UNION FOAM

INSULATION

INSTRUCTION FOR APPLICATION

INTRODUCTION

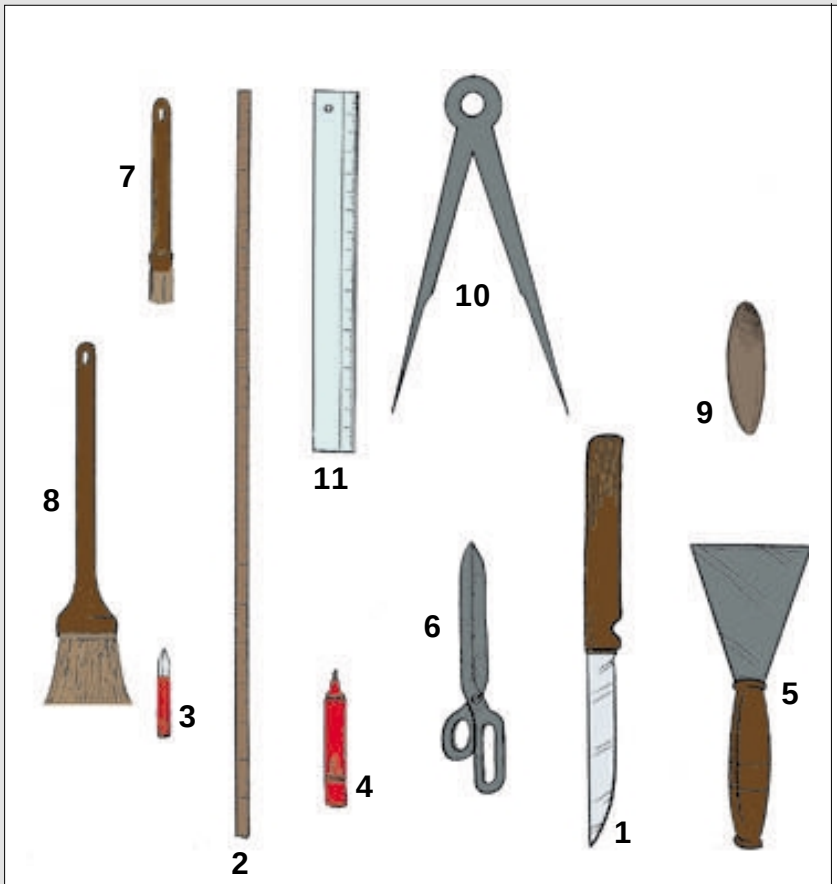
The present manual is supplied to those who use and install expanded-elastomeric insulation in order to furnish a practical guide to the use and good installation of insulation material for civil and industrial plant systems.

The information contained herein is meant to be taken solely and exclusively as suggestions and hints, since the installation of the insulation material does not fall within our jurisdiction and, thus, cannot be guaranteed, even as regards the extremely variable working conditions that may exist from one case to the next.

UNION FOAM S.P.A. can only guarantee the constant quality of the material and that it conforms to the published technical data.

INTRODUCTION

TOOLS USED FOR INSULATION WORK



1 - Long-bladed knife

2 - Tape measure

3 - Chalk

4 - Marking pen

5 - Spatula

6 - Scissors

7 - Small brush

8 - Brush for large surfaces

9 - Knife-sharpener

10 - Compass

11 - Stiff ruler

TECHNICAL CHARACTERISTICS AND TYPE OF ACCESSORIES USED FOR INSTALLATION

In order to facilitate the installation of the insulation material, **UNION FOAM SpA** have perfected a wide range of accessories. Their correct use is fundamental in order to guarantee the continuing quality of the entire insulation system, its characteristics of impermeability, of resistance to temperature and to ageing, ensuring moreover an aesthetically pleasing look to the finish.

THE ADESIVE CNX

A contact adhesive based on chloroprene, synthetic resins, and solvents. Suitable for sticking on insulation material made both of polyethylene insulation and of expanded synthetic rubber, our CNX glue is highly resistant to ageing and can withstand temperatures of up to + 110° C. It must be applied when the ambient temperature is not less than +10° C and is not more than +30° C. and, in any case, not when the plant is working or in the sun. The adhesive must be stirred before use and, before the plant can begin operating again, be left to dry for 24 hours. Surface area covered by glue: around 3-4 sq.m. /kg. Drying time before sticking: from 5 to 10 minutes. At an ambient temperature of 20° C.

COLOURED ELASTOMERIC PAINT

Semifluid paste that can be used to protect expanded material installed outdoors from ultraviolet rays.

TECHNICAL CHARACTERISTICS AND TYPE OF ACCESSORIES USED FOR INSTALLATION

TAPE FPX-10

Self-adhesive insulating tape in closed-cell expanded elastomer. Composed of the same material used in the production of the elastomeric sheet, it retains all its insulating characteristics and impermeability. Our FPX-10 is reinforced by means of a polyester fibre webbing that prevents it tearing or stretching excessively while being laid. It is rendered adhesive by means of a permanent vinyl acrylic glue, the only type of adhesive that guarantees a resistance to temperatures of from –20° C to + 100° C and that, moreover, allows the tape to be applied at an ambient temperature of only 5° C. The FPX-10 tape also stands up well to UV rays and water and sticks to different types of surfaces. It is suitable for condensationproof insulation of accessories and for all those points that are difficult to reach.

TAPE BCA 9

An insulating tape in bituminous conglomerate. It is a product based on resin, rubber and bitumen. It is self-conglomerating, and the fact that it adapts itself to the form of the underlying surface makes it particularly suitable for insulating those parts with a complicated form. Suitable for condensationproof insulation, achieved by placing one layer on top of another, it can also be used for hot piping up to a temperature of around 80° C.

