

HANDLING AND SAFETY INSTRUCTIONS

Transport

- The load area must be cleaned prior to loading
- Sharp edges should be covered to prevent damaging
- Coils should be secured to prevent moving
- Use suitable support to allow coil pick-up when transported horizontally

Unloading

- Check coils for damage before unloading
- When using forklift, ensure that forks are covered
- When using transport straps, use straps of at least 50 mm wide
- Coils may not be dragged over the ground

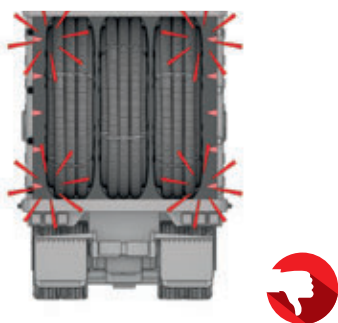
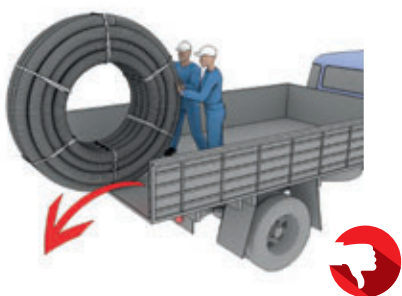
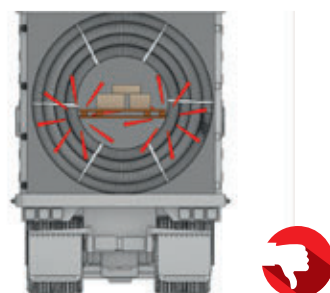
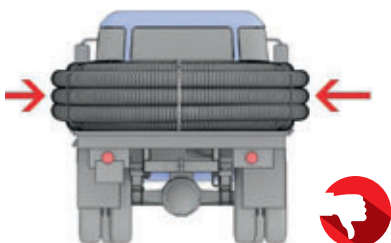
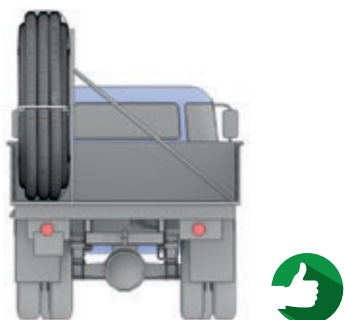
Storage

- Coils should be stored on a smooth surface
- Make sure that vertically stored coils can't fall
- Do not remove protective caps before laying
- Before laying into the trenches, pipes must be stored at minimum 20°C

Indicative coil sizes single/double/quadruple

Jacket pipe	25 m length coil		50 m length coil		75 m length coil		100 m length coil	
d _{out} [mm]	W [mm]	d _{out} [mm]	W [mm]	d _{out} [mm]	W [mm]	d _{out} [mm]	W [mm]	d _{out} [mm]
75	300	1480	375	1610	375	1870	375	1870
90	360	1536	360	1692	540	1848	540	1848
110	440	1611	440	1801	605	1992	605	1992
140	560	1722	560	1965	700	2207	700	2207
160	640	1797	640	2074	800	2351	800	2351
200	800	1947	800	2293	1000	2293	1400	2293
225	675	2040	900	2430	1125	2430	1575	2430

