



# SLOVENSKI STANDARD

## SIST-TP CEN/TR 15339-1:2015

01-marec-2015

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### Vročje brizganje - Varnostne zahteve za opremo za vroče brizganje - 1. del: Splošne zahteve

Thermal spraying - Safety requirements for thermal spraying equipment - Part 1: General requirements

Thermisches Spritzen - Sicherheitsanforderungen für Einrichtungen für das thermischen Spritzen - Teil 1: Allgemeine Anforderungen

Projection thermique - Exigences de sécurité relatives au matériel de projection thermique - Partie 1: Exigences générales

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Ta slovenski standard je istoveten z: **CEN/TR 15339-1:2014**

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#### **ICS:**

25.220.20      Površinska obdelava      Surface treatment

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ICS 25.220.20

English Version

## Thermal spraying - Safety requirements for thermal spraying equipment - Part 1: General requirements

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Thermisches Spritzen - Sicherheitsanforderungen für Einrichtungen für das thermische Spritzen - Teil 1: Allgemeine Anforderungen

This Technical Report was approved by CEN on 16 September 2014. It has been drawn up by the Technical Committee CEN/TC 240.

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

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## Foreword

This document (CEN/TR 15339-1:2014) has been prepared by Technical Committee CEN/TC 240 "Thermal spraying and thermally sprayed coatings", the secretariat of which is held by DIN.

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.

CEN/TR 15339, *Thermal spraying - Safety requirements for thermal spraying equipment* is composed of the following parts:

- *Part 1: General requirements*
- *Part 2: Gas control units* (published as a European Standard)
- *Part 3: Torches for thermal spraying and their connection and supply units*
- *Part 4: Gas and liquid fuel supply*
- *Part 5: Powder and wire feed units*
- *Part 6: Spray booth, Handling system, Dust collection, Exhaust system, Filter*

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## Introduction

In order to establish technical harmonization, development of technical standards and reduction of hindrances to trade, the European Community agreed several directives:

**Table 1 — European Directives**

Target Group	Directives						
	2006/42/EC <sup>a</sup> Machine Directive	95/63/EC <sup>b</sup> Social Directive	2006/95/EC <sup>c</sup> Low Voltage Directive	2004/108/EC EMC Directive	94/9/EC ATEX 95 Directive	99/92/EC ATEX 137 Directive	97/23/EC Pressure Equipment Directive
	[1]	[2]	[3]	[4]	[5]	[6]	[7]
Manufacturer	•		•	•	•		•
User		•	•	•		•	
<sup>a</sup> The Machine Directive applies to machinery and lays down the essential health and safety requirements therefore as well as for safety components placed on the market separately. <sup>b</sup> This directive defines the minimum safety and health requirements for the use of work equipment by workers at work. <sup>c</sup> Designed to ensure safety in the use of electrical equipment within certain voltage limits.							

The Member States of the European Union have to transpose the directives in their national law by decrees and laws. Laws and decrees relevant for the subject of this European Standard are listed in the national foreword.

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## 1 Scope

This Technical Report specifies and indicates safety requirements of machines, machine accessories, and equipment for thermal spraying. The provisions stated in this document are intended for the designer, manufacturer, integrator, and user of thermal spray equipment.

Safety requirements of specific and auxiliary components of a thermal spray system will be focused in further parts. (For details, see Clause 3).

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN ISO 12100:2010, *Safety of machinery - General principles for design - Risk assessment and risk reduction (ISO 12100:2010)*

## 3 Legal requirements

### 3.1 Design and construction of safe machinery for thermal spraying

#### 3.1.1 Procedure to design and to construct safe machinery for thermal spraying

Thermal spray equipment and related safety components shall be placed in the market and put into service only if they satisfy essential health and safety requirements.

NOTE The procedure indicated in 3.1.2 and 3.1.3 is a summary and output of directives, especially the Machine Directive 2006/42/EC [1] and several European Standards. In every case, the detailed directives and European Standards are valid.

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#### 3.1.2 Design and construction following the essential health and safety requirements

##### 3.1.2.1 Risk analysis

The manufacturer is under an obligation to assess the hazards in order to identify all those applying to his machine; he shall then consequently design, construct and produce the machinery taking his assessment into account.

The representation of the iterative method for the risk reduction process is schematically shown in Figure 1.