USEFUL TIPS FOR CARRYING OUT GOOD INSULATION WORK

Straight piping with diameters of over 160 mm (Fig 4c, 4d, 4e, 4f)

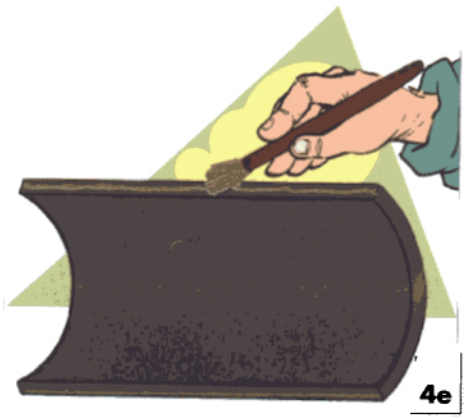
A) Wrap a strip of insulating sheet of the required thickness around the piping **(Fig. 4c)** and measure off the circumference

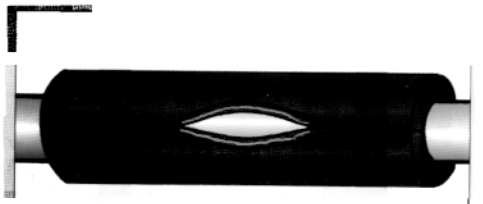
B) Mark the size on the sheet and cut **(Fig. 4d)**

C) Glue the parts to be stuck together **(Fig. 4e)**

D) Insulate the piping **(Fig. 4f)**


4d


4e


4f


4c

USEFUL TIPS FOR CARRYING OUT GOOD INSULATION WORK

GLUING

In order to enable the operator to carry out the gluing in the best manner, hereunder are some practical hints:

A) Always check that the ambient conditions are optimal (see the instructions written on the cans or on the glue's technical data sheets). Use small-sized cans to prevent the solvents contained in the CNX glue from evaporating too quickly due to their being exposed to air for too long.

B) Always use brushes of a suitable size (depending on the surface to be glued) with hard, short bristles.

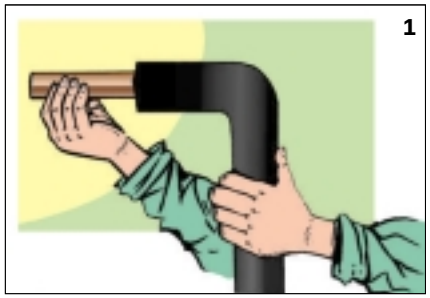
C) Spread the CNX glue in a sufficient quantity and with a certain regularity over the surfaces to be glued, being careful that said surfaces are clean and absent of eventual impurities such as dust, dirt, oil or grease.

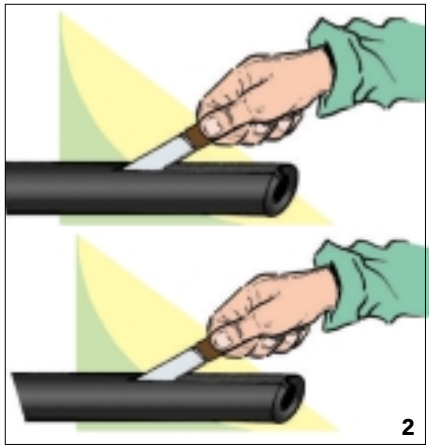
D) Before connecting up the surfaces treated with CNX, it is a good idea to allow the glue's solvents to evaporate; remember that CNX adheres best when the glue is no longer stringy to the touch (see illustration below).

As soon as these conditions are met, one can go ahead, using finger pressure, to unite the surfaces in question.

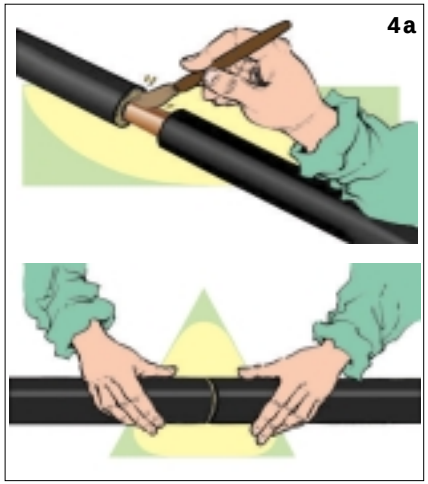
PRATICAL USE

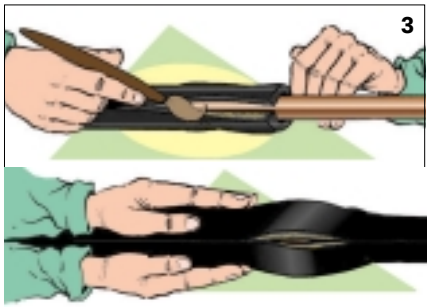
1 - INSULATION OF PIPING





Cut the tube of insulating material lengthways





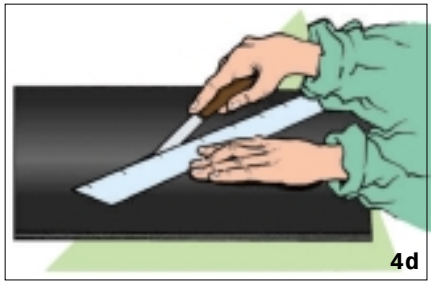
Spread the CNX glue over the surfaces and unite them

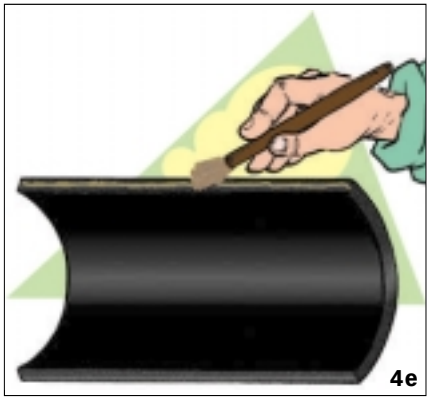
When the ends of the piping are free (not in use) it is sufficient to simply slip the tube of insulating material over it. The insulating material can even be slipped around bends **(Fig. 1).**

N.B. The limitations as regards slipping the insulation around piping are as follows:
For insulating material with a thickness of 6, 9 or 13 mm., pipe diameters of up to 1 1/4" (42-43 mm.);
For insulating material with a thickness of 19 mm., pipe diameters of up to 3/4" (27-28 mm.);
For piping with larger diameters than those shown above or that has already been installed, follow the method shown in **Fig. 2** and **3**.