HANDLING AND SAFETY INSTRUCTIONS



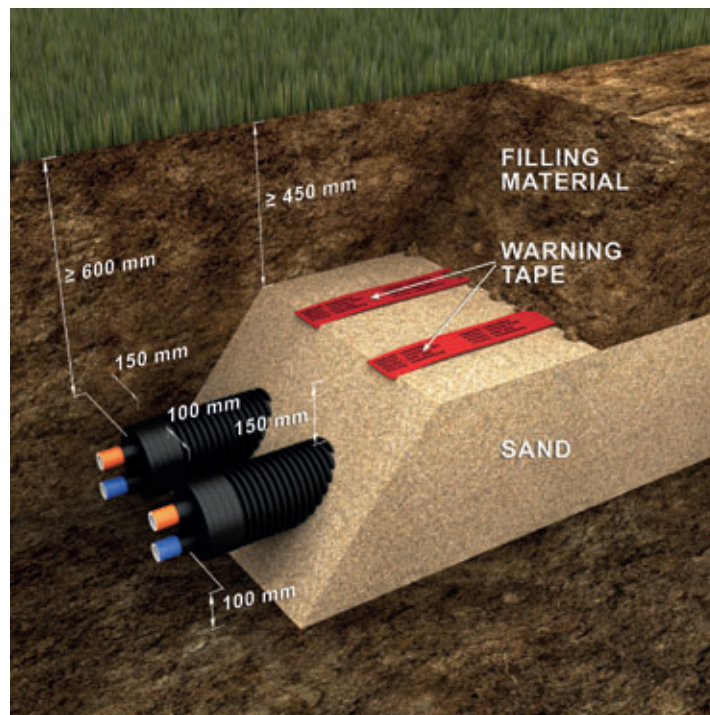
INSTALLATION INSTRUCTIONS

Open trench installation

Terrendis® pre-insulated pipes can be laid in the ground without difficulties. The corrugated jacket provides the necessary protection for the insulating material and the medium pipes. Installation below 5°C is not recommended.

Trench dimensions

- Always consider the local frost depth to determine the minimum placement depth of the pipes.
- Up to a trench depth of 120 cm, we recommend digging a vertical trench. If deeper than 120 cm, we recommend a V-shaped trench. It is most practical to lay the excavated ground alongside the trench.
- Excavation work must be carried out in the approved manner, according to the rules and regulations of local authorities. A prior permission is very often required.
- The depth of the trench must be in accordance with the guidelines of the picture below.



Terrendis® hyper flexible pre-insulated pipes require minimum coverage of 600 mm in installations where there is no stress from traffic loading. The filling material must be carefully compacted layer per layer.

Always take the appropriate measures to avoid potential damage to the piping system when subsequent building works are conducted. Local frost limit must be taken into account.

Terrendis® hyper flexible pre-insulated pipes covered to a minimum depth of 900 mm can be installed under trafficked areas (CV12/HGV30/HGV60) respecting the static calculation rules of buried pipes according to worksheet ATV DVWK-A127E. The ring stiffness of pre-insulated piping system is designed to withstand minimum 4 up to 8 kN/m² according to EN ISO 9969.

INSTALLATION INSTRUCTIONS

General installation guidelines

The Terrendis® pipes may be laid into the trench directly from the coil:

- Position the coil alongside the trench.
- To avoid damaging the outer HDPE jacket, always remove all sharp objects from the ground and lay the pipe in a sand bed.
- When laying larger dimensions and lengths, pulling devices such as winches or tail-end rollers may be used. Always connect these devices to the medium pipe.
- Remove the packaging foil.
- Place the end of the pipe in position.
- Coils are under tension; don't cut all the straps at once.
- **WARNING:** First cut only the outermost straps. Be careful, when cutting the straps the pipe ends of the coil can spring out!
- Roll the pipe alongside or straight into the trench.
- For double pipes the flow and return must be laid on top of each other.
- Cut the middle straps.
- Roll out further.
- Cut the innermost straps.
- Roll out completely.
- Apply the dust caps or shrink caps.
- Remove medium pipe plugs.
- Connect the couplings.
- **Conduct the pressure test and fill in the report before backfilling.**
- Partially fill the trench with a first layer of sand.
- Position warning tape or warning mesh above the buried pipes in order to avoid damaging these pipes when carrying out future ground works.
- Backfill only after fully covering the pipes with sand, respecting the minimal layer dimensions as indicated in the trench dimension drawing.
- The filling material must be compacted layer per layer.
- From 500 mm the coverage may be compacted by machine.
- All pipe systems intended for potable (drinking) water and other sanitary domestic tasks, such as washing and showering applications, should always be thoroughly rinsed before commissioning, following the locally applicable hygienic regulations and accepted practices.
- The installation of adequately anchored fix points at the systems extremities (typically at wall penetrations) is mandatory. This to secure the connected plumbing against the potential impact of the systems dilatation forces (thermal expansion/retraction).



