INSTALLATION INSTRUCTIONS NOFIRNO® SEALING SYSTEM FOR (MULTI-) PIPE TRANSITS

TESTED TO IMO RESOLUTION A.754(18); FIRE CLASS A0-A60, H0-H120, JET FIRE EC (MED) CERTIFICATE MED-B-4908 ISSUED BY DNV

WE CARE

BEELE ENGINEERING

PLEASE ALSO REFER TO THE STAMPED INSTALLATION DRAWINGS ATTACHED TO OUR MED AND TYPE APPROVAL CERTIFICATES

WE CARE

NOFIRNO® (MULTI-) PIPE TRANSIT SEALING SYSTEM

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 single	140	80.5002
18/12 multi	140	80.5052
18/12 single	160	80.5003
18/12 multi	160	80.5053
18/12 single	210	80.5004
18/12 multi	210	80.5054
27/19 single	140	80.5012
27/19 multi	140	80.5062
27/19 single	160	80.5013
27/19 multi	160	80.5063
27/19 single	210	80.5014
27/19 multi	210	80.5064

all dimensions in mm

Especially for single and multi-pipe penetrations, the multi-filler sleeves offer an advantage when filling the cavity between the conduit sleeve/frame and the ducted pipe. The sets are very flexible and can be wrapped around the ducted pipe. Furthermore, single filler sleeves can be torn off easily. The NOFIRNO® rubber has a good, long lasting memory, enabling a tight fit of the sleeves inside the conduit. This improves the overall mechanical stability of the sealing system during service life.

NOFIRNO® multi-filler sleeves

filler sleeves are 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

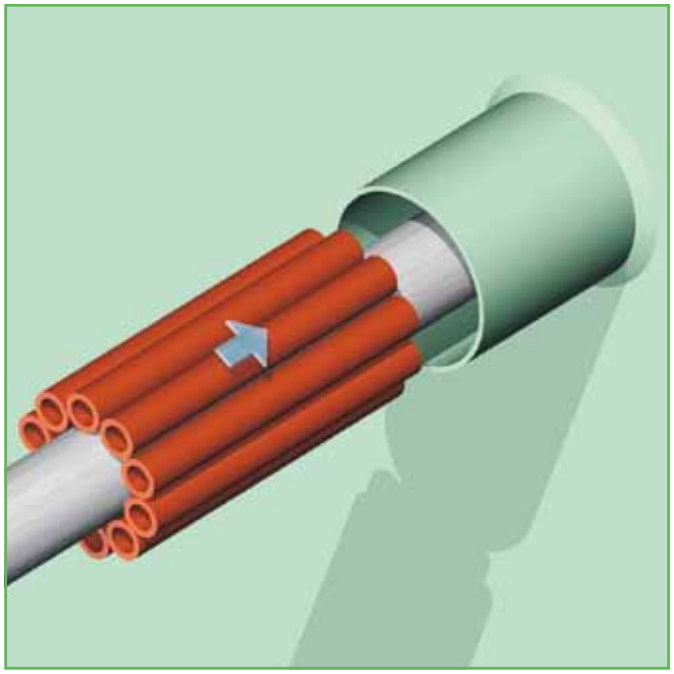
article number 50.0102

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.

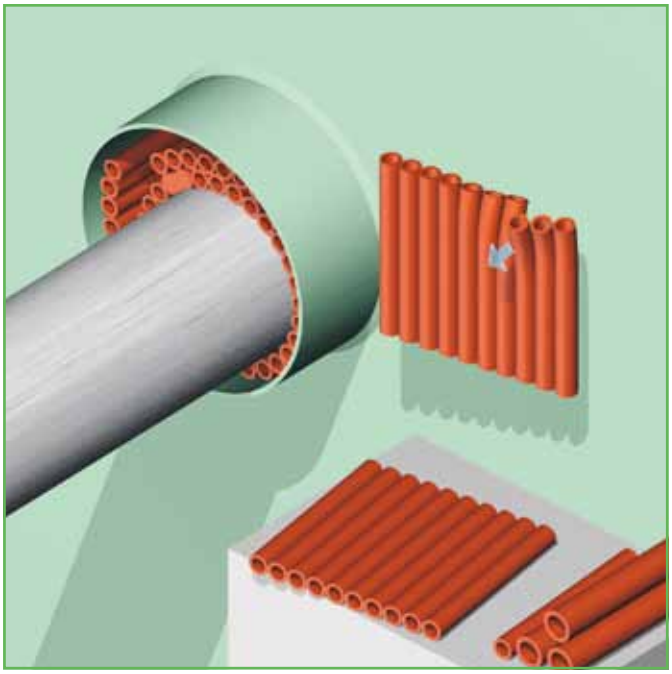
Shelf life is 12 months when stored properly. Since we have no control on storage, we can only guarantee for 6 months.

WE CARE

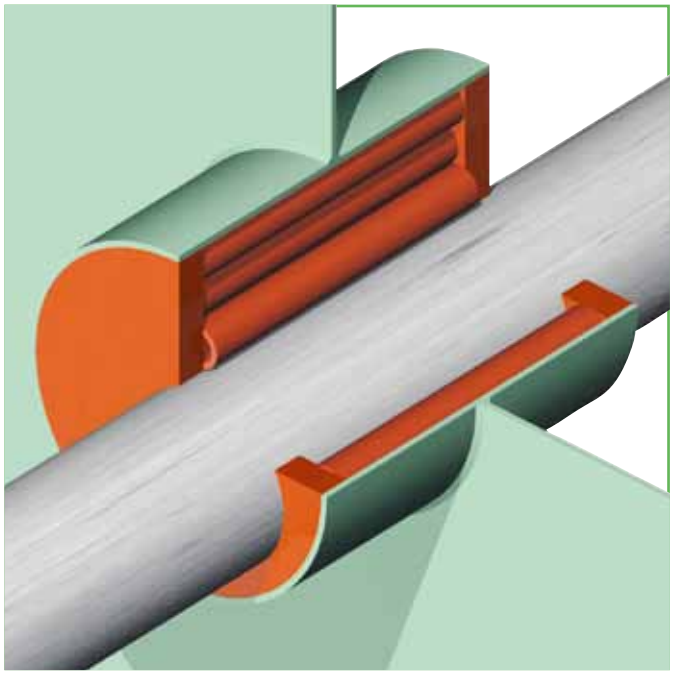
NOFIRNO® (MULTI-) PIPE TRANSIT SEALING SYSTEM



