

Australian/New Zealand Standard™

**Electric motor-operated hand-held tools,
transportable tools and lawn and garden
machinery—Safety**

**Part 3.4: Particular requirements for
transportable bench grinders**



AS/NZS 62841.3.4:2017

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee EL-002, Safety of Household and Similar Electrical Appliances and Small Power Transformers. It was approved on behalf of the Council of Standards Australia on 2 December 2016 and by the New Zealand Standards Approval Board on 9 December 2016.

This Standard was published on 13 January 2017.

The following are represented on Committee EL-002:

Australian Industry Group
National Retailers Association (Australia)
Business New Zealand
Consumer Electronic Suppliers Association, Australia
Consumers' Federation of Australia
Electrical Regulatory Authorities, Australia
Electrical consultants
Engineers Australia
JAS-ANZ
Testing Interests New Zealand
WorkSafe, New Zealand
New Zealand Electric Fence Energizer Manufacturers' Standards Group

Keeping Standards up-to-date

Standards are living documents which reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued. Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments which may have been published since the Standard was purchased.

Detailed information about joint Australian/New Zealand Standards can be found by visiting the Standards Web Shop at www.saiglobal.com or Standards New Zealand web site at www.standards.govt.nz and looking up the relevant Standard in the on-line catalogue.

For more frequent listings or notification of revisions, amendments and withdrawals, Standards Australia and Standards New Zealand offer a number of update options. For information about these services, users should contact their respective national Standards organization.

We also welcome suggestions for improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Please address your comments to the Chief Executive of Standards Australia or the New Zealand Standards Executive at the address shown on the back cover.

This Standard was issued in draft form for comment as DR 16908.

Australian/New Zealand Standard™

Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery—Safety

Part 3.4: Particular requirements for transportable bench grinders

Originated as AS/NZS 62841.3.4:2017.

COPYRIGHT

© Standards Australia Limited/Standards New Zealand

All rights are reserved. No part of this work may be reproduced or copied in any form or by any means, electronic or mechanical, including photocopying, without the written permission of the publisher, unless otherwise permitted under the Copyright Act 1968 (Australia) or the Copyright Act 1994 (New Zealand).

Jointly published by SAI Global Limited under licence from Standards Australia Limited, GPO Box 476, Sydney, NSW 2001 and by Standards New Zealand, PO Box 1473, Wellington 6011.

STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

AS/NZS 62841.3.4:2017**ELECTRIC MOTOR-OPERATED HAND-HELD TOOLS, TRANSPORTABLE TOOLS
AND LAWN AND GARDEN MACHINERY –
SAFETY –****Part 3.4: Particular requirements for transportable bench grinders****Foreword**

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-002- Safety of Household and Similar Electrical Appliances and Small Power Transformers.

The objective of this Standard is to provide manufacturers, designers, regulatory authorities, testing laboratories and similar organizations with safety requirements designed to give the user protection against hazards that might occur during normal operation and abnormal operation of the appliance and which may be used as the basis for approval for sale or for connection to the electricity supply mains in Australia and New Zealand

The text of IEC 62841-3-4 Ed 1, prepared by IEC Technical Committee TC 116, was submitted to the Standards Australia/Standards New Zealand Combined Procedure (dual public comment and committee vote) for adoption of the IEC standard as a Standards Australia/Standards New Zealand joint standard.

This Standard is an adoption with national modifications of the first edition of IEC 62841-3-4, *Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety – Part 3-4 Particular requirements for transportable bench grinders*. It has been varied as indicated to take account of Australian and New Zealand conditions.

This part 3 has to be used in conjunction with the latest edition of AS/NZS 62841.1 Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety – Part 1: General requirements and its Amendments. It was established on the basis of AS/NZS 62841.1:2015.

This part 3 supplements or modifies the corresponding clauses of AS/NZS 62841.1 so as to convert it into the Australian/New Zealand Standard: Safety requirements for appliances for transportable bench grinders.

