

Summary

ETAG 029 Annex B [1] shows two types of job site tests. In the technical report “Execution and evaluation of job site tests of injection anchor systems for use in masonry with ETA in accordance with ETAG 029 or EAD 330076-00-0604” the DIBt established a third type of job site tests – the acceptance tests. In comparison to the pull-out tests and the proof-load tests, which were already known from ETAG 029 Annex B, the new acceptance tests offer the opportunity to use the injection anchor for the scheduled fixing after the job site test.

In the research project “Versuche am Bau” the influence of job site tests should be clarified with regard to the load-bearing capacity. Furthermore the effect of a too small chosen distance between the support reaction and the anchor should be investigated. Finally the partial factors should be discussed in terms of job site tests.

In so called Stufentests the injection anchors were tested in several load steps in silica, clay and light weight concrete bricks. The influence of a pre-damage was taken into account in the first version of the technical report with a factor $\alpha_{\text{Probe}} = 0,75$ resp. $\alpha_{\text{Probe}} = 0,50$. Those values could not be confirmed in the load step tests. Based on the currently performed tests the factor $\alpha_{\text{Probe}} = 0,90$ is suggested.

Pull-out tests were carried out on tests rigs with different distances between the support reaction and the anchor. The comparison of the test results underlined that the load-bearing capacity of the tests with smaller test rigs were higher. That is why a factor α_{dist} is recommended which depends on the ratio of the distance between the support reaction and the anchor and the embedment depth.

The partial factors for resistance of injection anchors in masonry are $\gamma_M = 2,5$ for clay, silica and concrete bricks and $\gamma_M = 2,0$ for bricks made of autoclaved aerated concrete. By analysing the components of the partial factors it could be shown that the values (as m. a.) can be reduced for some test scenarios.

References

- [1] ETAG 029: Guideline for European Technical Approval of Metal Injection anchors for use in Masonry, Edition April 2013.
- [2] Mitteilung des DIBt, Technische Regel, Referat I2 Befestigungs- und Bewehrungstechnik, Treppen, Technische Regel, Durchführung und Auswertung von Versuchen am Bau für Injektionsankersysteme im Mauerwerk mit ETA nach ETAG 029 bzw. nach EAD 330076-00-0604, Dezember 2016