

METSATÖÖMASINAD. RAADIOKAUGJUHTIMISPULTIDE  
OHUTUSNÕUDED

Forestry machinery - Safety requirements on radio  
remote controls

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

See Eesti standard EVS-EN 17067:2018 sisaldab Euroopa standardi EN 17067:2018 ingliskeelset teksti.	This Estonian standard EVS-EN 17067:2018 consists of the English text of the European standard EN 17067:2018.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 19.12.2018.	Date of Availability of the European standard is 19.12.2018.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile [standardiosakond@evs.ee](mailto:standardiosakond@evs.ee).

ICS 65.060.80

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardikeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardikeskusega:  
Koduleht [www.evs.ee](http://www.evs.ee); telefon 605 5050; e-post [info@evs.ee](mailto:info@evs.ee)

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation:

Homepage [www.evs.ee](http://www.evs.ee); phone +372 605 5050; e-mail [info@evs.ee](mailto:info@evs.ee)

English Version

## Forestry machinery - Safety requirements on radio remote controls

Matériel forestier - Prescriptions de sécurité pour les systèmes de commande à distance radio

Forstmaschinen - Sicherheitsanforderungen für Funkfernsteuerungen

This European Standard was approved by CEN on 3 September 2018.

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: Rue de la Science 23, B-1040 Brussels

## Contents

Page

European foreword.....	4
Introduction .....	5
1 Scope.....	6
2 Normative references.....	7
3 Terms and definitions .....	8
4 Requirements for cableless control systems (CCS).....	13
4.1 General.....	13
4.2 Minimum control functions.....	13
4.3 General Safe STOP (GSS).....	13
4.4 Control elements.....	14
4.4.1 General requirements .....	14
4.4.2 Unintended activation.....	14
4.4.3 Latching control functions.....	14
4.4.4 Minimum requirements.....	14
4.5 Design principles for forestry cableless control systems.....	14
4.5.1 Protection against unintended activation.....	14
4.5.2 Ergonomics.....	15
4.6 Marking.....	15
4.7 Requirements for controls with dual or multiple functions .....	19
4.7.1 Dual function with hold-to-run control (shift button).....	19
4.7.2 Multiple control functions with mode selector .....	19
4.8 Multiple operator control units .....	19
4.9 Multiple base stations.....	20
4.10 Response times .....	20
4.10.1 Start and stop of movement functions.....	20
4.10.2 Fault tolerating times .....	20
4.11 Safety functions.....	20
4.11.1 Minimum requirements for the performance level.....	20
4.11.2 Safety objectives.....	20
4.11.3 Monitoring and safety of the wireless connection .....	21
4.12 Prevention of unintentional start of a function that would lead to a hazardous movement.....	21
4.13 Environment requirements.....	21
4.13.1 Temperature range according to EN 60068-2-14 and EN 60068-2-1 .....	21
4.13.2 Mechanical strength according to EN 60068-2-31 .....	21
4.13.3 IP protection class according to EN 60529 .....	21
4.13.4 Requirements for the electromagnetic compatibility (EMC) .....	21
4.14 Self-tests .....	22
4.15 Warning devices .....	22
4.16 Control outputs.....	22
4.17 Marking.....	22
4.17.1 General.....	22
4.17.2 Information on the remote station .....	23
4.17.3 Information on the base station .....	23
4.18 Instruction handbook.....	24

4.18.1	General .....	24
4.18.2	Winches .....	26
4.18.3	Mobile yarders.....	26
4.18.4	Additional instructions for CCS integration in a wood chipper .....	26
5	Requirements for cableless control systems for logging winches – minimum scope of functions .....	26
6	Requirements for cable-less control systems for travelling functions .....	27
7	Requirements for cableless control systems for mobile yarders .....	29
7.1	General .....	29
7.2	Multiple operator control units.....	29
7.3	Transfer/Adopt function.....	29
7.4	Stop function .....	30
7.4.1	General .....	30
7.4.2	Passive stop - additional requirements.....	30
7.5	Marking .....	30
8	Requirements for cableless control systems for wood chippers .....	32
Annex A	(normative) Examples of permissible radio ranges of CCS for mobile yarders.....	35
A.1	Action ranges with long distance in automatic mode.....	35
A.2	Carriage controlled by the tower yarder .....	36
A.2.1	Without remote stations .....	36
A.2.2	With remote commands reaching the tower yarder .....	37
A.2.3	Remote commands reaching the tower yarder via external repeater .....	38
A.3	Carriage controlled by CCS.....	38
A.3.1	Remote commands reaching the tower yarder via a transceiver installed on the carriage .....	38
A.3.2	Remote commanded active self-propelled carriage .....	39
Annex ZA	(informative) Relationship between this European Standard and the Essential Requirements of EU Directive 2006/42/EC amended by Directive 2009/127/EC aimed to be covered.....	40
Bibliography	.....	42

## European foreword

This document (EN 17067:2018) 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 June 2019, and conflicting national standards shall be withdrawn at the latest by June 2019.

