



**SLOVENSKI STANDARD**  
**SIST EN 13523-5:2002**  
**01-september-2002**

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Coil coated metals - Test methods - Part 5: Resistance to rapid deformation (impact test)

Bandbeschichtete Metalle - Prüfverfahren - Teil 5: Widerstandsfähigkeit gegen schnelle Verformung (Schlagprüfung)

Tôles prélaquées - Méthodes d'essai - Partie 5: Résistance a la déformation rapide (essai de choc)

**STANDARD PREVIEW**

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SIST EN 13523-5:2002

Ta slovenski standard je istoveten z: **EN 13523-5:2001**

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**ICS:**

17.040.20	Lastnosti površin	Properties of surfaces
25.220.60	Organske prevleke	Organic coatings

**SIST EN 13523-5:2002**

**en**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

EN 13523-5

January 2001

ICS 17.040.20; 25.220.60

English version

## Coil coated metals - Test methods - Part 5: Resistance to rapid deformation (impact test)

Tôles prélaquées - Méthodes d'essai - Partie 5: Résistance à la déformation rapide (essai de choc)

Bandbeschichtete Metalle - Prüfverfahren - Teil 5: Widerstandsfähigkeit gegen schnelle Verformung (Schlagprüfung)

This European Standard was approved by CEN on 30 December 2000.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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

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## Foreword

This European Standard has been prepared by Technical Committee CEN/TC 139 "Paints and varnishes", the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by July 2001, and conflicting national standards shall be withdrawn at the latest by July 2001.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Annex A is informative.

## 1 Scope

This Part of EN 13523 describes the procedure for determining the resistance to cracking and/or pick-off on rapid deformation of an organic coating on a metallic substrate in terms of energy which the specimen will withstand.

The thickness of the coating to be tested shall be 60  $\mu\text{m}$  at maximum. The test method is not recommended for coatings of thickness greater than 60  $\mu\text{m}$  due to lack of meaningful results.

## 2 Normative references

This European Standard incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 13523-0:2001

Coil coated metals – Test methods – Part 0: General introduction and list of test methods

EN 23270:1991

Paint and varnishes and their raw materials – Temperatures and humidities for conditioning and testing (ISO 3270:1984)

EN ISO 6272:1994

Paints and varnishes – Falling-weight test (ISO 6272:1993)

IEC 60454-2:1994

Specifications for pressure-sensitive adhesive tapes for electrical purposes – Part 2: Methods of test

## 3 Terms and definitions

For the purposes of this Part of EN 13523:2001 the terms and definitions given in EN 13523-0:2001 apply.

## 4 Principle

The test specimen is deformed (indentation in the form of a dome), using a falling weight. Usually, the deformation is carried out from the reverse side but can occasionally be carried out directly on the coated surface under test.

The resistance of the coating to cracking and/or pick off is then determined.

## 5 Apparatus and materials

**5.1 Apparatus in accordance with EN ISO 6272:1994**, equipped with a hemispherical striker, of diameter 20 mm and having two scales, one of which corresponding to a mass of 1000 g, the other to a mass of 2000 g.

**5.2 Magnifying glass  $\times 10$ .**

**5.3 Transparent pressure-sensitive adhesive tape**, 25 mm wide, with an adhesion strength of  $(10 \pm 1)$  N per 25 mm width when tested in accordance with IEC 60454-2:1994.

## 6 Sampling

See EN 13523-0:2001.

## 7 Test panels

See EN 13523-0:2001.

## 8 Procedure

Measure the resistance to rapid deformation at ambient temperature. For more accurate measurements, as required for instance in case of dispute, the temperature shall be  $(23 \pm 2)$  °C and the relative humidity  $(50 \pm 5)$  % in accordance with EN 23270:1991.

Place the test panel in the apparatus (5.1) with the coated surface to be tested facing downward (reverse impact test). The test can occasionally be carried out for forward impact.

Drop the mass from the required height to provide the appropriate energy of impact.

Assess the resistance to cracking with the  $\times 10$  magnifying glass (5.2).

If resistance to pick-off is to be evaluated, remove two complete laps from a reel of the adhesive tape (5.3) and discard. Remove an additional length at a steady rate and cut a piece, approximately 75 mm long.

Place the centre of the tape over the deformation and smooth the tape into place over a distance of at least 20 mm either side with a finger.

To ensure good contact with the coating, rub the tape firmly with a fingertip. The colour of the coating seen through the tape is a useful indication of overall contact.

Within 5 min of applying the tape, remove the tape by holding the free end and pulling it off steadily in 0,5 s to 1 s at an angle that is as close as possible to 60° to the panel.

Resistance to pick-off is evaluated after removal of tape: no loss of adhesion is allowed.

Retain the tape for reference purposes, for example by attaching it to a sheet of transparent film.

## 9 Expression of results

Record the resistance to no cracking and/or no loss of adhesion in Joules.

State whether resistance to cracking and/or loss of adhesion has been measured.

## 10 Precision

No precision data are currently available.

## 11 Test report

The test report shall contain at least the following information:

- all details necessary to identify the product tested;
- a reference to this part of EN 13523 (EN 13523-5);
- the results of the test, as indicated in clause 9;
- any deviation from the test method specified;
- the date of the test.

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**Annex A**  
(informative)**Conversion of units**

For the purpose of this test, the following approximations may be used:

$$1 \text{ J (or 1 Nm)} = 0,1 \text{ kgf m} = 0,1 \text{ kp m} = 8,8 \text{ lbf in}$$

$$1 \text{ kgf m} = 1 \text{ kp m} = 9,8 \text{ J} = 87 \text{ lbf in}$$

$$1 \text{ lbf in} = 0,113 \text{ J} = 0,011 \text{ kgf m}$$

where:

J	Joule
Nm	Newton metre
kgf m	kilogramme-force metre
kp m	kilopond metre
lbf in	pound-force inch (inch pound)

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**Bibliography**

- EN 1396:1996 Aluminium and aluminium alloys – Coil coated sheet and strip for general applications – Specifications
- EN 10169-1:1996 Continuously organic coated (coil coated) steel flat products – Part 1: General information (definitions, materials, tolerances, test methods)
- ENV 10169-2:1999 Continuously organic coated (coil coated) steel flat products – Part 2: Products for building exterior applications

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