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Termisk sprutning – Prövning av operatörer (ISO 14918:2018)

**Thermal spraying – Qualification testing of thermal sprayers
(ISO 14918:2018)**

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Denna standard ersätter SS-EN ISO 14918, utgåva 1

The European Standard EN ISO 14918:2018 has the status of a Swedish Standard. This document contains the official version of EN ISO 14918:2018.

This standard supersedes the SS-EN ISO 14918, edition 1

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Denna standard är framtagen av kommittén för AGS 448 Termisk sprutning, SIS/TK 134/AG 08.

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EUROPEAN STANDARD

EN ISO 14918

NORME EUROPÉENNE

EUROPÄISCHE NORM

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Supersedes EN ISO 14918:1998

English Version

Thermal spraying - Qualification testing of thermal sprayers (ISO 14918:2018)

Projection thermique - Qualification des agents
en projection thermique (ISO 14918:2018)

Thermisches Spritzen - Prüfung von
thermischen Spritzern (ISO 14918:2018)

This European Standard was approved by CEN on 23 April 2018.

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European foreword

This document (EN ISO 14918:2018) has been prepared by Technical Committee ISO/TC 107 “Metallic and other inorganic coatings” in collaboration with 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of an identical text or by endorsement, at the latest by December 2018, and conflicting national standards shall be withdrawn at the latest by December 2018.

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Endorsement notice

The text of ISO 14918:2018 has been approved by CEN as EN ISO 14918:2018 without any modification.

Introduction

This document examines the principles of qualification testing of sprayer performance for thermal spraying.

The quality of work involved in thermal spraying depends on the skill, operation of the spray equipment and job knowledge of the thermal sprayer.

The ability of the thermal sprayer to follow verbal and written instructions and the testing of his/her skill and operation of the spray equipment are therefore important factors in ensuring the quality of the thermally sprayed product.

This document is intended to provide the basis for mutual recognition by examining bodies for qualification relating to thermal sprayer's competence in the various fields of application. Tests can be carried out in accordance with this document, unless more severe tests are specified by the relevant application standards in which case these can be applied.

The thermal sprayer's skill and job knowledge continues to be classified as qualified as long as the thermal sprayer works with reasonable continuity on thermal spraying work within the extent of qualification.

Thermal spraying — Qualification testing of thermal sprayers

1 Scope

This document specifies procedural instructions for qualification testing of thermal sprayers. It defines requirements, ranges of qualification, test conditions, acceptance requirements and certification for qualification testing of thermal spray performance.

This document is applicable when the thermal sprayer's qualification is required by this document, the purchaser, by inspection authorities or by other organizations.

The thermal spraying processes referred to in this document include those spraying processes which are designated as manual or mechanized.

The test for mechanised application includes the use of automatically controlled thermal spraying, e.g. robotics, scan units.

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.

ISO 14916, *Thermal spraying — Determination of tensile adhesive strength*

ISO 14917, *Thermal spraying — Terminology, classification*

ISO 2063-2, *Thermal spraying — Zinc, aluminium and their alloys — Part 2: Execution of corrosion protection systems*

EN 15340, *Thermal spraying — Determination of shear load resistance of thermally sprayed coatings*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in 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 <https://www.iso.org/obp>

3.1

thermal sprayer

person who performs thermal spraying with a manual or mechanized system

3.2

manual thermal spraying

process in which the spraying gun or torch is manipulated by hand

3.3

mechanized thermal spraying

process in which some aspects are mechanized, i.e. with the gun/torch not manipulated by hand

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3.4 automatic thermal spraying

process in which all operations typical of the spraying process are fully mechanized including all handling, e.g. workpiece loading and unloading, and which are integrated in a programmed system

Note 1 to entry: For examination, it is equal to *mechanized thermal spraying* (3.3).

3.5 examiner

person who verifies compliance with the application standard

3.6 examining body

organization who verifies compliance with the application standard

3.7 specific acceptance criteria

document providing in detail the criteria by which a *thermal sprayer* (3.1) can be tested to be qualified for a particular spraying technique or application area

3.8 test piece

thermal spray workpiece used for the qualification *test* (3.10)

3.9 test specimen

portion cut from the *test piece* (3.8) in order to perform a specified analytical *test* (3.10)

3.10 test

series of operations which include the making of a thermally sprayed *test piece* (3.8), subsequent non-destructive and/or destructive testing and reporting of results

4 Essential requirements for qualification testing

4.1 General

The criteria specified in this clause shall be examined in order to identify the ability of the thermal sprayer in these areas.

The thermal sprayer's qualification test shall be carried out on test pieces of comparable geometry.

The thermal sprayer shall be tested on both basic job knowledge and specific knowledge related to the process for all thermal spraying processes and operations, see [Annex A](#).

4.2 Equipment operation

The thermal sprayer shall be tested to determine his/her knowledge of the equipment, as described in [A.4.3](#).

4.3 Masking procedure

The thermal sprayer shall be tested to determine his/her knowledge of proper masking procedures for both surface preparation and spraying.

4.4 Surface preparation

The thermal sprayer shall verify that the surface of the thermal spray test piece which is used for qualification is acceptable. S/he should also maintain a properly prepared surface during the qualification testing.

4.5 Environmental conditions

The thermal sprayer shall verify the acceptability of environmental conditions, such as temperature, humidity and dew point, as being suitable for spraying the test pieces if called up by the specific coating process and method of application being evaluated.

4.6 Application equipment

The test results used for the qualification testing shall come from work or test pieces sprayed with production equipment or equipment similar to it. The certifying examining body shall agree that equal equipment used to perform the testing is representative of the said equipment's quality.

5 Range of qualification

5.1 General

Thermal sprayers shall be qualified for thermal spraying to a specific coating process and method of application. The qualification shall only be valid for that specific coating process and method of application. The thermal spraying processes and methods of application covered by this document are identified in [5.2](#).

5.2 Thermal spraying processes

5.2.1 Grouping of thermal spraying processes

This document covers the following thermal spraying processes according to ISO 14917:

- arc spraying;
- plasma spraying;
- high velocity oxy fuel flame spraying, cold spraying, detonation spraying;
- powder flame spraying, plastic flame spraying;
- wire/rods/cords flame spraying;
- powder flame spraying with fusing, laser spraying, plasma transferred arc spraying (PTA).

5.2.2 Application methods

This document covers the following application methods:

- manual;
- mechanized.

5.2.3 Spray materials

5.2.3.1 General

The spray materials that shall be used in the qualification test are split into material groups.