

# INSTALLATION INSTRUCTIONS



CLIMAFLEX®

CLIMAFLEX® XT



TECHNICAL  
INSULATION

# INDEX

<b>PREFACE</b>	<b>3</b>
<b>GENERAL INSTALLATION INSTRUCTIONS</b>	<b>4</b>
<b>CLIMAFLEX® ACCESSORIES</b>	<b>5</b>
<b>INSULATING WITH CLIMAFLEX®</b>	<b>7</b>
Insulation when pipes are installed	8
Insulation after pipes are installed	9
Welding pipes	11
<b>INSULATING WITH CLIMAFLEX® XT, THE SELF-ADHESIVE VARIANT</b>	<b>12</b>
Insulating with CLIMAFLEX® XT	14
<b>NMC MITRE BOX</b>	<b>16</b>
Example of cuts for insulating angles and bends	18
Insulating angles and bends by means of the NMC mitre box	19
<b>INSULATION TECHNOLOGIES</b>	<b>20</b>
Insulation of angles with different pipe diameters	21
Insulation of branches	22
Insulation of a pipe reducer	26
Insulation of a valve	28
<b>PRACTICAL TIPS</b>	<b>30</b>
Working with CLIMAFLEX®	30
General gluing instructions	31

# PREFACE

The real professional is a consultant and expert nowadays. To meet this challenge, NMC sa has designed a complete system of pipe shells and accessories for the professional insulation of pipelines: CLIMAFLEX<sup>®</sup>, CLIMAFLEX<sup>®</sup> XT and CLIMAFLEX<sup>®</sup> STABIL.

This brochure was written especially for professionals: to serve as an example for the application of professional insulation materials.

**SAVE ENERGY  
AND PRESERVE  
THE ENVIRONMENT**

# GENERAL INSTALLATION INSTRUCTIONS

These installation instructions describe the most common insulation work and expert execution thereof. They apply to existing pipe installations and to new systems.

Here is some practical information:

- **Tools:** impeccably sharpened knives or cutters, punches corresponding to the most common pipe outer diameters, mitre box with template, flat brushes with short, stiff bristles, measuring tape.
- **Adhesive:** use only NMC-fix<sup>®</sup>. The adhesive is applied in a thin layer on both surfaces. After the insulation work, you must wait 36 hours before you can put the system back into operation. This is important for the adhesive to harden.
- **Working temperature:** do not use below +5 °C to make sure that the adhesive works properly.
- **Measuring and cutting:** take precise measurements, add 3% to 4% for CLIMAFLEX<sup>®</sup> and compress during application to prevent CLIMAFLEX<sup>®</sup> from shrinking longitudinally; insulate the heating pipes only when cold; cut CLIMAFLEX<sup>®</sup> to size using a mitre box.
- **Cleanliness of the materials:** make sure that CLIMAFLEX<sup>®</sup> is clean inside and out. If necessary, wash off any dirt that may be stuck to the pipes, then dry them. The pipes can be washed with INSUL 3005.
- **Dispersion:** can be painted with any commercially available dispersion or binder paint.

# CLIMAFLEX® ACCESSORIES



1.

## CLIMAFLEX® ACCESSORIES



1. The mounting case has been specially designed for the professional processing of CLIMAFLEX® and CLIMAFLEX® XT. It contains: 1 folding rule, punch (Ø 12 to 60 mm), 1 large knife, and 1 set of templates to cut sheets at the right angle (for all Ø up to 114 mm).
2. NMC-fix® adhesive (universal adhesive): based on polychloroprene, available in 250 ml, 500 ml, 1000 ml and 2500 ml tins.
3. PE tape: on rolls of 50 mm x 3 mm x 10 m. Use: at seams, sleeves, slides, boiler outlets and all hard-to-reach places.
4. CLIMAFLEX® PVC self-adhesive tape: roll 33 m, 30 mm wide.
5. CLIMAFLEX® fabric tape: grey, 50 mm x 50 m
6. INSUL 3005 special cleaner