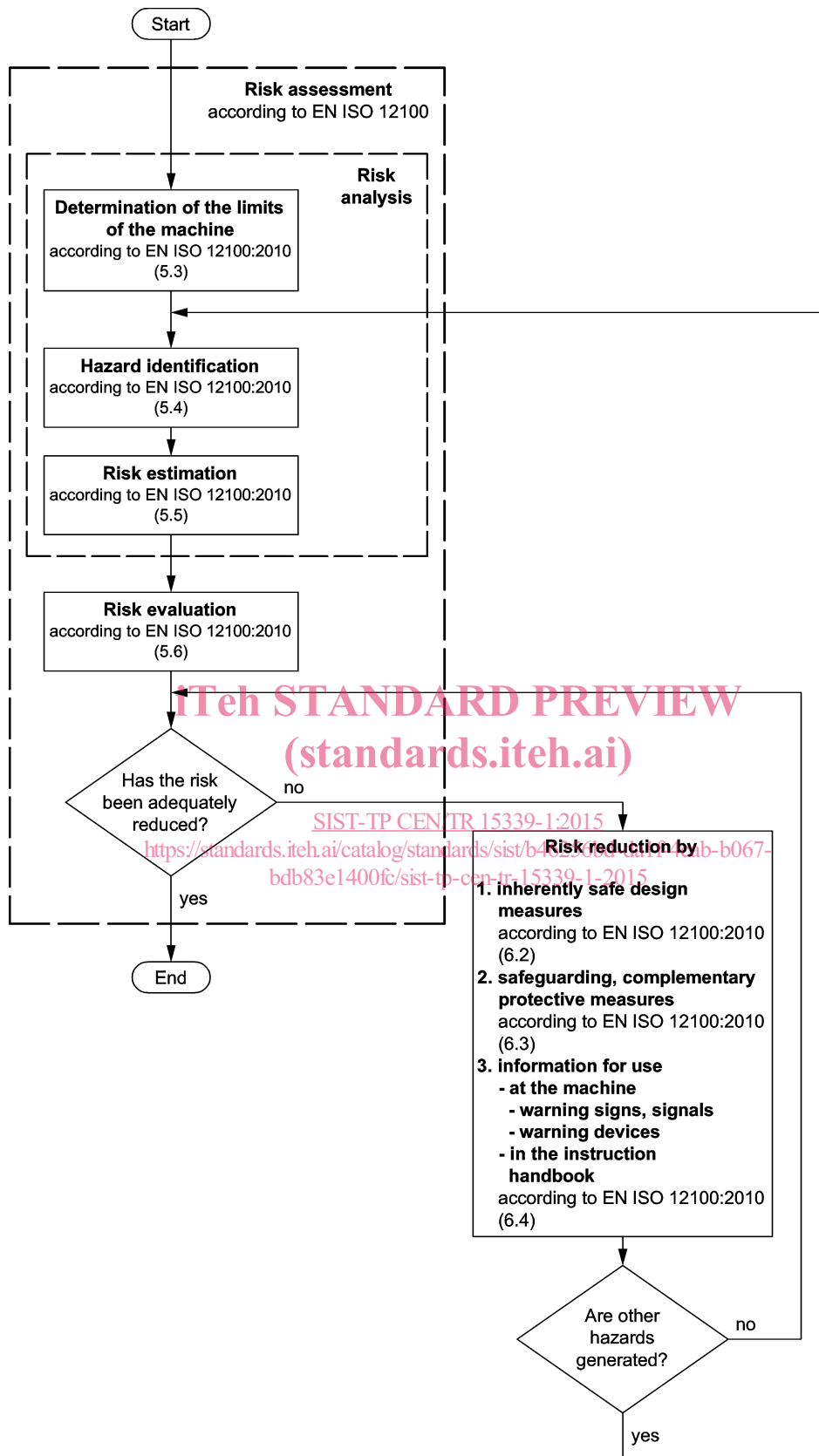


Figure 1 — Schematic representation of the iterative method for the risk reduction process



### 3.1.2.2 Essential health and safety requirements – State of the art

The essential health and safety requirements stated in Machine Directive 2006/42/EC [1] are mandatory. However, taking into account the state of the art, it may not be possible to meet the objectives set by them. In this case, the thermal spray equipment shall be designed and constructed as far as possible with the purpose of approaching those objectives.

### 3.1.2.3 Principles of safety integration

Machinery must be designed and produced in a way so that it is fit for its function, and can be operated, adjusted, and maintained without putting persons at risk when these operations are carried out under the conditions foreseen but also taking into account any reasonable foreseeable misuse thereof.

The aim of measures taken shall be to eliminate any risk of accident throughout the foreseeable lifetime of the equipment, including the phases of transport, installation and commissioning, teaching, programming and process change over, normal operation, malfunction and trouble shooting, dismantling and disposal, even where risks of accident or operational safety arise from foreseeable misuse.

In selecting the most appropriate methods, the manufacturer shall apply the following principles in the order given:

- a) eliminate or reduce risks as far as possible (inherently safe machinery design and construction);
- b) take the necessary protection measures in relation to risks that cannot be eliminated;
- c) inform users of the residual risks due to any shortcomings of the protection measures adopted, indicate whether any particular training is required and specify any need to provide personal protective equipment.

When designing and producing the thermal spray equipment, and when drafting the instructions, the manufacturer shall envisage not only the normal use of the machinery but also uses which could reasonably be expected.

The thermal spray equipment shall be designed to prevent abnormal use if such use would engender a risk. The instructions shall draw the user's attention to operating conditions in which the thermal spray equipment should not be used.

Under the intended conditions of use, the discomfort, fatigue and psychological stress faced by the operator shall be reduced to the minimum possible taking ergonomic principles into account.

When designing and producing thermal spray equipment, the manufacturer shall take account of the constraints to which the operator is subjected to as a result of the necessary or foreseeable use of personal protective equipment (such as footwear, gloves, etc.).

Thermal spray equipment shall be supplied with all the essential special equipment and accessories to enable it to be adjusted, maintained and used without risk.

### 3.1.3 Technical documentation construction file

The manufacturer, or his authorized representative in the Community, shall have ensured and be able to guarantee that the documentation listed below is and will remain available on his premises for any inspection purposes:

- a general description of the machinery (layout, overview) together with drawings of the control circuits;
- full detailed drawings, accompanied by any calculation notes, test results, certifications, etc., required to check the conformity of the machinery with the essential health and safety requirements;