

Vulcanizing instruction



Elastomer waterstops cannot be joined by means of the traditional welding procedure, but must rather be joined by vulcanization. This procedure requires the addition of crude rubber by means of pressure and heat. The only kind of vulcanization performed on construction sites is butt-joint vulcanization which can be performed by any skilled construction worker after corresponding instruction.

(Instruction according to BMV directive and ZTV-ING.)



Step 1

The vulcanization unit and the moulds are preheated for about 30 minutes. The moulds must reach approx. 150 °C - 155 °C. During the heat-up phase the waterstops can be prepared.



Step 2

The two waterstop ends to be joined must be cut rectangularly with a sharp knife. Thereafter, these cut ends are roughened by means of a grinding wheel on a width of about 5 cm all around.

Step 3

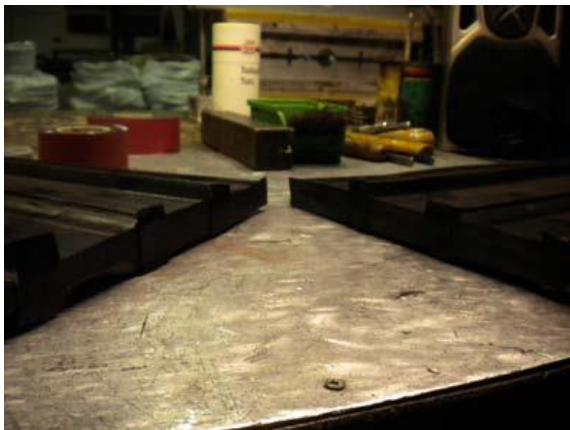
The roughened waterstop surfaces must be cleaned from the grinding dust. Subsequently the waterstop ends are layed into the clamping device, protruding on each side about 10 cm.

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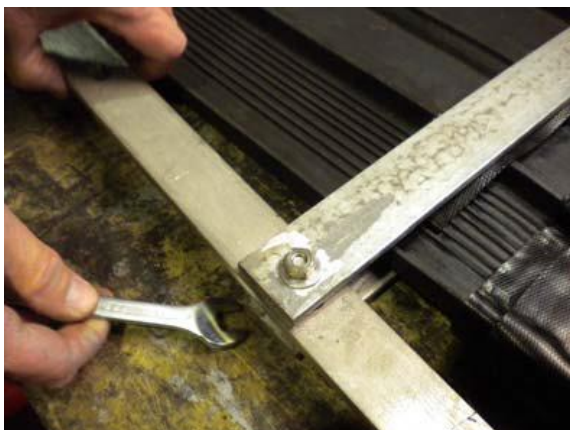
Step 4

The waterstop ends must be coated all around with coating solution, also the face surfaces. Ensure that the coated surfaces are not touched by hands during exhausting phase. The flash-off time is about 5 - 8 minutes.



Step 5

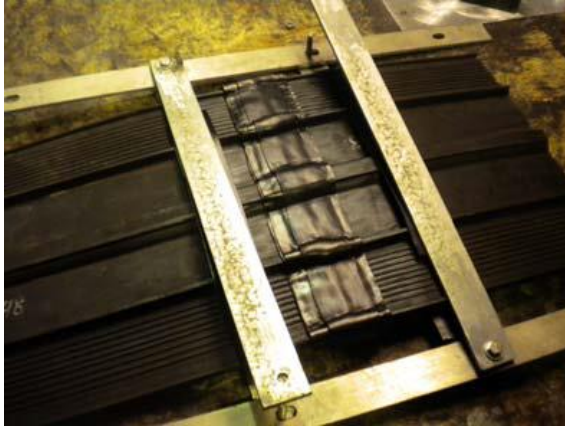
The opening of expansion joint waterstops with middle tube is closed with a plug of rolled-up raw elastomer. This is very important for the vulcanisation process of expansion joint waterstops, since otherwise the needed compress pressure could not be obtained.



Step 6

Now the face surfaces of the joint waterstop get covered with a thin adhesive foil of raw elastomer. The protruding lengths are folded back. Ensure that the adhesive foil is pressed on precisely. Then the protective film is peeled off.

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Step 7

The two clamp devices are tightened with long screws until the waterstop face surfaces are exactly in contact. The pre-treated face surfaces adhere immediately to each other.



Step 8

Now, a 50 x 3 mm layer of crude rubber is wound round the joint. Then remove the protective foil. Thereafter, a second 80 x 3 mm layer of crude rubber is placed over the joint. Here also remove the protective foil.

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Step 9

Place the prepared joint of the waterstop in the preheated vulcanization unit and close it. Now tighten the clamping screws of the vulcanization unit until the mould halves are in firm contact. In normal case the moulds cannot yet be closed completely if the crude rubber bandages have the correct thickness. Wait about 5 minutes before retightening the clamping screws. Depending on weather conditions*) and outside temperatures, the crude rubber is fully vulcanized after 20 - 35 minutes and the vulcanization unit can be opened.



*) In strong wind and at low outside temperatures, the vulcanization unit should be covered up with foils and formwork panels. At temperatures around the freezing point, vulcanization is only possible with a very great deal of effort, such as the construction of a boarding and heating with fan heaters. However, this is hardly feasible in practice and therefore we recommend not to vulcanize at these temperatures.



Step 10

The vulcanized joint must be treated with care until total cool down since full resistance is obtained only after cooling. If the surface is still susceptible to plastic deformation (can be tested with a fingernail), the vulcanizing process is not yet completely finished. This error occurs when the vulcanization time is too short or the temperature is not high enough.