



SLOVENSKI STANDARD
SIST EN ISO 14922-4:2000

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Thermal spraying - Quality requirements of thermally sprayed structures - Part 4:
Elementary quality requirements (ISO 14922-4:1999)

Thermisches Spritzen - Qualitätsanforderungen an thermisch gespritzte Bauteile - Teil 4:
Elementar-Qualitätsanforderungen (ISO 14922-4:1999)

Projection thermique - Exigences qualité des constructions obtenues par projection
thermique - Partie 4: Exigences qualité élémentaires (ISO 14922-4:1999)

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Ta slovenski standard je istoveten z: EN ISO 14922-4:1999

ICS:

25.220.20 Površinska obdelava Surface treatment

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EUROPEAN STANDARD
 NORME EUROPÉENNE
 EUROPÄISCHE NORM

EN ISO 14922-4

June 1999

ICS 25.220

English version

Thermal spraying - Quality requirements of thermally sprayed structures - Part 4: Elementary quality requirements (ISO 14922-4:1999)

Projection thermique - Exigences qualité des constructions obtenues par projection thermique - Partie 4: Exigences qualité élémentaires (ISO 14922-4:1999)

Thermisches Spritzen - Qualitätsanforderungen an thermisch gespritzte Bauteile - Teil 4: Elementar-Qualitätsanforderungen (ISO 14922-4:1999)

This European Standard was approved by CEN on 19 February 1999.

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 Central Secretariat 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 Central Secretariat 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.



EUROPEAN COMMITTEE FOR STANDARDIZATION
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Foreword

The text of EN ISO 14922-4:1999 has been prepared by Technical Committee CEN/TC 240 "Thermal spraying and thermally sprayed coatings", the secretariat of which is held by DIN, in collaboration with Technical Committee ISO/TC 107 "Metallic and other inorganic coatings".

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 December 1999, and conflicting national standards shall be withdrawn at the latest by December 1999.

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.

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1 Scope

This standard specifies requirements so that:

- It is independent of the type of the thermally sprayed structure.
- It defines quality requirements for thermal spraying both in workshops and on site.
- It provides guidance for describing a manufacturer's capability to produce thermally sprayed constructions to meet specified requirements.
- It may also be used as a basis for assessing the manufacturer in respect to his thermal spraying capability.

This standard is appropriate when demonstration of a manufacturer's capability to produce thermally sprayed construction, fulfilling specified quality requirements, are specified in one or more of the following:

- a contract between involved parties;
- an application standard;
- a regulatory requirement.

The requirements contained within this standard may be adopted in full or may be selectively deleted by the manufacturer if not applicable to the construction concerned. They provide a flexible framework for the control of thermal spraying in the following cases:

- Case 1

To provide specific requirements for thermal spraying in contracts which require the manufacturer to have a quality system other than EN ISO 9001 or EN ISO 9002.

- Case 2

To provide specific requirements for thermal spraying in contracts which require the manufacturer developing a quality system.

- Case 3

To provide specific requirements for thermal spraying in application standards which uses thermal spraying as part of its requirements or in a contract between relevant parties.

2 Normative references

SIST EN ISO 14922-4:2000

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.

EN 473

Non-destructive testing – Qualification and certification of personnel

EN 582

Thermal spraying – Determination of the adhesive tensile strength

EN 657

Thermal spraying – terminology – Classification

EN 1274

Thermal spraying – Powders – Composition – Technical supply conditions

EN ISO 9001

Quality systems – Model for quality assurance in design/development, production, installation and servicing (ISO 9001 : 1994)

EN ISO 9002

Quality systems – Model for quality assurance in production, installation and servicing (ISO 9002 : 1994)

prEN ISO 14919

Thermal spraying – Wires, rods and cords for flame and arc spraying – Classification – Technical supply conditions

EN ISO 14922-1

Quality requirements of thermally sprayed structures – Part 1: Guidelines for selection and use

ISO 8402 : 1994

Quality management and quality assurance – Vocabulary

3 Definitions

For the purposes of this standard definitions given in EN 657 and listed in part 1 of this standard apply.

4 Contract and design review

4.1 General

The manufacturer shall review the contractual requirements and the design data provided by the purchaser or in-house data for construction designed by the manufacturer. This is to ensure that all information necessary to carry out the fabrication operations is available prior to the commencement of the work. The manufacturer shall affirm his capability to meet all thermal spraying contract requirements and ensure adequate planning of all quality related activities.

