



SLOVENSKI STANDARD

SIST EN 14081-4:2005/oprA4:2008

01-september-2008

Uvodna besedila, ki so del tega standarda, so objavljena v slovenski, nemški in francoski različici. Če se v katerikoli od teh različic pojavijo neskladja, prevladajo besedila v nemški različici. Če se v katerikoli od teh različic pojavijo neskladja, prevladajo besedila v francoski različici.

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

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

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

Ta slovenski standard je istoveten z: EN 14081-4:2005/prA4

ICS:

79.040	Les, hlodovina in žagan les	Wood, sawlogs and sawn timber
79.120.10	Lesnoobdelovalni stroji	Woodworking machines

SIST EN 14081-4:2005/oprA4:2008 en,fr,de

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Full standard:
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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

FINAL DRAFT
EN 14081-4:2005+A3:2008

prA4

June 2008

ICS 79.040; 79.120.10

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 draft amendment is submitted to CEN members for unique acceptance procedure. It has been drawn up by the Technical Committee CEN/TC 124.

This draft amendment A4, if approved, will modify the European Standard EN 14081-4:2005+A3:2008. If this draft becomes an amendment, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for inclusion of this amendment into the relevant national standard without any alteration.

This draft amendment was established by CEN 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 Management Centre has the same status as the official versions.

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

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Foreword

This document (EN 14801-4:2005/prA4:2008) has been prepared by Technical Committee CEN/TC 124 “Timber structures”, the secretariat of which is held by SFS.

This document is currently submitted to the Unique Acceptance Procedure.

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1 Modifications to Tables 1 to 9

Replace all Tables 1 to 9 with the following new Tables 1 to 11

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Table 1 — Settings for Cook Bolinder (Tecmach) 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 Force <i>F</i> (kN)	Comments and additional requirements
UK Ireland	GB IE	Spruce <i>Picea abies</i> <i>Picea sitchensis</i>	35 ≤ <i>t_n</i> ≤ 75 60 ≤ <i>b_n</i> ≤ 300	C24	2,68	Requirements for grading: - Air temperature between + 10 °C and + 35 °C; - Relative humidity in the air ≤ 85 %; - Timber temperature ≥ - 10 °C; - Timber mean moisture content > 10 %; - Maximum feed speed: 150 m/min. The following equations shall be used to calculate settings for the target size <i>b_n</i> × <i>t_n</i> . (NOTE For timber with a thickness to tolerance class 1, i.e. sawn, <i>t_n</i> in the following equations is the target <i>t_n</i> + 1 mm.) $a_n = 830,7 t_n^{-1,299} \quad (\text{mm})$ $P_n = 4,412 F_n / t_n^{0,61} \quad (\text{bar})$ $F_n = \frac{F b_n t_n^{1,701}}{(413,9 t_n + 57273)} \quad (\text{kN})$
				C16	2,27	
				C16	1,24	
		Pine <i>Pinus nigra</i> <i>Pinus sylvestris</i>	35 ≤ <i>t_n</i> ≤ 75 60 ≤ <i>b_n</i> ≤ 300	C24	2,79	
C16	1,91					
C16	1,34					
Chile	CL	Radiata pine <i>Pinus radiata</i>	35 ≤ <i>t_n</i> ≤ 50 60 ≤ <i>b_n</i> ≤ 300	C27	3,03	
				C16	1,43	
				C24	2,32	
				C16	2,09	
				C16	0,92	
^a See 7.3 in EN 14081-1:2005. ^b Timber sizes shall be according to EN 336. ^c Grades prefixed by C are strength classes given in EN 338.						

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

Source country or countries	Source mark ^a	Species	Permitted timber sizes ^b (mm)	Grade ^c or grade combination	Model value f_{mod}	Comments and adjustments for size
Estonia Finland Latvia Norway Russia ^d Sweden Poland	EE FI LV NO RU SE PL	Spruce <i>Picea abies</i>	$30 \leq t_n \leq 75$ $60 \leq b_n \leq 300$	C18 C24 C27 C30 C35 C24 C40	20,8 20,8 21,8 28,5 46,5 20,0 54,5	Requirements for grading: - Air temperature between + 10 °C and + 35 °C; - Relative humidity in the air ≤ 85 %; - Timber temperature $\geq - 10$ °C; - Timber mean moisture content > 10 %; - Maximum feed speed: 150 m/min. 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.) $P_n = 4,412 F_n / t_n^{0,61} \quad (\text{bar})$ $F_n = (5,5 I_n a_n b_n t_n^3) 10^{-12} \quad (\text{kN})$ $a_n = 830,7 t_n^{-1,299}$ $I_n = \left[\frac{4228}{t_n^{0,22} b_n^{0,24}} \right] f_{\text{mod}}^{0,79}$
Finland Norway Sweden Latvia	FI NO SE LV	Pine <i>Pinus sylvestris</i>		C30 C18	30,6 23,8	

^a See 7.3 in EN 14081-1:2005.

^b Timber sizes shall be according to EN 336.

