

Timber structures — Strength graded structural timber with rectangular cross section —

Part 4: Machine grading — Grading machine settings for machine controlled systems

The European Standard EN 14081-4:2005, incorporating amendment A1:2007, has the status of a British Standard

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National foreword

This British Standard is the UK implementation of EN 14081-4:2005, incorporating amendment A1:2007.

The UK participation in its preparation was entrusted to Technical Committee B/518, Structural timber.

A list of organizations represented on this committee can be obtained on request to its secretary.

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

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English Version

Timber structures - Strength graded structural timber with
rectangular cross section - Part 4: Machine grading - Grading
machine settings for machine controlled systems

Structures en bois - Bois de structure de section
rectangulaire classé selon la résistance - Partie 4:
Classement par machine - Réglages pour les systèmes de
contrôle par machine

Holzbauwerke - Nach Festigkeit sortiertes Bauholz für
tragende Zwecke mit rechteckigem Querschnitt - Teil 4:
Maschinelle Sortierung - Einstellungen von
Sortiermaschinen für maschinenkontrollierte Systeme

This European Standard was approved by CEN on 26 August 2005 and includes Amendment 1 approved by CEN on 28 December 2006.

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Foreword

This European Standard (EN 14081-4:2005+A1:2007) has been prepared by Technical Committee CEN/TC 124 "Timber structures", the secretariat of which is held by SFS.

This document shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by August 2007 and conflicting national standards shall be withdrawn at the latest by August 2007.

This document includes Amendment 1, approved by CEN on 2006-12-28.

This document supersedes EN 14081-4:2005.

The start and finish of text introduced or altered by amendment is indicated in the text by tags **A1** **A1**.

Other parts of this European Standard 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 14081-3, *Timber structures - Strength graded structural timber with rectangular cross section - Part 3: Machine Grading - Additional requirements for factory production control*

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1 Scope

This European Standard gives settings, derived according to the requirements given in EN 14081-2, for various combinations of strength classes or grades, grading machines and species from particular sources of growth. These settings are only applicable to timber from the sources indicated in the tables.

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 336, *Structural timber – Sizes, permitted deviations*

EN 14081-1:2005, *Timber structures - Strength graded structural timber with rectangular cross section - Part 1: General requirements*

EN 14081-2:2005, *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 European Standard the terms and definitions in EN 14081-1:2005 and EN 14081-2:2005 and the following apply.

3.1 Speed range

maximum and minimum throughput speeds appropriate to the critical speed for the derived settings (see 6.2.2 of EN 14081-2:2005).

4 Symbols

a	deflection (in mm)
b	width of timber cross section (in mm)
F	force (units as stated)
I	indicating property (units as stated)
P	pressure (units as stated)
t	thickness of timber cross section (in mm)
$E_{t,mean}$	characteristic mean tensile modulus of elasticity parallel to grain (in N/mm ²)
$f_{t,k}$	characteristic tensile strength (in N/mm ²)
ρ_k	characteristic value of density (in kg/m ³)

subscripts

n for setting being calculated

a actual size measured as the average dimension of a batch

5 Settings for timber strength grading machines

Tables 1 to 6 give settings for certain grades, timber species and types of grading machine.

Settings for other grades, species or grading machines shall be added when the relevant information is sent to, and assessed by, CEN/TC 124.

Table 1 — Settings for Cook Bolinder (Tecnach) machine types SG-AR, SG-AF and SG-TF

Source country or countries	Source mark ^{a)}	Species	Permitted timber sizes ^{b)} (mm)	Grade ^{c)} or grade Combination	Model value	Feed speed Range (m/min)	Comments and additional requirements
UK Ireland	GB IE	Spruce	$35 \leq t_n \leq 75$	C24	$F = 2,68$	150 max	Minimum temperature of timber at time of grading shall be -10 °C. The following equations shall be used to calculate settings for the target size $b_n \times t_n$. (Note. For timber with a thickness to tolerance class 1, i.e. sawn, t_n in the following equations is the target $t_n + 1$ mm). $a_n = 830,7 t_n^{-1,299}$ $P_n = 4,412 F_n / t_n^{0,61}$ $F_n = \frac{F b_n t_n^{1,701}}{(413,9 t_n + 572 \text{ } 73)} \text{ (kN)}$
		<i>Picea abies</i>	$60 \leq b_n \leq 300$	C16	$F = 2,27$	150 max	
		<i>Picea sitchensis</i>			$F = 1,24$		
		Pine	$35 \leq t_n \leq 75$	C24	$F = 2,79$	150 max	
Chile	CL	<i>Pinus nigra</i>	$60 \leq b_n \leq 300$	C16	$F = 1,90$	150 max	
		<i>Pinus sylvestris</i>			$F = 1,34$		
		Radiata pine	$44 \leq t_n \leq 50$	C27	$F = 2,48$	150 max	
		<i>Pinus radiata</i>	$60 \leq b_n \leq 300$	C16	$F = 1,64$	150 max	