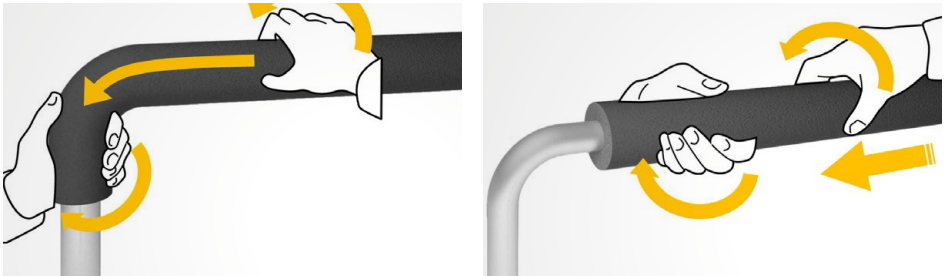
# **INSULATING WITH CLIMAFLEX®**

## INSULATING WITH CLIMAFLEX®

### INSULATION WHEN PIPES ARE INSTALLED

Pipes can be insulated before they are installed by simply sliding the CLIMAFLEX® hoses over them. The individual CLIMAFLEX® pipe sections are sealed with NMC-fix® immediately after fitting at the cut edges.

This processing method can also be used in curved areas. With tightly bent pipes (small diameters), however, there is a risk that the insulation will be thrown over in the angle break of a bend. This leads to a reduction of the insulation layer thickness in this area, so that the insulation layer thickness required for refrigeration and air conditioning systems is no longer maintained and a problem of condensation can arise.



**Note:** To make it easier to slide the hose over the pipe, it is advisable to guide it over the pipe in slight rotary movements. It is important to note that CLIMAFLEX® hoses should always be pushed and not pulled.



# INSULATING WITH CLIMAFLEX®

## INSULATION AFTER PIPES ARE INSTALLED

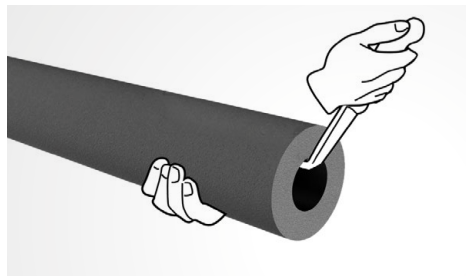
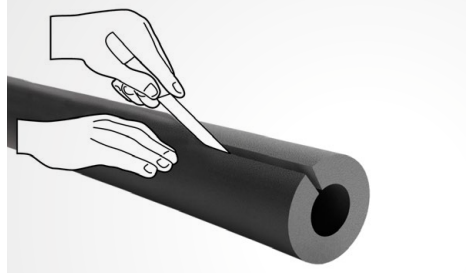
For pipes that have already been installed, the CLIMAFLEX® hose must be slit along the pre-punched point.

**Note:** Guide the knife at a small angle to the cutting surface when slitting to avoid damaging the opposite inside of the hose.

To ensure a good and neat bond, it is necessary that the cut surfaces are even and smooth, so only very sharp knives should be used.

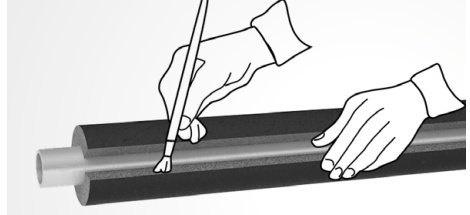
**Recommendation:** Use the slitting knife with a specially shaped handle (which is included in the NMC toolbox) for a clean, straight cut.

**Tip:** ready-slit hoses with self-adhesive strips are already available: CLIMAFLEX® XT

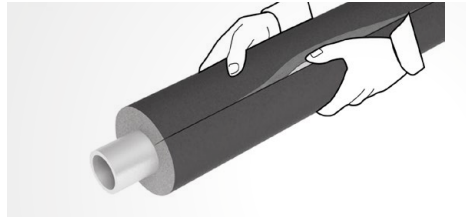


## INSULATING WITH CLIMAFLEX®

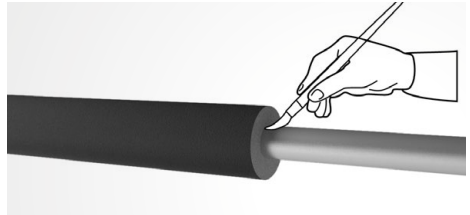
Now apply NMC-fix adhesive on the hose (note the drying time)



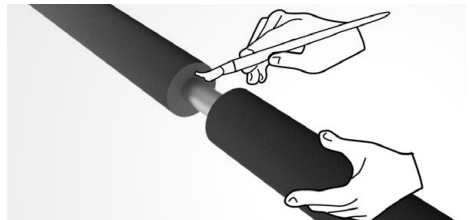
After the NMC-fix adhesive has flashed off and the finger test has been carried out, press the seams from the outer ends towards the middle and glue them together.



