



SLOVENSKI STANDARD
SIST EN 582:1999

01-oktober-1999

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Thermal spraying - Determination of tensile adhesive strength

Thermische Spritzen - Ermittlung der Haftzugfestigkeit

Projection thermique - Mesure de l'adhérence par essais de traction

Ta slovenski standard je istoveten z: EN 582:1993

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ICS:

25.220.20 Površinska obdelava Surface treatment

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EUROPEAN STANDARD

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English version

Thermal spraying - Determination of tensile adhesive strength

Projection thermique - Mesure de l'adhérence
par essais de traction

Thermisches Spritzen - Ermittlung der
Haftzugfestigkeit

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Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

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CEN

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 240 "Thermal spraying and thermally sprayed coatings", of which the secretariat is held by DIN.

The draft European Standard was submitted to the formal vote and accepted by CEN as a European Standard.

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of an identical text or by endorsement, at the latest by April 1994, and conflicting national standards shall be withdrawn at the latest by April 1994.

In accordance with the CEN/CENELEC Internal Regulations, following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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1 Scope

In the test to determine the tensile adhesive strength of thermally sprayed deposits, the specimen is loaded in tension.

The test is conducted to determine the strength of the coating and/or the strength of the bond between the spray deposit and the parent metal.

The test is used to evaluate the effects of parent metal and spray deposit material, preparation of the surface of the workpiece, and the spraying conditions on the bond and adhesive strength of thermally sprayed coatings, or for routine supervision of the spray works.

Comparative statements are to be based in the test report.

NOTE: The tensile adhesive strength test method is not recommended for very thin and porous deposits. In this case, a bend test has proved to be more appropriate.

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.

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EN 10002-2 http://standards.it/catalog/standards/sist/79f6b127-66b0-4a5b-9a32-080a83100598/sist-en-582-1999 Metallic materials - Tensile testing - Part 2: Verification of the force measuring system of the tensile testing machines

3 Definition

For the purpose of this standard the following definition apply.

Tensile adhesive strength:

The tensile adhesive strength R_H is the strength obtained in the tension test, calculated from the quotient of the maximum load F_m and the cross-section of the specimen at the fractured face.

4 Equipment

A tensile testing machine in accordance with EN 10002-2, class 1 and a clamping system are to be used, to ensure concentric clamping and loading of the specimens (see figure 1).