MOUNTING INSTRUCTIONS

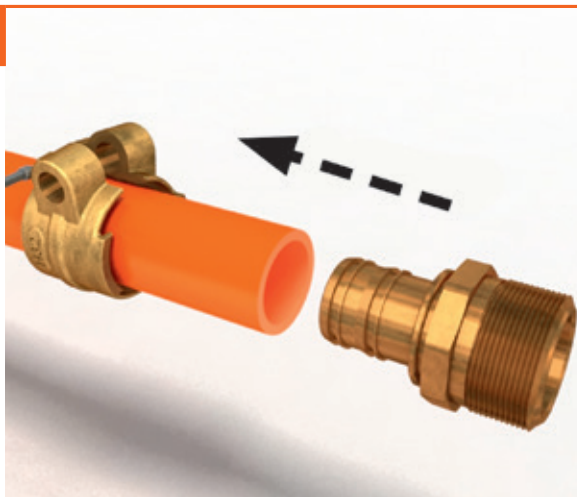
PE-X terminal connectors

01



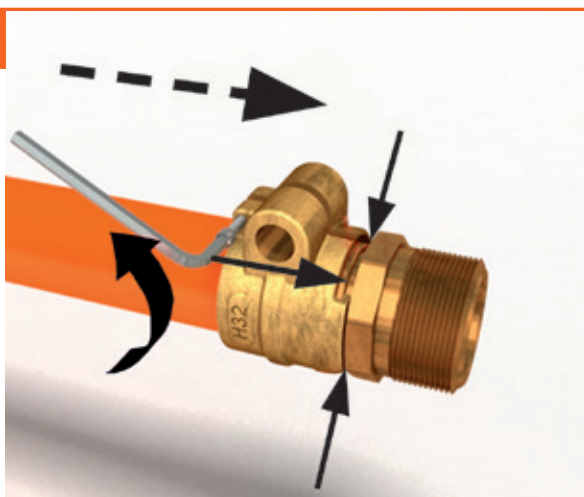
Cut the medium pipe straight across, using PE-X scissors and deburr. Spread the clamping ring using a hex key. Slide over the clamping ring as shown, so both jaws of the clamping ring point towards pipe end.

02



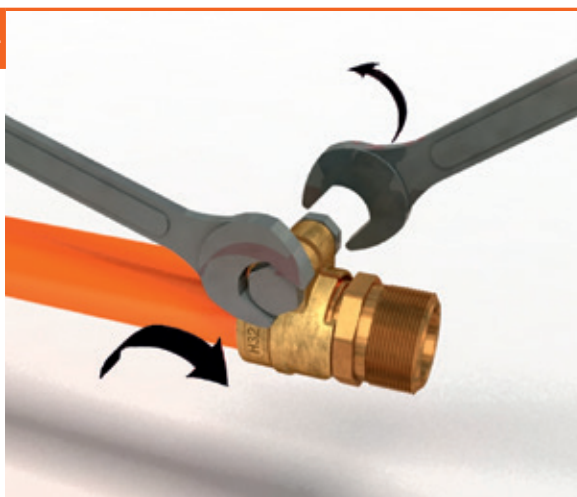
Push the fitting insert completely into the medium pipe until it reaches the collar of the fitting.

03



Slide clamping ring to fitting, until both jaws passed the fitting collar. Unscrew and remove the small bolt by using a hex key.

04



Set the definitive inox bolt (pre-greased in order to avoid cold-weld) and tighten until both clamping ring halves do reach/touch each other.

WARNING:

- Failure to comply with these instructions will void the warranty on the tensile strength of the coupling.
- For diameters equal or superior to 50 mm it's advised to tighten clamps in two steps, to allow the pipe material to settle. Depending on the circumstances large connectors may require 30 minutes between initial and final tightening.

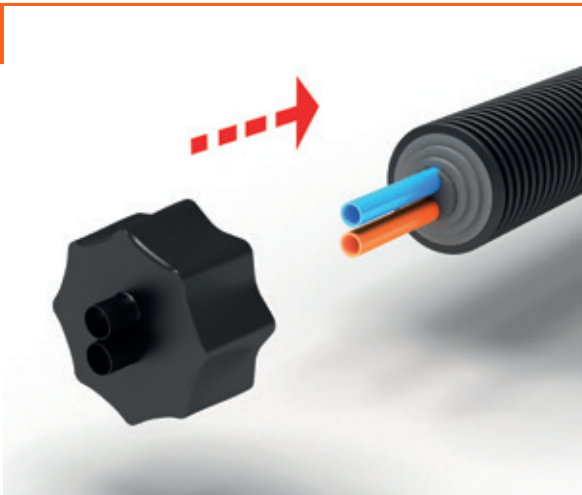
PRESSURE TEST:

- A pressure test according DIN 1988-2 is mandatory.

MOUNTING INSTRUCTIONS

Shrink end cap

01



Remove carefully the jacket pipe and insulation layers without damaging the medium pipes. Slide the shrink cap on the jacket pipe.

02



Use a heat gun or soft flame in order to shrink the end cap. Heat softly the shrink cap both at the end of the medium and jacket pipes.

03



Using protective gloves, press the shrink cap on the medium and jacket pipes.

