**HVDC submarine cables**

Many HVDC links need an underwater cable between the converter stations.

Already the first HVDC project, the link to Gotland in 1954, was using an HVDC submarine cable, and many of all the HVDC projects unite networks that are separated by water.

The picture to the right is a sample of the 200 km Fenno-Skan HVDC submarine cable interconnecting Sweden and Finland since 1989. It has a capacity of 500 MW and a rated DC voltage of 400 kV. Later cable links i.e. Baltic Cable and SwePol have a capacity of 600 MW and a rated DC voltage of 450 kV.

These cables are massimpregnated (MI) cables suitable for HVDC. The cable has a copper conductor and the insulation is made of oil impregnated paper. There is a lead alloy sheath outside the insulation. Mechanical protection is achieved by steel tape and steel wire armouring. A typical 450 kV HVDC cable has an outer diameter of approx. 13 cm.

Recently an extruded polymer cable has been developed for HVDC Light.

![Pulling ashore the Swepol cable](image)

**Links:**
- SwePol Link

**Read also:**
- HVDC Cable Transmissions (brochure, 1760 kB)