

1. Laying of Submarine Cable

The submarine cable is significantly heavier than the land cable as it is protected with a lead sheath instead of an aluminium sheath. A drum with 900 m of submarine cable weighs approx. 24 tonnes.

Each drum has a diameter of 4.2 m and is 2 m wide.

When laying the submarine cables, a drum stand was used which was fitted with a mechanism that made it possible to turn the cable drum. The machinery was fitted with a hydraulic brake so it was possible to brake the drum during laying. In undulating terrain, as here, where the first part of the section runs down a steep bank, the cable can run uncontrollably off the drum if it cannot be braked.

Slope down to the inlet, anchor plates uppermost. Figure 15

To ensure that the cable does not slide down onto the beach of its own accord after laying, an anchor plate was established at the top of the slope to which the cable could be secured.

The bank down to the beach is so steep that it is not possible to lay the cables in open trenches on site. It was therefore necessary to carry out a controlled directional drilling beneath the slope. The cables are fed through the pipes down to the beach. After laying, the pipes are sealed with customised end plates after which they are filled with bentonite.

The maximum permitted traction on the submarine cables is 4,800 kg. The tensile force is monitored at the winch. The maximum pull on the cables when they are being pulled through the pipes is measured as being 2,800 kg.

Pipes with water. Figure 12

As the pipes are filled with water, the cable is buoyant. There is thus minimum friction between the cable and the pipe. Moreover, soap is smeared onto the cables at the opening to the long directional drillings.

The earthing cable is pulled through one pipe together with the high-voltage cable. This presents no problems with regard to tensile force. The earthing cable runs through the pipe lying to the west.

With directional drillings as well as with the pipes running along the bottom of the inlet, the cable is protected against damage by using rollers at the lead-in to the pipes. The submarine cable is equipped with a thick 5 mm sheath because the cables are being pulled over such a long distance through the pipes.

The submarine cables have built-in fibre-optic cables in the cable shield. This avoids the need to draw separate fibre-optic cables across the inlet. Each cable has six times four fibres. For each circuit, this adds up to 72 fibres.

On the shore, extra cable is laid out so there is sufficient free cable for adjustment if the pipes sink down into the floor of the inlet.

The cables are so heavy that they need to be moved with cranes and diggers at the joint bays.