



**SLOVENSKI STANDARD**  
**SIST EN ISO 12679:2016**

**01-januar-2016**

**Nadomešča:**  
**SIST EN 14616:2005**

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**Vroče brizganje - Priporočila za vroče brizganje (ISO 12679:2011)**

Thermal spraying - Recommendations for thermal spraying (ISO 12679:2011)

Thermisches Spritzen - Empfehlungen für das thermische Spritzen (ISO 12679:2011)

Projection thermique - Recommandations pour la projection thermique (ISO 12679:2011)

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**Ta slovenski standard je istoveten z: EN ISO 12679:2015**

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**ICS:**

25.220.20      Površinska obdelava      Surface treatment

**SIST EN ISO 12679:2016**

**en,fr,de**

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EUROPEAN STANDARD

EN ISO 12679

NORME EUROPÉENNE

EUROPÄISCHE NORM

October 2015

ICS 25.220.20

Supersedes EN 14616:2004

English Version

## Thermal spraying - Recommendations for thermal spraying (ISO 12679:2011)

Projection thermique - Recommendations pour la projection thermique (ISO 12679:2011)

Thermisches Spritzen - Empfehlungen für das thermische Spritzen (ISO 12679:2011)

This European Standard was approved by CEN on 27 September 2015.

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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.

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

**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

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## European foreword

The text of ISO 12679:2011 has been prepared by Technical Committee ISO/TC 107 “Metallic and other inorganic coatings” of the International Organization for Standardization (ISO) and has been taken over as EN ISO 12679:2015 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of an identical text or by endorsement, at the latest by April 2016, and conflicting national standards shall be withdrawn at the latest by April 2016.

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

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According to the CEN-CENELEC Internal Regulations, the national standards organizations 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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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# INTERNATIONAL STANDARD

**ISO  
12679**

First edition  
2011-09-15

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## **Thermal spraying — Recommendations for thermal spraying**

*Projection thermique — Recommandations pour la projection thermique*

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**ISO 12679:2011(E)****Foreword**

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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

ISO 12679 was prepared by Technical Committee ISO/TC 107, *Metallic and other inorganic coatings*.

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## Introduction

Thermal spraying encompasses processes used in the production of coatings and free-standing bodies for which spray materials are surface-melted, melted off or melted and then propelled onto suitably prepared workpiece surfaces. The workpiece surfaces are not surface-melted. In order to achieve specific coating properties, the spray coating can undergo additional post-treatment, either thermal or otherwise, for example, sealing.

Thermally sprayed coatings serve to improve the surface properties of a workpiece by manufacturing or repair operations. This can be done, for example, in relation to wear, corrosion, heat transfer or heat insulation, electrical conductivity or insulation, appearance and/or for restoring the part to working order. In certain cases, a spray coating can render a surface solderable.

Chiefly due to their bonding mechanism, thermally sprayed coatings without thermal post-treatment can be distinguished from coatings applied with other processes, such as deposition welding, brazing, physical vapour deposition (PVD) or chemical vapour deposition (CVD).

The advantages of thermal spraying are the following.

- The workpieces to be coated are only slightly heated so that distortion and any other undesired structural changes to the parent material are avoided. This does not apply if the coatings are thermally treated during or after the spraying process.
- The application is not dependent on the size of the workpiece or component. The operation can be stationary or mobile depending on the spraying process.
- Even geometrically complex components can be coated using the appropriate spray set-up.
- The untreated surface of spray coatings generally provides a good bond coat for painting.
- Depending on the spraying process and spray material, different coating thicknesses can be applied, although a coating thickness of approximately 10 µm is currently considered to be the lower limit.

Process-related disadvantages are as follows:

- the bond strength of thermally sprayed coatings without thermal post-treatment derives from adhesive forces only;
- the bond strength can be influenced due to an expansion mismatch between the coating and substrate material, especially in the case of a high operation temperature;
- spray coatings are micro-porous;
- the thicker the spray coating, the higher the residual stresses in the coating, and the degree of multi-axial stress thus increases;
- spray coatings without additional thermal post-treatment are sensitive to edge pressure, localized and linear loads and to impact stresses;
- there are restrictions in relation to the geometric dimensions, for example, for the inner coatings of workpieces whose inner diameter is too small.