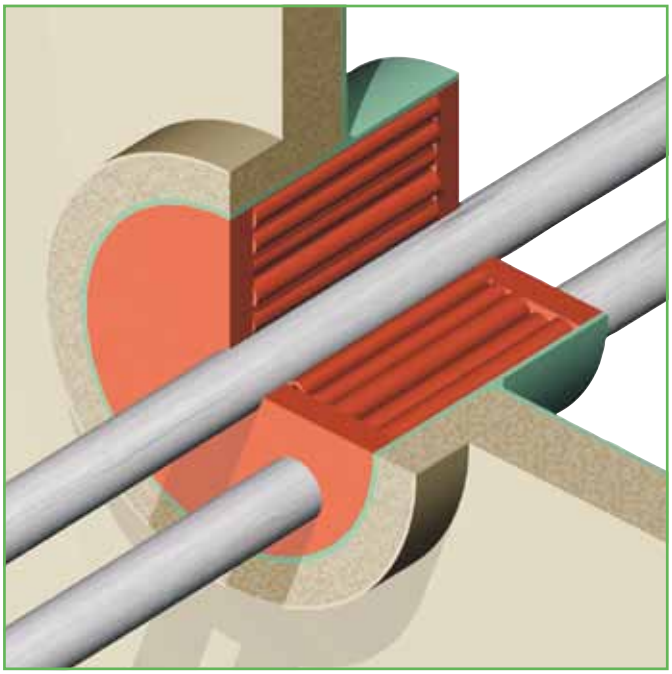
Several options are available with the NOFIRNO® sealing system. The most simple and cost effective solution is a fitting multi-filler sleeve applied in a conduit sleeve with an ID creating a tight fit. NOFIRNO® sealant with a thickness of minimum 20 mm to be applied at both sides.



For oversized conduits and/or off centre ducted pipes, a combination of NOFIRNO® single and multi-filler sleeves can be used. NOFIRNO® sealant with a thickness of minimum 20 mm to be applied at both sides. Conduit depth minimum 180 mm.



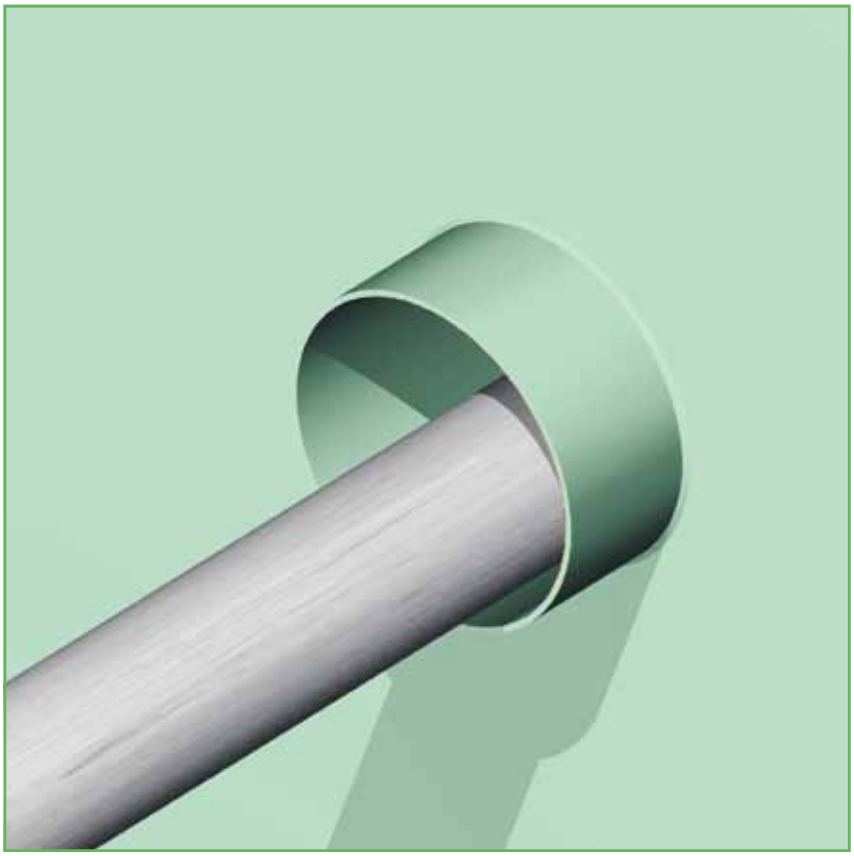
The NOFIRNO® sealing system is certified for A-0 and H-0 class without the use of any insulation. In these cases, the only difference is that the conduit depth is 250 mm instead of 180 mm. NOFIRNO® sealant with a thickness of minimum 20 mm to be applied at both sides. System is also gas and watertight.



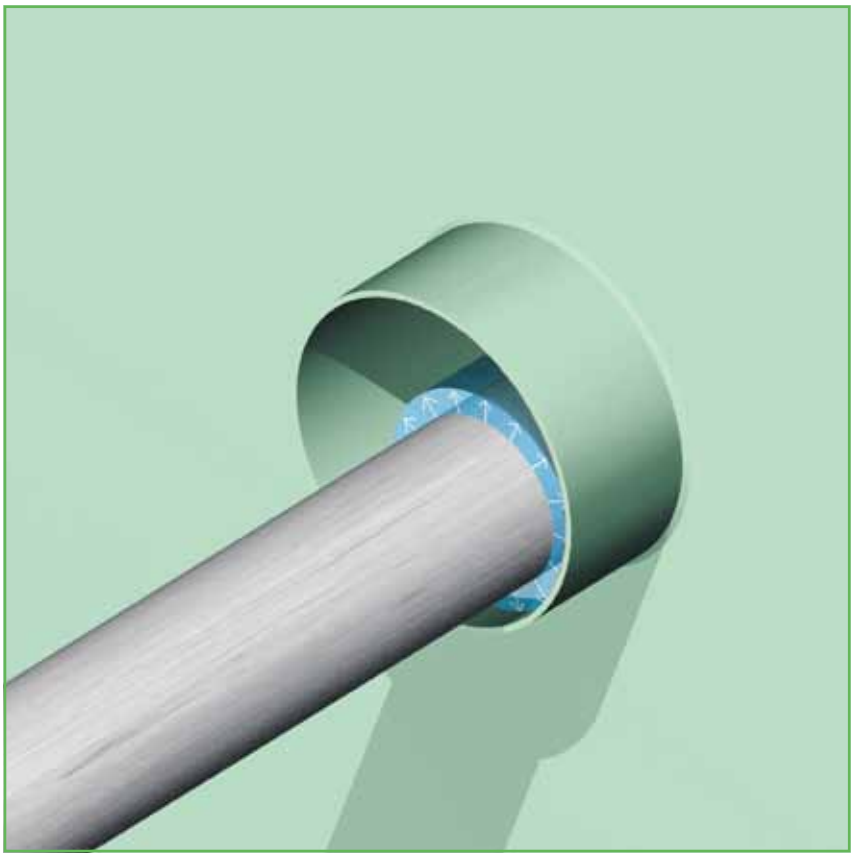
The NOFIRNO® sealing system is also approved for multi-pipe penetrations of steel, copper and GRP pipes to a transit size of 1000x300 mm with a depth of 180 mm only. Minimum separation of the pipes to be regarded. NOFIRNO® sealant with a thickness of minimum 20 mm to be applied at both sides.