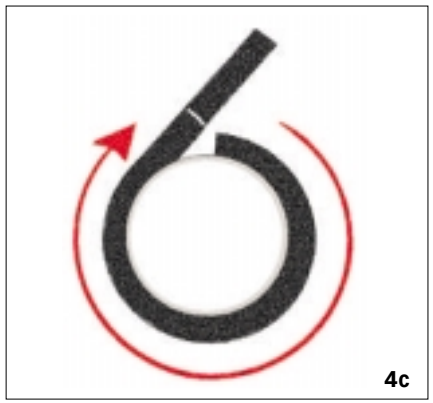
TIP: To obtain the best insulation, it is also good practice to glue together the ends of the tubes of insulating material **(Fig 4a** and **4b**).

1 - INSULATION OF PIPING


4d


4e


4f


4c

Straight piping with diameters of over 160 mm (Fig 4c, 4d, 4e, 4f)

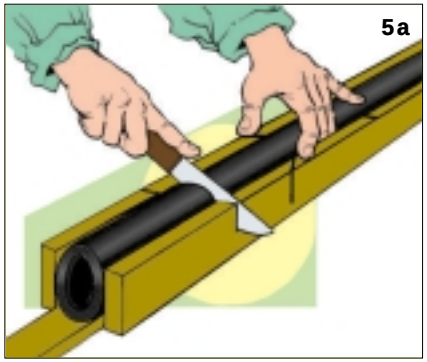
A) Wrap a strip of insulating sheet of the required thickness around the piping **(Fig. 4c)** and measure off the circumference

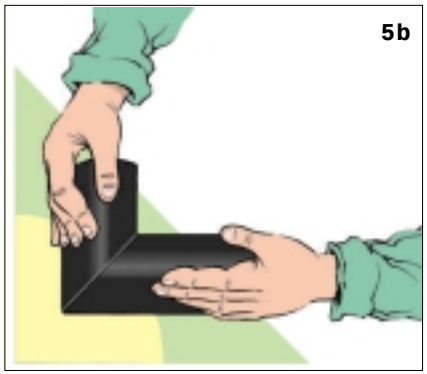
B) Mark the size on the sheet and cut **(Fig. 4d)**

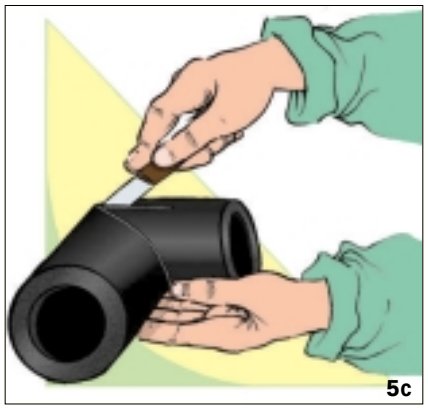
C) Glue the parts to be stuck together **(Fig. 4e)**

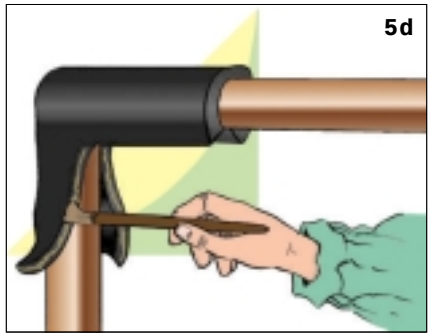
D) Insulate the piping **(Fig. 4f)**

2 - INSULATION OF BENDS









ELBOWS

Follow the indications shown in **Fig. 5a, 5b, 5c, 5d.**

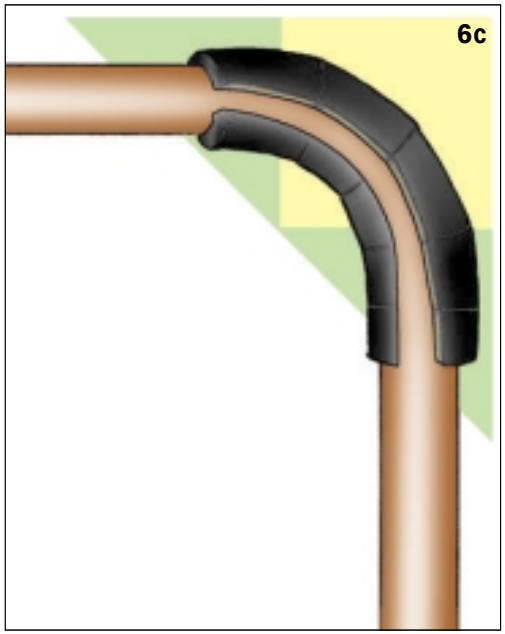
A) Slice the tube of insulating material at an angle of 45°

B) Unite the two sliced parts

C) Cut lengthways along the piece thus obtained

D) Slip the insulating material around the piping and glue the cut sides together.

