



# SLOVENSKI STANDARD

## SIST-TS CEN/TS 15053:2005

01-november-2005

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Non-destructive testing - Recommendations for discontinuities-types in test specimens for examination

Zerstörungsfreie Prüfung - Empfehlungen für Arten von Inhomogenitäten in Prüfungsstücken für Prüfungen

Essais non destructifs - Recommandations relatives aux types de discontinuités présentes dans les échantillons d'essai utilisés pour les examens

**Ta slovenski standard je istoveten z: CEN/TS 15053:2005**

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**ICS:**

19.100      Neporušitveno preskušanje      Non-destructive testing

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TECHNICAL SPECIFICATION  
SPÉCIFICATION TECHNIQUE  
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**CEN/TS 15053**

August 2005

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ICS 19.100

English Version

**Non-destructive testing - Recommendations for discontinuities-  
types in test specimens for examination**

Essais non destructifs - Recommandations relatives aux  
types de discontinuités présentes dans les échantillons  
d'essai utilisés pour les examens

Zerstörungsfreie Prüfung - Empfehlungen für Arten von  
Inhomogenitäten in Prüfungsstücken für Prüfungen

This Technical Specification (CEN/TS) was approved by CEN on 7 May 2005 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

CEN members are required to announce the existence of this CEN/TS in the same way as for an EN and to make the CEN/TS available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force (in parallel to the CEN/TS) until the final decision about the possible conversion of the CEN/TS into an EN is reached.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

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## Foreword

This Technical Specification (CEN/TS 15053:2005) has been prepared by Technical Committee CEN/TC 138 “Non-destructive testing”, the secretariat of which is held by AFNOR.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to announce this Technical Specification: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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**CEN/TS 15053:2005 (E)****1 Scope**

This Technical Specification is established to consider and define discontinuities-types to be exhibited in test specimens for use in practical Non Destructive Testing examinations. According to EN 473:2000, Clause 7.1.3.3, the discontinuities contains in the test specimens may be natural, artificial or implanted.

Acoustic Emission Testing, Infrared Thermography Testing and Leak Testing need not define discontinuity-type, due to their specific approach (e.g. replaced in AT by artificial sources).

**2 Normative references**

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

EN 473:2000, *Non-destructive testing – Qualification and certification of NDT personnel - General principles*.

EN ISO 4063, *Welding and allied processes - Nomenclature of processes and reference numbers (ISO 4063:1998)*.

EN ISO 6520-1, *Welding and allied processes - Classification of geometric imperfections in metallic materials. Part 1: Fusion welding (ISO 6520-1:1998)*

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**3 Terms and definitions**

For the purposes of this Technical Specification, the terms and definitions given in EN 473:2000 and the following apply.

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**3.1****Test area**

area of a test specimen, either the whole or just a part, which is to be tested by a candidate during the practical examination. A single test specimen can contain a number of test areas with no overlap

**3.2****Minimum number of test pieces**

maximum number of candidates allowed to perform simultaneously a practical examination, in an examination centre approved by a certifying body, shall be a figure less than the total number of test specimens that the examination centre has to hold at one's disposal, for this examination

**4 Product sectors****4.1 Castings (c)****4.1.1 Configuration**

The range of test specimens held by the examination centre may include the following characteristics:

- Cylindrical section (large and small diameters);
- Flanges;
- Changes of sections;

— Nozzles or junctions (T, L, Y and X).

The use of castings which contain both weld repairs and natural volumetric flaws are permitted.

#### 4.1.2 Discontinuities-types

The discontinuities-types are defined in the matrix in Annex A.

### 4.2 Welded test specimens (w)

#### 4.2.1 Configuration

The range of test specimens held by the examination centre may include the following characteristics:

- Plate butt welds;
- Pipes and tubes;
- Joints;
- Nozzle welds;
- Weld build-ups.

#### 4.2.2 Discontinuities-types

The discontinuities-types are defined in the matrix in Annex B.

### 4.3 Wrought test specimen (wp)

#### 4.3.1 Configuration

The range of test specimens held by the examination centre may include the following characteristics:

- Plates and strips;
- Tubes and pipes;
- Long products (bars, etc...).

#### 4.3.2 Discontinuities-types

The discontinuities-types are defined in the matrix in Annex C.

### 4.4 Forgings (f)

#### 4.4.1 Configuration

The range of test specimens held by the examination centre may include the following characteristics:

- Cylindrical section (large and small diameters);
- Flanges;
- Open die/hand forgings with simple geometry;

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**CEN/TS 15053:2005 (E)**

— Die/drop forgings with simple and complex geometry

**4.4.2 Discontinuities-types**

The discontinuities-types are defined in the matrix in Annex D.

**4.5 Tubes and pipes (t)****4.5.1 Configuration**

The range of test specimens (seamless and welded) held by the examination centre may include the following characteristics:

- hollow sections (large and small diameters);
- nozzles or junctions (T, L, Y and X);
- elbows;
- reductions;
- flanges.

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**4.5.2 Discontinuities-types**

The discontinuities-types are defined in the matrix in Annex E.

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**4.6 In Service Inspection**

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**4.6.1 Configuration**

The minimum number of test specimens shall include the product sectors according to Table B.1 of EN 473:2000.

**4.6.2 Discontinuities-types**

The discontinuities-types are defined in the matrix in Annex F.

**5 Minimum size of discontinuity****5.1 General**

NOTE Samples may contain smaller discontinuities as those indicated below, but they are not to be taken into consideration for examinations.

If available, threshold values are given in NDT product standard. In case there are no available standard or no value given, the following values shall be used.



## 5.2 Radiographic testing (RT)

### 5.2.1 For specimen examination

The test specimen need not contain any discontinuity.

### 5.2.2 For interpretation of radiographs indication size in the radiograph

- Planar indication:
  - Minimum length: 5 mm.
- Volumetric indication:
  - Pores: 2 mm;
  - Cluster: 5 mm;
  - Inclusion: 3 mm.

## 5.3 Ultrasonic testing (UT)

- Planar discontinuity:
  - Minimum length: 5 mm;
  - Through wall extend: 2 mm.
- Volumetric discontinuity:
  - Minimum size: side drill hole of 2 mm.

## 5.4 Magnetic particle and penetrant testing (MT-PT)

- Linear indication:
  - Minimum length: 3 mm.
- Rounded indication:
  - Isolated: 5 mm;
  - Cluster: 5 mm.

## 5.5 Eddy current testing (ET)

- Linear discontinuity:
  - Minimum length: 5 mm.

Where no product standard defines the minimum size of indication, any configuration of discontinuity for which the local signal-to-noise ratio for at least one signal component between two to three, is recommended.

## 5.6 Visual testing (VT)

- Direct aided VT: