

---

---

**Hand-held non-electric power tools —  
Safety requirements —**

**Part 5:  
Rotary percussive drills**

*Machines portatives à moteur non électrique — Exigences de  
sécurité —*

*Partie 5: Perceuses à percussion rotatives*





**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2011

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
Case postale 56 • CH-1211 Geneva 20  
Tel. + 41 22 749 01 11  
Fax + 41 22 749 09 47  
E-mail [copyright@iso.org](mailto:copyright@iso.org)  
Web [www.iso.org](http://www.iso.org)

Published in Switzerland

# Contents

Page

Foreword .....	iv
Introduction.....	v
<b>1 Scope .....</b>	<b>1</b>
<b>2 Normative references .....</b>	<b>1</b>
<b>3 Terms and definitions .....</b>	<b>2</b>
3.1 General terms and definitions.....	2
3.2 Terms and definitions related to rotary percussive power tools .....	4
<b>4 Safety requirements and/or protective measures.....</b>	<b>4</b>
4.1 General .....	4
4.2 Mechanical safety.....	4
4.3 Thermal safety .....	5
4.4 Noise reduction .....	5
4.5 Vibration .....	6
4.6 Materials and substances processed, used or exhausted.....	6
4.7 Ergonomics.....	7
4.8 Controls .....	7
<b>5 Verification .....</b>	<b>8</b>
5.1 General conditions for tests.....	8
5.2 Noise.....	8
5.3 Vibration .....	8
5.4 Unintentional start.....	8
5.5 Power tool construction .....	9
5.6 Structure of verification .....	9
<b>6 Information for use .....</b>	<b>9</b>
6.1 Marking, signs and written warnings .....	9
6.2 Instruction handbook.....	10
6.3 Operating instructions .....	15
6.4 Data .....	16
6.5 Maintenance instructions .....	17
<b>Annex A (informative) List of significant hazards .....</b>	<b>18</b>
<b>Annex B (informative) Examples of rotary percussive drills covered by this part of ISO 11148.....</b>	<b>19</b>
<b>Annex C (normative) Symbols for labels and signs.....</b>	<b>20</b>
<b>Annex D (normative) Additional safety requirements related to internal combustion engine power tools .....</b>	<b>21</b>
<b>Bibliography.....</b>	<b>25</b>

## 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 11148-5 was prepared by Technical Committee ISO/TC 118, *Compressors and pneumatic tools, machines and equipment*, Subcommittee SC 3, *Pneumatic tools and machines*.

ISO 11148 consists of the following parts, under the general title *Hand-held non-electric power tools — Safety requirements*:

- *Part 1: Assembly power tools for non-threaded mechanical fasteners*
- *Part 2: Cutting-off and crimping power tools*
- *Part 3: Drills and tappers*
- *Part 4: Non-rotary percussive power tools*
- *Part 5: Rotary percussive drills*
- *Part 6: Assembly power tools for threaded fasteners*
- *Part 7: Grinders*
- *Part 8: Sanders and polishers*
- *Part 9: Die grinders*
- *Part 10: Compression power tools*
- *Part 11: Nibblers and shears*
- *Part 12: Circular, oscillating and reciprocating saws*

A part 13, dealing with fastener driving tools, is under preparation.

## Introduction

This document is a type-C standard as stated in ISO 12100.

The machinery concerned and the extent to which hazards, hazardous situations and events are covered are defined in the Scope of this part of ISO 11148.

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.

ISO 11148 consists of a number of independent parts for individual types of hand-held non-electric power tools.

Certain parts of ISO 11148 cover hand-held non-electric power tools driven by internal combustion engines powered by gaseous or liquid fuel. In these parts, the safety aspects relating to internal combustion engines are found in a normative annex.

The parts are type-C standards and refer to pertinent standards of type A and B where such standards are applicable.



# Hand-held non-electric power tools — Safety requirements —

## Part 5: Rotary percussive drills

**IMPORTANT** — The colours represented in the electronic file of this document can be neither viewed on screen nor printed as true representations. For the purposes of colour matching, see ISO 3864-4, which provides colorimetric and photometric properties together with, as a guideline, references from colour order systems.

### 1 Scope

This part of ISO 11148 specifies safety requirements for hand-held non-electric power tools (hereinafter “rotary percussive drills”) intended for making holes in hard materials, such as rock and concrete. The rotary percussive drills can be powered by compressed air, hydraulic fluid or internal combustion engines (ICEs) and are intended to be used by one operator and supported by the operator's hand or hands, with or without a suspension, e.g. a balancer.

This part of ISO 11148 is applicable to:

- plug hole drills;
- rock drills;
- rotary hammers.

NOTE 1 For examples of rotary percussive drills, see Annex B.

This part of ISO 11148 is not applicable to special requirements and modifications of rotary percussive drills for the purpose of mounting them in a fixture.

This part of ISO 11148 deals with all significant hazards, hazardous situations or hazardous events relevant to rotary percussive drills when they are used as intended and under conditions of misuse which are reasonably foreseeable by the manufacturer, with the exception of the use of rotary percussive drills in potentially explosive atmospheres.

NOTE 2 EN 13463-1 gives requirements for non-electrical equipment for potentially explosive atmospheres.

### 2 Normative references

The following referenced documents are indispensable for the application 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 3857-3, *Compressors, pneumatic tools and machines — Vocabulary — Part 3: Pneumatic tools and machines*

ISO 5391, *Pneumatic tools and machines — Vocabulary*

ISO 9158, *Road vehicles — Nozzles spouts for unleaded gasoline*

ISO 9159, *Road vehicles — Nozzles spouts for leaded gasoline and diesel fuel*

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

ISO 13732-1, *Ergonomics of the thermal environment — Methods for the assessment of human responses to contact with surfaces — Part 1: Hot surfaces*

ISO 13732-3, *Ergonomics of the thermal environment — Methods for the assessment of human responses to contact with surfaces — Part 3: Cold surfaces*

ISO 15744, *Hand-held non-electric power tools — Noise measurement code — Engineering method (grade 2)*

ISO 17066, *Hydraulic tools — Vocabulary*

ISO 28927-10, *Hand-held portable power tools — Test methods for evaluation of vibration emission — Part 10: Percussive drills, hammers and breakers*

EN 12096, *Mechanical vibration — Declaration and verification of vibration emission values*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 3857-3, ISO 5391, ISO 12100 and ISO 17066 (for hydraulic tools) and the following apply.

#### 3.1 General terms and definitions

##### 3.1.1

##### **hand-held power tool**

machine operated by one or two hands and driven by rotary or linear motors powered by compressed air, hydraulic fluid, gaseous or liquid fuel, electricity or stored energy (e.g. by a spring) to do mechanical work and so designed that the motor and the mechanism form an assembly that can easily be brought to its place of operation

NOTE Hand-held power tools driven by compressed air or gas are called pneumatic tools (or air tools). Hand-held power tools driven by hydraulic liquid are called hydraulic tools.

##### 3.1.2

##### **inserted tool**

tool inserted in the rotary percussive tool to perform the intended work

##### 3.1.3

##### **service tool**

tool for performing maintenance or service on the rotary percussive tool

##### 3.1.4

##### **control device**

device to start and stop the rotary percussive tool or to change the direction of the rotation or to control the functional characteristics such as speed and power

##### 3.1.5

##### **start-and-stop device**

##### **throttle**

manually operated control on the rotary percussive tool by which the energy supply to the motor can be turned on and off