SLOVENSKI STANDARD
kSIST FprEN 13018:2015

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Neporušitvene preiskave - Vizualne preiskave - Splošna načela

Non-destructive testing - Visual testing - General principles

Prüfung - Sichtprüfung - Allgemeine Grundlagen

Essais non destructifs - Examen visuel - Principes généraux

Ta slovenski standard je istoveten z: **FprEN 13018 rev**

ICS:

19.100	Neporušitveno preskušanje	Non-destructive testing

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EUROPEAN STANDARD

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FINAL DRAFT
FprEN 13018

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English Version

Non-destructive testing - Visual testing - General principles

Essais non destructifs - Examen visuel - Principes généraux

Zerstörungsfreie Prüfung - Sichtprüfung - Allgemeine Grundlagen

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This document (FprEN 13018:2015) has been prepared by Technical Committee CEN/TC 138 “Non-destructive testing”, the secretariat of which is held by AFNOR.

This document is submitted to the Unique Acceptance Procedure.

This document will supersede EN 13018:2001.

1 Scope

This European Standard specifies the general principles for visual testing both directly and remotely when it is used to determine the compliance of a product with specified requirements (e.g. surface condition of the part, alignment of mating surfaces, shape of part).

This European Standard does not apply to viewing activities linked to the use of any other destructive or non-destructive test method.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 1330-10, *Non-destructive testing — Terminology — Part 10: Terms used in visual testing*

EN ISO 8596, *Ophthalmic optics — Visual acuity testing - Standard optotype and its presentation (ISO 8596)*

EN ISO 9712, *Non-destructive testing — Qualification and certification of NDT personnel (ISO 9712)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 1330-10 and the following apply.

3.1
direct visual testing
visual testing where there is an uninterrupted optical path from the observer's eye to the test area. This is either unaided or aided via e.g. mirror, lens, endoscope or fibre optic

3.2
remote visual testing
visual testing where there is an interrupted optical path from the observer's eye to the test area. Remote visual testing covers the use of photography, video systems, automated systems and robots

4 Pre-test documentation

4.1 An instruction shall be written which includes the minimum testing requirements in accordance with 4.4.

4.2 When required (e.g. product standard, contract) a written procedure shall be prepared in accordance with 4.4 to 4.7. Written procedures may be in a general form applicable without adaptation to a variety of unlisted products or situations, thereby reducing the overall number of written procedures required.

4.3 Copies of the written instructions and/or the procedures shall be made available to the relevant personnel.

4.4 As a minimum, the following aspects shall be considered for applicability:

a) the object to be tested, location, accessibility and geometry;

b) the extent of test coverage;

c) the technique and sequence of performing the test;

d) the surface condition;

e) the surface preparation;

f) the stage of manufacture or service life when testing is carried out;

g) the requirements of personnel (see Clause 7);

h) the acceptance criteria;

i) the illumination (type, level and direction);

j) the visual testing equipment to be used;

k) the post-test documentation (see Clause 9).

4.5 A demonstration test piece shall be used to prove the procedure. The test piece should be as close as possible to the component with respect to relative reflectivity, surface texture, contrast ratio and accessibility. The procedure should be demonstrated on the least discernible location in the area to be tested. This demonstration test piece may be replaced by the component to be tested or an approved system of reference.

4.6 Changes in equipment and in the details of the tests arrangement which do not adversely affect sensitivity levels shall not require the procedure to be reproven.

4.7 Any record of the image shall be of the same standard as defined in the procedure.

5 Direct visual testing

5.1 Direct visual testing may usually be made for local visual testing when access is sufficient to place the eye within 600 mm of the surface to be tested and at an angle not less than 30° to the surface to be tested. Mirrors may be used to improve the angle of vision, and aids such as a magnifying lens, endoscope and fibre optic may be used to assist testing.

5.2 Direct visual testing may also be made at greater distances than 600 mm specifically for general visual testing. A viewing distance appropriate to the test shall be used.

5.3 The specific part, component, vessel, or section thereof, under immediate test, shall be illuminated, if necessary, with auxiliary lighting, to attain a minimum of 160 lx for general visual testing and a minimum of 500 lx for local visual testing.

5.4 Consideration shall be given to the application of illuminance to maximize the effectiveness of the test by:

a) using the optimum direction of light with respect to the viewing point;

b) avoiding glare;

c) optimizing the colour temperature of the light source;

d) using an illumination level compatible with the surface reflectivity.