier installation.
- Even higher pressure ratings.
- Jet Fire tested for harshest applications.
- A-O and H-O up to A-60 and H-I20.
- **Breakthrough - bundled cable sets approved.**
- The system of choice for highest fire ratings and harshest environment!

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**



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