NOFIRNO® (MULTI-) PIPE TRANSIT SEALING SYSTEM

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

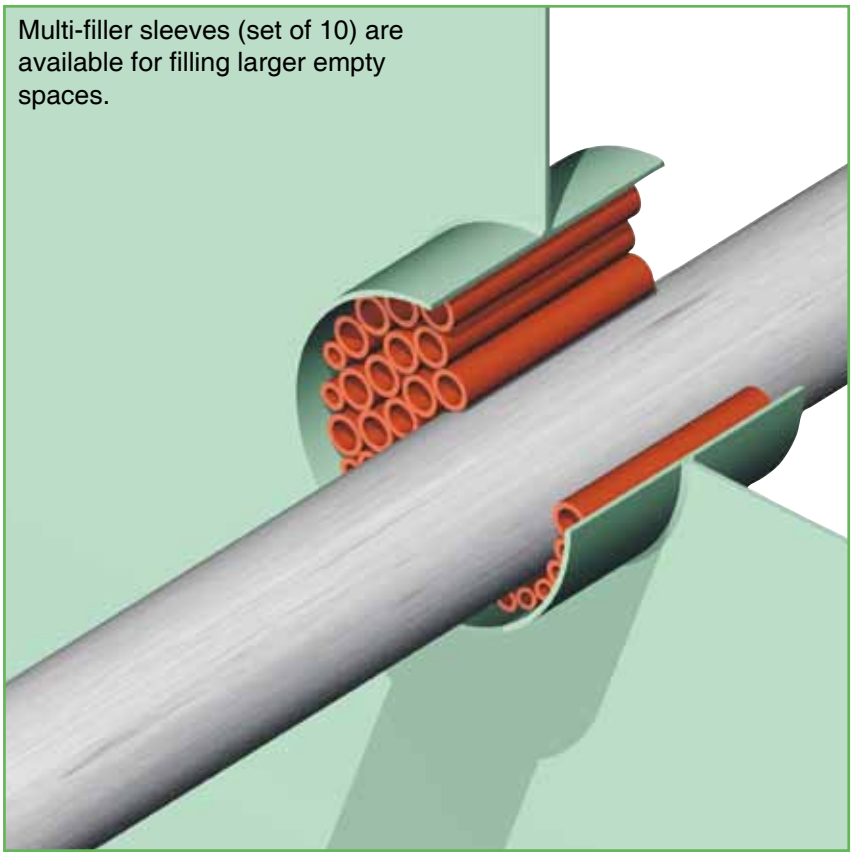


2) Make sure that the minimum space between the pipe and the wall of the conduit sleeve is in accordance with the minimum allowed distance as certified.



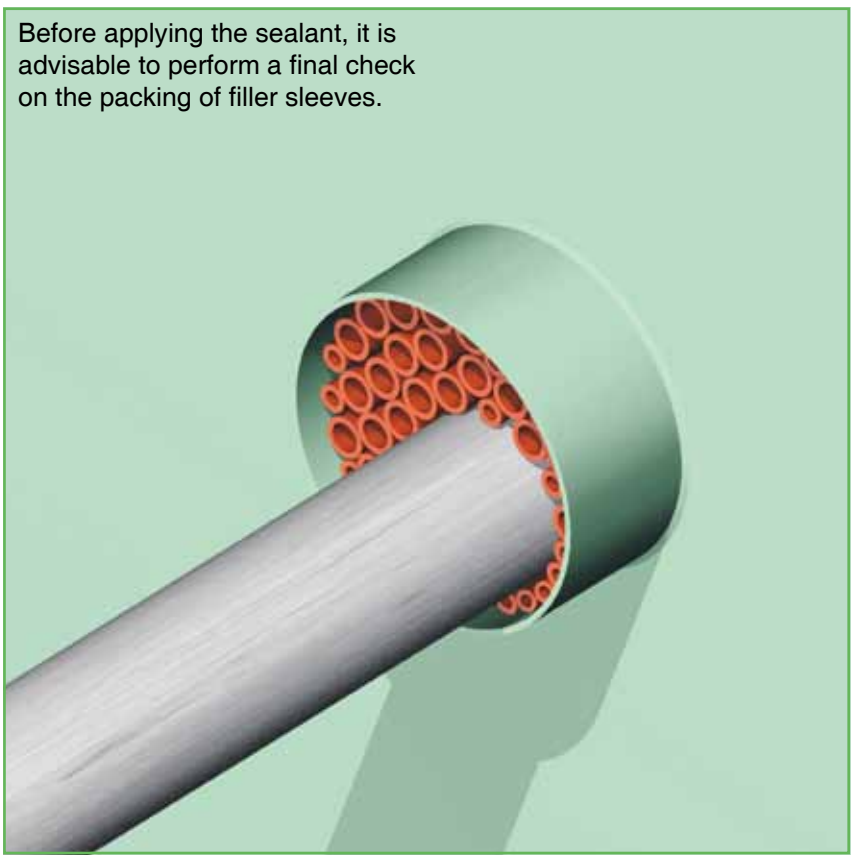
NOFIRNO® (MULTI-) PIPE TRANSIT SEALING SYSTEM

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 filler sleeves are also supplied in multi-sets of 10 pieces.
The ratio 27/19 to 18/12 should be about 2:1.



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

4) 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.



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

NOFIRNO® (MULTI-) PIPE TRANSIT SEALING SYSTEM

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.