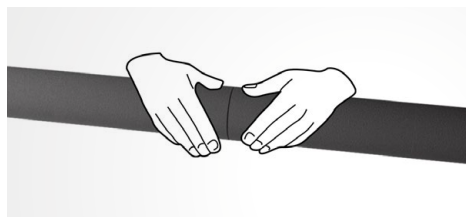
When the hose is in its final position, at least one end of the hose should be fixed to the pipe with NMC-fix adhesive (bulkhead bonding).



Apply the continuing insulation in the same sequence. Apply NMC-fix adhesive to the joint surfaces of the already fixed as well as the connecting hose.



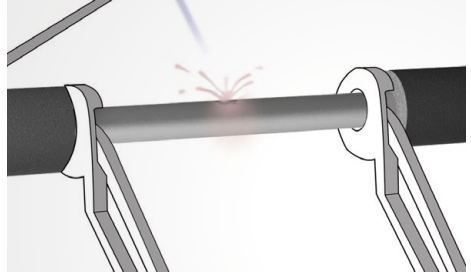
Glue the ends of the hose together by applying light pressure.



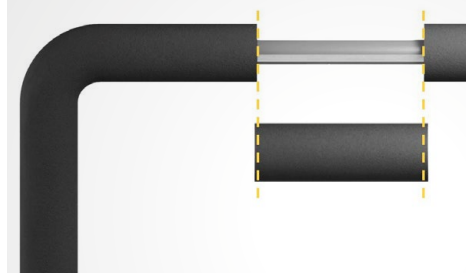
## INSULATING WITH CLIMAFLEX®

### WELDING PIPES

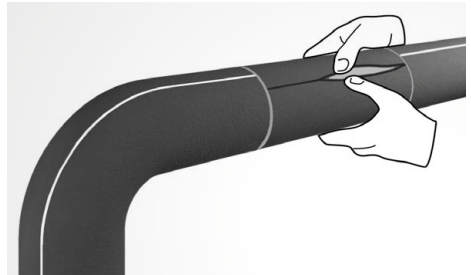
If the pipe is welded, push the insulating hose on each side of the weld seam approx. 25–30 cm to the side and fix it with tongs. Once the soldering and welding points have cooled down, remove the tongs and insulate the pipe completely.



In the case of transitions between two hoses, cut the piece to be inserted slightly longer than necessary to ensure processing under pressure so as not to impair the insulating properties.



Slit the piece to be inserted lengthwise and then glue it properly (longitudinal and butt joints).



**INSULATING WITH  
CLIMAFLEX<sup>®</sup> XT,  
THE  
SELF-ADHESIVE  
VARIANT**

## INSULATING WITH CLIMAFLEX® XT, THE SELF-ADHESIVE VARIANT



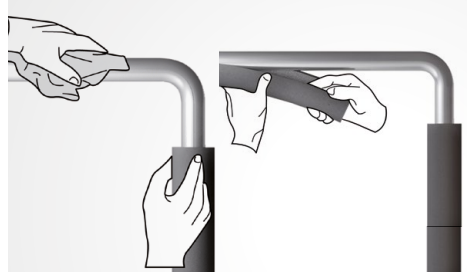
For already installed pipelines where pre-insulation is not possible, NMC recommends using self-adhesive CLIMAFLEX® XT hoses.

The advantages of the XT solutions include that they are easy to handle and that time is saved thanks to shorter installation times. It is also possible to insulate bends with CLIMAFLEX® XT self-adhesive hoses, but extra care should be taken in such a case to avoid throwing the insulation over the bend and thus compressing the adhesive bond.

