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SIST EN 14081-4:2005+A2:2007/oprA3:2007
01-december-2007

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

Structure 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+A2:2007/prA3

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+A2:2007/oprA3:2007**

en,fr,de

ICS 79.120.10; 79.040

English Version

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

Structure 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 A3, if approved, will modify the European Standard EN 14081-4:2005+A2:2007. 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

Management Centre: rue de Stassart, 36 B-1050 Brussels

Foreword

This document (EN 14081-4:2005+A2:2007/prA3:2007) 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.

1.1 Modifications to Clause 5

— *In first sentence change 'Tables 1 to 6' to 'Tables 1 to 9'.*

1.2 Modifications to Table 1

— *Replace the first page of Table 1 with the Table 1 included in this amendment.*

1.3 Modifications to Table 2

— *Replace the first page of Table 2 with the two pages of Table 2 included in this amendment.*

1.4 Modifications to Table 4a

— *Replace the one page of Table 4a with the Table 4a included in this amendment.*

1.5 Modifications to Table 4b

— *After the two pages of Table 4b insert the one page of Table 4b included in this amendment.*

1.6 Modifications to Table 6

— *After the four pages of Table 6 insert the one page of Table 6 included in this amendment.*

1.7 Modifications to Table 7

— *Replace Table 7 with the two pages of Table 7 included in this amendment.*

1.8 Modifications to Table 8

— *Replace the three pages of Table 8 with the one page of Table 8a and the three pages of Table 8b included in this amendment.*

1.9 Addition of Table 9

— *After Table 8b insert the one page of Table 9 included in this amendment.*

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	Feed speed range (m/min)	Comments and additional requirements
UK Ireland	GB IE	Spruce <i>Picea abies</i> <i>Picea sitchensis</i>	35 ≤ t _n ≤ 75 60 ≤ b _n ≤ 300	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 × 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} (bar) $F_n = \frac{F b_n t_n^{1.701}}{(413,9 t_n + 57273)}$
				C16	F = 2,27		
		Pine <i>Pinus nigra</i> <i>Pinus sylvestris</i>	35 ≤ t _n ≤ 75 60 ≤ b _n ≤ 300	C24	F = 2,79	150 max	
				C16	F = 1,90		
				C16	F = 1,34		
				C16	F = 1,34		
Chile	CL	Radiata pine <i>Pinus radiata</i>	35 ≤ t _n ≤ 50 60 ≤ b _n ≤ 300	C27	F = 3,03	150 max	
				C16	F = 1,43		
				C24	F = 2,32		
				C16	F = 2,09		
				C16	F = 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.							

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	Feed speed range (m/min)	Comments and additional requirements
					Deflection ^a (mm)		
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	105 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.) 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 $F_n = 0,010 1 b_n t_n^2$ $a_n = \frac{36,71a(0,00567t_n + 0,7846)}{t_n(0,9851 \times 10^{-5} t_n b_n + 0,91)}$
				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	105 max	
				C16	8,97	105 max	
Chile	CL	Radiata pine <i>Pinus radiata</i>	$35 \leq t_n \leq 50$ $60 \leq b_n \leq 300$	C27	5,62	105 max	
				C16	11,86	105 max	
				C24	7,35	105 max	
				C16	8,13	105 max	
				C16	18,52	105 max	

^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 (continued)

Source country or countries	Source mark ^a	Species	Permitted timber sizes ^b (mm)	Grade ^c or grade combination	Model value f_{mod}	Feed speed range (m/min)	Comments and additional requirements
Norway	NO	Sitka spruce <i>Picea Sitchensis</i>	33 < t_n < 53 88 < b_n < 218	C18 C30	27,9 38,8	105 max	<p>Equation (2) shall be used to calculate settings for the target size t_n and b_n where t_n and b_n are target dimensions.</p> <p>Actual deflection setting a_n shall be rounded up to the nearest whole number</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>To convert from stress to force F_n use equation (1). Refer to calibration tables for machine to convert F_n to pressure setting.</p> $F_n = 0,0101 \cdot b_n \cdot t_n^2 \quad (1)$ $a_n = \frac{8063 \cdot t_n^{-0,814} \cdot b_n^{0,152}}{f_{mod} \cdot \left(1 - \frac{2,14 \cdot t_n^{0,186} \cdot b_n^{0,152}}{f_{mod}}\right)} BIT \quad (2)$ <p>Requirements for grading:</p> <ul style="list-style-type: none"> - air temperature: 10 °C to 50 °C; - relative humidity in the air: < 85 %; - timber temperature: > -10 °C; - timber mean moisture content: > 10 %.
<p>^a See 7.3 of 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>							

Table 4a — Settings for Euro-GreComat 702

Source country or countries	Source mark ^a	Species	Permitted timber size ^b [mm]	Grade or grade combination	Settings	Comments and additional requirements																				
Germany	DE	Spruce	$30 \leq t_n \leq 50$	L36	$IP \geq 34,5$	These grades apply to boards for glued laminated timber. The characteristic values for the grades are: <table border="1" style="margin-left: 20px; margin-top: 10px;"> <thead> <tr> <th></th> <th>L36</th> <th>L35</th> <th>L25</th> <th>L24</th> </tr> </thead> <tbody> <tr> <td>$f_{t,k}$ [N/mm²]</td> <td>22,0</td> <td>21,0</td> <td>14,5</td> <td>14,0</td> </tr> <tr> <td>$E_{t,mean}$ [N/mm²]</td> <td>13 000</td> <td>13 000</td> <td>11 000</td> <td>11 000</td> </tr> <tr> <td>ρ_k [kg/m³]</td> <td>400</td> <td>400</td> <td>350</td> <td>350</td> </tr> </tbody> </table> Requirements for grading: - timber temperature greater than 0 °C - timber mean moisture content between 7 % and 15 %; - feed speed between 80 m/min and 300 m/min; - timber surface planed or sawn.		L36	L35	L25	L24	$f_{t,k}$ [N/mm ²]	22,0	21,0	14,5	14,0	$E_{t,mean}$ [N/mm ²]	13 000	13 000	11 000	11 000	ρ_k [kg/m ³]	400	400	350	350
	L36	L35	L25	L24																						
$f_{t,k}$ [N/mm ²]	22,0	21,0	14,5	14,0																						
$E_{t,mean}$ [N/mm ²]	13 000	13 000	11 000	11 000																						
ρ_k [kg/m ³]	400	400	350	350																						
Austria	AT	<i>Picea abies</i>	$95 \leq b_n \leq 280$	L25	$34,5 > IP \geq 22,3$																					
Czech Republic	CZ	Fir <i>Abies alba</i>	$30 \leq t_n \leq 55$	L35	$IP \geq 34,0$																					
			$80 \leq b_n \leq 280$	L24	$34,0 > IP \geq 21,0$																					

^a See 7.3 of EN 14081-1:2005.
^b Timber size shall be according to EN 336.