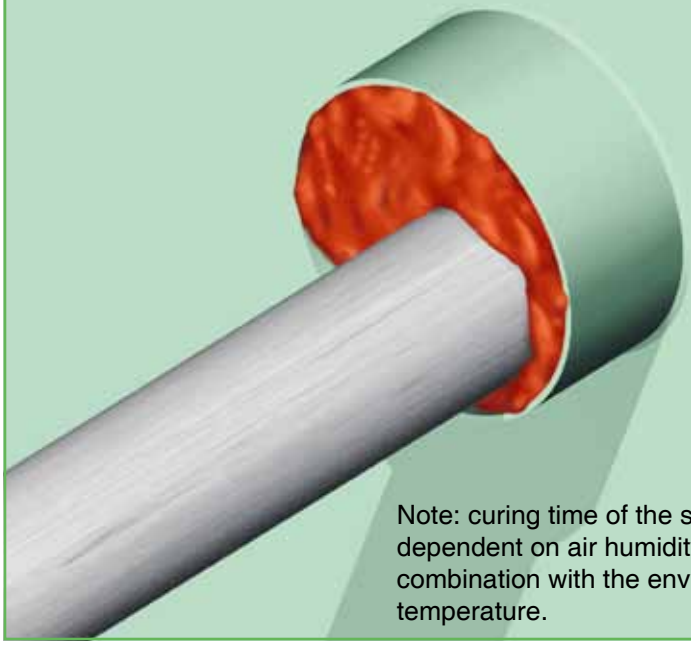
Use our professional sealant guns. Hand fatigue is prevented and optimum flow of the sealant is obtained.

Note: due to the curing process, the sealant cannot be applied on hot surfaces. Maximum temperature is 60 °C (140 °F). After full curing max. operating temperature is 180 °C.

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

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

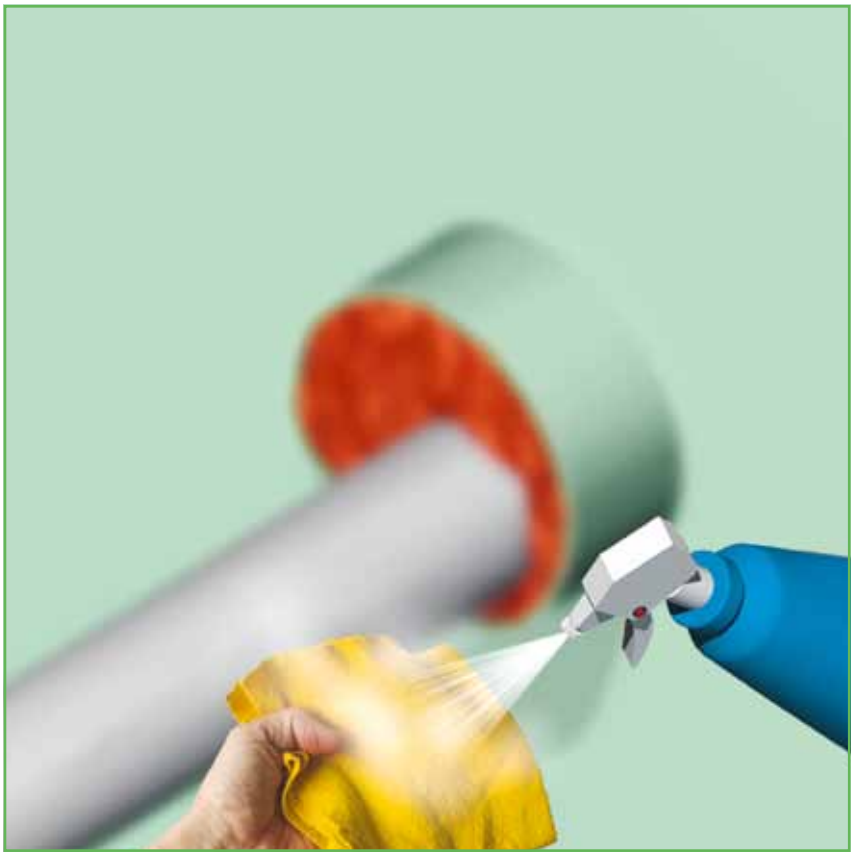
Please refer to the Safety Data Sheet for more information.



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

NOFIRNO® (MULTI-) PIPE TRANSIT SEALING SYSTEM

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.

NOFIRNO® (MULTI-) PIPE TRANSIT SEALING SYSTEM

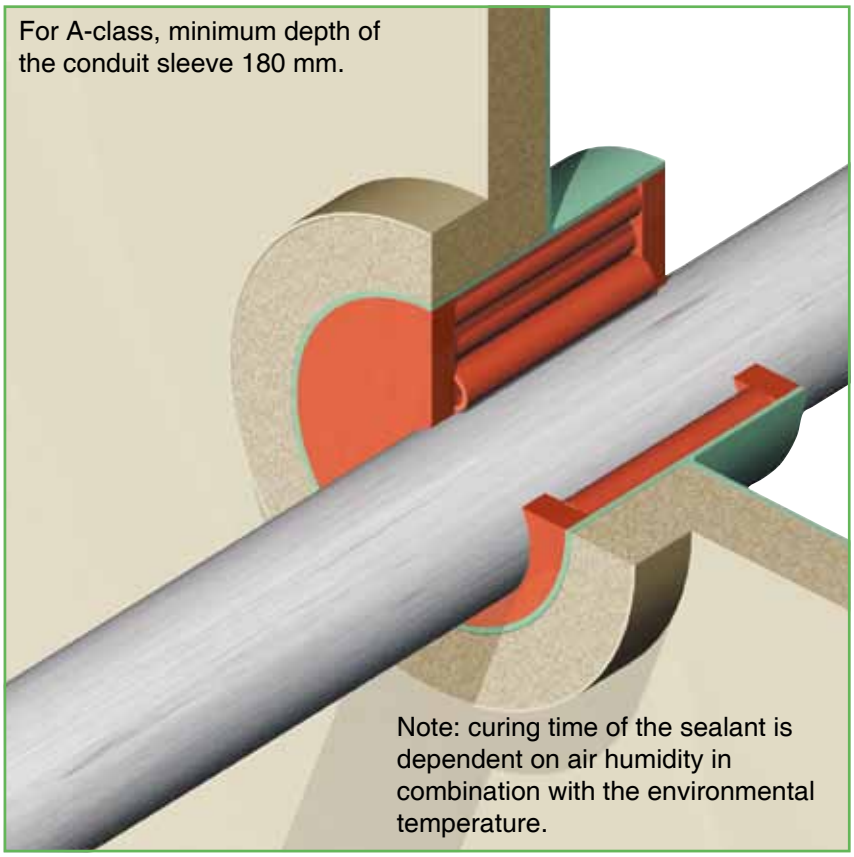
9) The surface can be smoothed by hand. Just wet the hands thoroughly with soap and water. No dirty hands when working with NOFIRNO® and a very neat surface is the result.

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

Please refer to the Safety Data Sheet for more information.