# INSULATING WITH CLIMAFLEX® XT, THE SELF-ADHESIVE VARIANT

## INSULATING WITH CLIMAFLEX® XT

First use INSUL 3005 special cleaner to remove dust, dirt, oil and water from the pipe. Process the self-adhesive hoses at ambient temperatures between +15 °C and +35 °C.



Put CLIMAFLEX® XT hoses over the pipe. Loosen the end of the cover film and peel it off in sections on both sides.



Carefully join the adhesive seam from inside to outside. Apply sufficient contact pressure at each point of the seam to press them together.



Push the bonded CLIMAFLEX® XT hose over the tube with gentle and careful circular movements. Do not pull and make sure that the insulation is not thrown over in curved areas!



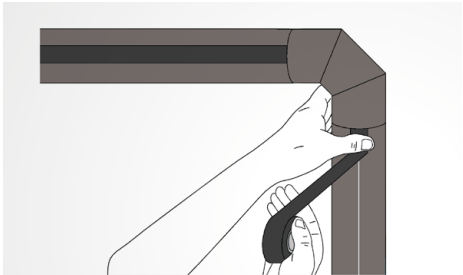
# INSULATING WITH CLIMAFLEX® XT, THE SELF-ADHESIVE VARIANT

Then glue the butt seams with NMC-fix adhesive under pressure.

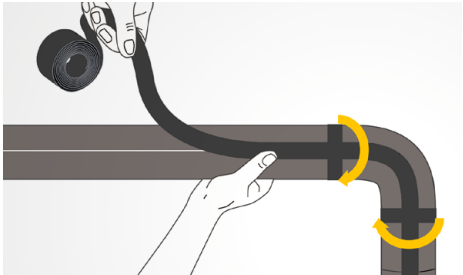


In the area of bends it is always recommended to cut segmental bends. The straight hose sections can be secured further with PE TAPE.

**Note:** It is very important to wait 36 hours before applying PE TAPE so as to be sure that all NMC-fix adhesive solvents have evaporated.



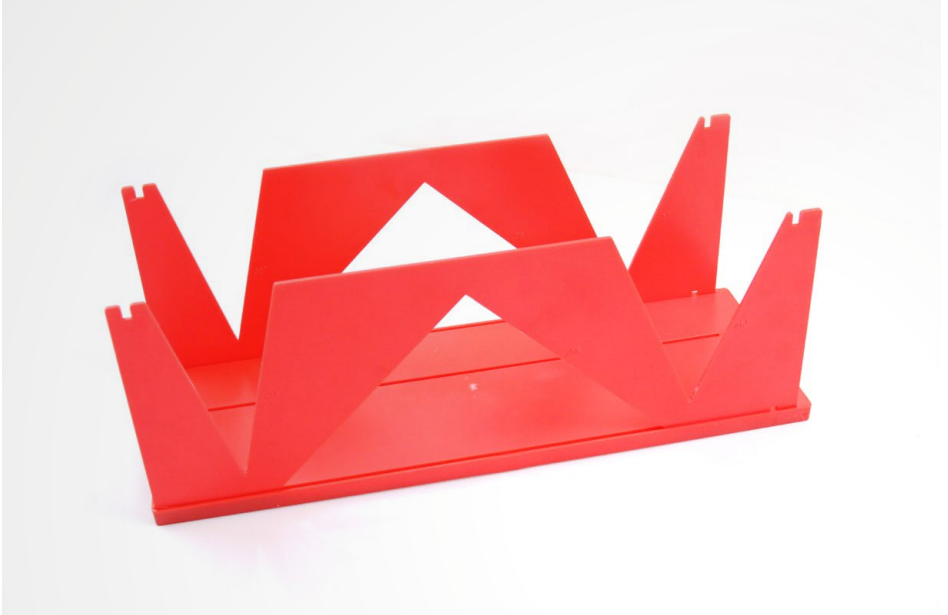
In case of radial bonding it is important to ensure that the PE TAPE is not bonded under tension.



