

Significance and Advantage of EAD and CE Marking of Geohazard Products

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In a globalised world, the standardisation of products is essential to make sure that they perform as expected. This article describes how standardisation in the European Union helps to achieve a certain quality standard and what users must be aware of to compare different geohazard products.

Geotechnics • Geohazard • Standard • Products • Quality • Safety

Why CE Marking and what does this mean?

CE marking with the symbol CE has existed in its present form since 1985. The letters “CE” stand for the French phrase “Conformité Européene” which literally means “European Conformity”. CE marking is a certification mark that indicates conformity with health, safety and environmental protection standards for products sold within the European Economic Area (EEA). The CE marking is the manufacturer’s declaration that the product meets the requirements of the applicable EC directives. The added value of CE marking is that all EU countries must allow construction products bearing the CE mark to be sold. This means that public authorities cannot ask for any additional marks or certificates or any further testing. It is, however, important to know the basics of a CE marking.

Responsibility for CE Marking

The responsibility for the CE marking lies with whoever puts the product on the market in the EU, i.e. an EU-based manufacturer, the importer or distributor of a product made outside the EU, or an EU-based office of a non-EU manufacturer.

CE Marking for Construction Products and how it is acquired

Under the wing of the European Commission the European Committee for Standardisation (CEN) takes care of all European Standards and supports the EU Legislation.

The Construction Products Regulation No. 305/2011 (CPR) of the European Parliament and of the European Council is a regulation dating from March 9, 2011 that lays down harmonised conditions for the marketing of construction products. The EU regulation is designed to simplify and clarify the exist-

ing framework for placing construction products on the market. The CPR helps authorities and consumers to receive high quality and safe products and to compare different products.

By testing the products either to a harmonised European standard or a European Assessment Document (EAD), it is ensured that the basis for comparing product performance is the same. The test results display all relevant parameters in a detailed manner. Customers can ask the producers to provide them with the details to enable products and their performance to be compared.

If no harmonised standard exists for a specific product, then a European Assessment Document (EAD) can be issued. This is the documentation of the methods and criteria accepted in the European Organisation for Technical Assessment (EOTA) as being applicable for the assessment of the performance of a construction product in relation to its essential characteristics.

Based on an EAD, the Technical Assessment Body (TAB) performs the tests on the product and issues a European Technical Assessment (ETA). As soon as the European Commission approves and lists the ETA, the notified body issues the CE marking. Finally, the Declaration of Performance (DoP) must be drawn up by the manufacturer, who then assumes responsibility for the conformity of the product with the declared performance. It is a key part of the Construction Products Regulation. It provides information on the performance of a product.

Natural Hazard Prevention

The new Standardisation for Rockfall, Debris Flow, shallow Landslides and Slope Stabilisation

In the field of geohazard products, the following three main EAD are to be found, which cover different special applications:

- ▶ EAD 230025-00-0106 “Flexible facing systems for slope stabilization and rock protection”
- ▶ EAD 340020-00-0106 “Flexible kits for retaining debris flows and shallow landslides/open hill debris flows”
- ▶ EAD 340059-00-0106 “Falling rock protection kits”

All EADs can be found on the official website of EOTA: <https://eota.eu/en-GB/content/eads/56/>



What are the Details of an EAD?

Let us take the EAD “Flexible facing systems for slope stabilization and rock protection” as an example. In this EAD, several tests are described for flexible facing which have been used worldwide for decades. They are available in two different qualities, mild steel wire and high tensile steel wire. For both qualities of steel in combination with soil nailing / rock bolting three key characteristics for the products exist:

- ▶ Puncturing at the nail head plate (shearing-off resistance at the upslope edge of the spike plate)
- ▶ Slope parallel load transfer into the nail with interaction of the soil (tensile strength)
- ▶ Deformation/elongation of the mesh under load in per cent

Tables 1 + 2 show the groups and classes for categorising the performance of the flexible facings.

What does this mean for Users?

This means that by using these tables, it is possible to clearly define in the tender documents the bearing resistances for a flexible facing needed for a specific project in the tender documents. Different products can be compared easily.

The main advantage is that based on these tables, it would be possible to clearly define the three characteristics for a flexible facing which are needed for a specific project in the tender documents. Thus, different products can be compared on a unique level. Of course, the basis of the tender specifications must be the design in accordance with the expected failure scenario.

It is important to know that it is possible to obtain a CE-Marking without having performed all the tests. For example, often only the tensile strength of a mesh has been tested but all other parameters are missing. However, if these parameters are unknown, it is impossible to dimension an economic and safe solution.

Table 1: Informative: groups of meshes/nets regarding tensile strength and shearing-off resistance

Group	Shearing-off resistance P_R at the upper surface of spike plates	Slope parallel tensile strength Z_R
	[kN]	[kN]
1	$P_R > 135$	$Z_R > 50$
2	$80 < P_R \leq 135$	$29 < Z_R \leq 50$
3	$50 < P_R \leq 80$	$19 < Z_R \leq 29$
4	$25 < P_R \leq 50$	$4 < Z_R \leq 19$
5	$0 < P_R \leq 25$	$0 < Z_R \leq 4$

Table 2: Informative: groups of meshes/nets regarding relative elongation in longitudinal tensile strength test

Class	δ
A	≤ 6
B	6 to 10
C	10 to 14
D	> 14

To avoid failures in installations and liability risks, it is important to make sure that the parameters in the DoP (Declaration of Performance) or ETA are in accordance with the corresponding design of the project. Thus, if investors, designers and contractors want to be sure of obtaining the right product with the expected performance, the test results must be checked in detail.

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