



NSAI
Standards

Irish Standard
I.S. EN ISO 28881:2013

Machine tools - Safety - Electro-discharge machines (ISO 28881:2013)

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I.S. EN ISO 28881:2013

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S.R. xxx: Standard Recommendation - recommendation based on the consensus of an expert panel and subject to public consultation.

SWIFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

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EUROPEAN STANDARD

EN ISO 28881:2013/AC

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Machine tools - Safety - Electro-discharge machines - Technical
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Machines-outils - Sécurité - Machines
d'électro-érosion - Rectificatif technique 1
(ISO 28881:2013/Cor 1:2013)

Werkzeugmaschinen - Sicherheit -
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This corrigendum becomes effective on 18 September 2013 for incorporation in the three official language versions of the EN.

Ce corrigendum prendra effet le 18 septembre 2013 pour incorporation dans les trois versions linguistiques officielles de la EN.

Die Berichtigung tritt am 18. September 2013 zur Einarbeitung in die drei offiziellen Sprachfassungen der EN in Kraft.



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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Foreword

This document (EN ISO 28881:2013/AC:2013) has been prepared by Technical Committee ISO/TC 39 "Machine tools" in collaboration with Technical Committee CEN/TC 143 "Machine tools - Safety" the secretariat of which is held by SNV.

Endorsement notice

The text of ISO 28881:2013/Cor 1:2013 has been approved by CEN as EN ISO 28881:2013/AC:2013 without any modification.

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I.S. EN ISO 28881:2013
INTERNATIONAL STANDARD ISO 28881:2013
TECHNICAL CORRIGENDUM 1

Published 2013-09-15

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

• МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ

• ORGANISATION INTERNATIONALE DE NORMALISATION

Machine tools — Safety — Electro-discharge machines

TECHNICAL CORRIGENDUM 1

Machines-outils — Sécurité — Machines d'électro-érosion

RECTIFICATIF TECHNIQUE 1

Technical Corrigendum 1 to ISO 28881:2013 was prepared by Technical Committee ISO/TC 39, *Machine tools*, Subcommittee SC 10, *Safety*.

Page 28, Figure A.1

Replace the key with the following, thus inserting key item nos. 7 and 8:

Key

1	machining head	9	door security system
2	machine column	10	work table
3	exhaust air extraction	11	flammable dielectric fluid container
4	electrode holder	12	fire detector
5	electrical cabinet (generator)	13	shielding of work area (Faraday cage) (guard against direct contact can be combined with shielding for EMC)
6	portable control station		
7	machine frame		
8	work tank		

**Figure A.1 — EMC shielding, fire detection and exhaust air extraction —
Schematic example of work area shielding**

Page 29, Figure A.2

Replace the key with the following, thus inserting key item no. 13:

Key

1	EMC enclosure	8	door security system
2	machine column	9	machine frame
3	exhaust air extraction	10	flammable dielectric fluid container
4	electrode holder	11	work tank
5	portable control station	12	fire detector
6	electrical cabinet (generator)	13	machining head
7	work table		

**Figure A.2 — EMC shielding, fire detection and exhaust air extraction —
Schematic example of EDM equipment shielding**

Page 51, Bibliography

Replace References [1], [2] and [3] (including footnotes) with the following, thus transposing the text of footnotes 1 and 2:

Bibliography

- [1] ISO 7010, *Graphical symbols — Safety colours and safety signs — Required safety signs*¹
- [2] ISO/IEC 2806:1994, *Industrial automation systems — Numerical control of machines — Vocabulary*
- [3] MAS 810:1996, *Safety standard for Fire Prevention on EDM*²

1 The graphical symbol collections of ISO 7000, ISO 7001 and ISO 7010 are also available online in the ISO web store. For more information, consult http://www.iso.org/iso/fr/publications_and_e-products/databases.htm.

2 Japan Machine Tool Builders' Association (JMTBA) standard, Japan.

I.S. EN ISO 28881:2013

EUROPEAN STANDARD

EN ISO 28881

NORME EUROPÉENNE

EUROPÄISCHE NORM

August 2013

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Supersedes EN 12957:2001+A1:2009

English Version

Machine tools - Safety - Electro-discharge machines (ISO 28881:2013)

Machines-outils - Sécurité - Machines d'électro-érosion
(ISO 28881:2013)

Werkzeugmaschinen - Sicherheit -
Funkenerodiermaschinen (ISO 28881:2013)

This European Standard was approved by CEN on 14 March 2013.

