
Agricultural machinery — Safety —
Part 16:
Portable agricultural grain augers

Matériel agricole — Sécurité —

Partie 16: Tarières à grain agricoles portatives



This document is a preview generated by EMS



COPYRIGHT PROTECTED DOCUMENT

© ISO 2018

All rights reserved. Unless otherwise specified, or required in the context of its implementation, 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
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 Safety requirements and/or protective/risk reduction measures	3
4.1 General.....	3
4.2 Rotating power component guarding and shielding.....	3
4.3 Fixed hopper flighting guarding.....	3
4.3.1 General.....	3
4.3.2 Grating-style guards.....	3
4.3.3 Baffle-style guards.....	3
4.4 Intake guarding.....	3
4.5 Lateral stability.....	4
4.6 Tube restraint.....	4
4.7 Winch.....	4
4.7.1 Winch drum.....	4
4.7.2 Hand winch.....	4
4.7.3 Electric winch.....	5
4.8 Wire ropes and cables.....	5
4.9 Pulleys.....	5
4.10 Hydraulic requirements.....	5
4.10.1 Hydraulic components and fittings.....	5
4.10.2 Hydraulic lifting systems.....	5
4.11 Transport on public roads.....	5
4.11.1 Lighting and marking.....	5
4.11.2 Speed indication sign.....	5
4.12 Electrical requirements.....	6
4.12.1 Electrical equipment.....	6
4.12.2 Grounding.....	6
5 Verification of the safety requirements and/or protective/risk reduction measures	6
6 Information for use	7
6.1 Operator's manual.....	7
6.1.1 General.....	7
6.2 Safety signs.....	8
6.2.1 General.....	8
6.2.2 Flighting hazard and modification or removal of the intake guard.....	8
6.2.3 Retractable intake guards.....	8
6.2.4 High pressure.....	8
6.2.5 Power line contact.....	9
6.2.6 Upending.....	9
6.2.7 Instructional signs.....	9
Annex A (informative) Example illustrations of portable agricultural grain conveying equipment	10
Annex B (informative) List of significant hazards	12
Bibliography	14

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 of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 23, *Tractors and machinery for agriculture and forestry*, Subcommittee SC 3, *Safety and comfort*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

A list of all parts in the ISO 4254 series can be found on the ISO website.

Introduction

This document is a type-C 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.).

Others can be affected by the level of machinery safety achieved with the means of the document by the above-mentioned stakeholder groups:

- 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 the 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.

The machinery and systems concerned and the extent to which hazards, hazardous situations or hazardous events are covered are indicated in the Scope of this document.

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 the other standards for machines that have been designed and built according to the requirements of this type-C standard.

The machinery concerned and the extent to which hazards, hazardous situations and events are covered are indicated in the scope of this document. These hazards are specific to portable agricultural grain augers.

Significant hazards that are common to all the agricultural machines (self-propelled ride-on, mounted, semi-mounted and trailed) are dealt with in ISO 4254-1.

Agricultural machinery — Safety —

Part 16: Portable agricultural grain augers

1 Scope

This document, intended to be used together with ISO 4254-1, specifies the safety requirements and their verification for the design and construction of portable agricultural grain augers.

This document covers conventional and swing-away portable agricultural augers designed primarily for conveying agricultural materials on farms.

This document does not deal with the design or safety aspects of:

- drag augers;
- bin sweeps;
- other augers that do not have wheels suitable for towing.

NOTE Examples of covered equipment are shown in [Annex A](#).

When provisions of this document are different from those which are stated in ISO 4254-1, the provisions of this document take precedence over the provisions of ISO 4254-1 for machines that have been designed and built according the provisions of this document

This document, taken together with ISO 4254-1, deals with all the significant hazards (as listed in [Table 1](#)), hazardous situations and events relevant to portable agricultural grain augers, when they are used as intended and under the conditions foreseen by the manufacturer (see [Annex B](#)).

This document is not applicable to machines manufactured before the date of its publication.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 3600, *Tractors, machinery for agriculture and forestry, powered lawn and garden equipment — Operator's manuals — Content and format*

ISO 4254-1, *Agricultural machinery — Safety — Part 1: General requirements*

ISO 5673-1, *Agricultural tractors and machinery — Power take-off drive shafts and power-input connection — Part 1: General manufacturing and safety requirements*

ISO 11684, *Tractors, machinery for agriculture and forestry, powered lawn and garden equipment — Safety signs and hazard pictorials — General principles*

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

ISO 13857:2008, *Safety of machinery — Safety distances to prevent hazard zones being reached by upper and lower limbs*

ISO 16154, *Tractors and machinery for agriculture and forestry — Installation of lighting, light signalling and marking devices for travel on public roadways*

ISO 20383, *Tractors and machinery for agriculture and forestry — Speed Identification Sign (SIS)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 12100, ISO 4254-1 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>.

3.1 auger

conveyor with a screw-type flighting in a tubular enclosure, and its auxiliary accessories, designed to convey materials by rotating the flighting in relation to the enclosure and whose accessories include a suitable support system that provides mobility

3.1.1

conventional portable auger

auger (3.1) that has wheels suitable for towing and in which the intake and discharge are in line at opposite ends of a single tube

Note 1 to entry: See [Figure A.1](#).

3.1.2

swing-away portable auger

auger (3.1) with a powered hopper that swings to one or both sides to clear a driving lane through the normal operating position

Note 1 to entry: See [Figure A.2](#).

3.2

flighting

screw-type device rotating inside the *auger* (3.1) enclosure

Note 1 to entry: See [Figure 1](#), key 2.

3.3

hopper

device for receiving and directing material into a rotating intake flighting

3.3.1

fixed hopper

hopper (3.3) which is permanent fastened to or integrated into an auger or can be removed only by using a tool

3.4

intake

area where material to be conveyed enters a machine