^c Grades prefixed by C are strength classes given in EN 338.

^d Settings apply only to timber grown west of the Ural mountain range in Russia.

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

Source country or countries	Source mark ^a	Species	Permitted timber sizes ^b (mm)	Grade ^c or grade combination	Model value Force <i>F</i> (kN)	Comments and adjustments for size
Spain	ES	Scots pine <i>Pinus sylvestris</i>	$35 \leq t_n \leq 75$ $60 \leq b_n \leq 300$	C27 C16	2,84 1,71	<p>Requirements for grading:</p> <ul style="list-style-type: none"> - Air temperature between + 10 °C and + 35 °C; - Relative humidity in the air ≤ 85 %; - Timber temperature ≥ - 10 °C; - Timber mean moisture content > 10 %; - Maximum feed speed: 100 m/min. <p>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.)</p> $a_n = 830,7 t_n^{-1,299}$ $P_n = 4,412 F_n / t_n^{0,61}$ $F_n = \frac{F b_n t_n^{1,701}}{(413,9 t_n + 57273)}$
Spain	ES	Corsican pine <i>Pinus nigra</i>	$40 \leq t_n \leq 70$ $100 \leq b_n \leq 200$	C30 C18	Not relevant as all settings shall be calculated using equations in comments column	<p>Requirements for grading:</p> <ul style="list-style-type: none"> - Air temperature between + 10 °C and 35 °C; - Relative humidity in the air < 85 %; - Timber temperature > - 10 °C; - Timber mean moisture content > 10 %; - Maximum feed speed: 100 m/min. <p>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.)</p> $a_n = 830,7 t_n^{-1,299}$ $P_n = 4,412 F_n / t_n^{0,61}$ $F_n C30 = (96,297 9 - 0,489 321 t_n) a_n b_n t_n^3 / (1,318 943 3 \times 10^9)$ $F_n C18 = (54,497 9 - 0,489 321 t_n) a_n b_n t_n^3 / (1,318 943 3 \times 10^9)$

^a See 7.3 in EN 14081-1:2005.
^b Timber sizes shall be according to EN 336.
^c Grades prefixed by C are strength classes given in EN 338.

Table 2 — Settings for Computermatic and Micromatic machines

Source country or countries	Source mark ^a	Species	Permitted timber sizes ^b (mm)	Grade ^c or grade combination	Model value Deflection a (mm)	Comments and additional requirements
UK Ireland	GB IE	Spruce <i>Picea abies</i> <i>Picea sitchensis</i>	$35 \leq t_n \leq 75$ $60 \leq b_n \leq 300$	C24	6,35	Requirements for grading: - Relative humidity in the air ≤ 85 %; - Timber temperature ≥ -10 °C; - Timber mean moisture content > 10 %; - Maximum feed speed: 105 m/min. 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.) $F_n = 0,010 \cdot 1 \cdot b_n \cdot t_n^2$ (N) $a_n = \frac{36,71a(0,00567t_n + 0,7846)}{t_n(0,9851 \times 10^{-5} t_n b_n + 0,91)}$ Actual deflection settings are determined from $a_n/0,19$ rounded to the nearest whole number. Refer to calibration tables for machine to convert force F_n to pressure setting
				C16	7,49	
		Pine <i>Pinus nigra</i> <i>Pinus sylvestris</i>	$35 \leq t_n \leq 75$ $60 \leq b_n \leq 300$	C24	6,10	
				C16	8,90	
Chile	CL	Radiata pine <i>Pinus radiata</i>	$35 \leq t_n \leq 50$ $60 \leq b_n \leq 300$	C27	5,62	
				C16	11,86	
				C24	7,35	
				C16	8,13	
				C16	18,52	
^a See 7.3 in EN 14081-1:2005. ^b Timber sizes shall be according to EN 336. ^c Grades prefixed by C are strength classes given in EN 338.						

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Table 2 — Settings for Computermatic and Micromatic machines (continued)

Source country or countries	Source mark ^a	Species	Permitted timber sizes ^b (mm)	Grade ^c or grade combination	Model value IP = f_{mod}	Comments and additional requirements
Norway	NO	Sitka spruce <i>Picea Sitchensis</i>	$33 \leq t_n \leq 53$ $88 \leq b_n \leq 218$	C30 C18	38,8 27,9	<p>Requirements for grading:</p> <ul style="list-style-type: none"> - Relative humidity in the air ≤ 85 %; - Timber temperature ≥ -10 °C; - Timber mean moisture content > 10 %; - Maximum feed speed: 105 m/min. <p>The following equations shall be used to calculate settings for the target size $b_n \times t_n$ where b_n and t_n are target dimensions.</p> <p>Refer to calibration tables for machine to convert F_n to pressure setting.</p> $F_n = 0,0101 \cdot b_n \cdot t_n^2 \quad (\text{N})$ $a_n = \frac{8063 \cdot t_n^{-0,814} \cdot b_n^{0,152}}{f_{mod} \cdot \left(1 - \frac{2,14 \cdot t_n^{0,186} \cdot b_n^{0,152}}{f_{mod}} \right)} \quad (\text{Bits})$ <p>Actual deflection setting a_n shall be rounded to the nearest whole number of Bits (Bits are units of 0,19mm).</p> <p>If the actual thickness t_a exceeds the target thickness t_n by more than 1 mm then the pressure shall be increased by</p> $\left(\frac{t_a}{t_n} \right)^3$
<p>^a See 7.3 in EN 14081-1:2005.</p> <p>^b Timber sizes shall be according to EN 336.</p> <p>^c Grades specified by C are strength classes given in EN 338.</p>						