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.

Cableless control systems are increasingly used in forestry. As only the fundamental requirements are defined in the standard EN 62745, it is necessary to formulate a draft standard that defines the particular requirements in respect to safety in forestry.

This standard draft regulates all special features of cableless control systems up to the machine interface. Safety system specifications for the machines resulting through cableless control systems according to this standard or which are controlled according to these specifications can be found in the relevant safety standards of these machines (e.g. EN ISO 11850).

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 2006/42/EC amended by Directive 2009/127/EC and EU Directive 2014/30/EU.

For relationship with EU Directives, 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, 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.

## 1 Scope

This document specifies both common and machine specific requirements for cableless control systems for use with the following forestry machinery.

- forestry cable winches according to ISO 19472, winches for log splitters;
- self-propelled machinery for forestry according to EN ISO 11850 (machines for felling, moving and debranching, forwarders, log loaders, skidders, processors, harvesting machines, mulchers as well as multipurpose machines of these construction types, as described in ISO 6814); the definitive part of the standard defines essential requirements for the driving function of the machine;
- mobile yarders for timber logging corresponding to EN 16517;
- log splitters and combined firewood splitters according to EN 609-1:2016, 5.9.2.1 Chipping machines according to EN 13525 and chipping machines with mechanical feed systems for the production of woodchips and shredding /grinding machines;
- forestry boom loaders and similar devices that are used on self-propelled machinery and trailers for forestry according to EN ISO 11850 and, as indicated above, for timber transport, timber loading, the loading of forestry goods or forestry products as well as for the handling and arrangement of timber harvesters, felling attachments, machines for felling and moving, attachments, saw heads, gripper-saw combinations with or without load or similar devices and machines, insofar they are not dealt with in EN 12999. Forestry boom loaders can be a component of the forestry machine on which they are mounted.

This document deals with significant hazards (as listed in Annex ZA), hazardous situations and events relevant to cableless control systems used with the above specific forestry machinery when used as intended and under the conditions of misuse foreseeable by the manufacturer.

NOTE General requirements for cableless controls for machinery are given in the standard EN 62745 and these are applicable to cableless control systems of forestry machinery.

This document deals only with the remote operation of machines. Risk reduction (protective) measures related to the operations carried out by the machine are specified in machine specific standards.

This document is not applicable to cableless control systems for forestry machinery manufactured before the date of its publication.



## 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 388, *Protective gloves against mechanical risks*

EN 13525, *Forestry machinery - Wood chippers - Safety*

EN 60068-2-1, *Environmental testing - Part 2-1: Tests - Test A: Cold*

EN 60068-2-14, *Environmental testing - Part 2-14: Tests - Test N: Change of temperature*

EN 60068-2-31, *Environmental testing - Part 2-31: Tests - Test Ec: Rough handling shocks, primarily for equipment-type specimens*

EN 60204-1, *Safety of machinery — Electrical equipment of machines — Part 1: General requirements*

EN 60447, *Basic and safety principles for man-machine interface, marking and identification - Actuating principles*

EN 60529, *Degrees of protection provided by enclosures (IP Code)*

EN 60947-5-5, *Low-voltage switchgear and controlgear - Part 5-5: Control circuit devices and switching elements - Electrical emergency stop device with mechanical latching function*

EN 62745:2017, *Safety of machinery - Requirements for cableless control systems of machinery*

EN ISO 13849-1, *Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design (ISO 13849-1)*

EN ISO 13850, *Safety of machinery - Emergency stop function - Principles for design (ISO 13850)*

EN ISO 14982, *Agricultural and forestry machinery - Electromagnetic compatibility - Test methods and acceptance criteria (ISO 14982)*

ISO 10968, *Earth-moving machinery — Operator's controls*

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

ISO 19472, *Machinery for forestry — Winches — Dimensions, performance and safety*