Research and development of ± 320kV flexible HVDC power cable

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HVDC power cable is one of the most important equipment in the flexible DC transmission project. ZTT developed the ±320kV XLPE insulated HVDC power cable according to the actual demand of the ±320kV flexible DC transmission project in Xiamen city, China and the cable had already passed the type tests by TICW and EETC. This paper introduces the development of ±320kV HVDC power cable focusing on the test of space charge and electrical conductivity characteristic of insulation and screen material of DC power cable for the insulation design. Also the way of achieving longitudinal water tightness for stranded circular conductor with cross section of 1800 mm^2 is analyzed as well as subsequent cross-linking and degasification process of insulation. Besides, the type test of the ±320kV XLPE insulated power cable is introduced by describing the test method and procedure of electrical performance of cable system. ±320kV HVDC power cable is independently researched and developed in China and its industrialization has just started and will serve domestic and overseas flexible DC transmission projects.