

MASINATE OHUTUS, TULEKAHJUDE VÄLTIMINE JA
TULEKAITSE

Safety of machinery - Fire prevention and fire
protection (ISO 19353:2015)

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 19353:2016 sisaldab Euroopa standardi EN ISO 19353:2016 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 19353:2016 consists of the English text of the European standard EN ISO 19353:2016.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 27.01.2016.	Date of Availability of the European standard is 27.01.2016.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 13.110

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardikeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardikeskusega:

Aru 10, 10317 Tallinn, Eesti; koduleht www.evs.ee; telefon 605 5050; e-post info@evs.ee

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation:

Aru 10, 10317 Tallinn, Estonia; homepage www.evs.ee; phone +372 605 5050; e-mail info@evs.ee

English Version

Safety of machinery - Fire prevention and fire protection
(ISO 19353:2015)

Sécurité des machines - Prévention et protection
contre l'incendie (ISO 19353:2015)

Sicherheit von Maschinen - Brandschutz (ISO
19353:2015)

This European Standard was approved by CEN on 31 October 2015.

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, 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: Avenue Marnix 17, B-1000 Brussels

European foreword

This document (EN ISO 19353:2016) has been prepared by Technical Committee ISO/TC 199 "Safety of machinery" in collaboration with Technical Committee CEN/TC 114 "Safety of machinery" 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 July 2016, and conflicting national standards shall be withdrawn at the latest by July 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.

This document supersedes EN 13478:2001+A1:2008.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive, see informative Annex ZA, which is an integral part of this document.

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.

Endorsement notice

The text of ISO 19353:2015 has been approved by CEN as EN ISO 19353:2016 without any modification.

Annex ZA (informative)

Relationship between this European Standard and the Essential Requirements of EU Directive 2006/42/EC

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association to provide a means of conforming to Essential Requirements of the New Approach Directive Machinery 2006/42/EC.

Once this standard is cited in the Official Journal of the European Union under that Directive and has been implemented as a national standard in at least one Member State, compliance with Clauses 4 to 7 of this standard confers within the limits of the scope of this standard, a presumption of conformity with Essential Requirements Annex I, 1.5.6 “*Fire*” of that Directive and associated EFTA regulations.

WARNING — Other requirements and other EU Directives may be applicable to the product(s) falling within the scope of this standard.

Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Fire hazards	5
4.1 General	5
4.2 Combustible materials	6
4.3 Oxidizers	6
4.4 Ignition sources	6
5 Strategy for fire risk assessment and risk reduction	6
5.1 General	6
5.2 Determination of the limits of the machinery	9
5.3 Identification of fire hazards	9
5.4 Risk estimation	10
5.5 Risk evaluation	11
5.6 Risk reduction	12
5.6.1 General	12
5.6.2 Inherently safe design measures	12
5.6.3 Safeguarding	13
5.6.4 Complementary protective measures	13
6 Procedure for the selection of complementary protective measures	14
6.1 General	14
6.1.1 Use of the procedure	14
6.1.2 Determination of the residual risk level	14
6.1.3 Specification of requirements for the choice of fire detection and fire suppression system	15
6.1.4 Specification of safety and performance requirements	15
6.1.5 Selection of system parts and suitable fire-extinguishing agent	15
6.1.6 Decision on the need for further complementary protective measures	15
6.1.7 Validation	15
6.2 Selection of the fire prevention and protection system in relation to the expected risk level	15
6.2.1 General	15
6.2.2 Injury to persons	15
6.2.3 Safety considerations	16
6.2.4 Selection of system parts	16
6.2.5 Selection of fire-extinguishing agent	16
6.2.6 Validation	17
7 Information for use	17
Annex A (informative) Examples of ignition sources	19
Annex B (informative) Examples of machines and their typical fire-related hazards	21
Annex C (informative) Example for the design of a fire suppression system integrated in machinery	22
Annex D (informative) Example for the risk assessment and risk reduction of a machining centre for the machining of metallic materials	23
Annex E (informative) Fire risk reduction measures	34
Bibliography	35

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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 199, *Safety of machinery*.

This second edition cancels and replaces the first edition (ISO 19353:2005), which has been technically revised.

Introduction

The safety of machinery against fire involves fire prevention and fire protection and fire-fighting. In general, as shown in [Annex E](#), these include technical, structural, organizational and fire suppression measures. Effective fire safety of machinery can require the implementation of a single measure or a combination of measures.

[Annex E](#) provides an overview on fire risk reduction measures. This International Standard deals with the measures shown in [Figure 1](#).

