Test performed on a ABB submarine cable type QEVE-R4.2/2.6

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The Department of Structural Engineering, Royal Institute of Technology has tested the Seaflex joint closure for ABB fibre optic submarine cable type QEVE-R4.2/2.6.

The Testing Equipment

The test uses a universal testing machine of make MTS type 311.12s with a load cell of 500 kN and a LVDT indicator of +/- 100 mm. The testing machine is calibrated according to MTS 2012-02-24 (calibration certificate number 2955-F-R1).

Test 1

The test was performed in according to the following. The cable was installed in special cable adapters for the test. The force 60 kN was applied slowly and was hold in 60 minutes then slowly removed with a loading cycle of 70 minutes. The length of the cable was approximately 960 mm between the centers of the anchorage points.

Test 2

The force 120 kN was applied slowly to the cable and was hold in 60 minutes then slowly removed with a loading cycle of 70 minutes, this was repeated one more time. To obtain an idea of the cables ultimate tensile strength the force was slowly increased until failure. This was performed with the same loading speed.

Result

Test 1 are detailed with three diagrams, where the first one shows the applied force in relation to the hydraulic pistons movement. The second diagram shows the pistons movement in relation to time and the third the force in relation to time. Test 2 is detailed by three diagrams exactly as test 1. The maximum load was 193 kN.

Stockholm the 19 of August 2013
Stefan Trillkott
Picture of the test

Picture of the flange coupling at the load 0 kN
Picture of the flange coupling at the load of 60 kN after 60 minutes

Picture of the flange coupling at the load 120 kN after 60 minutes
Picture of the flange coupling at the load 120 kN after 60 minutes the second time

Picture of the flange coupling at the load 190 kN
Picture of the flange coupling after failure

Picture of the flange coupling after failure

Picture of the flange coupling after failure
Test 2