2 - INSULATION OF BENDS



NORMAL CURVES

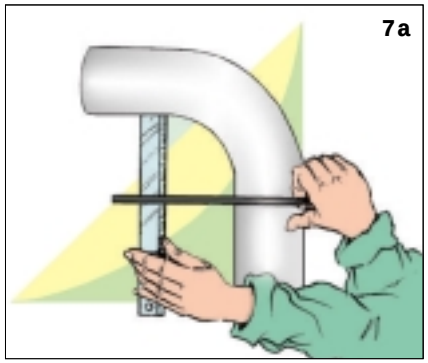
Fig. 6a, 6b, 6c.

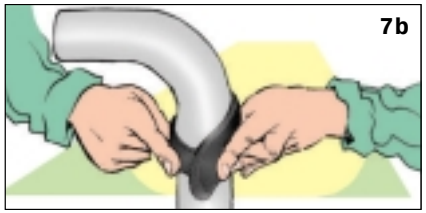
A) Slice the tube of insulating material into 3, 4 or 5 sections as shown in the figure **6a**.

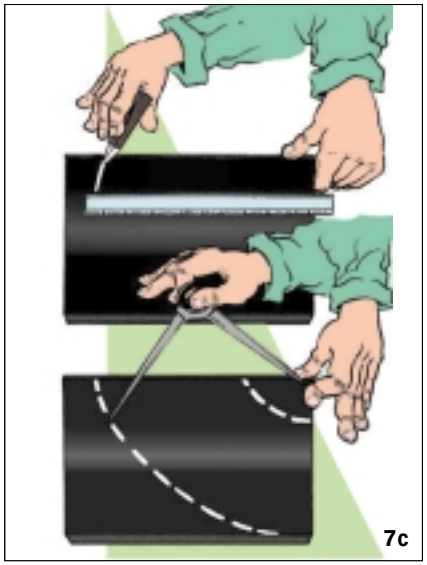
B) Using CNX glue, join the various sections together **(fig. 6b).**

C) The piece thus obtained is then cut lengthways, placed around the piping and its two sides are glued together **(fig. 6c).**

2 - INSULATION OF BENDS







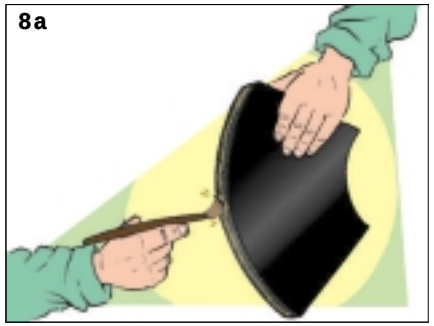
CURVES WITH A LARGE RADIUS

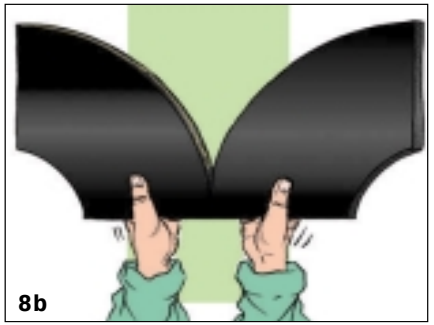
A) Measure the internal radius of the curve that needs insulating **(Fig. 7a).**

B) Measure the circumference of the piping by using a piece of the sheet of insulating material whose thickness is the same as that to be used for the insulation **(Fig. 7b).**

C) Using the chalk, mark out the measurements obtained onto the sheet of insulating material and, using a compass, trace out the curve **(Fig. 7c).**

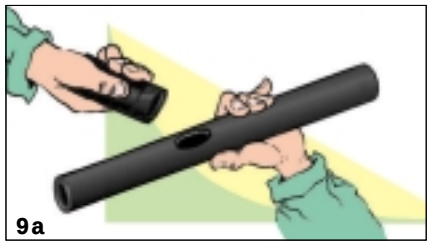
2 - INSULATION OF BENDS

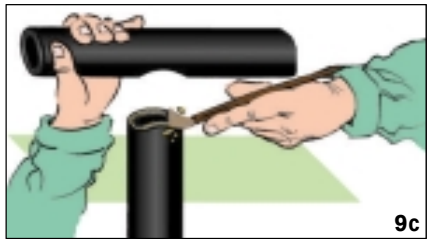


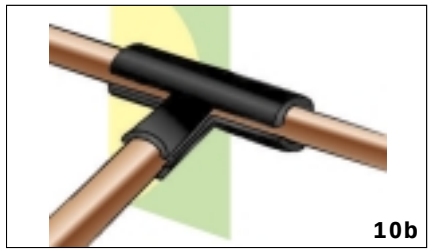


D) Cut out the first section thus obtained and use it as a template to cut out the second one, then glue them together as shown in **Fig. 8a, 8b, 8c, 8d, 8e.** After which, place the piece thus obtained in position.

3 - INSULATION OF BRANCHES AND REDUCTIONS







T-SECTIONS

Follow the sequences as shown in **Fig. 9a** and **9b.**

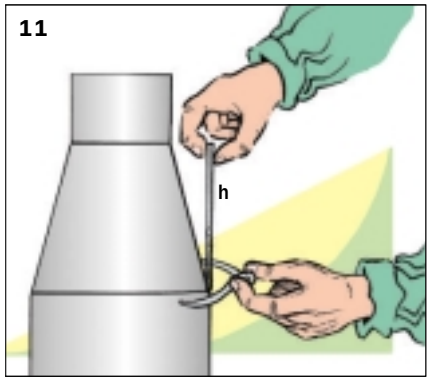
Use a specially sharpened metal tube whose diameter is the same as the branch to be inserted **(fig. 9a).**