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

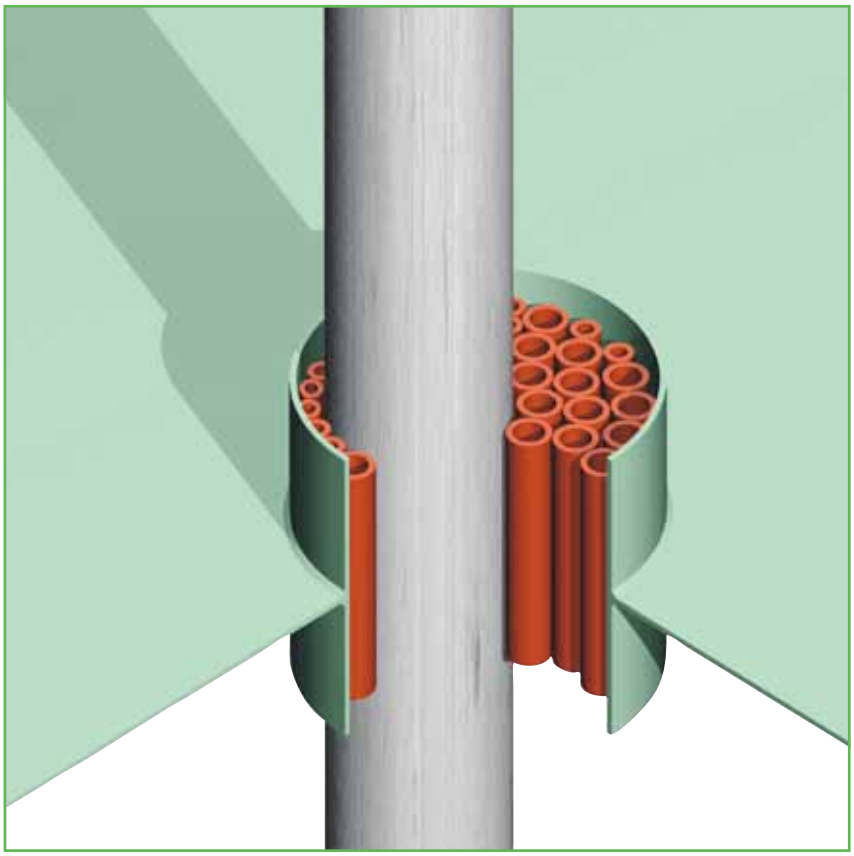
For A-class, minimum depth of the conduit sleeve 180 mm.



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

NOFIRNO® (MULTI-) PIPE TRANSIT SEALING SYSTEM

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



12) 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.

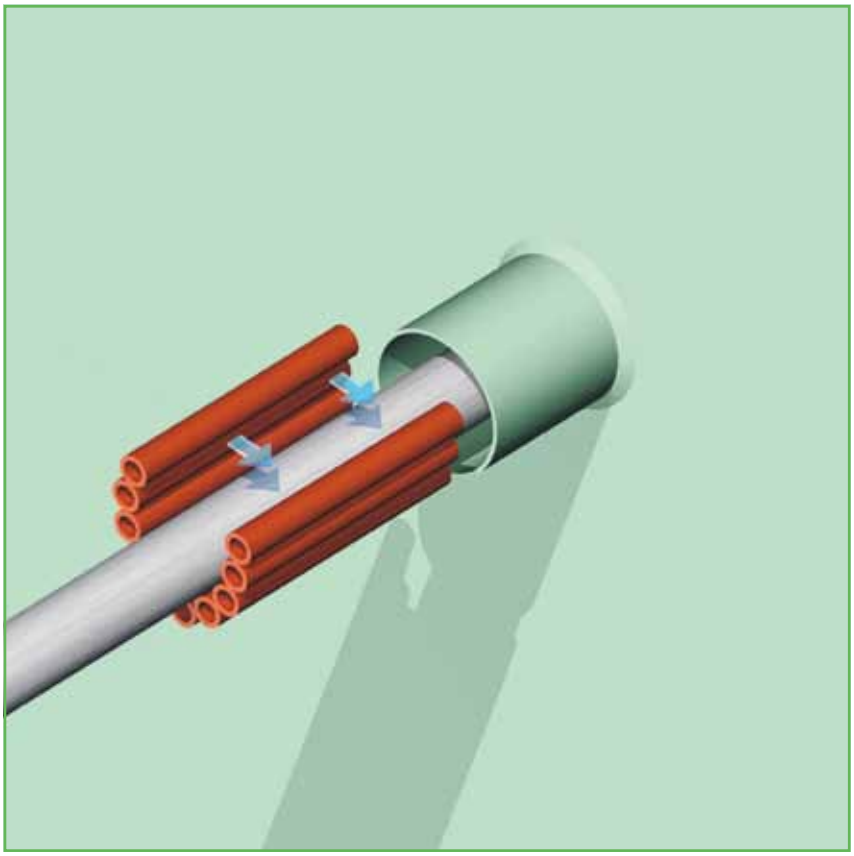
People with sensitive skin should use gloves when working with NOFIRNO®.

Please refer to the Safety Data Sheet for more information.

Note: due to the curing process, the sealant cannot be applied on hot surfaces. Maximum temperature is 60 °C (140 °F). After full curing max. operating temperature is 180 °C.

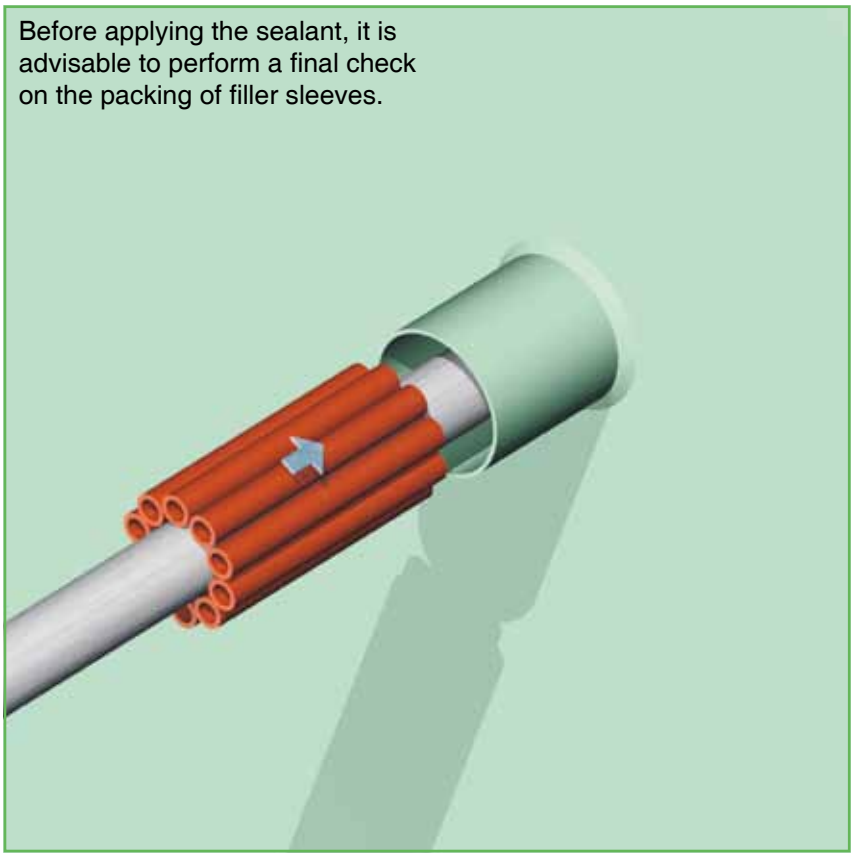
NOFIRNO® (MULTI-) PIPE TRANSIT SEALING SYSTEM

