

Topic 11 INSULATION OF PIPES

Practical Exercise -4:

Working with the sample implementation provided

The implementation with uncoated mineral wool in tubular form is described in the steps below. Apply this implementation in your own school or at home by providing the necessary materials.

TOOLS & MATERIALS

- Working sheets
- Tubular thermal insulation material made of Glass wool or Rock Wool
- Stationery knife
- Galvanized wire
- Plastic strap
- Steel strap
- Plastic coating material
- Plastic rivet
- Plastic elbow
- Plastic tape
- Rivet or nail

Step 1: There are slits in the middle of the tubular heat insulation material, which is made of glass wool or rock wool used in these implementations so that it can be easily passed into the pipe. The implementation ends with coating on the outer side of the insulation material. In order for the application to be made, both the pipe to be insulated and the insulation material must be at least 10°C. For this reason, it is necessary for the insulation material to rest for a certain period of time in order to adapt to the environment's temperature.

Step 2: It is inserted into the pipe through the longitudinal slots on the insulation material and compressed, and depending on the outer diameter, it is connected with galvanized wires, plastic belts or steel belts with a maximum interval of 300 mm. In transverse connections; if the outer diameter of the insulated pipe is less than 500mm, galvanized wires are used, and if the outside diameter is over 500mm, plastic or steel straps are used. In case the required insulation thickness is reached by implementing two layers, attention should be paid to staggering the joints. In implementations with a single layer, extra care should be taken to ensure that the joint is at the bottom of the pipe.



- 1) Must be smaller than 300mm
- 2) Transverse connections
 - Galvanized wire Outside diameter < 500mm
 - Steel strap Outside diameter > 500mm
- 3) Outside diameter

Implementation with prefabricated insulation materials



Step 3: Elbows are insulated by cutting a single piece or several pieces of tubular thermal insulation material, depending on the diameter (D) of the pipe and the radius (R) of the bend, and by connecting each piece with at least one wire. If the elbow radius is less than or equal to 2 times the pipe diameter, the elbows can be insulated with a 45° spacer. If the radius of the elbow is 3 times the pipe diameter, two 30° spacers, and if it is 5 times the radius of the elbow, three spacers of 22.5°, the insulation of the elbows are finished.



Implementation with prefabricated insulation materials

Step 4: The insulation implementation is completed with the final coating on the material. In the case of plastic coating on the insulation, the plastic coating is prepared by cutting it to be approximately 25mm more than the outer perimeter. After the coating is wrapped around the pipe, it is fixed to the insulation material by means of plastic rivets. Elbows are covered with pre-prepared plastic elbow pieces. The transverse joints are glued with plastic tape. The ends of the pipe sections are closed with finishing elements. Finisher tape is wrapped around the finish and secured with rivets/nails.



Implementation a top coat on the insulation material