



1 Product certification of rock fall protection fences in the European Union (CE-Marking)

Test Procedure, Austrian Test Site and Relevance for the End User

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In the years 2001 to 2006 the European Organization for Technical Approvals elaborated a Guideline for European Technical Approvals for falling rock protection kits. Once into force, the guideline will form the basis for issuing of European Technical Approvals, which will represent the technical specification for the addressed products. In the certification procedure in order to get the CE-certificate, the production of falling rock protection kits will be certified when this specification is met. The relevant conditions for carrying out tests according to the above-mentioned guideline, the test

equipment of the Austrian test site and the consequences for the public and private customer will be introduced in the presentation.

The test procedure includes several 1:1 tests of protection systems consisting of net fences to mitigate rockfall hazards. To pass the CE-testing, a rockfall net fence barrier has to absorb two successive tests at the “standard energy level” without any maintenance being allowed between the two impacts. After maintenance the second energy level (“maximum energy level”) is to be tested resulting in three “residual height classes” quoting the remaining height of the barrier after the execution of the test. The geometry of the test-block is also defined by the guideline as its specific weight, impact speed, point of impact and number of net fence modules besides numerous other specifications.

For all the different impacts various parameters have to be measured such as i. e.:

- weight of the block
- impact speed
- forces acting on cables and anchors
- maximum elongation of the fence
- residual height

The documentation and approval of the test results has to be executed by independent bodies who issue the final “European Technical Approval” (ETA) for each type of product intended to be put on the market in the European Union. Within a certain period of time (usually three years) after the publication of the guideline by the EU-Commission no such products are to be brought into circulation in the EU without being provided with the CE-marking.

The Austrian test site is situated in an open pit mine called “Erzberg” in Styria. It was initially equipped with a cablecar in the year of 2000, which allowed impacts up to 1000 kJ. In 2005 a new cable car was installed according to the new European Standard.

During a test a standardised concrete block connected with the cable car drives along the bearing ropes to the rock-fall protection kit, which is the object of the examination. Its acceleration is caused by gravity. Just in front of the rock-fall protection kit the connection with the cable car is removed, so that the test block freely falls into the net fence. Test blocks up to 3 tons make impacts until 3000 kJ possible.