# **NMC MITRE BOX**



## NMC MITRE BOX



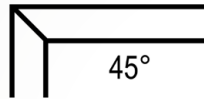
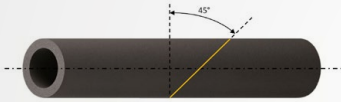
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Various fittings can be produced from hose material with the NMC mitre box. To this end, it is necessary to cut the hoses in different angles as required.

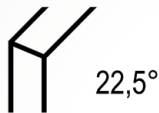
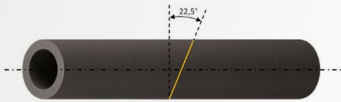
# NMC MITRE BOX

## EXAMPLE OF CUTS FOR INSULATING ANGLES AND BENDS

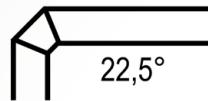
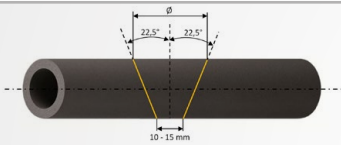
90° elbow insulated thanks to a 45° cut



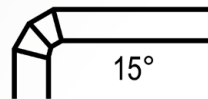
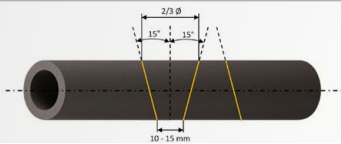
45° elbow insulated thanks to a 22,5° cut



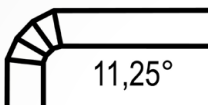
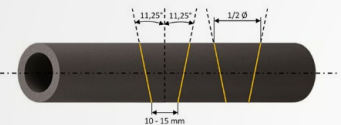
90° elbow insulated thanks to two 22,5° cuts



90° elbow insulated thanks to three 15° cuts



90° elbow insulated thanks to four 11,25° cuts



## NMC MITRE BOX

### INSULATING ANGLES AND BENDS BY MEANS OF THE NMC MITRE BOX

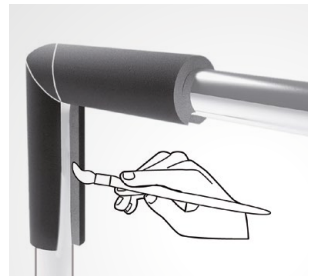
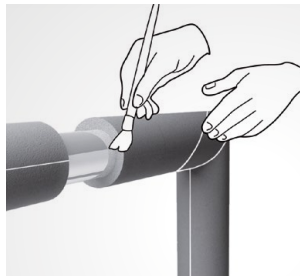
To cut angles and bends with the NMC mitre box, proceed as follows:

- Place the CLIMAFLEX® hose section parallel to the horizontal line of the cutting template.
- Select the required cutting angles and cut the hoses along the line. Make sure that the hose section is well fixed and cannot slip. Glue the cut shaped parts together again with the appropriate twist.

Glue the different shaped parts together ...



Make sure that the parts are glued firmly together before you cut them ...



Then mount the bend on the pipe and glue it.

# **INSULATION TECHNOLOGIES**

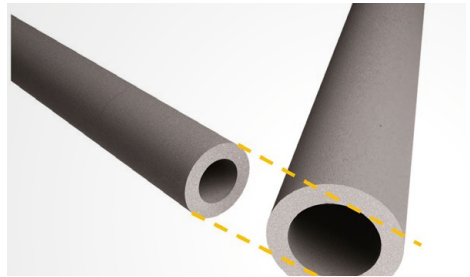
## INSULATION TECHNOLOGIES

### INSULATION OF ANGLES WITH DIFFERENT PIPE DIAMETERS

If the angle of a pipe has a different outer diameter than the straight pipe sections, the straight pipe sections must be insulated first as afore-indicated.



A CLIMAFLEX® hose must be selected whose inner diameter corresponds to the outer diameter of the hose installed on the straight pipe sections.

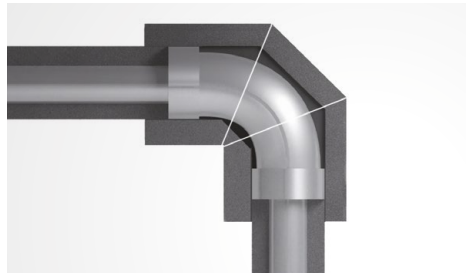


The appropriate angle can now be cut from the larger hose, analogous to the shaped parts on the previous pages.