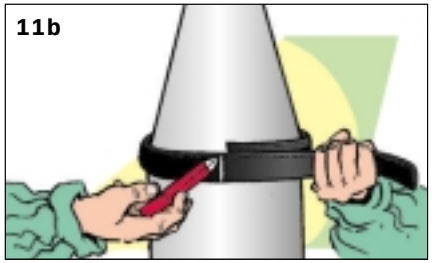
Cut the tube of insulating material at angles of 45° (two sections of a suitable size) **(fig. 9b).**

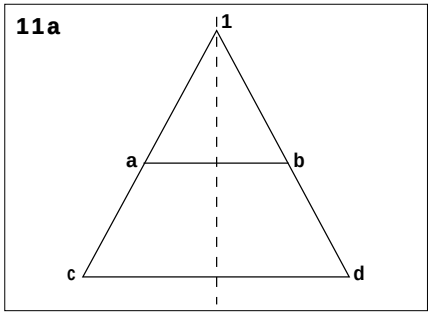
In both cases, join up the pieces thus obtained with CNX glue.

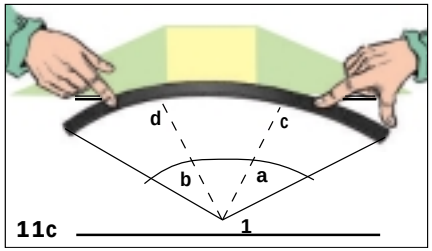
Now cut the pieces as shown in **Fig. 10a** and connect them to the piping as indicated in **Fig. 10b,** applying CNX glue to the surfaces.

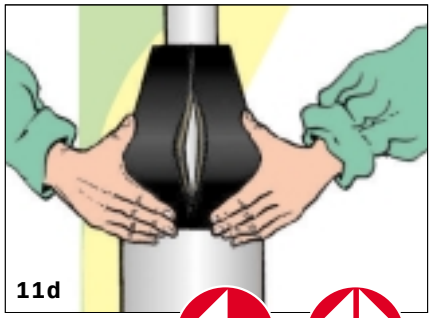
3 - INSULATION OF BRANCHES AND REDUCTIONS











REDUCTIONS

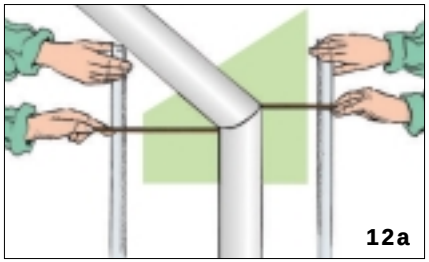
Fig. 11 Measure the height h (including the welded part) of the piece to be insulated as well as the diameter at the narrow and wide end added to twice the thickness of the insulating material.

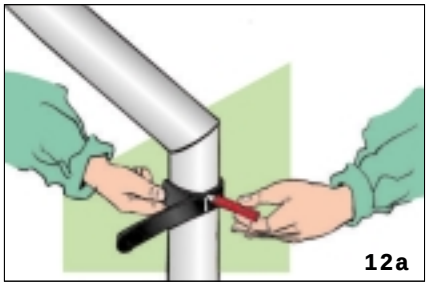
Mark said measurements on the sheet of insulating material, being careful to mark out the median. With one leg of the compass fixed in point 1, trace out the two arcs of circumference that touch the external points of segments **ab** and **cd (fig. 11a).**

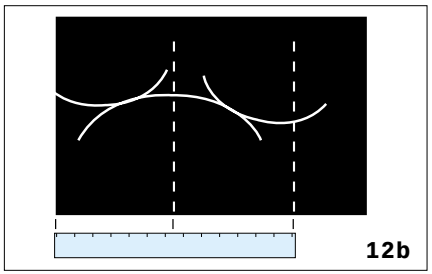
With a strip of the same thickness used, measure the circumference of the piping, after which half the circumference is marked on the median, thus pinpointing points **c** and **d (fig. 11 b** e **c)**.

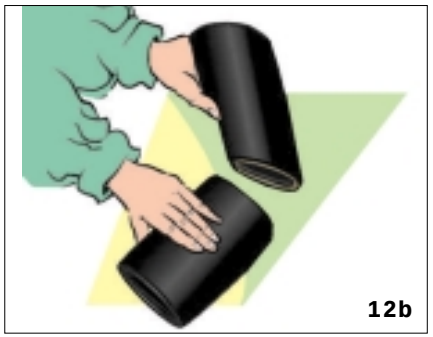
Connect up the points thus obtained, then cut, glue with CNX glue and join up **(fig. 11d).**

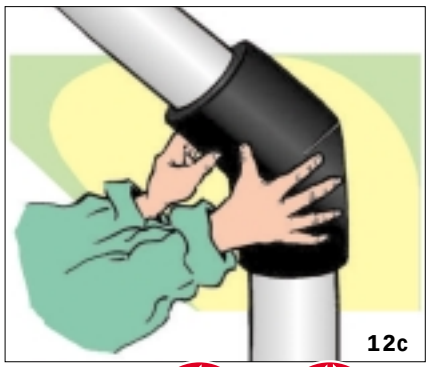
3 - INSULATION OF BRANCHES AND REDUCTIONS