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
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Foreword

This document (EN ISO 28881:2013) has been prepared by Technical Committee ISO/TC 39 "Machine tools" in collaboration with Technical Committee CEN/TC 143 "Machine tools - Safety" the secretariat of which is held by SNV.

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 2014, and conflicting national standards shall be withdrawn at the latest by February 2014.

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 12957:2001+A1:2009.

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.

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 28881:2013 has been approved by CEN as EN ISO 28881:2013 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 2006/42/EC on machinery.

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 the normative clauses of this standard confers, within the limits of the scope of this standard, a presumption of conformity with the relevant Essential Requirements 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.

I.S. EN ISO 28881:2013
INTERNATIONAL
STANDARD

ISO
28881

First edition
2013-08-01

**Machine tools — Safety — Electro-
discharge machines**

Machines-outils — Sécurité — Machines d'électro-érosion



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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 28881 was prepared by Technical Committee ISO/TC 39, *Machine tools*, Subcommittee SC 10, *Safety*.

Introduction

This International Standard has been prepared to be a Harmonized Standard to provide one means of conforming to the Essential Safety Requirements of the Machinery Directive of the European Union and associated EFTA regulations.

This document is a type-C standard as defined in ISO 12100:2010.

The machinery concerned and the extent to which hazards, hazardous situations and events are covered are indicated in the Scope of this International Standard. In addition, electro-discharge machining (EDM) equipment and EDM systems are intended to be designed according to the principles of ISO 12100 for hazards which are not dealt with in this International Standard.

When requirements of this type-C standard are different from those which are stated in type-A or -B standards, the requirements of this type-C standard take precedence over the requirements of other standards for machines that have been designed and built according to the requirements of this type-C standard.

This International Standard defines performance level and safety categories of the safety-related parts of the control system for EDM equipment and EDM systems as defined in ISO 13849-1:2006.

The requirements of this International Standard concern designers, manufacturers, suppliers and importers of machines described in the Scope.

This International Standard also includes a list of informative items intended to be provided by the manufacturer to the user.

I.S. EN ISO 28881:2013

Machine tools — Safety — Electro-discharge machines

1 Scope

This International Standard specifies safety requirements and/or protective measures, applicable to EDM equipment and EDM systems, such as

- manually controlled EDM die sinking or EDM drilling machines,
- numerically controlled EDM die sinking or EDM drilling machines, and
- numerically controlled EDM wire cutting machines

intended to be adopted by persons undertaking the design, construction, installation and/or supply of such equipment. This International Standard also includes information to be provided by the manufacturer to the user.

This International Standard is not applicable to arc eroding and electro-chemical machining equipment.

This International Standard takes account of the precondition of the intended use as well as the reasonably foreseeable misuse, in normal workshop environments and non-explosive atmospheres, including transportation, installation, setting, maintenance, repair and dismantling for removal or disposal of EDM equipment and EDM systems.

This International Standard is also applicable to auxiliary devices essential for EDM processing.

This International Standard deals with all significant hazards, hazardous situations or hazardous events relevant to EDM equipment and EDM systems, where they are used as intended and under conditions of misuse which are reasonably foreseeable by the manufacturer (see [Clause 4](#)).

This International Standard is intended to apply to machines manufactured after the date of publication of this International Standard.

2 Normative references

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

ISO 3746, *Acoustics — Determination of sound power levels and sound energy levels of noise sources using sound pressure — Survey method using an enveloping measurement surface over a reflecting plane*

ISO 4413, *Hydraulic fluid power — General rules and safety requirements for systems and their components*

ISO 4414, *Pneumatic fluid power — General rules and safety requirements for systems and their components*

ISO 4871, *Acoustics — Declaration and verification of noise emission values of machinery and equipment*

ISO 11202, *Acoustics — Noise emitted by machinery and equipment — Determination of emission sound pressure levels at a work station and at other specified positions applying approximate environmental corrections*

ISO/TR 11688-1, *Acoustics — Recommended practice for the design of low-noise machinery and equipment — Part 1: Planning*

ISO 12100:2010, *Safety of machinery — General principles for design — Risk assessment and risk reduction*

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