04



Once the shrink cap is cooled down, the pre-insulated pipe is water-proof.

To prevent ingress of (ground) water, the EN 15632-3 standard prescribes the usage of shrink end caps to seal the extremities of the non-bonded piping system.

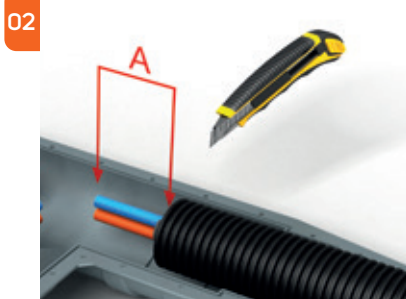
Failing to do so involves a genuine damage risk and automatically voids the system warranty.

MOUNTING INSTRUCTIONS

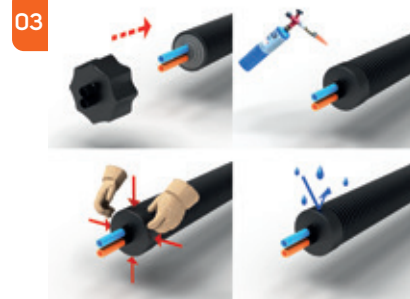
Underground inspection chamber (UIC)



Cut the end-openings of the UIC according to the desired jacket pipe diameter. Cut end Ø 120 for jacket 110 mm, Ø 170 for jacket 140/160 mm and Ø 235 for jacket 75/90/200/225 mm. For jacket Ø 75 and 90 mm, use RAS200/75 and RAS200/90.



Remove carefully the jacket pipe and insulation layers without damaging the medium pipes. The length of the naked medium pipes is marked with A. The length is depending on diameter of the carrier pipes.
 Ø 25 up to 63 mm -> A = 14 cm
 Ø 75 up to 125 mm -> A = 18 cm



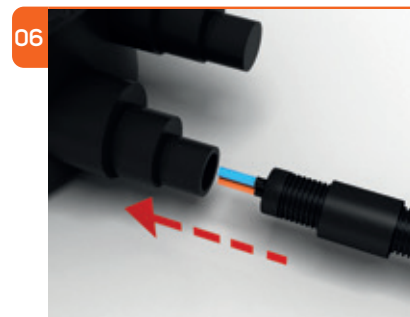
Slide the shrink cap on the jacket pipe. Heat softly the shrink cap both at the end of the medium and jacket pipes. Using protective gloves press the shrink cap on the medium and jacket pipes.



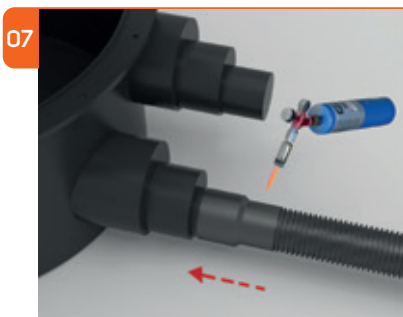
Once the shrink cap has cooled down, the pre-insulated pipe is water-proof.



Put the shrink sleeve on the jacket pipe.



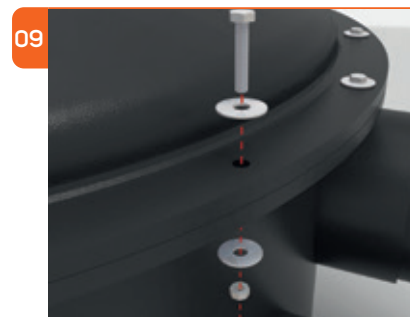
Pass the pre-insulated pipe through the appropriate end-opening of the UIC. Install connectors according to the mounting instructions of the PE-X terminal connectors.



Install the previously added shrink sleeve over the pre-insulated pipe and inspection chamber end-openings. Using protective gloves heat softly the shrink sleeve and press the sleeve on the jacket pipe and on the inspection chamber end-openings.



Install the O-ring in the foreseen cavity.



Close the inspection chamber with the lid and tighten evenly the nuts, bolts and washers.

PRESSURE TEST:

- A pressure test according DIN 1988-2 is mandatory before closing the underground inspection chamber.

MOUNTING INSTRUCTIONS

Seal chain

01



Center the pipe in wall opening or casing. Make sure the pipe is adequately supported on both ends. Seal chain is not intended to support the weight of the pipe.

02



Loosen rear pressure plate with nut just enough so links move freely towards and away from each other. Connect both ends of belt.

03



Check to be sure bolt heads are facing the installer. Extra slack is normal. Do not remove links if extra slack exists.