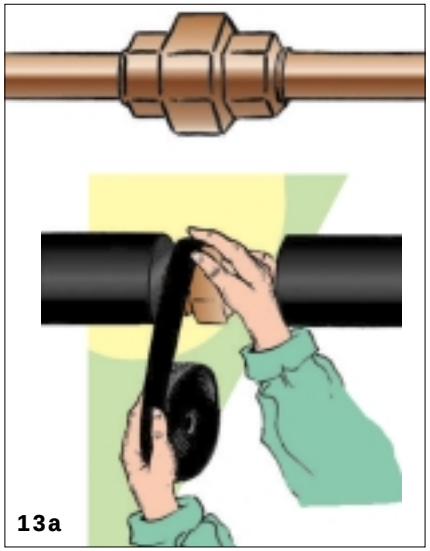


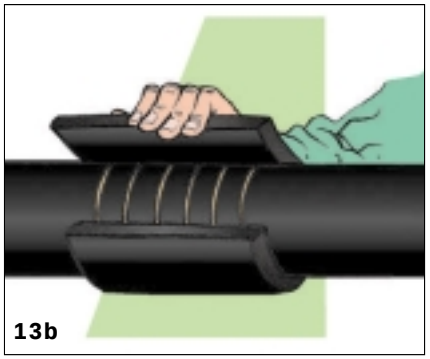
INSULATION OF ANGLED PIPING

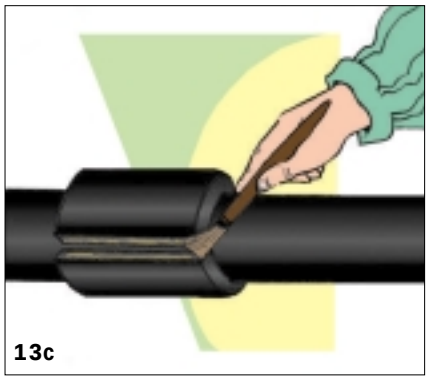
The procedure is similar to the one used to insulate elbow joints, being careful to mark the sizes of the pipe's circumference and internal and external dimensions on the sheet (sequences as in **Fig. 12**)

Then, with CNX glue, glue the pieces onto the piping in question (**Fig. 12b** and **12c**)

4 - INSULATION OF FLANGES AND CONNECTIONS


13a


13b

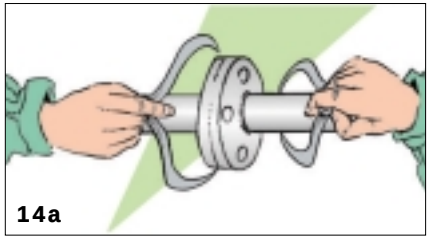

13c

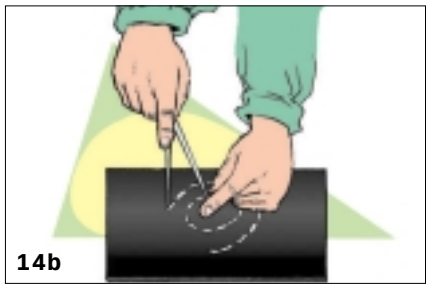
CONNECTIONS

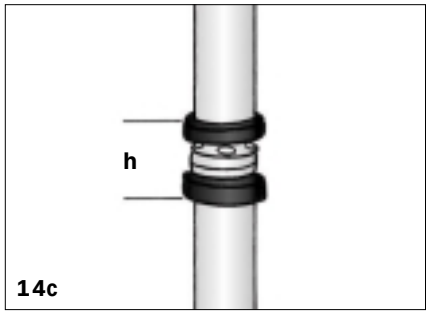
Follow the instructions as illustrated in the following figures **(13a, 13b, 13c)**

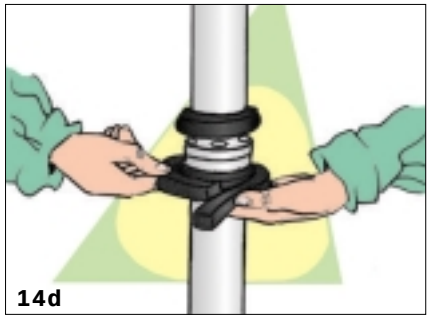
Having insulated the piping with the tube of insulating material, cover the connection with FPX self-adhesive tape **(Fig. 13a)**, over which should be placed, after taking the necessary measurements, a tube of insulating material with the correct diameter, then stick on with CNX glue **(Fig. 13c).**

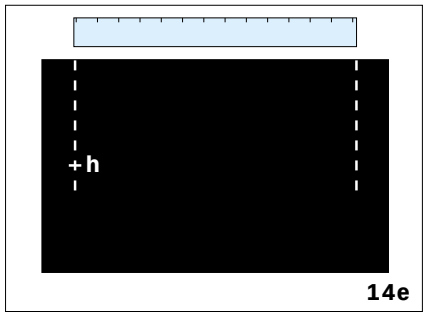
4 - INSULATION OF FLANGES AND CONNECTIONS

