

This is a preview of "ISO 23125:2015". [Click here to purchase the full version from the ANSI store.](#)

Second edition  
2015-01-15

Corrected version  
2016-03-15

---

---

## Machine tools — Safety — Turning machines

*Machines-outils — Sécurité — Machines de tournage*



Reference number  
ISO 23125:2015(E)

© ISO 2015

This is a preview of "ISO 23125:2015". [Click here to purchase the full version from the ANSI store.](#)



**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2015, Published in Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
Ch. de Blandonnet 8 • CP 401  
CH-1214 Vernier, Geneva, Switzerland  
Tel. +41 22 749 01 11  
Fax +41 22 749 09 47  
copyright@iso.org  
www.iso.org

This is a preview of "ISO 23125:2015". Click here to purchase the full version from the ANSI store.

## Contents

	Page
<b>Foreword</b> .....	<b>v</b>
<b>Introduction</b> .....	<b>vi</b>
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Terms and definitions</b> .....	<b>4</b>
3.1 General terms.....	4
3.2 Terms related to parts of turning machines.....	5
3.3 Terms related to modes of operation — Mandatory and optional modes of operation for turning machines.....	7
3.4 Terms related to sizes and groups of turning machines defined.....	8
3.5 Terms related to maximum permissible spindle speeds and axes feeds.....	13
<b>4 List of significant hazards</b> .....	<b>14</b>
4.1 General.....	14
4.2 Main hazard zones.....	15
4.3 Significant hazards and hazardous situations covered by this International Standard.....	15
<b>5 Safety requirements and/or protective measures</b> .....	<b>19</b>
5.1 General requirements.....	19
5.1.1 Overview.....	19
5.1.2 Required characteristics for guards for all machine groups.....	19
5.2 Specific requirements resulting from mechanical hazards identified in <a href="#">Clause 4</a> .....	<a href="#">20</a>
5.2.1 Group 1 machines.....	20
5.2.2 Groups 2, 3 and 4 machines.....	21
5.2.3 Workpiece clamping conditions.....	24
5.2.4 Modes of machine operation.....	25
5.2.5 Optional or additional equipment for turning machines.....	29
5.3 Specific requirements resulting from electrical hazards.....	32
5.4 Specific requirements resulting from noise hazards.....	32
5.5 Specific requirements resulting from radiation hazards.....	32
5.6 Specific requirements resulting from material or substance hazards.....	33
5.7 Specific requirements resulting from neglect of ergonomic principles hazards.....	34
5.8 Specific requirements resulting from unexpected start-up, over-run or over- speed hazards.....	35
5.9 Specific requirements resulting from variation in rotational speed of tool hazards.....	37
5.10 Specific requirements resulting from failure of the power supply hazards.....	37
5.11 Specific requirements resulting from failure of the control circuit hazards.....	38
5.12 Specific requirements resulting from errors of fitting hazards.....	39
5.13 Specific requirements resulting from ejected fluids or objects hazards.....	39
5.13.1 General requirements.....	39
5.13.2 Guards for large vertical Group 3 machines (NC turning machines and turning centres).....	40
5.13.3 Guards for large horizontal Group 3 machines (NC turning machines and turning centres).....	41
5.14 Specific requirements resulting from loss of stability hazards.....	41
5.15 Specific requirements resulting from slips, trips and fall of persons hazards.....	41
5.16 Verification of the safety requirements and/or protective measures.....	41
<b>6 Information for use</b> .....	<b>44</b>
6.1 Marking.....	44
6.2 Instruction for use.....	44
6.2.1 General.....	44
6.2.2 Tooling.....	46
6.2.3 Workpiece clamping.....	46
6.2.4 Machine functions accessible from the NC panel.....	47

This is a preview of "ISO 23125:2015". [Click here to purchase the full version from the ANSI store.](#)

6.2.5	Restart.....	47
6.2.6	Noise.....	47
6.2.7	Ancillary handling devices .....	48
6.2.8	Residual risks to be addressed by the machinery user .....	48
6.2.9	Installation instructions for the turning machine.....	49
6.2.10	Cleaning instruction for the machine.....	49
<b>Annex A</b>	<b>(normative) Impact test method for guards on turning machines .....</b>	<b>50</b>
<b>Annex B</b>	<b>(informative) Test equipment for impact test and examples of materials.....</b>	<b>55</b>
<b>Annex C</b>	<b>(informative) Calculation of direct impact energy .....</b>	<b>58</b>
<b>Annex D</b>	<b>(informative) Example of checklist for safety functions.....</b>	<b>60</b>
<b>Annex E</b>	<b>(informative) Examples of exhaust and extinguishing systems.....</b>	<b>62</b>
<b>Annex F</b>	<b>(informative) Example of the determination of performance level for interlocked guard .....</b>	<b>66</b>
<b>Bibliography</b>	<b>.....</b>	<b>71</b>

This is a preview of "ISO 23125:2015". [Click here to purchase the full version from the ANSI store.](#)

## 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. [www.iso.org/directives](http://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. [www.iso.org/patents](http://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 39, *machine tools*, Subcommittee SC 10, *Safety*.

This second edition cancels and replaces the first edition (ISO 23125:2010), of which it constitutes a minor revision. It also incorporates the Amendment ISO 23125:2010/Amd. 1:2012.

The International Standards produced by ISO/TC 39/SC 10 in collaboration with CEN/TC 143 are particular to machine tools and complement the relevant A and B standards on the subject of general safety (see Introduction to ISO 12100 for a description of type-A, -B and -C standards).

This International Standard 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).

This corrected version of ISO 23125:2015 incorporates the following corrections: in [5.3](#) a) 2), normative references to IEC 60204-1 have been substituted for those to IEC 60529 in two instances, and the year of publication of IEC 60529 corrected from 2003 to 2013 in the remaining reference to that standard.

## 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 International Standard 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 is indicated in the Scope of this International Standard. In addition, turning machines shall comply as appropriate with ISO 12100:2010 for hazards which are not covered by this International Standard.

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

This International Standard makes reference to the “safety categories” in EN 954-1:1996 as resistance to faults and their subsequent behaviour in the fault condition together with the “performance level” defined in ISO 13849-1:2006 in terms of probability of dangerous failure per hour. It is the decision of the user of this International Standard to apply “safety categories” or “performance levels”.

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 to be provided by the manufacturer to the user.

The requirements for a new mode of operation, Mode 3 “manual intervention machining mode” will be discussed in the future.