04



Make sure that the pressure plates on the back of the seal chain are correctly aligned. They will no longer be accessible once mounted in the wall opening. Slide seal chain into annular space. For larger size seal chain, start inserting chain assembly at the 6 o'clock position and work both sides up toward the 12 o'clock position in the annular space.

05



Start at 12 o'clock. Tighten any bolt, one after the other, in a clockwise manner. Tighten only by hand. No cross tightening. Continue to tighten for a uniform compression.

06



Do not tighten any bolt more than 4 turns at a time. Continue in a clockwise manner. Make 2 or 3 more passes at 3 turns per bolt until links have been uniformly compressed and the max. torque moment (see table) is reached.

07



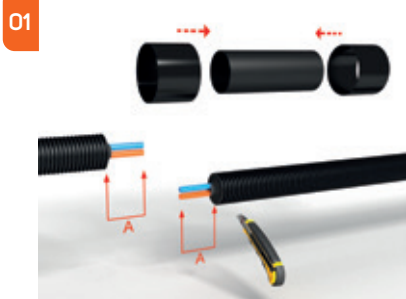
Repeat tightening after approx. 2 hours.

Torque moment table

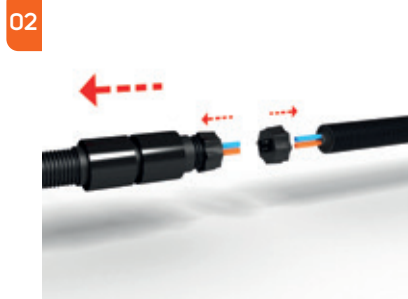
	Maximum torque moment		Maximum torque moment
Art. No.	Nm	Art. No.	Nm
SCHA9/200	2	SCHA13/340	6
SCHA7/300	6	SCHA14/300	6
SCHA6/360	6	SCHA9/475	20
SCHA8/300	6	SCHA9/325	6
SCHA9/340	6	SCHA12/410	20
SCHA10/300	6		

MOUNTING INSTRUCTIONS

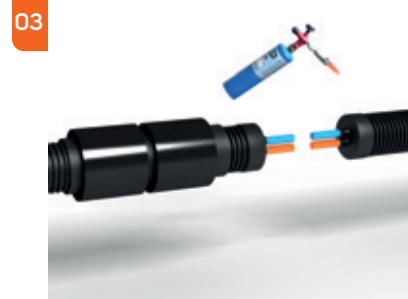
I - straight insulation sleeve kit (SIS)



Remove carefully the jacket pipe and insulation layers without damaging the medium pipes. The length of the naked medium pipes is marked with A. The length is depending on the diameter of the carrier pipes.
 $\varnothing$ 25 up to 63 mm $\rightarrow$ A = 14 cm
 $\varnothing$ 75 up to 125 mm $\rightarrow$ A = 18 cm



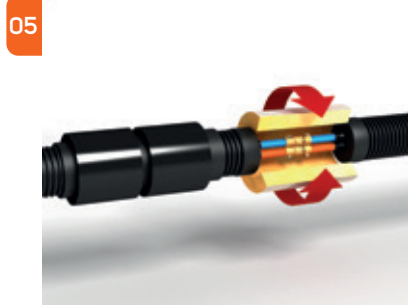
Slide the straight covering jacket pipe including two shrink sleeves over the main pre-insulated jacket pipe, and put on the shrink end caps.



Install the shrink end caps by softly heating. Using protective gloves, press the shrink end caps on the medium and jacket pipes.



Install connector(s) according to the mounting instructions of the PE-X terminal connectors.



Wrap the rockwool around the connectors and fix with self-adhesive tape. (tape not supplied).



Slide over the straight covering jacket pipe, until both ends of the pre-insulated pipe are covered. Then slide over both shrinking sleeves, each of them covering half straight covering pipe and half jacket pipe.



Using protective gloves, heat up softly both shrink sleeves and press.



Both shrink sleeves are installed and became a waterproof connection.

WARNING:

- Separately order the appropriate size shrink end caps for your specific pre-insulated pipe models.

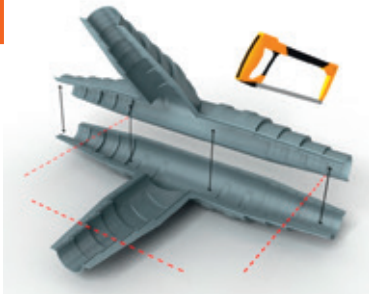
PRESSURE TEST:

- A pressure test according DIN 1988-2 is mandatory before closing the insulation kit.