When a particular subclause of Part 1 is not mentioned in this part 3, that subclause applies as far as is reasonable. When this standard states "addition", "modification" or "replacement", the relevant text of Part 1 is to be adapted accordingly.

NOTE 1 The following numbering system is used:

- subclauses, tables and figures that are numbered starting from 101 are additional to those in Part 1;
- unless notes are in a new subclause or involve notes in Part 1, they are numbered starting from 101, including those in a replaced clause or subclause;
- additional annexes are lettered AA, BB, etc.;
- subclauses, notes and annexes that are additional to those in the IEC standard are prefixed with the letters AZ.

NOTE 2 The following print types are used:

- requirements: in roman type;
- *test specifications: in italic type;*
- notes: in small roman type.
- Words in bold in the text are defined in Clause 3.

p NOTE 3 In this document, p is used in the margin to indicate instructions for preparing a consolidated version.

The essential safety requirements in AS/NZS 3820¹ that could be applicable to requirements for transportable bench grinders are covered by this standard.

The national variations to IEC 62841-3-4 Ed 1 form the Australian and New Zealand national variations for purposes of the IECEE scheme for recognition of results of testing to standards for safety of electrical equipment (the CB scheme).

¹ AS/NZS 3820 *Essential safety requirements for electrical equipment*

The text of the International Standard IEC 62841-3-4 Ed 1 was approved as a joint Australia/New Zealand Standard with the agreed national variations as given below.

AUSTRALIAN NATIONAL VARIATIONS

There are no national variations to this Part 3 other than those listed in the national variations in AS/NZS 62841.1:2015.

NEW ZEALAND NATIONAL VARIATIONS

There are no national variations to this Part 3 other than those listed in the national variations in AS/NZS 62841.1:2015.

**Annex ANZ
(normative)**
**Normative references to international publications with their corresponding joint
Australia/New Zealand publications**

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.

NOTE When an international publication has been modified by national variations the relevant joint Australia/New Zealand publications applies if the national variations are needed to ensure the safety of the appliance for Australia/New Zealand conditions. These international publications are indicated by (mod). If an international publication is not so indicated, then either it or the listed Australia/New Zealand publication may be used.

| <u>Publication</u> | <u>Year</u> | <u>Title</u> | <u>AS/NZS</u> | <u>Year</u> |
|--------------------|-------------|--------------|---------------|-------------|
|--------------------|-------------|--------------|---------------|-------------|

NOTES

CONTENTS

| | |
|--|----|
| FOREWORD | 4 |
| 1 Scope | 6 |
| 2 Normative references | 6 |
| 3 Terms and definitions | 6 |
| 4 General requirements | 7 |
| 5 General conditions for the tests | 7 |
| 6 Radiation, toxicity and similar hazards | 7 |
| 7 Classification | 7 |
| 8 Marking and instructions | 7 |
| 9 Protection against access to live parts | 9 |
| 10 Starting | 9 |
| 11 Input and current | 9 |
| 12 Heating | 9 |
| 13 Resistance to heat and fire | 9 |
| 14 Moisture resistance | 9 |
| 15 Resistance to rusting | 9 |
| 16 Overload protection of transformers and associated circuits | 9 |
| 17 Endurance | 10 |
| 18 Abnormal operation | 10 |
| 19 Mechanical hazards | 10 |
| 20 Mechanical strength | 14 |
| 21 Construction | 16 |
| 22 Internal wiring | 17 |
| 23 Components | 17 |
| 24 Supply connection and external flexible cables and cords | 17 |
| 25 Terminals for external conductors | 17 |
| 26 Provision for earthing | 17 |
| 27 Screws and connections | 17 |
| 28 Creepage distances, clearances and distances through insulation | 17 |
| Annexes | 22 |
| Annex I (informative) Measurement of noise and vibration emissions | 22 |
| Bibliography | 23 |
| | |
| Figure 101 – Bench grinder | 18 |
| Figure 102 – Opening angles and dimensions for a guard | 19 |
| Figure 103 – Transparent screen | 20 |
| Figure 104 – Bench grinder with inclinable work rest | 20 |
| Figure 105 – Flange dimensions | 21 |
| | |
| Table 4 – Required performance levels | 10 |
| Table 101 – Minimum flange dimensions (see Figure 105) | 13 |