Do not forget to glue all parts together.



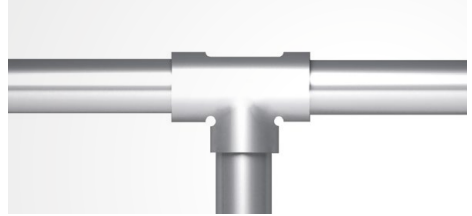
The same procedure is applied for the insulation of segmental bends.



# INSULATION TECHNOLOGIES

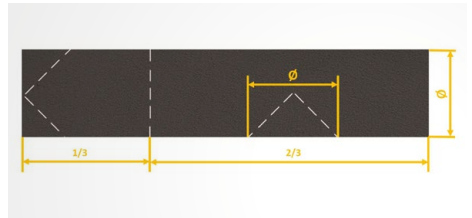
## INSULATION OF BRANCHES

Branches can be insulated in different ways, either by means of 45° cuts or by punching a hole.



### T-piece by means of 45 ° cuts

Cut the hose into two parts, so that they are 1/3 and 2/3 of the total length respectively.



Cut the shorter section using the NMC mitre box from the end piece, starting from the centre line, at an angle of 45°.



From the centre of the larger hose section, cut a 90° wedge from the middle of the larger hose using two 45° cuts, corresponding to the outer diameter of the hose (saddle cut).

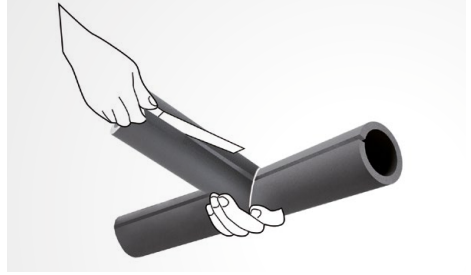


Now join the two cut pieces to a „T“ and glue them together.



## INSULATION TECHNOLOGIES

After gluing, slit the T-piece open on the inside.



Place the T-piece on the pipe and glue all joints, taking the flash-off time into account. The NMC-fix adhesive can be applied on the pipe before or after application.



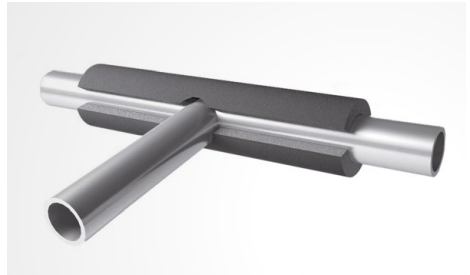
## INSULATION TECHNOLOGIES

### T-piece by punching

It is possible to make a T-piece by punching:  
punch a hole in the insulating hose with the  
appropriate ground pipe.



Now slit the hose lengthwise to lay and glue  
the pipe to be insulated.



Make a saddle cut on the counter piece and  
glue it.



Then glue the joint surfaces together.

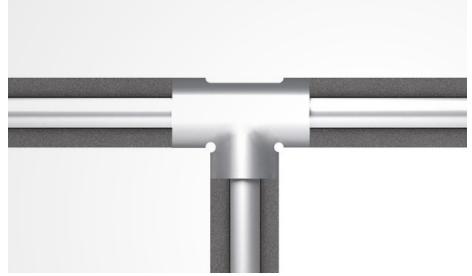




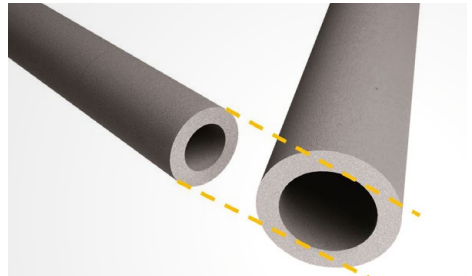
## INSULATION TECHNOLOGIES

### Branches with different diameters

In a T-junction with different pipe diameters, insulate the adjacent pipes first.



When cutting the T-pieces to size, select a CLIMAFLEX® pipe insulation whose inner diameter corresponds to the outer diameter of the hose already installed.



