



NSAI
Standards

Irish Standard
I.S. EN 1853:2017

Agricultural machinery - Trailers - Safety

I.S. EN 1853:2017

Incorporating amendments/corrigenda/National Annexes issued since publication:

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard — national specification based on the consensus of an expert panel and subject to public consultation.

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.

This document replaces/revises/consolidates the NSAI adoption of the document(s) indicated on the CEN/CENELEC cover/Foreword and the following National document(s):

NOTE: The date of any NSAI previous adoption may not match the date of its original CEN/CENELEC document.

This document is based on:

EN 1853:2017

Published:

2017-10-18

This document was published under the authority of the NSAI and comes into effect on:

2017-11-05

ICS number:

65.060.10

NOTE: If blank see CEN/CENELEC cover page

NSAI
1 Swift Square,
Northwood, Santry
Dublin 9

T +353 1 807 3800
F +353 1 807 3838
E standards@nsai.ie
W NSAI.ie

Sales:
T +353 1 857 6730
F +353 1 857 6729
W standards.ie

Údarás um Chaighdeáin Náisiúnta na hÉireann

National Foreword

I.S. EN 1853:2017 is the adopted Irish version of the European Document EN 1853:2017, Agricultural machinery - Trailers - Safety

This document does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

For relationships with other publications refer to the NSAI web store.

Compliance with this document does not of itself confer immunity from legal obligations.

In line with international standards practice the decimal point is shown as a comma (,) throughout this document.

This page is intentionally left blank

EUROPEAN STANDARD

EN 1853

NORME EUROPÉENNE

EUROPÄISCHE NORM

October 2017

ICS 65.060.10

Supersedes EN 1853:1999+A1:2009

English Version

Agricultural machinery - Trailers - Safety

Matériel agricole - Remorques - Sécurité

Landmaschinen - Anhänger - Sicherheit

This European Standard was approved by CEN on 12 June 2017.

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, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents	Page
European foreword.....	4
Introduction	5
1 Scope.....	6
2 Normative references.....	6
3 Terms and definitions	7
4 Safety requirements and/or protective/risk reduction measures.....	11
4.1 General.....	11
4.2 Stability.....	11
4.2.1 Stability and immobilisation of the detached trailer	11
4.2.2 Stability in the raised position when tipping.....	12
4.2.3 Minimum load on the drawbar hitch	12
4.2.4 Blocking device for axle suspension and bogie axle.....	13
4.2.5 Stability during travelling.....	13
4.3 Boarding means.....	13
4.4 Tipping.....	14
4.5 Hydraulic, pneumatic and electrical interconnections.....	15
4.6 Safety of the control system	15
4.6.1 General.....	15
4.6.2 Performance levels.....	15
4.7 Other requirements	15
4.8 Load securing.....	16
4.9 Jacking points	16
4.10 Visibility.....	16
4.11 Opening and closing of the rear discharge gate	16
4.11.1 General.....	16
4.11.2 Opening.....	17
4.11.3 Closing.....	17
4.12 Conveyor devices.....	18
4.13 Additional requirements for high-tip trailers	19
4.14 Additional requirements for hook-lift trailers.....	19
4.14.1 Stability in the raised position when tipping.....	19
4.14.2 Load on the drawbar hitch.....	19
4.14.3 Locking device.....	20
4.14.4 Markings.....	20
4.14.5 Overload	20
4.14.6 Safety of the control system	20
5 Verification of the safety requirements and/or protective/risk reduction measures.....	21
6 Information for use	24
6.1 Instruction handbook.....	24
6.1.1 General.....	24
6.1.2 Additional information specific to hook-lift trailers.....	26
6.2 Marking.....	26
6.3 Warning signs.....	27
Annex A (normative) List of hazards.....	29

Annex B (normative) Stability tests (rear tipping trailers)	34
B.1 Scope	34
B.2 Test equipment	34
B.3 Test procedure	34
B.4 Test acceptance	35
Annex C (normative) Verification of stability by calculation	36
C.1 Scope	36
C.2 Calculation method	36
C.3 Basic assumptions for the calculation	36
C.4 Input data	36
C.5 Coordinate systems	38
C.6 Stability criterion	39
C.7 Calculation procedure	39
C.8 Stability check	40
Annex D (normative) Calculation method of vertical force in the tractor coupling device during exchange	43
Annex E (normative) Scraper floor	44
E.1 Guarding	44
E.1.1 General	44
E.1.2 Moving path of scraper floor	44
E.1.3 Front turning points	47
E.1.4 Rear turning points	49
E.2 Adjustment of scraper floor	50
Annex F (normative) Visibility	51
Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of Directive 2006/42/EC aimed to be covered	52
Bibliography	53

EN 1853:2017 (E)**European foreword**

This document (EN 1853:2017) has been prepared by Technical Committee CEN/TC 144 “Tractors and machinery for agriculture and forestry”, the secretariat of which is held by AFNOR.

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 April 2018, and conflicting national standards shall be withdrawn at the latest by April 2018.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 1853:1999+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(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

Significant technical changes between this document and the previous edition (EN 1853:1999+A1:2009) are:

- addition of hook-lift trailers to the scope;
- addition of requirements for hook-lift trailers;
- addition of requirements for rear doors;
- addition of requirements for high-tip trailers;
- addition of requirements for conveyors;
- addition of an Annex regarding “Verification of stability by calculation”;
- update of Normative references.

According to the CEN-CENELEC Internal Regulations, the national standards organisations 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, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

This document is a type-C standard as stated in EN 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 organizations, 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 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 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 type-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.

EN 1853:2017 (E)

1 Scope

This European Standard specifies safety requirements and their verification for the design and construction of trailers with a tipping body, balanced or semi-mounted, used in agriculture, as defined in 3.1. It includes also hook-lift trailers and trailers with conveyor device as defined in 3.9.

This European Standard does not deal with trailers equipped with pick-up devices and/or rear spreading devices.

Trailers with a load push/push-off device, slats or alternating moving floor may be removed from this standard, provided a new work item on loader wagons and forage transport wagons (prEN ISO 4254-17) is accepted.

This European Standard does not give Required Performance Levels for the identified safety functions.

This European Standard, taken together with EN ISO 4254-1, deals with the significant hazards, hazardous situations and events relevant to agricultural trailers, when they are used as intended and under the conditions of misuse which are reasonably foreseeable by the manufacturer (see Table A.1), excepting the hazards arising from:

- hazards related to conveying devices other than those defined in 3.9.1 and 3.9.2, for example load push/push-off device;
- hazards related to the environment and road safety;
- hazards related to braking.

In addition, it specifies the type of information on safe working practices to be provided by the manufacturer.

This document is not applicable to trailers which are manufactured before the date of its publication as EN.

2 Normative references

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

EN 349:1993+A1:2008, *Safety of machinery - Minimum gaps to avoid crushing of parts of the human body*

EN ISO 4254-1:2015, *Agricultural machinery - Safety - Part 1: General requirements (ISO 4254-1:2013)*

EN ISO 5353:1995, *Earth-moving machinery, and tractors and machinery for agriculture and forestry - Seat index point (ISO 5353:1995)*

EN ISO 12100:2010, *Safety of machinery - General principles for design - Risk assessment and risk reduction (ISO 12100:2010)*

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

ISO 5676:1983, *Tractors and machinery for agriculture and forestry — Hydraulic coupling — Braking circuit*

ISO 15817:2012, *Earth-moving machinery — Safety requirements for remote operator control systems*

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

-
- [Looking for additional Standards? Visit Intertek Inform Infostore](#)
 - [Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation](#)
-