



**NSAI**  
Standards

Irish Standard  
I.S. EN 16246:2012

# Agricultural machinery - Backhoes - Safety

© CEN 2012

No copying without NSAI permission except as permitted by copyright law.

## I.S. EN 16246:2012

*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:*

*This document is based on:*  
EN 16246:2012

*Published:*  
11 December, 2012

This document was published  
under the authority of the NSAI  
and comes into effect on:  
11 December, 2012

**ICS number:**  
65.060.10

**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

**I.S. EN 16246:2012**

**EUROPEAN STANDARD**

**EN 16246**

**NORME EUROPÉENNE**

**EUROPÄISCHE NORM**

November 2012

ICS 65.060.10

English Version

## **Agricultural machinery - Backhoes - Safety**

Matériel agricole - Pelles rétro - Sécurité

Landmaschinen - Heckbaggerlader - Sicherheit

This European Standard was approved by CEN on 20 October 2012.

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



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

**Management Centre: Avenue Marnix 17, B-1000 Brussels**

## Contents

Page

Foreword.....	3
Introduction .....	4
1 Scope .....	5
2 Normative references .....	5
3 Terms and definitions .....	6
4 List of significant hazards .....	6
5 Safety requirements and/or measures .....	12
5.1 General.....	12
5.2 Attachment to tractor – prevention of uncontrolled movement .....	12
5.3 Controls .....	12
5.3.1 Clearance .....	12
5.3.2 Configuration, functions and marking of the controls .....	12
5.4 Operator's work station .....	14
5.5 Access to the operator's work station .....	15
5.6 Electrical equipment.....	16
5.7 Hydraulics.....	16
5.7.1 General.....	16
5.7.2 Pump .....	16
5.7.3 Fluid reservoir .....	16
5.7.4 Pressure limit valves .....	16
5.7.5 Hoses and fittings .....	17
5.7.6 Dimensioning of hydraulic cylinders .....	17
5.7.7 Control of movements.....	17
5.8 Stability of the tractor backhoe combination .....	17
5.8.1 General.....	17
5.8.2 Outriggers.....	17
6 Maintenance and repair.....	18
7 Verification of the safety requirements or protective measures .....	18
8 Information for use .....	18
8.1 Operator's manual .....	18
8.2 Marking .....	19
Annex A (informative) Examples of a backhoe attachment and safety locking device .....	21
Annex B (informative) Stability of the tractor/backhoe loader combination .....	24
B.1 Effects on the stability .....	24
B.2 Stability calculations .....	24
B.2.1 Transverse stability .....	24
B.2.2 Longitudinal stability.....	26
Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 2006/42/EC .....	28
Bibliography .....	29

## **Foreword**

This document (EN 16246:2012) 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 May 2013, and conflicting national standards shall be withdrawn at the latest by May 2013.

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

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.

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

## **Introduction**

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

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 hydraulic backhoes.

Hazards that are common to all agricultural machines (self-propelled, mounted, semi-mounted and trailed) are dealt with in EN ISO 4254-1.

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 standards, for machines that have been designed and built according to the provisions of this type C standard.

## 1 Scope

This European Standard, when used together with EN ISO 4254-1 and EN 15811, specifies the safety requirements and their verification for the design and construction of hydraulic backhoes mounted to the three point linkage of a tractor. It describes methods for the elimination or reduction of hazards arising from the intended use of these machines by one person (the operator) in the course of normal operation and service. In addition, it specifies the type of information on safe working practices (including residual risks) to be provided by the manufacturer.

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

This European Standard, taken together with EN ISO 4254-1, deals with all the significant hazards, hazardous situations and events (as listed in Table 1) relevant to hydraulic backhoes mounted to the three point linkage of a tractor, when they are used as intended and under the conditions of misuse foreseeable by the manufacturer.

This European Standard is not applicable to lifting operations for the movement of unit loads with hooks or other similar devices. Materials connected with excavation activities are not intended as unit loads and their movement is covered by this standard.

This European Standard does not give requirements for quick hitch devices.

NOTE 1 An amendment of EN 474-1 is under preparation to deal with this issue. It will be evaluated for inclusion in this European Standard.

NOTE 2 Specific requirements related to road traffic regulations are not taken into account in this European Standard.

This European Standard is not applicable to hydraulic backhoes 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 ISO 4254-1:2009, *Agricultural machinery — Safety — Part 1: General requirements (ISO 4254-1:2008)*

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

ISO 3600, *Tractors, machinery for agriculture and forestry, powered lawn and garden equipment — Operator's manuals — Content and presentation*

ISO 3767-2, *Tractors, machinery for agriculture and forestry, powered lawn and garden equipment — Symbols for operator controls and other displays — Part 2: Symbols for agricultural tractors and machinery*

ISO 3776-1, *Tractors and machinery for agriculture — Seat belts — Part 1: Anchorage location requirements*

ISO 3776-2, *Tractors and machinery for agriculture — Seat belts — Part 2: Anchorage strength requirements*

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

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
-