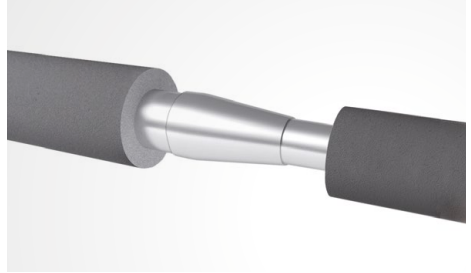
When applying the T-piece, make sure that the adjacent insulation is overlaid by the T-piece and glued together.



## INSULATION TECHNOLOGIES

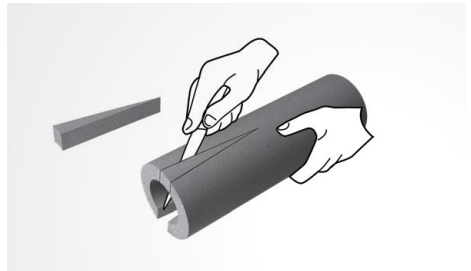
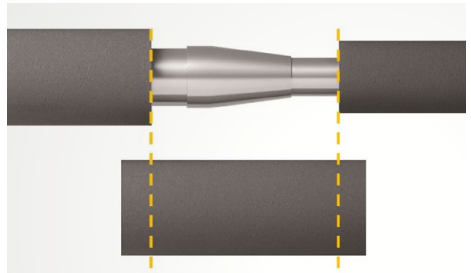
### INSULATION OF A PIPE REDUCER

To insulate a reducer, leave enough space between 2 pipes with different diameters.



Take a hose piece with the larger diameter.

**Note:** The hose piece should be slightly longer than required.



Cut out two wedges of the same size from this piece of hose and glue the cut surfaces together, so that the hose diameter is reduced.

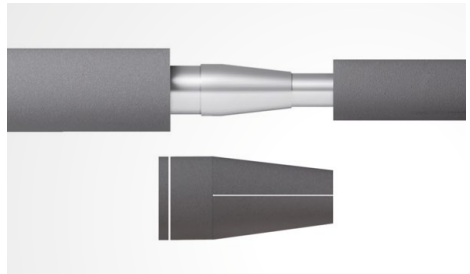


## INSULATION TECHNOLOGIES

Shorten the hose piece on the narrower side so that the diameter at the end of the hose corresponds to the size of the reduced diameter.



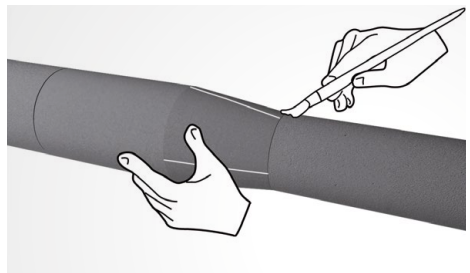
Then shorten the hose on the other side to the optimal length. Make sure that it is not cut too short, so that processing under pressure can be guaranteed.



The hose piece must be slit lengthwise in order to be mounted on the pipe. To do this, choose a different position than the already slit and glued areas.



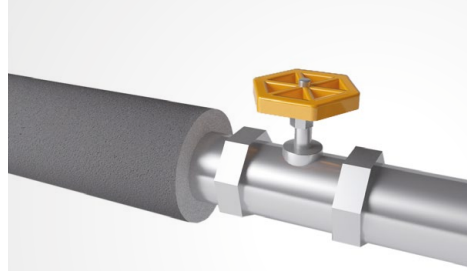
Now mount the hose piece on the pipe and glue the longitudinal seams and the joints of the adjacent hoses, taking the flash-off time.



## INSULATION TECHNOLOGIES

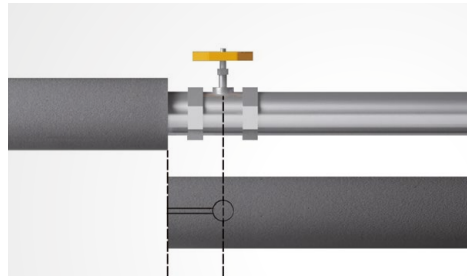
### INSULATION OF A VALVE

A valve can be insulated in different ways depending on the type and size.