Table 102 – Test torque for flanges 13

Table 103 – Guard thickness for steel..... 15

Table 104 – Guard thickness for aluminium 15

Table 105 – Minimum tool spindle diameter 16

Table I.101 – Operating conditions for bench grinders 22

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**ELECTRIC MOTOR-OPERATED HAND-HELD TOOLS, TRANSPORTABLE
TOOLS AND LAWN AND GARDEN MACHINERY –
SAFETY –**

Part 3-4: Particular requirements for transportable bench grinders

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 62841-3-4 has been prepared by IEC technical committee 116: Safety of motor-operated electric tools.

The text of this standard is based on the following documents:

| | |
|--------------|------------------|
| FDIS | Report on voting |
| 116/258/FDIS | 116/275/RVD |

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

This Part 3-4 is to be used in conjunction with the first edition of IEC 62841-1:2014.

This Part 3-4 supplements or modifies the corresponding clauses in IEC 62841-1, so as to convert it into the IEC Standard: Particular requirements for transportable bench grinders.

Where a particular subclause of Part 1 is not mentioned in this Part 3-4, that subclause applies as far as relevant. Where this standard states “addition”, “modification” or “replacement”, the relevant text in Part 1 is to be adapted accordingly.

The following print types are used:

- requirements: in roman type;
- *test specifications: in italic type;*
- notes: in small roman type.

The terms defined in Clause 3 are printed in **bold typeface**.

Subclauses, notes and figures which are additional to those in Part 1 are numbered starting from 101.

A list of all parts of the IEC 62841 series, under the general title: *Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

NOTE The attention of National Committees is drawn to the fact that equipment manufacturers and testing organizations may need a transitional period following publication of a new, amended or revised IEC publication in which to make products in accordance with the new requirements and to equip themselves for conducting new or revised tests.

It is the recommendation of the committee that the content of this publication be adopted for implementation nationally not earlier than 36 months from the date of publication.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

ELECTRIC MOTOR-OPERATED HAND-HELD TOOLS, TRANSPORTABLE TOOLS AND LAWN AND GARDEN MACHINERY – SAFETY –

Part 3-4: Particular requirements for transportable bench grinders

1 Scope

This clause of Part 1 is applicable, except as follows:

Addition:

This part of IEC 62841 applies to transportable **bench grinders** that can be equipped with one or two **accessories** as follows:

- type 1 grinding wheels in accordance with ISO 603-4:1999 with a diameter not exceeding 310 mm and a thickness not exceeding 55 mm;
- wire brushes with a diameter not exceeding 310 mm and a thickness not exceeding 55 mm;
- polishing wheels with a diameter not exceeding 310 mm;

and with a peripheral speed of any **accessory** between 10 m/s and 50 m/s.

NOTE Polishing wheels are also known as buffing wheels.

2 Normative references

This clause of Part 1 is applicable, except as follows:

Addition:

ISO 603-4:1999, *Bonded abrasive products – Dimensions – Part 4: Grinding wheels for surface grinding/peripheral grinding*

3 Terms and definitions

This clause of Part 1 is applicable, except as follows:

3.101

bench grinder

tool designed to grind, clean, polish or debur metal or similar materials by means of one or two rotating **accessories** fixed to one or two **tool spindles**, see Figure 101, where the workpiece is held by hand and possibly assisted by a **work rest**

3.102

tool spindle

drive spindle of a **bench grinder** which supports the **accessories** and provides the rotation

3.103

work rest

surface or device intended to support or to guide the workpiece