



SLOVENSKI STANDARD

SIST EN 17001:2018

01-december-2018

Vročje brizganje - Sestavni deli s premazi, nanesenimi z vročim brizganjem - Specifikacija premazov

Thermal spraying - Components with thermally sprayed coatings - Coating specification

Thermisches Spritzen - Bauteile mit thermisch gespritzten Schichten -
Schichtspezifikation

Projection thermique - Composants avec des revêtements obtenus par projection
thermique - Spécification du revêtement

iTeh STANDARD PREVIEW

(standards.iteh.ai)

SIST EN 17001:2018

Ta slovenski standard je istoveten z: EN 17001:2018

<https://standards.iteh.ai/catalog/standards/sist/92f22809-2806-4d97-a4a4-56902a299bff/sist-en-17001-2018>

ICS:

25.220.20 Površinska obdelava Surface treatment

SIST EN 17001:2018

en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 17001:2018

<https://standards.iteh.ai/catalog/standards/sist/92f22809-2806-4d97-a4a4-50902a299bff/sist-en-17001-2018>

EUROPEAN STANDARD

EN 17001

NORME EUROPÉENNE

EUROPÄISCHE NORM

August 2018

ICS 25.220.20

English Version

Thermal spraying - Components with thermally sprayed coatings - Coating specification

Projection thermique - Composants avec des revêtements obtenus par projection thermique - Spécification du revêtement

Thermisches Spritzen - Bauteile mit thermisch gespritzten Schichten - Schichtspezifikation

This European Standard was approved by CEN on 9 April 2018.

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 CEN-CENELEC 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 CEN-CENELEC Management Centre has the same status as the official versions.

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



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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Contents	Page
European foreword.....	3
1 Scope	4
2 Normative references	4
3 Terms and definitions	4
4 Technical content of the coating specification	5
4.1 General	5
4.2 Minimum requirements for the coating specification in simple applications	5
4.3 Minimum information in the coating specification	5
4.3.1 Information about component, coating and process	5
4.3.2 Information regarding technological requirements and tests	6
4.4 Additional information about the coating and its production	6
4.5 Information about quality tests and test scopes	6
4.5.1 General	6
4.5.2 Tensile adhesive strength test	6
4.5.3 Pull-off test	6
4.5.4 Shear load resistance	7
4.5.5 Hardness measurement	7
4.5.6 Metallographic investigations	7
4.5.7 Further investigations	7
Bibliography	8

SIST EN 17001:2018

<https://standards.itech.ai/catalog/standards/sist/92f22809-2806-4d97-a4a4-50902a299bff/sist-en-17001-2018>

European foreword

This document (EN 17001:2018) has been prepared by Technical Committee CEN/TC 240 “Thermal spraying and thermally sprayed coatings”, 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 February 2019, and conflicting national standards shall be withdrawn at the latest by February 2019.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN 17001:2018](https://standards.iteh.ai/catalog/standards/sist/92f22809-2806-4d97-a4a4-50902a299bff/sist-en-17001-2018)

<https://standards.iteh.ai/catalog/standards/sist/92f22809-2806-4d97-a4a4-50902a299bff/sist-en-17001-2018>

EN 17001:2018 (E)**1 Scope**

This European standard defines the requirements to be specified in the coating specification for a thermally sprayed coating. It applies to components and workpieces made of metallic or non-metallic materials that are to be partially or completely coated with thermally sprayed coatings. The coating can be made of metals, metal ceramics, oxide ceramics or plastics. Additional requirements for the coating manufacturer that are not coating-specific are intended to be included by defining the technical supply conditions according to EN ISO 12670.

The requirements defined in this standard are intended to be met by a component-related thermal spray procedure specification (TSPS) prepared by the coating manufacturer. The thermal spray procedure specification is intended to be documented and component-related to ensure traceability. For details, see EN 17002.

Proof that the requirements of the coating specification are met by the application of the thermal spray procedure specification can be provided by performing a component-related procedure qualification according to EN 15648.

If specific coating requirements cannot be specified by the customer, they are intended to be agreed with the contractor on the basis of the requirements for the sprayed coating – e.g. against fretting wear at high temperatures – and on the basis of the contractor's past experience.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 ISO 2063-2, *Thermal spraying - Zinc, aluminium and their alloys - Part 2: Execution of corrosion protection systems (ISO 2063-2)*

<https://standards.iteh.ai/catalog/standards/sist/92f22809-2806-4d97-a4a4-50902a299bff/sist-en-17001-2018>

EN ISO 4624:2016, *Paints and varnishes - Pull-off test for adhesion (ISO 4624:2016)*

EN ISO 12671, *Thermal spraying - Thermally sprayed coatings - Symbolic representation on drawings (ISO 12671)*

EN ISO 14916, *Thermal spraying - Determination of tensile adhesive strength (ISO 14916)*

EN ISO 14917, *Thermal spraying - Terminology, classification (ISO 14917)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 14917 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1**thermal spray procedure specification****TSPS**

procedure specification that contains the parameters required for the component-related application of the thermal spraying process

3.2**thermal spray procedure qualification****TSPQ**

qualification of a TSPS by a component-related qualification

Note 1 to entry: E.g. according to EN 15648.

