

Test of temporary anchor device

Summary

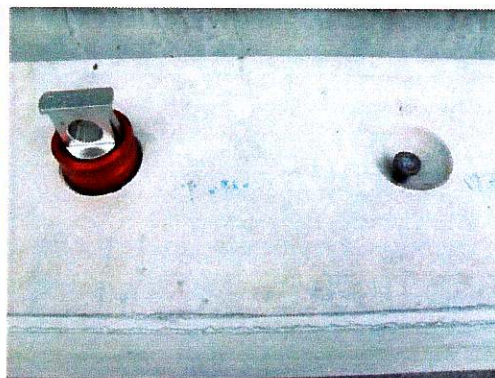
An temporary anchor device has been tested according to EN 795+A1:2000 Class B. The temporary anchor device are made for attachment to the grouted anchor in concrete constructions.

The temporary anchor device fulfilled the requirements in all performed tests.

The test results are shown in Chapter 4.



Picture 1 Halfen anchor device



Picture 2 Halfen anchor device applied to a concrete block.

1 Introduction

SP has been commissioned by Halfen AB to perform tests of a temporary anchor device Class B according to EN 795+A1:2000.

2 Test objects

Designation/Item number: Halfen temporary anchor device

Arrival of test objects: 2011-06-27

Selection of test objects: Performed by the client without SP's assistance.

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3 Test method

Test method: EN 795+A1:2000
Test dates: 2011-06-27 - 2011-06-29
Place of testing: All tests were performed at the Laboratory of Building Technology and Mechanics.

4 Results from tests

All results presented in this report only refer to the tested samples. All test was performed on an concrete block with grouted anchors mounted upside down on a rigid steel spar (see picture 3) submitted by Halfen AB.

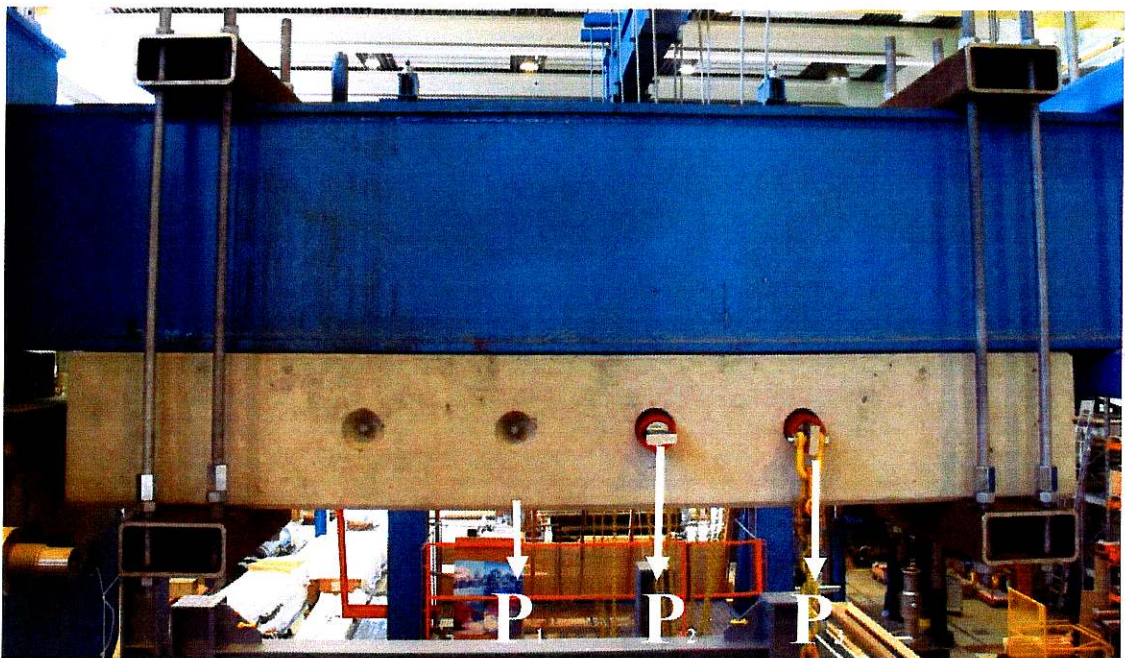
4.1 Static load test

Static test was performed by applying a 1019 kg dead weight in three different loading configurations, see picture 3. P1 was applied along the anchor and P2 and P3 was applied transverse the anchor, see picture 3 and 4. A new anchor device was used for each test.

Total of three test in different loading configurations were performed and all anchorage devices fulfilled the requirements according to Class B –Anchor devices, chapter 5.2.3 EN 795+A1:2000.

The test also fulfil the requirements in chapter 8.1.3 in EN 517:2006

In test direction P2 and P3 the concrete blocked cracked a little at the edge surface (see picture 5). The locking blades was bent a little in test direction P2 (see picture 6, right anchor, the left anchor are before test). In test direction P3 the locking blades was bent more and the locking was hard to release after test but fully functional. Nothing noticed in direction P1.



Picture 3 Test setup for static and dynamic tests



Picture 4 Test setup



Picture 5 Cracks in concrete block



Picture 6 Locking at anchor device



Picture 7 Dead weight

4.2 Dynamic test

The dynamic test was performed by a 100 kg mass falls freely through 2500 mm before the lanyard starts to arrest the fall, see picture 8-10. The loading conditions are the same as for the static test. A new anchor device was used for each test.

Total of three test in different directions were performed and all anchorage devices fulfilled the requirements according to Class B –Anchor devices, chapter 5.3.2 EN 795+A1:2000. The test also fulfil the requirements in chapter 8.2 in EN 517:2006

In test direction P2 and P3 the concrete blocked cracked a little at the edge surface (see picture 5). The locking blades was bent a little in test direction P2 (see picture 6, right anchor, the left anchor are before test). In test direction P3 the locking blades was bent more and the locking was hard to release after test but fully functional. Nothing noticed in direction P1.



Picture 8 Test setup dynamic



Picture 9 After dynamic test



Picture 10 Test setup dynamic

4.3 General requirements

General requirements for anchor devices according to EN 795+A1:2000 chapter 4.3.

The anchor device shall be designed as to accept personal protective equipment and ensure that it is not possible for correctly connected personal protective equipment to become detached unintentionally. Requirements fulfilled.

Exposed edges and corners shall be relived either with a radius of at least 0,5 mm or a 45° chamfer. Requirements fulfilled.

All metallic parts of anchor devices shall comply with the corrosion protection of 4.4 of EN 362:1992. The results are shown in report PX14096B.

5 Measurement uncertainty

The total calculated measurement uncertainty for the force $< 2\%$, length measurement $< 1,5\%$ and for the displacement measurement is $< 1,5\%$

Reported uncertainty corresponds to an approximate 95 % confidence interval around the measured value. The interval has been calculated in accordance with GUM (The ISO guide to the expression of uncertainty in measurements), which is normally accomplished by quadratic addition of the actual standard uncertainties and multiplication of the resulting combined standard uncertainty by the coverage factor $k=2$.

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