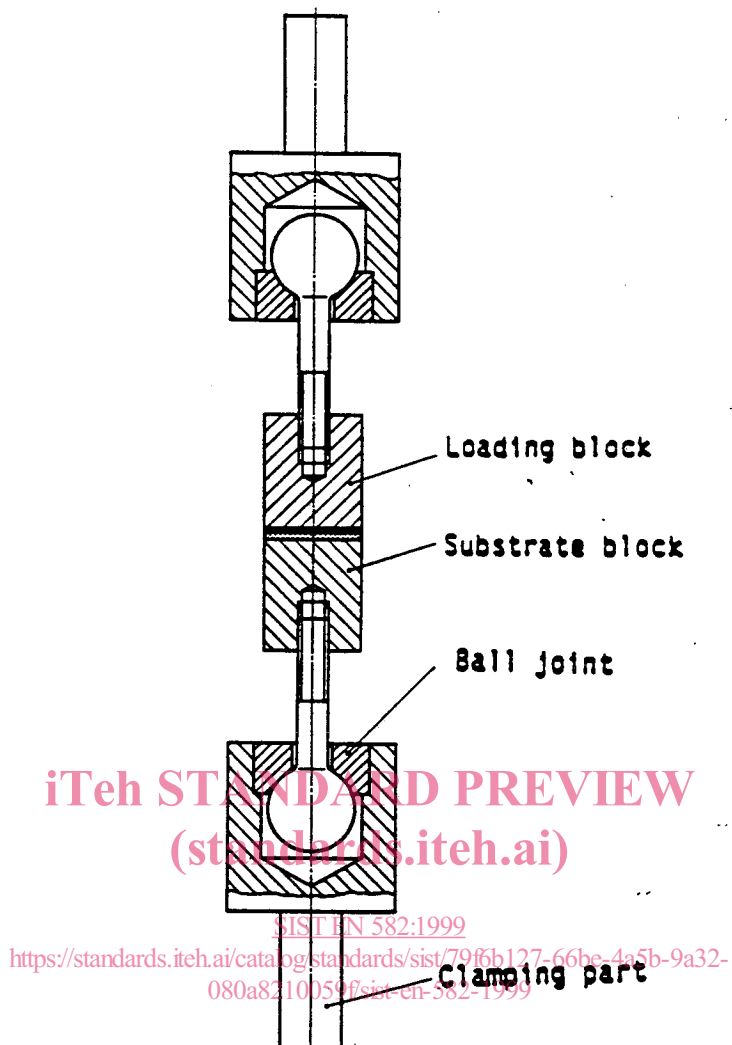


Figure 1: Example of a test arrangement with specimen A

5 Specimens

5.1 Shape

For the determination of the tensile adhesive strength in the tensile test, specimens of shapes A and B and of 25 mm and 40 mm diameter are specified.

Specimen A (see figure 2) consists of a substrate block to which the deposit is applied at the front face, and the loading block which is adhesive bonded to the flat deposit surface.

Dimensions in mm

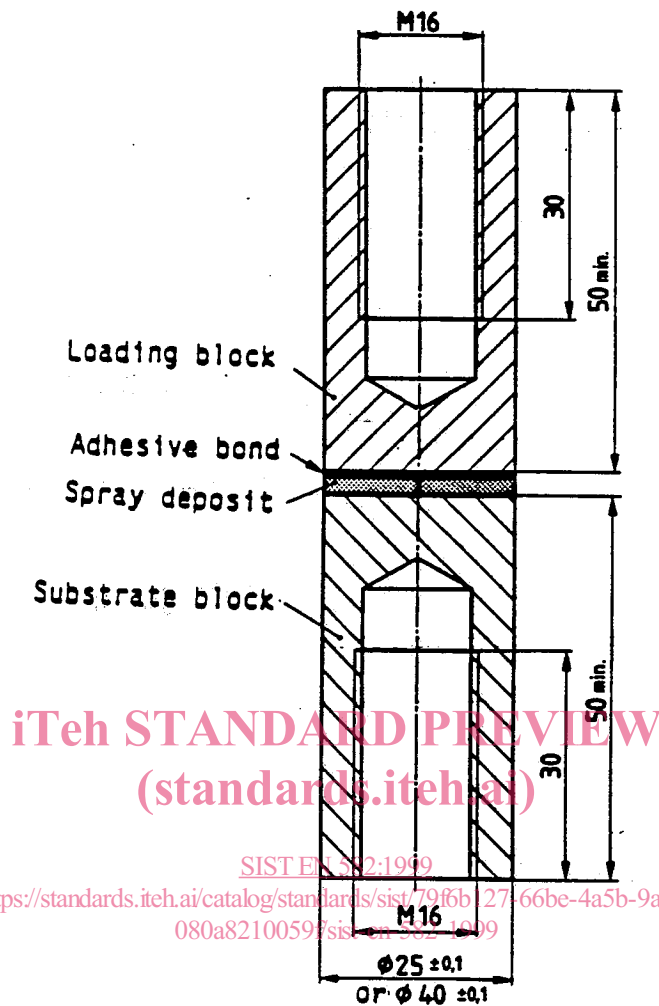


Figure 2: Specimen A for tensile test

Specimen B (see figure 3) consists of two loading blocks and a disc. Deposit is thermally sprayed to one side of the disc, and the disc then is adhesively bonded to the two loading blocks.