1) NOFIRNO® multi-filler sleeves are especially useful for packing single pipe penetrations.
Due to the high flexibility of the intermediate rubber parts, the multi-set can be wrapped around smallest service pipes.
A single filler sleeve can be torn off easily.



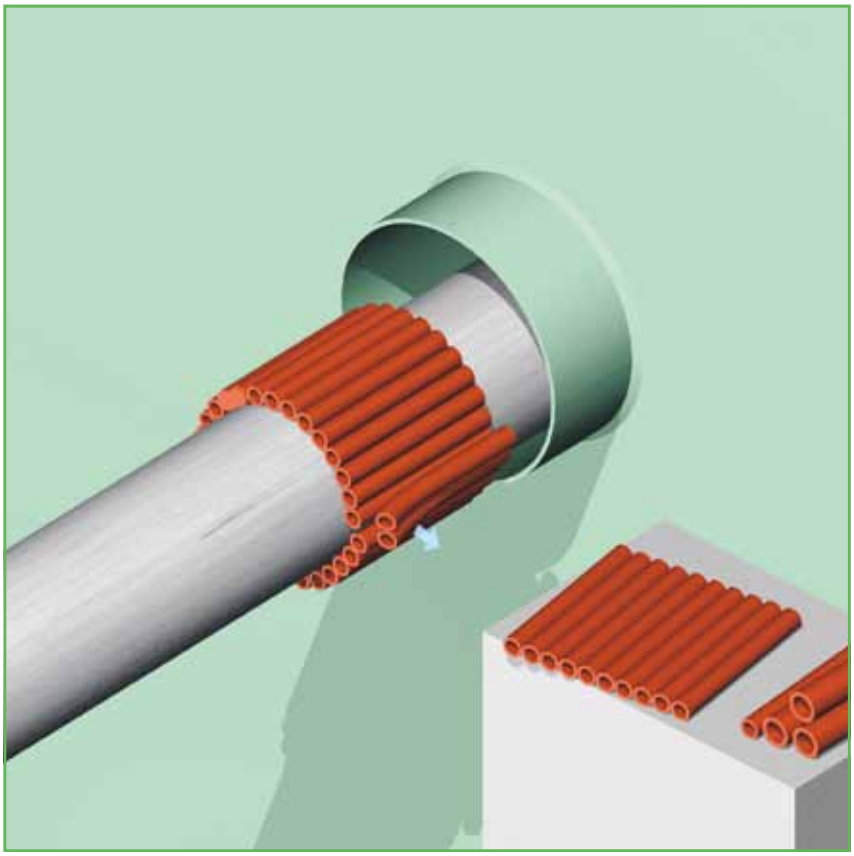
2) Once the set is completely wrapped around the ducted pipe, it is then pushed into the conduit sleeve. Leave about 20 mm free space at the front and the back. The hollow filler sleeves allow for larger tolerances. The transit is further finished as described on pages 4-7.
NOFIRNO® multi-filler sleeves offer a very economical sealing solution.

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

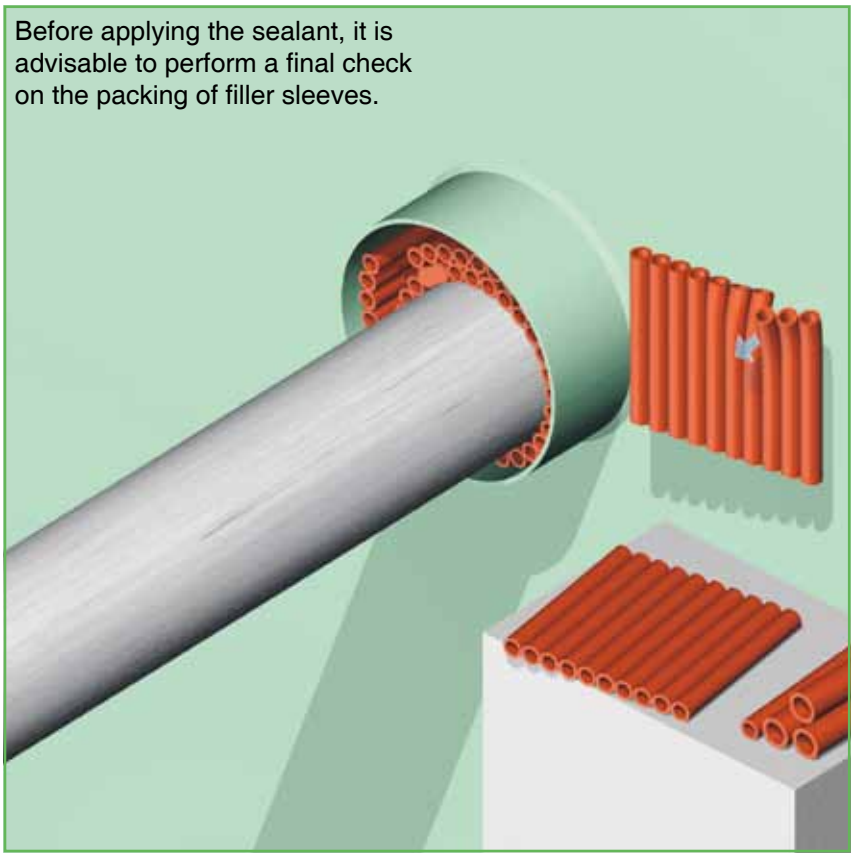


NOFIRNO® (MULTI-) PIPE TRANSIT SEALING SYSTEM

3) For larger pipes, the NOFIRNO® multi-sets can be connected together with rubber connectors. In this way, a long set - which fits around the ducted pipe, can be created. The overlap of filler sleeves can be torn off to make the set fit around the ducted pipe.