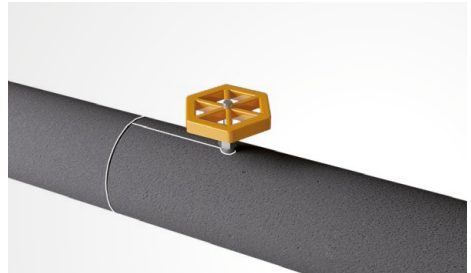


#### For small valves

Cut the CLIMAFLEX® hose to the required length and punch a hole for the hand wheel.



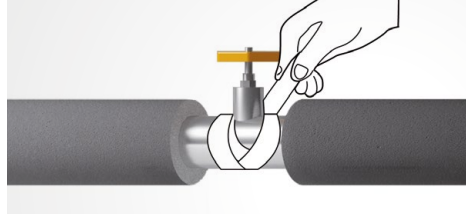
Mount the hose on the pipe, adapt it to the valve and glue it.



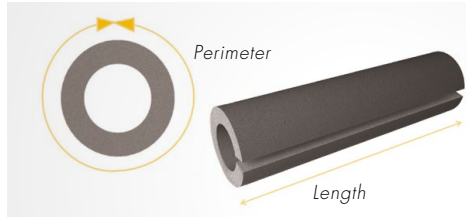
## INSULATION TECHNOLOGIES

### For large valves

Insulate the pipes to the left and right of the valve first. Then wrap the valve with appropriate PE tape.



To wrap the valve, a CLIMAFLEX® hose of the same dimension is cut to length so that the length corresponds to the outer circumference. Now slit the hose lengthwise.

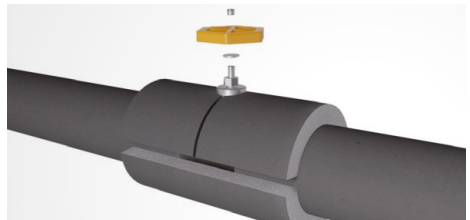


Cut the hose a little and punch a hole for the valve at the end of the cut.



This hose part (valve sheathing) must be installed in such a way that the already insulated pieces overlap by at least the insulation thickness.

The hand wheel can be removed for assembly if necessary.



Now glue the overlapping parts and the seams. Another hose section can be attached around the valve if necessary.

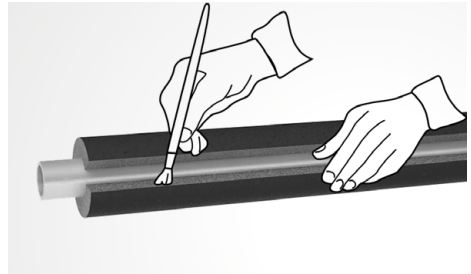


# PRACTICAL TIPS

## WORKING WITH CLIMAFLEX®

Gluing the longitudinal seams of the pre-slit CLIMAFLEX®:

Apply the slit CLIMAFLEX® insulation onto the clean pipe. Let the NMC-fix adhesive dry until it shows a dry surface when touched. Press the longitudinal seams together from the end of the hose to the middle and move them on the pipe to be insulated in order to glue the connection joints also.



Never lay the adhesive seams on the hose and panel under tension, but always under pressure.

Short and thin hose can be rolled up as shown and then coated with NMC-fix adhesive.

In this way the hose can be laid on the pipe to be insulated quickly and cleanly.



## PRACTICAL TIPS

### GENERAL GLUING INSTRUCTIONS

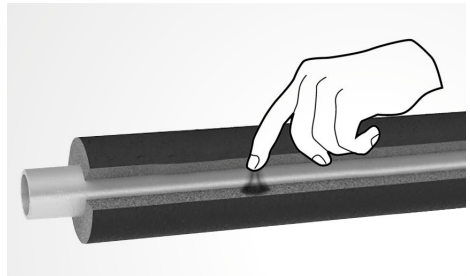
The „finger test“ is carried out to check whether the applied adhesive has flashed off sufficiently.

#### General basic rules:

Check with a fingertip whether the NMC-fix adhesive

- a) is still pulling threads and/or
- b) feels cold.

The flash-off time must be extended in both cases



[www.nmc-insulation.com](http://www.nmc-insulation.com)

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**nmc**