SLOVENSKI STANDARD
SIST EN 14081-3:2012

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Nadomešča:
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Lesene konstrukcije - Razvrščanje konstrukcijskega lesa pravokotnega prečnega prereza po trdnosti - 3. del: Strojno razvrščanje - Dodatne zahteve za kontrolo proizvodnje v obratu

Timber structures - Strength graded structural timber with rectangular cross section - Part 3: Machine grading; additional requirements for factory production control

Holzbauwerke - Nach Festigkeit sortiertes Bauholz für tragende Zwecke mit rechteckigem Querschnitt - Teil 3: Maschinelle Sortierung; Zusätzliche Anforderungen an die werkseigene Produktionskontrolle

Structures en bois - Bois de structure à section rectangulaire classé pour sa résistance - Partie 3: Classement mécanique - Exigences complémentaires relatives au contrôle de la production en usine

Ta slovenski standard je istoveten z: **EN 14081-3:2012**

ICS:

79.040	Les, hlodovina in žagan les	Wood, sawlogs and sawn timber
91.080.20	Lesene konstrukcije	Timber structures

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EUROPEAN STANDARD

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English Version

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Contents

Page

Foreword

This document (EN 14081-3:2012) has been prepared by Technical Committee CEN/TC124 “Timber structures “, 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of an identical text or by endorsement, at the latest by July 2012, and conflicting national standards shall be withdrawn at the latest by July 2012.

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 supersedes EN 14081-3:2005.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

Other parts of the series of EN 14081 are:

— EN 14081-1, *Timber structures — Strength graded structural timber with rectangular cross section — Part 1: General requirements*;

— EN 14081-2, *Timber structures — Strength graded structural timber with rectangular cross section — Part 2: Machine grading; additional requirements for initial type testing*;

— EN 14081-4, *Timber structures — Strength graded structural timber with rectangular cross section — Part 4: Machine grading — Grading machine settings for machine controlled systems*.

Compared to EN 14081-3:2005 the following modifications have been made:

— the additional factory production control requirements for output controlled systems are transferred in Annex B (informative);

— in Annex A, the requirements for using control planks are updated.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, 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

Machine grading is in common use in a number of countries. The countries use two basic systems, referred to as ‘output controlled’ and ‘machine controlled’. Both systems require a visual override inspection to cater for strength-reducing characteristics that are not automatically sensed by the machine.

The output-controlled system is suitable for use where the grading machines are situated in sawmills grading limited sizes, species and grades in repeated production runs of around one working shift or more. This enables the system to be controlled by testing timber specimens from the daily output. These tests together with statistical procedures are used to monitor and adjust the machine settings to maintain the required strength properties for each strength class. With this system it is permissible for machine approval requirements to be less demanding and for machines of the same type to have non-identical performance.

The machine controlled system was developed in Europe. Because of the large number of sizes, species and grades used it was not possible to carry out quality-control tests on timber specimens drawn from production. The system relies therefore on the machines being strictly assessed and controlled, and on considerable research effort to derive the machines settings, which remain constant for all machines of the same type.

The acceptability of grading machines and the derivation of settings rely on statistical procedures and the results will therefore depend on the method used. For this reason, this European Standard gives appropriate statistical procedures.

The requirements in this European Standard are based on machines in current use and on future types of machines as far as these can be foreseen. It is recognised that additional clauses or standards may be required if unforeseen developments take place.

1 Scope

This European Standard specifies requirements additional to those given in EN 14081-1 for factory production control of machine graded structural timber with rectangular cross-sections shaped by sawing, planing or other methods, and having deviations from the target sizes corresponding to EN 336.

2 Normative references

The following referenced documents are indispensable for the application of this European Standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 408, *Timber structures — Structural timber and glued laminated timber — Determination of some physical and mechanical properties*

EN 14081-1, *Timber structures — Strength graded structural timber with rectangular cross section — Part 1: General requirements*

EN 14081-2, *Timber structures — Strength graded structural timber with rectangular cross section — Part 2: Machine grading; additional requirements for initial type testing*

3 Terms and definitions

For the purpose of this document, the terms and definitions given in EN 14081-1 and the following apply.

3.1
depth
dimension perpendicular to the longitudinal axis of a timber beam, in the plane of the bending forces

3.2
grade determining property
mechanical or physical property for which a particular value of that property has to be achieved for the material to be assigned to that grade, e.g. bending strength, mean modulus of elasticity and density for the strength classes of EN 338

3.3
indicating property
measurement or combination of measurements made by the grading machine, which are closely related to one or more of the grade determining properties. For grading machines which compute and predict values of the grade determining properties directly from numerous measuring devices, the indicating property may be a predicted value of a grade determining property

3.4
sample
number of specimens of timber of one size and representative of one species population

4 Symbols

A	cusum control parameter
B	cusum control parameter
B_a	cusum parameter associated with acceptable quality level

B_r cusum parameter associated with rejectable quality level

E_p actual modulus of elasticity measured in a proof load test (in N/mm^2)

$E_{0,mean}$ characteristic mean modulus of elasticity parallel to grain (in N/mm^2)

F_p proof load (in N)

K cusum control parameter

L_a run length in acceptable region for cusum control

L_r run length in rejectable region for cusum control

N cusum control parameter

Y cusum control parameter

Z cusum control parameter

5 Requirements for the operation, calibration and maintenance of a grading machine

5.1 No modifications that are in conflict with the machine manufacturer's specification shall be made to the machine.

5.2 Access to all machine adjustments shall be limited to personnel authorised to operate or set up the machine.

5.3 The strength grading machine shall be regularly calibrated in accordance with the manufacturer's specification.

5.4 A strength grading machine shall only be fitted with spare parts equivalent to, or improving upon, the performance of those fitted at the time the machine was assessed by initial type testing. If spare parts are fitted that are not identical to those fitted at the time the machine was assessed by initial type testing, the machine shall be reassessed to establish their effect on grading accuracy.

5.5 The results of routine service and maintenance to the strength-grading machine and ancillary equipment shall be recorded together with the results of calibration checks.

6 Additional requirements for factory production control for machine controlled systems

6.1 General

When grading structural timber in a machine controlled system, grading accuracy shall be monitored, A grading machine's dynamic performance shall be controlled by the use of control planks using the procedures given in Annex A.

6.2 Requirements for strength grades with a characteristic strength level above C30

During each working shift, two pieces of timber from each grade produced shall be randomly selected and tested for edgewise bending strength as given in EN 408 with the tension edge selected at random and the estimated weakest cross section positioned where possible within the centre third of the span. The fifth

percentile value, determined by ranking, of the 100 bending strength values from 50 consecutive shifts shall meet the required bending strength (as given in EN 14081-2).

A strength property other than edgewise bending strength may be used for factory production control as an alternative, provided the relation between the two properties is verified from test data.

If the timber is graded to tensile strength classes then this test shall be carried out in tension or bending in accordance with EN 408.

7 Additional factory production control requirements for output controlled systems

A procedure is given in Annex B and Annex C.