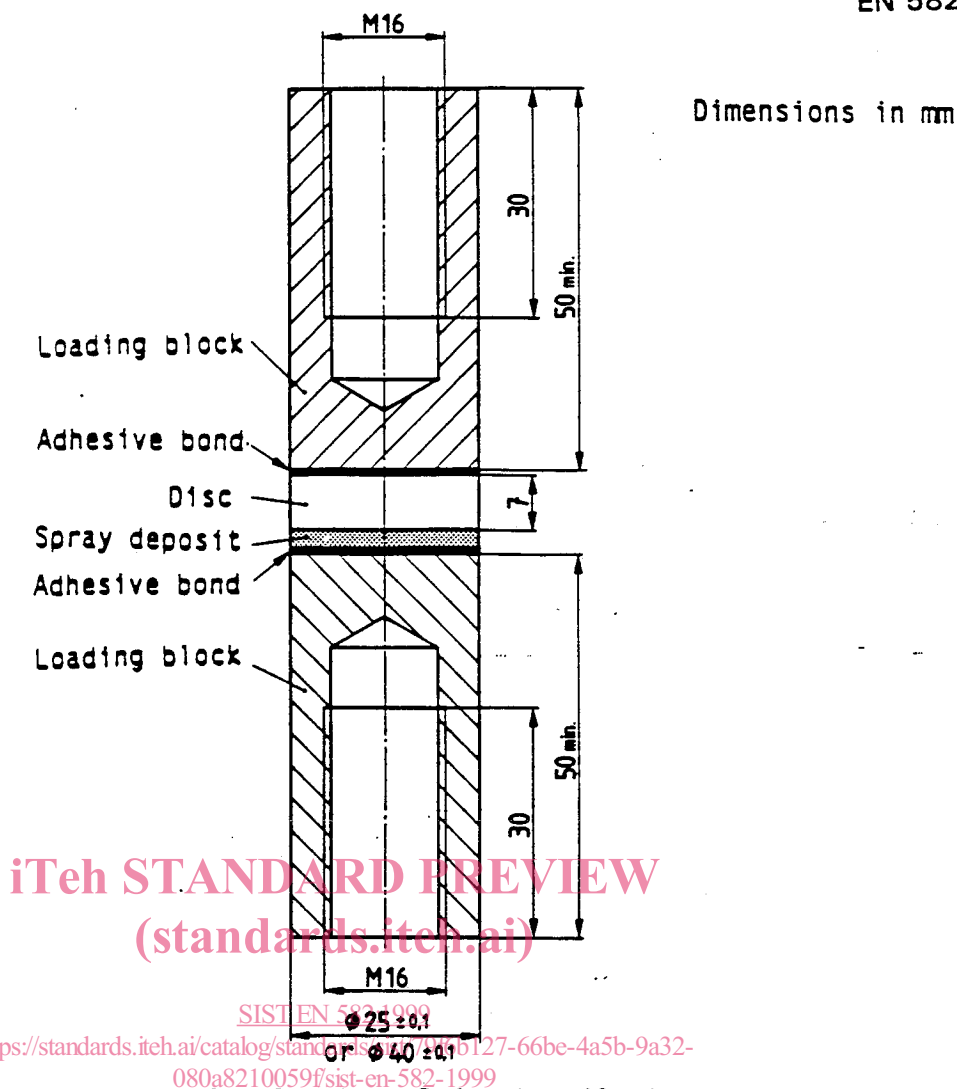


Figure 3: Specimen B for tensile test

When preparing the specimens care shall be taken to avoid any bending load. For a cylindrical bonding, the assembly shall be inserted in a suitable fixture and the axis of the specimen shall be perpendicular to the deposited front face. In the event of low-strength parent metal being used for the test, thread lengths and diameters shall be varied accordingly, and provided with screws sockets if required.

5.2 Preparation

The flat end of the substrate block is made of the specified parent metal and the deposit applied to it in such a way that no spray material can deposit on the cylindrical specimen.

The specimens shall be prepared in the same manner as the workpieces in practice. Spray conditions shall be equal to those of practical work. Then the spray deposit surface shall be prepared appropriate for subsequent adhesive bonding. Care shall be taken to ensure perpendicularity of deposit surface and specimen axis.

The loading block is adhesively bonded to the spray deposit (specimen A), or to the disc deposited at one side (specimen B).