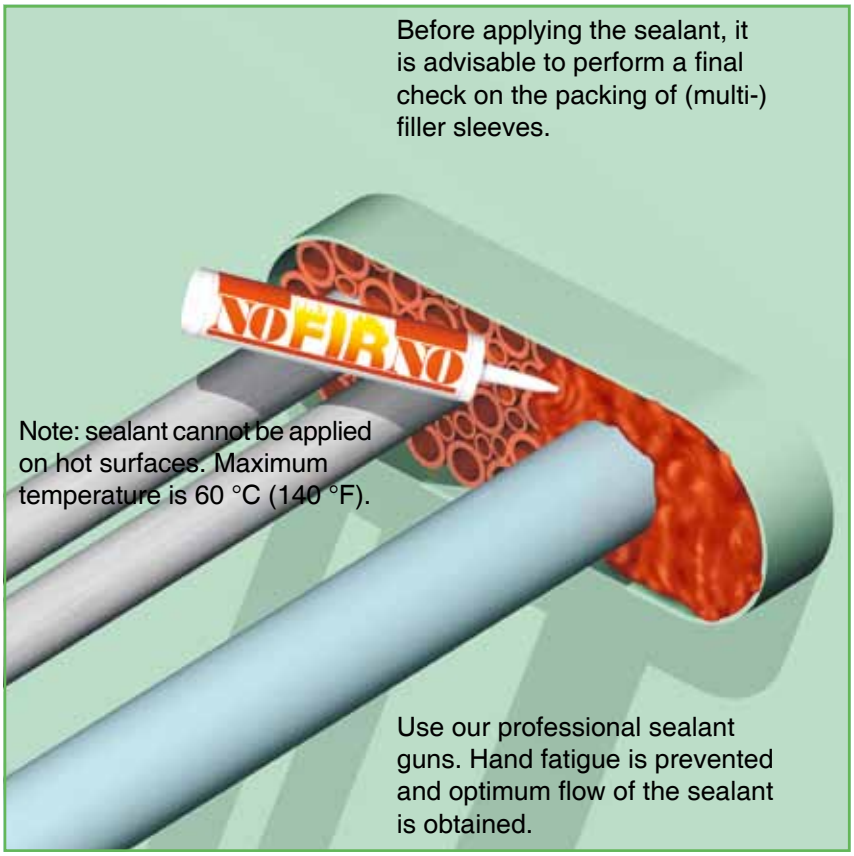


4) To tear off sleeves from the multi-set, the procedure is to do this backwards/ forwards and not sidewards. This is because of the strength of the intermediate rubber parts.
The transit is further finished as described on pages 4-7.
NOFIRNO® multi-filler sleeves offer a very economical sealing solution.

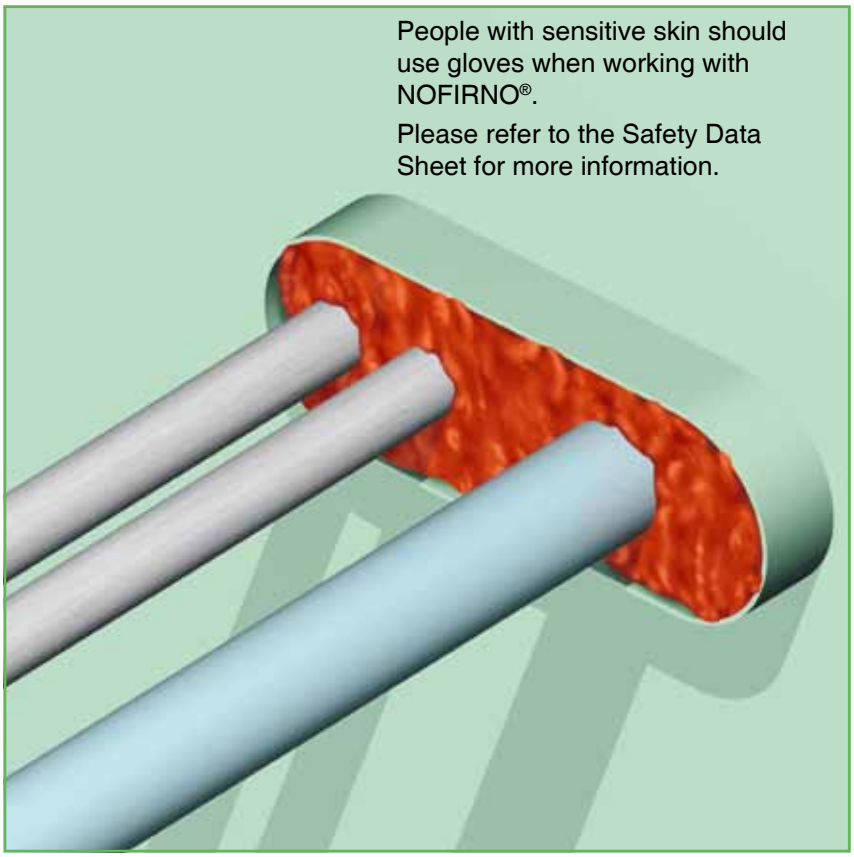


NOFIRNO® (MULTI-) PIPE TRANSIT SEALING SYSTEM

1) 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.