4 Technical content of the coating specification**4.1 General**

The coating specification shall contain all the necessary technical information to successfully produce the specific coating. The significance of the coating for the function and safety of the component corresponding to the quality requirements according to EN ISO 14922-1 to EN ISO 14922-4 should be taken into account.

Recommendations for the design and construction of components with thermally sprayed coatings, according to EN 15520, should be observed to achieve the required quality.

4.2 Minimum requirements for the coating specification in simple applications

Simple applications, within the meaning of this standard, are applications for which it is sufficient to indicate the data for the coating in the form of symbolic representation on the drawing according to EN ISO 12671. This is the case if only limited information, such as the alloy of the spray consumable, the necessary thickness of the sprayed coating, and the condition of the finished surface (e.g. as sprayed, machined or fused) is required. If the spraying process is also specified, the type of spray consumable (as powder or wire/cord/rod) shall be indicated.

Further requirements for operation, design and quality assurance measures should be defined e.g. by specifying EN ISO 12670 in the design documents, the drawing or the parts list.

4.3 Minimum information in the coating specification**4.3.1 Information about component, coating and process**

The following essential information shall be indicated in the coating specification:

- identification of the component (e.g. by designation or drawing number);
- coating or coating system (e.g. bond coat and top coat);
- coating material, type or alloy (e.g. powder designation, wire, cord or rod according to EN ISO 14919);
- coating thickness and thickness tolerance. Where appropriate, indicating different local thickness;
- the minimum value for the tensile adhesive strength, if agreed between the contractual partners. The adhesive and the bonding process to be applied shall be specified according to EN ISO 14916. In atmospheric corrosion protection applications according to EN ISO 2063-2, the minimum value shall be defined for the pull-off test according to EN ISO 4624;
- spraying process, if a specific spraying process is required;
- surface conditions, e.g. roughness as sprayed, surface machined;
- necessary thermal post-treatment, e.g. fusing the coating, diffusion annealing;

EN 17001:2018 (E)

- sealing with indication of the sealing material and the sealing method, if applicable.

4.3.2 Information regarding technological requirements and tests

The following specific information may be indicated in the coating specification:

- minimum values for the shear load resistance according to EN 15340;
- minimum hardness values, including the test method (e.g. Vickers, Brinell, Rockwell). Maximum permissible values may also be specified;
- minimum and/or maximum roughness values;
- minimum and/or maximum porosity values, e.g. for thermal barrier coatings (TBC) with indication of the test method.

4.4 Additional information about the coating and its production

If it is significant for the function of the coating, the following additional information should be indicated in the coating specification:

- purpose of the coating (e.g. protection against corrosion or wear or a combination of both, electrical conductivity or electrical resistance, thermal insulation);
- pre-treatments;
- limit values for permissible imperfections (e.g. according to EN ISO 14923);
- metallographic investigation (on sacrificial component or test coupon) with limit values for e.g. specified defects, porosity or unmolten particles
- minimum value of electrical properties (e.g. conductivity or resistance).

4.5 Information about quality tests and test scopes**4.5.1 General**

Information about the tests and test scopes with type and number of necessary test specimens should be part of the coating specification. The test plan to be prepared by the coating manufacturer should fulfil these requirements. EN ISO 14923 contains information for tests and test methods.

4.5.2 Tensile adhesive strength test

This test is not necessary for corrosion protective coatings.

If minimum values are required for the tensile adhesive strength of the coating, determination should be performed according to EN ISO 14916.

4.5.3 Pull-off test

This test is suitable for corrosion protective coatings.

According to EN ISO 2063-2, the pull-off test according to EN ISO 4624 (with exception of 7.3 and 8.2 in EN ISO 4624:2016) shall be specified for atmospheric corrosion protection applications.

4.5.4 Shear load resistance

If minimum values are required for the shear strength of the coating, determination should be performed according to EN 15340.

4.5.5 Hardness measurement

The test method and testing location shall be specified for the hardness test, e.g. on the component or on samples.

4.5.6 Metallographic investigations

The preparation procedure shall be agreed upon for metallographic investigation of the coating structure. If only the coating thickness is to be determined metallographically, EN ISO 1463 may be specified for this purpose.

4.5.7 Further investigations

If further special investigations, such as corrosion (e.g. EN ISO 9227) or wear tests, are to be carried out, the test methods and the required test results shall be agreed between the contractual partners.

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN 17001:2018](https://standards.iteh.ai/catalog/standards/sist/92f22809-2806-4d97-a4a4-50902a299bff/sist-en-17001-2018)

<https://standards.iteh.ai/catalog/standards/sist/92f22809-2806-4d97-a4a4-50902a299bff/sist-en-17001-2018>