MOUNTING INSTRUCTIONS

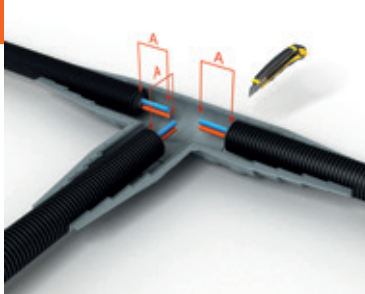
T, L and H - insulation kit (TIK - LIK - HIK)

01



Cut the shells of the insulation set according to the desired jacket pipe diameter. Each indentation corresponds to a specific jacket pipe diameter. The shell with the groove is used as bottom shell.

02

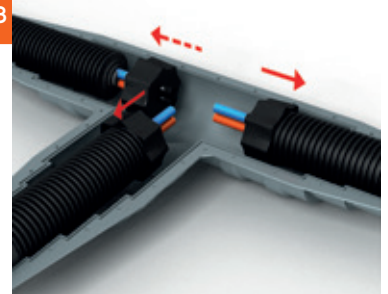


Remove carefully the jacket pipe and insulation layers without damaging the medium pipes. The length of the naked medium pipes is marked with A. The length is depending on diameter of the carrier pipes.

Ø 25 up to 63 mm -> A = 14 cm

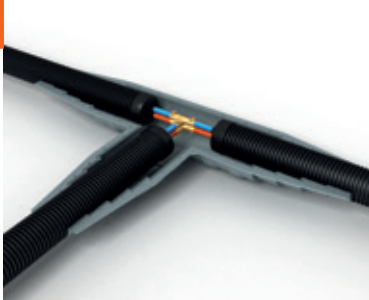
Ø 75 up to 125 mm -> A = 18 cm

03



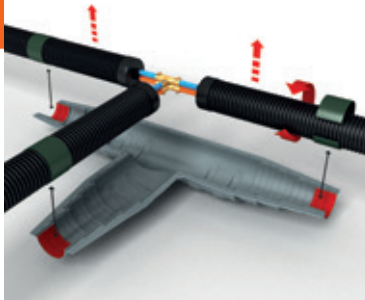
Put the shrink caps on the medium and jacket pipes. Use a heat gun or soft flame in order to shrink the caps. Using protective gloves press the shrink cap on the medium and jacket pipes.

04



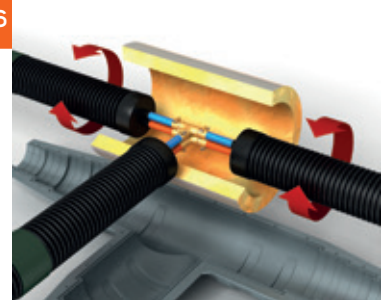
Install connectors according to the mounting instructions of the PE-X terminal connectors.

05



Suit perfectly the bitumen strip to the jacket pipe at the extremities of the T-insulation shells without any overlap and cut the bitumen strip.

06



Install the large rockwool onto the main pipe with self-adhesive tape (not included). The smallest rockwool is fixed around the branching pipe.

07



Both rockwool insulation parts are connected. (tape not supplied)

08



Apply two lines of enclosed sealing compound with a minimum thickness of 5 mm and a width of minimum 4 mm at all shell ends.

09

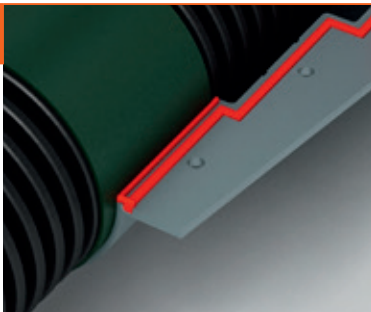


Apply the sealing compound in the grooved area until the groove width is **completely** filled up.

MOUNTING INSTRUCTIONS

T, L and H - insulation kit (TIK - LIK - HIK)

10



At last apply the sealing compound between the bitumen strip and shell, as shown on picture.

11



Connect both shells by using the enclosed stainless steel fastening material. All bolts should be tightened until the sealing compound squeezed out at the shell ends.

12



Use stainless steel plates and bolts for tightening the length of the insulation set. At inner corner use a ring instead of the metal plates.

13



Insulation kit installed according to the instructions.

PRESSURE TEST:

- A pressure test according DIN 1988-2 is mandatory before closing the insulation kit.