4.2 Application – Contract review

Contractual requirements to be considered should include:

- a) the application standard to be used, together with any supplementary requirements;
- b) inspection and testing;
- c) final testing;
- d) environmental conditions relevant to thermal spraying on site;
- e) sub-contracting,
- f) handling of non-conformance.

4.3 Application – Design review

Design requirements to be considered should include:

- a) location, accessibility and sequence of all coatings;
- b) surface finish of the coating;
- c) substrate material specification and coating properties;
- d) dimensions and details of prepared substrate surfaces and sprayed coatings;
- e) quality and acceptance requirements for coatings.

5 Sub-contracting

Any sub-contractor shall work under the order and responsibility of the manufacturer and shall fully comply with the relevant requirements of this standard.

6 Personnel for thermal spraying

6.1 General

The manufacturer shall have at his disposal sufficient and competent personnel for the planning, performing, supervising and examining of the thermal spraying production according to specified requirements.

6.2 Qualified thermal sprayer

The entire personnel for thermal spraying must be introduced/instructed.

6.3 Thermal spraying coordinator

The manufacturer shall have at his disposal personnel who controls the correct performing of the thermal spraying work.

7 Personnel for quality testing

7.1 General

The manufacturer shall have at his disposal sufficient and competent personnel for performing the quality testing.

7.2 Non-destructive testing

The non-destructive testing personnel should be approved according to EN 473.

8 Equipment

8.1 Equipment for manufacturing

The following equipment shall be available when necessary:

- workshops, generally as roofed working sites;
- stores for correct storage of substrate materials (to be coated components), consumables and other additives for thermal spraying;
- equipment for drying spray powders;
- equipment and machines to prepare and machine the components for thermal spraying (e.g. degreasing equipment, sand blasting cabins);
- spraying equipment, including equipment for supply, setting and control;
- handling systems (e.g. turntables, turning machines, robot systems);
- exhaust systems, dust filters, protective means against noise and radiation;
- equipment for thermal treatment of the components before and after spraying;
- cooling equipment;
- machines, tools and equipment for post treatment of thermal sprayed coatings (e.g. grinding, turning).

8.2 Health and safety and environmental aspects

Equipment necessary for health and safety and environmental protection must be available. All necessary activities to assure standards of health and safety and of emission have to be conducted.

9 Thermal spraying activities

Thermal spraying shall be performed in accordance with an appropriate spraying procedure.

10 Consumables for thermal spraying

Responsibilities and procedures involved in the control of thermal spraying consumables shall be specified by the manufacturer.

11 Storage and handling of substrate materials

Storage shall be such that the material will not be adversely affected. Identification shall be maintained during storage.

12 Thermal spraying related inspection and testing

12.1 Inspection and testing before thermal spraying

Before the start of thermal spraying, the following shall be checked, when necessary:

- suitability and validity of the thermal sprayer's certificate;
- suitability of thermal spraying procedure specification;
- identity of the substrate material;
- identity of the consumables, e.g. according to EN 1274;
- surface preparation, also shape and dimension;
- fit-up, jiggling and tacking;
- any special requirements in thermal spraying procedure specification, e.g. prevention of distortion;
- arrangement of any production test;
- suitability of working conditions for thermal spraying, including environment.

12.2 Inspection and testing after thermal spraying

After thermal spraying, the compliance with relevant acceptance criteria shall be checked, when necessary.

13 Non-conformance and corrective actions

Measures shall be implemented to control items which do not conform to specified requirements in order to prevent their inadvertent use. When repair and/or thermal re-spraying is undertaken by the manufacturer, appropriate procedures shall be available at all workstations where these activities are performed. When repair or thermal re-spraying is performed, the items shall be re-inspected, tested and examined in accordance with the original requirements. Measures shall also be implemented to ensure that conditions adverse to quality of the thermally sprayed construction are promptly identified and corrected.

14 Calibration

The manufacturer shall be responsible for the appropriate calibration of the inspection, measuring and testing equipment. All equipment used to assess the quality of the sprayed construction shall be suitably controlled and shall be calibrated at specified intervals.

15 Identification and traceability

Identification and traceability shall be maintained throughout the manufacturing process, where appropriate.

16 Quality records

Quality records shall be retained for a minimum period of 5 years in the absence of any other specified requirements.

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