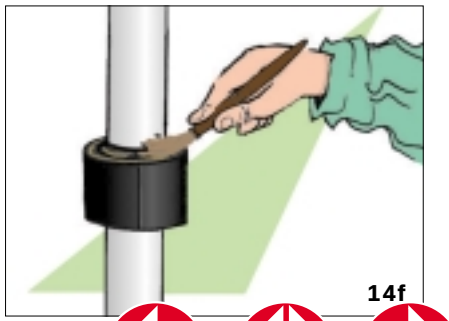










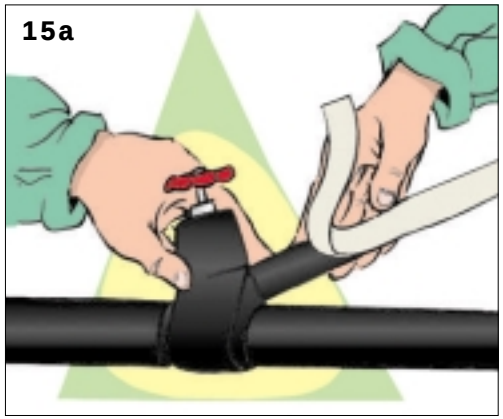


FLANGES

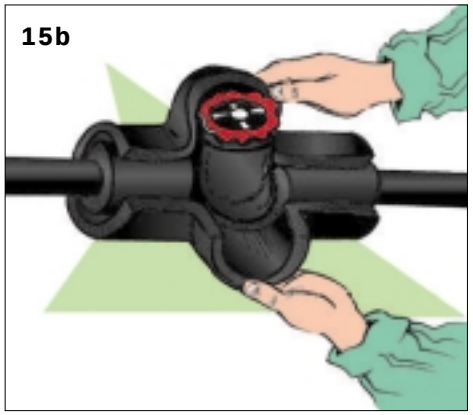
Proceed as per **Fig. 14**
Measure the external diameter of the tube of insulating material and of the bare flange **(Fig. 14a).**
With the compass, trace out the two circumferences on the sheet **(Fig. 14b)** and cut out the two gaskets, which are then glued on as illustrated in **Fig. 14c.**
Measure the parts as illustrated in **Fig 14c** and **14d.**
Trace out the measurements thus obtained onto the sheet **(Fig. 14e)** and then cut out.
Then glue on **(Fig. 14f).**

5 - INSULATION OF VALVES

15a



15b

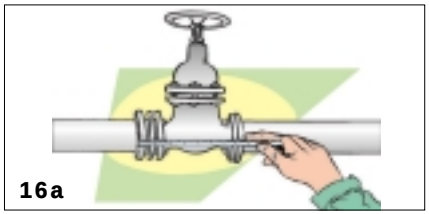


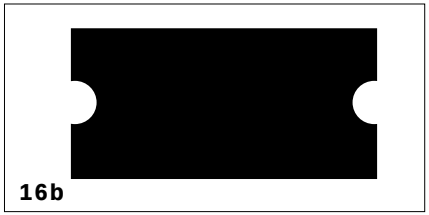
SMALL VALVES

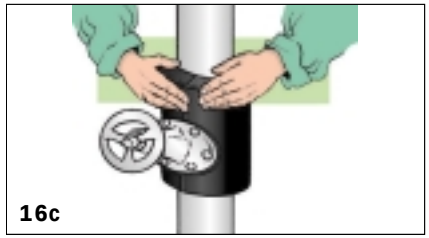
Having insulated the piping, follow the procedure indicated in **Fig. 15a** and **15b.**

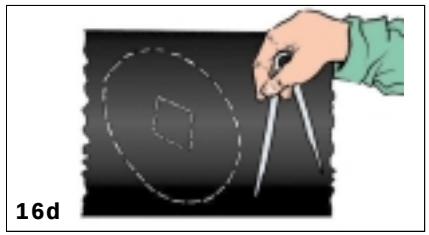
A) Cover the valve with FPX self-adhesive tape **(Fig. 15a).**
B) After taking the necessary measurement, make a jacket in insulating material and then glue it on with CNX glue **(Fig. 15b).**

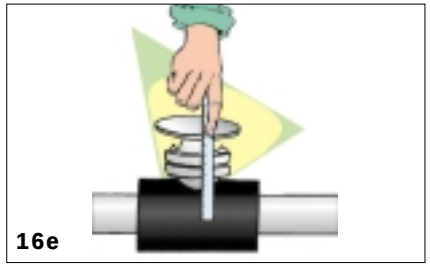
5 - INSULATION OF VALVES

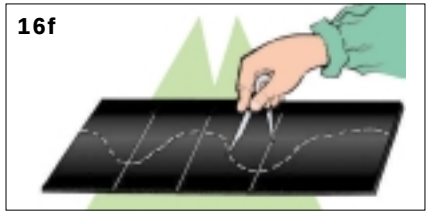

16a

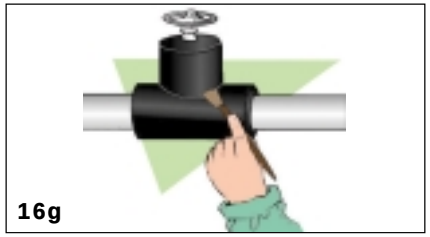

16b


16c


16d


16e


16f


16g

LARGE VALVES

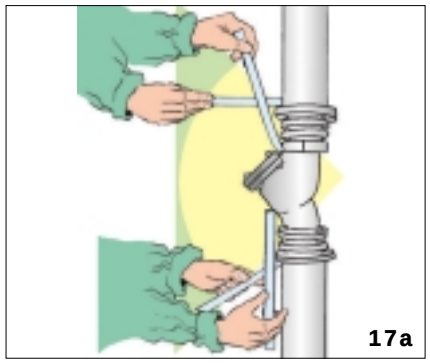
Follow the procedure for the insulation of flanges as previously illustrated using a sheet of insulating material.
Take the measurements as per **Fig 16a** and transfer them onto the sheet, then cut out the piece thus obtained.

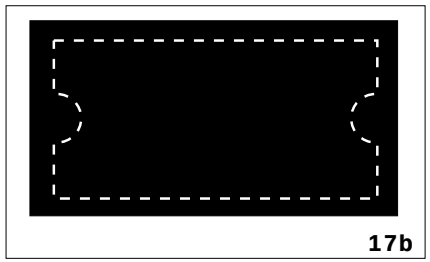
After applying CNX glue to the two ends, unite the two surfaces around the body of the valve **(Fig. 16c).** Measure, transfer onto the sheet and cut out the frontal disk **(Fig. 16d).**

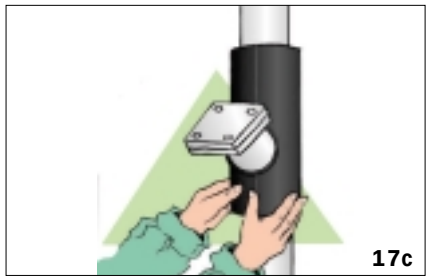
Measure and transfer onto the sheet the measurements obtained as per **Fig. 16e.**

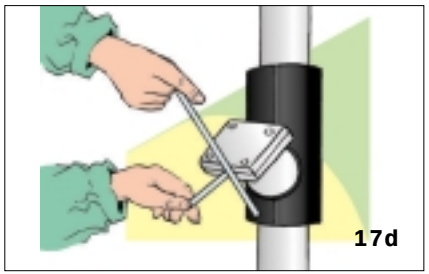
Elaborate said measurements as per **Fig. 16f** and cut out. Finish off the valve as per **Fig 16g**, ensuring that CNX glue is applied to the various parts.