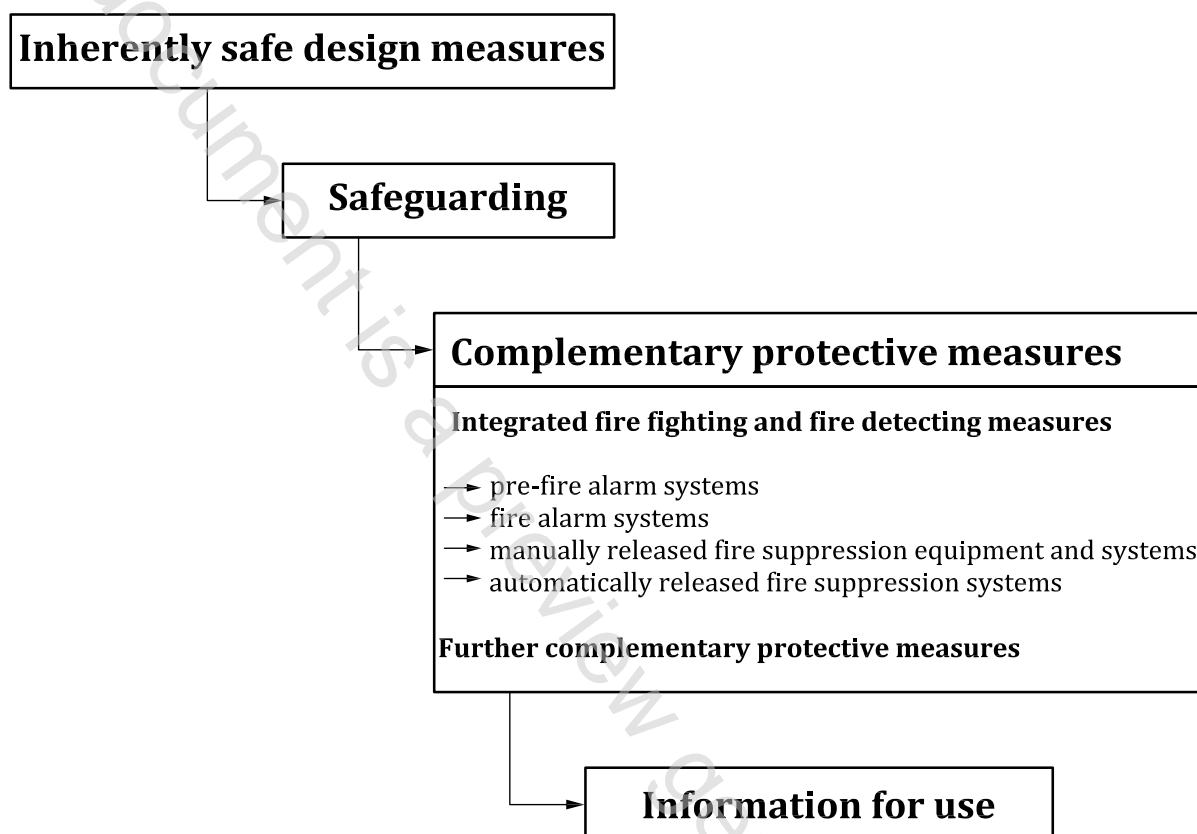


Figure 1 — Protective measures dealt with in ISO 19353

The structure of safety standards in the field of machinery is as follows.

- a) **type-A standards** (basis standards) giving basic concepts, principle for design, and general aspects that can be applied to machinery;
- b) **type-B standards** (generic safety standards) dealing with one or more safety aspect(s), or one or more type(s) of safeguards that can be used across a wide range of machinery:
 - type-B1 standards on particular safety aspects (e.g. safety distances, surface temperature, noise);
 - type-B2 standards on safeguards (e.g. two-hands controls, interlocking devices, pressure sensitive devices, guards);
- c) **type-C standards** (machinery safety standards) dealing with detailed safety requirements for a particular machine or group of machines.

ISO 19353 is a type-B1 standard as stated in ISO 12100.

This document is of relevance, in particular, for the following stakeholder groups representing the market players with regard to machinery safety:

- machine manufacturers (small, medium and large enterprises);
- health and safety bodies (regulators, accident prevention organisations, market surveillance, etc.);
- machine users/employers (small, medium and large enterprises);
- machine users/employees (e.g. trade unions, organizations for people with special needs);
- service providers, e.g. for maintenance (small, medium and large enterprises);
- consumers (in case of machinery intended for use by consumers).

The above-mentioned stakeholder groups have been given the possibility to participate at the drafting process of this document.

In addition, this document is intended for standardization bodies elaborating type-C standards.

The requirements of this document can be supplemented or modified by a type-C standard.

For machines that are covered by the scope of a type-C standard and that have been designed and built according to the requirements of that standard, the requirements of that type-C standard take precedence.