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Table 2 — Settings for Computermatic and Micromatic machines (*continued*)

Source country or countries	Source mark ^a	Species	Permitted timber sizes ^b (mm)	Grade ^c or grade combination	Model value Deflection <i>a</i> (mm)	Comments and additional requirements
Finland Norway Sweden Estonia Latvia Russia ^d Poland	FI NO SE ES LV RU PL	Spruce <i>Picea</i> <i>Abies</i>	30 ≤ <i>t_n</i> ≤ 75 60 ≤ <i>b_n</i> ≤ 300	C24	9,82	<p>Requirements for grading:</p> <ul style="list-style-type: none"> - Relative humidity in the air ≤ 85 %; - Timber temperature ≥ -10 °C; - Timber mean moisture content > 10 %; - Maximum feed speed: 105 m/min. <p>The following equations shall be used to calculate settings for the target size <i>b_n</i> × <i>t_n</i> where <i>b_n</i> and <i>t_n</i> are target dimensions.</p> <p>Refer to calibration tables for machine to convert <i>F_n</i> to pressure setting.</p> $F_n = 0,0101b_n t_n^2 \quad (\text{N})$ $a_n = \frac{50a}{t_n} \left(\frac{t_n}{50} \right)^{0,186} \left(\frac{b_n}{150} \right)^{-0,0901} / 0,19 \quad (\text{Bits})$ <p>Actual deflection settings <i>a_n</i> shall be rounded to the nearest whole number of Bits (Bits are units of 0,19 mm).</p> <p>If the actual thickness <i>t_a</i> exceeds the target thickness <i>t_n</i> more than 1 mm then the pressure shall be increased by</p> $\left(\frac{t_a}{t_n} \right)^3$
Finland Norway Sweden Latvia	FI NO SE LV	Pine <i>Pinus</i> <i>Sylvestris</i>		C24	5,49	
				C18	8,92	
				C35	3,40	
				C24	4,94	
				C18	7,96	
				C40	2,83	
				C27	5,49	

^a See 7.3 in EN 14081-1:2005.

^b Timber sizes shall be according to EN 336.

^c Grades specified by C are strength classes given in EN 338.

^d Settings apply only to timber grown west of the Ural mountain range in Russia.

Table 2 — Settings for Computermatic and Micromatic machines (continued)

Source country or countries	Source mark ^a	Species	Permitted timber sizes ^b (mm)	Grade or grade combination	Model value Deflection <i>a</i> (mm)	Comments and additional requirements
Finland Norway Sweden Estonia Latvia Russia ^c Poland	FI NO SE ES LV RU PL	Spruce <i>Picea</i> <i>Abies</i>	$30 \leq t_n \leq 75$ $60 \leq b_n \leq 300$	TR26	6,21	<p>Requirements for grading:</p> <ul style="list-style-type: none"> - Relative humidity in the air ≤ 85 %; - Timber temperature $\geq - 10$ °C; - Timber mean moisture content > 10 %; - Maximum feed speed: 105 m/min. <p>The following equations shall be used to calculate settings for the target size $b_n \times t_n$ where b_n and t_n are target dimensions. Refer to calibration tables for machine to convert F_n to pressure setting.</p> $F_n = 0,0101b_n t_n^2 \quad (\text{N})$ $a_n = \frac{50a}{t_n} \left(\frac{t_n}{50} \right)^{0,186} \left(\frac{b_n}{150} \right)^{-0,0901} / 0,19 \quad (\text{Bits})$ <p>Actual deflection settings a_n shall be rounded to the nearest whole number of Bits (Bits are units of 0,19 mm).</p> <p>If the actual thickness t_a exceeds the target thickness t_n more than 1 mm then the pressure shall be increased by</p> $\left(\frac{t_a}{t_n} \right)^3.$ <p>TR26 is a UK grade for trussed rafters. Its primary characteristic values are: $f_{m,k} = 28,3$ N/mm², $E_{0,mean} = 11,0$ kN/mm², $\rho_k = 370$ kg/m³. Other characteristic values can be calculated from the equations given in EN 384.</p>
Finland Norway Sweden Latvia	FI NO SE LV	Pine <i>Pinus</i> <i>Sylvestris</i>				

^a See 7.3 in EN 14081-1:2005.

^b Timber sizes shall be to EN 336.

^c Settings apply only to timber grown west of the Ural mountain range in Russia.