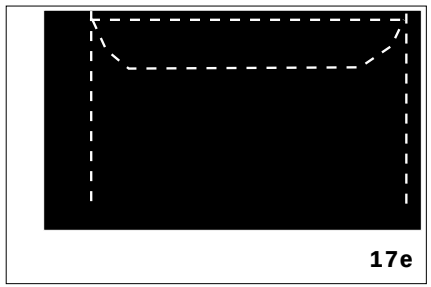
5 - INSULATION OF VALVES

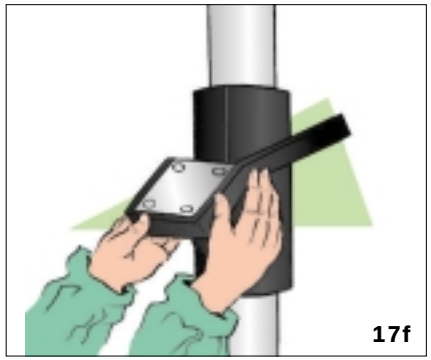

17a


17b

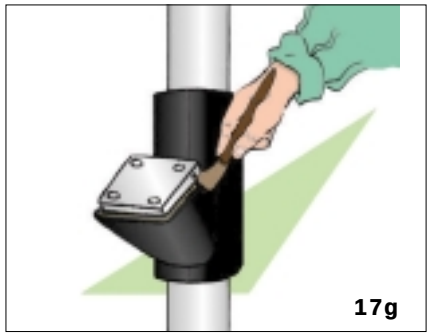

17c


17d

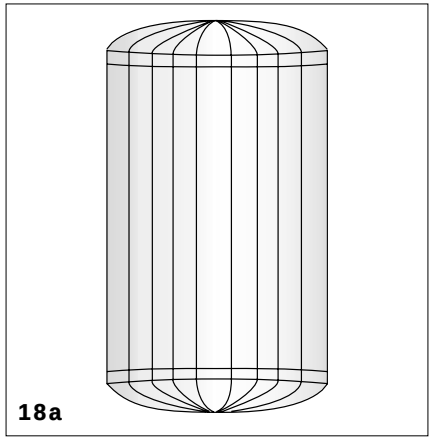

17e


17f

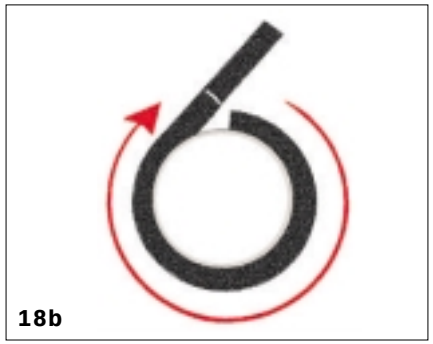
The same procedure is used to insulate the surfaces of inclined valves **(Fig. 17a, b, c, d, e, f, g).**


17g

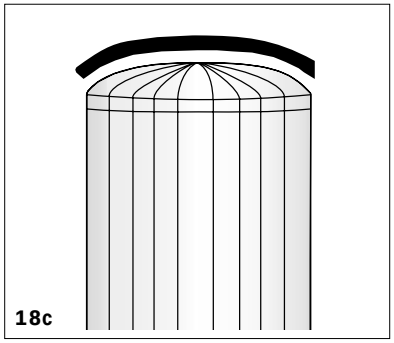
6 - INSULATION OF TANKS



18a



18b



18c

The correct procedure involves insulating the cylindrical part after taking the correct measurements and transferring them onto a sheet of insulating material **(Fig. 18b).** Glue on with CNX glue, being careful to spread the glue on the surface of the tank and on the sheet.

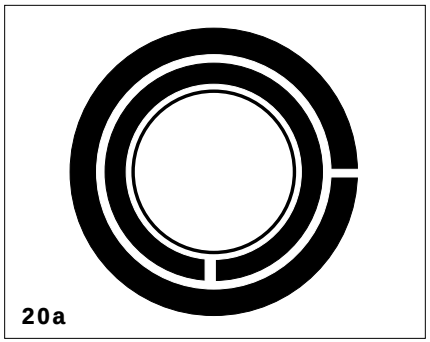
Then go on to insulate the tank's top and bottom parts **(fig 18c).** Pay particular attention when sealing the various pieces together with CNX glue.

7 - INSULATION OF PLANE SURFACES

19

Measure the surface to be insulated and, after transferring the measurement onto a sheet of insulating material, cut out. Then, after checking that the walls to be insulated are clean, proceed to spread the CNX glue first on the sheet, then on the surface. Continue with the insulation and joining of the various surfaces **(Fig. 19)**

8 - MULTILAYER INSULATION



20a

20b

Follow the procedure as illustrated in **Fig. 20a** and **20b.**
It is important that the junctures between the various overlapping layers do not correspond; thus ensuring greater safety in the event of anti-condensation insulation being effected. The CNX glue for tubes and for sheets should be adequately spread over all the surfaces that are to be stuck together.