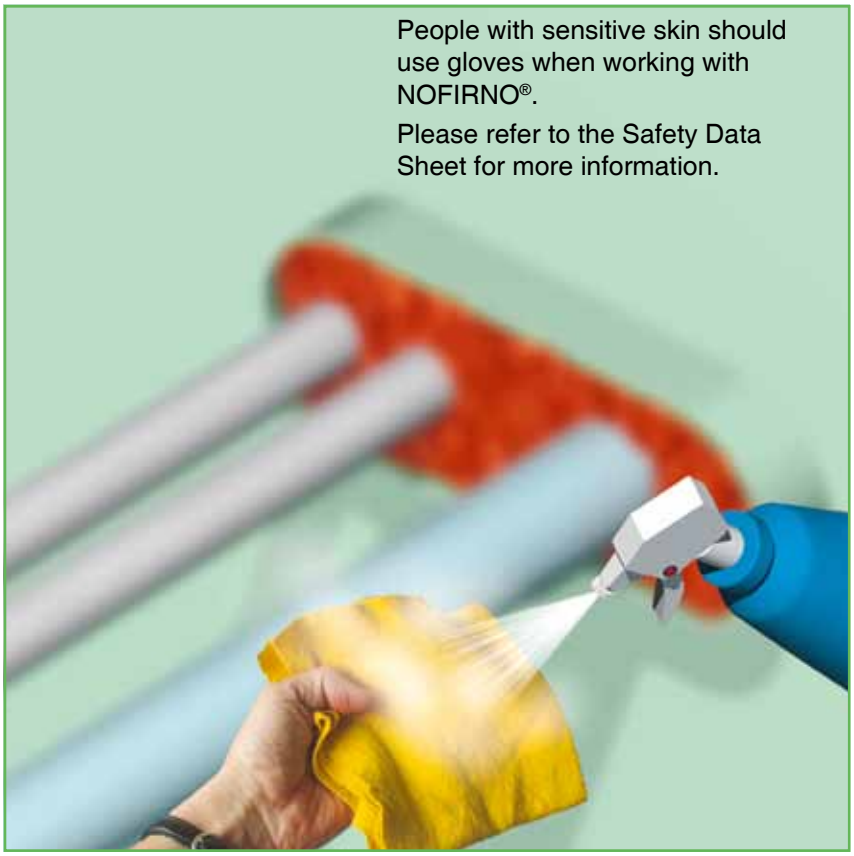


2) The conduit should be overfilled with NOFIRNO® sealant, because some sealant will be pushed between and into the empty filler sleeves during further finishing. This will contribute to obtain higher tightness ratings.

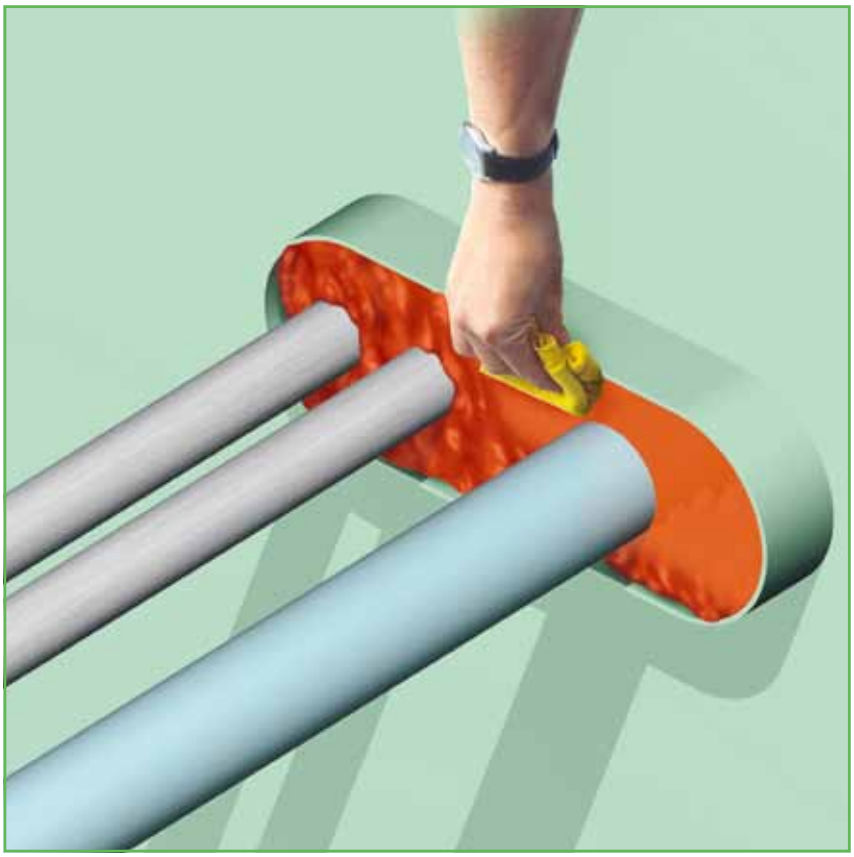


NOFIRNO® (MULTI-) PIPE TRANSIT SEALING SYSTEM

3) 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!

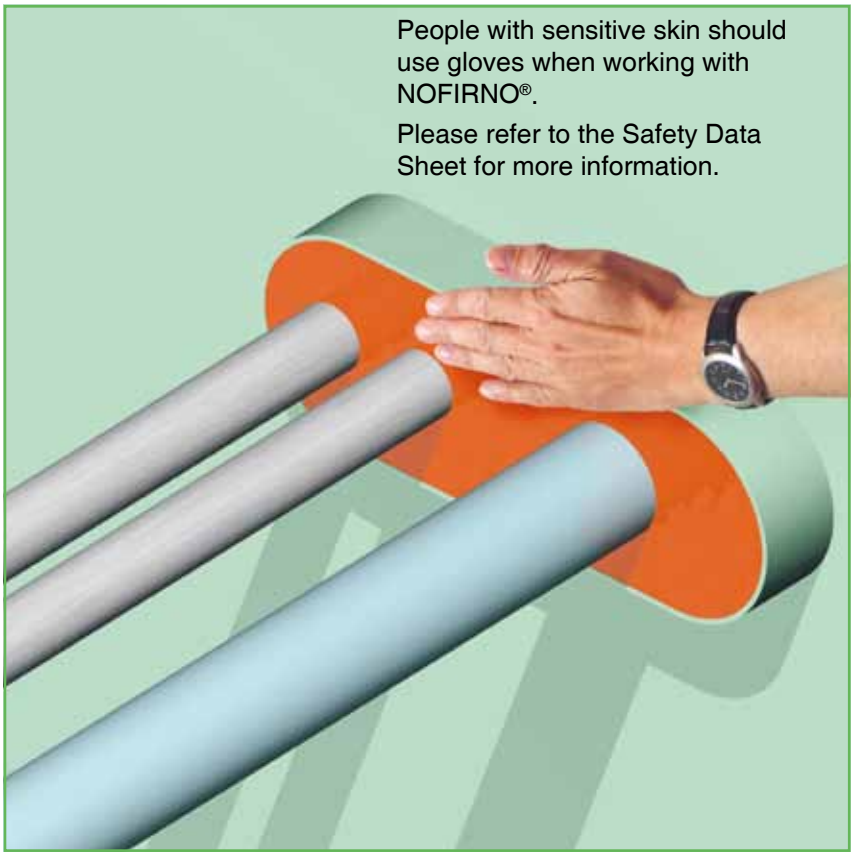


4) The cloth is then used to press down the sealant layer.
People with sensitive skin should use gloves when working with NOFIRNO®.
Please refer to the Safety Data Sheet for more information.



NOFIRNO® (MULTI-) PIPE TRANSIT SEALING SYSTEM

5) 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.



6) For A-class penetrations, the conduit sleeve/frame needs to be insulated only at the insulated side of the bulkhead or the lower side of the deck.

The ducted metallic pipe(s) have to be insulated according to the specifications on the certified drawings.