

Finnish Transport Infrastructure Agency

Use of and quality requirements for delineator posts on highways

Mutual recognition

Goods lawfully marketed in another Member State of the European Union or in Turkey, or originating and lawfully marketed in the Contracting Parties to the EEA Agreement are presumed to be compatible with these rules. The application of these rules is subject to Regulation (EU) 2019/515 of 19 March 2019 on the mutual recognition of goods lawfully marketed in another Member State.

Quality requirements for delineator posts on highways

Types of and material requirements for delineator posts

In accordance with standard SFS-EN 12899-3, delineator posts are divided into three categories according to their behaviour in impact testing (functional requirement). In addition, there is a separate category for delineator posts attached to structures.

- D1 delineator posts whose the fastening method is not designed to enable the posts to be reinstalled after the impact test described in the standard
- D2 delineator posts whose fastening method is designed to enable the posts to be reinstalled after the impact test described in the standard (e.g. posts that are dislodged in the event of an impact but are designed in such a way that they can be remounted)
- D3 delineator posts designed to deflect and which return to a vertical position after the impact test described in the standard (spring-back or flexible)
- D4 delineator posts that can be (permanently) fastened to various structures, e.g. bridges, impact protection barriers and guard rails.

Delineator posts used on highways must at least meet the requirements of category D1 in terms of impact resistance. Category D2 and D3 posts are also acceptable. Delineator posts that are fastened to railings must be of category D4.

The deflection classes WL 0 to WL 2 of the delineator post material describe the instantaneous deflection of the post as a result of predetermined wind load. When tested in accordance with clause 7.4.1.1 of SFS-EN 12899-3, the delineator posts of types D1, D2 and D3 must not become damaged or their permanent deflection must not exceed 5 % of the height above the ground. Instantaneous deflection must not exceed the values in Table 1.

Table: Maximum instantaneous deflection according to standard SFS-EN 12899-3 for different deflection classes:

Classes	Maximum instantaneous deflection of the delineator post relative to the height above ground of the post
WL 0	Value not defined
WL 1	15 %
WL 2	5 %

At minimum, delineator posts used on roads must meet the requirements of standard SFS-EN 12899-3 Class WL1. Class WL2 posts are also acceptable.

Plastic or metal is used as the material for delineator posts. Delineator posts must be white in colour. Retro-reflectors are placed in the black field on the delineator posts.

The material's suitability is demonstrated by means of impact tests in accordance with standard SFS EN 12899-3, on the basis of which the material must meet the deflection class requirement (Class WL1) and the functional requirement (Class D1). The delineator posts are subjected to two different stroke tests with a pendulum device and the smaller impact must not cause permanent deformation of the delineator posts exceeding 5 %. A more severe impact may result in changes to categories D1, D2 or D3 permitted under the standard, depending on the category in which the post is sold.

If the mass of the delineator post exceeds 6 kg, the more severe impact test are replaced by a collision test using a passenger car, as further described in standard EN 12767. Wind-load

resistance is investigated using a static load test. None of these tests precisely takes into account the load caused by repeated snow clearing. If products are used that deviate from this guideline, their snow clearing resistance is demonstrated separately by means of testing.

The exposure of delineator posts and their material to weather effects as well as corrosion resistance is demonstrated by means of tests according to standard SFS EN 12899-3. Corrosion resistance applies to any metal parts of the delineator posts, which can be either galvanised or coated with plastic. Possible corrosion protection of metal parts is provided by hot-dip galvanising, and galvanising is carried out in accordance with ISO 1461.

Other requirements

The cross-section of a delineator post must be a tube-like post that deflects on impact. The curvature of the surface of the post at the point where the retro-reflector is mounted must not be so large as to compromise the fixing of the reflector or to reduce retro-reflection. CE-marked traffic sign film tested when straight may be used on the surface of a curved delineator post if the radius of the curvature is equal to or greater than 40 mm. The radius of curvature required for mechanical resistance must not be less than that permitted by the film manufacturer for the mechanical resistance of the film.

Delineator posts of categories D1, D2 and D3 must not have sharp angles greater than 90° above the baseline (road surface plane).

The width of the delineator post facing traffic must be 80–150 mm. The delineator post must be white. The retro-reflector parts are in the black field, the height of which must be around 25–30 cm and the width of which must be that of the delineator post. The top and bottom edges of the black field must be either horizontal or tilted towards the road. The top of the delineator post is usually horizontal.

Retro-reflectors for delineator posts

Types of and material requirements for retro-reflectors

According to standard SFS-EN 12899-3, retro-reflectors are classified in three categories according to manufacturing technology:

- | | |
|----|--|
| R1 | retro-reflective film, traffic sign film with a retro-reflective capacity equal to or greater than RA2, according to Part 1 of standard EN 12899-1 |
| R2 | retro-reflectors based on microprismatic technology |
| R3 | retro-reflectors based on glass bead technology |

It should be noted that these R-categories are different from the retro-reflective classes of the films for traffic and road signs.

Retro-reflectors of manufacturing technology categories R1, R2 and R3 may be used for delineator posts. The retro-reflectors must be permanently attached to the posts by appropriate means of fixing and in accordance with the manufacturer's guidelines.

On Finnish highways, retro-reflective traffic sign film is used on the delineator posts. Its colour coordinates and luminance factor in daylight must be in accordance with Table 1 or Table 2 of standard SFS-EN 12899-1:2007. The colour coordinates of retro-reflectors at night must be within the limits of Table 2 when tested in accordance with standard SFS-EN 12899-3. These correspond to the retro-reflective categories R2 and R3 in the Guideline on the structure and erection of traffic signs.

The retro-reflection categories RA1, RA2 and Class 3 of retro-reflectors must meet the requirements of standard SFS EN 12899-3.

Retro-reflectors of manufacturing technology categories R2 and R3 must be CE marked (according to the requirements of SFS-EN 12899-3).

For impact resistance, the retro-reflectors are divided into categories DH0, DH1 and DH2, which reflect the impact resistance of the retro-reflectors. The class must be verified by means of a test according to standard SFS EN 12899-3. Categories DH1 and DH2 are acceptable on highways.

The retention of retro-reflectivity of metallised retro-reflectors after exposure to weather must be at least 80 % of the value mentioned in the standard. In addition, all types of retro-reflectors must pass water resistance and weather exposure tests in accordance with standard SFS EN 12899-3.

Other requirements

The retro-reflector on one side of the post must be of a rectangular shape such that the dimensions of prism retro-reflectors are at least 40 x 180 mm and of film retro-reflectors 50 x 200 mm. The other side must have 2 round retro-reflectors with a diameter of 60–70 mm, one beneath the other 100 mm apart. The retro-reflector parts must be in the black field, the height of which is 250–300 mm.

The possibility of replacing the retro-reflector may be taken into account when fixing the retro-reflector, should the retro-reflector alone be damaged while the delineator post is still usable.

Quality control of manufacturing

Quality control is defined in standard SFS EN 12899-3. The exception is retro-reflectors made from retro-reflective film, which are not included in the standard. Their quality requirements are presented in the Guideline on the structure and erection of traffic signs.

The notified product certification body issues a certificate on the basis of which the product is CE marked. The label must indicate the categories to be met by the product and the other elements required by standard SFS EN 12899-3. The notified body also supervises quality control of manufacturing.