

**DECLARATION OF PERFORMANCE (according EU 305/2011, Annex III)**  
Reference number **04-0001-05**

1. Unique identification code of the product-type: STEICO joist
2. Intended use or uses of the construction product, in accordance with the applicable harmonised technical specification, as foreseen by the manufacturer: Light composite woodbased beams and columns
3. Name, registered trade name or registered trade mark and contact address of the manufacturer as required under Article 11(5): STEICO SE, Otto-Lilienthal-Ring 30, D-85622 Feldkirchen, email: [info@steico.com](mailto:info@steico.com)
4. System or systems of assessment and verification of constancy of performance of the construction product as set out in CPR, Annex V: AVCP 3
5. In case of the declaration of performance concerning a construction product covered by a harmonised standard: Notified certification body No. 0432 MPA Nordrhein-Westfalen performed the determination of the product type on basis of type testing and type calculation
6. Declared performance

Table 1

Essential characteristics		Performance	Harmonised technical specification
Mechanical resistance and stability	II.2.BWR1 Mechanical resistance and stability	Tab. 3, 4, 7 & 8	ETA-06/0238
Reaction to fire	II.2.BWR2 Safety in case of fire	D-s2,d0	
Release of formaldehyd	II.2.BWR3 Hygiene, health and environment	E1	
Release (content) of pentachlorophenol (PCP)	II.2.BWR3 Hygiene, health and environment	n.a.	
Safety in use	II.2.BWR4 Safety in use	NPD	
Protection against noise	II.2.BWR5 Protection against noise	NPD	
Energy economy and heat retention	II.2.BWR6 Energy economy and heat retention	Tab. 6	
Sustainable use of natural resources	II.2. BWR7 Sustainable use of natural resources	NPD	
Biological durability	II.2. Aspects of durability, serviceability and identification	Use classes 1 & 2	
Notes to table: n.a.: not applicable NPD: no performance declared			

Table 2 Characteristic design properties — with solid timber flanges

Type of beam	Depth	Flange	Moment capacity	Shear capacity	Bending stiffness	Shear stiffness
	H	Grade	$M_k$	$V_k$	$EI_{joist}$	$GA_{joist}$
	[mm]	-	[kNm]	[kN]	kNm <sup>2</sup>	MN
SJ 45	160	L 36	4.96	9.79	183	1.42
	200	L 36	7.09	11.98	327	2.09
	220	L 36	8.00	13.04	416	2.42
	240	L 36	8.92	14.07	516	2.76
	250	L 36	9.38	14.43	571	2.93
	300	L 36	11.74	16.14	888	3.77
	350	L 36	13.64	17.72	1281	4.61
	360	L 36	14.01	18.08	1369	4.78
SJ 60	400	L 36	15.51	19.20	1753	5.45
	160	L 36	6.75	10.36	249	1.42
	200	L 36	9.45	12.64	436	2.09
	220	L 36	10.66	13.74	554	2.42
	240	L 36	11.87	14.81	687	2.76
	250	L 36	12.48	15.18	759	2.93
	300	L 36	15.57	16.93	1177	3.77
	350	L 36	18.03	18.52	1693	4.61
	360	L 36	18.52	18.83	1808	4.78
	400	L 36	20.45	20.01	2310	5.45
	450	L 36	22.83	21.41	3030	6.29
SJ 90	500	L 36	25.20	21.62	3855	7.13
	160	L 36	10.04	11.18	370	1.42
	200	L 36	14.13	13.65	651	2.09
	220	L 36	15.96	14.82	827	2.42
	240	L 36	17.75	15.96	1025	2.76
	250	L 36	18.65	16.35	1132	2.93
	300	L 36	23.21	18.17	1752	3.77
	350	L 36	26.80	19.82	2513	4.61
	360	L 36	27.51	20.13	2683	4.78
	400	L 36	30.30	21.34	3419	5.45
	450	L 36	33.74	22.77	4472	6.29
500	L 36	37.12	23.46	5675	7.13	

NOTE 1: The characteristics for beams within the depth range not listed in the table can be calculated by linear interpolation

NOTE 2: The shear stiffness shall be reduced with the factor 0.85 by using OSB as a web material.

Table 3 Characteristic design properties — with LVL flanges

Type of beam	Depth	Flange	Characteristic bending moment	Characteristic vertical shear	Bending stiffness	Shear stiffness
	H	Grade	$M_k$	$V_k$	$EI_{joist}$	$GA_{joist}$
	[mm]	-	[kNm]	[kN]	kNm <sup>2</sup>	MN
SJ 45	160	LVL 2.0	5.90	9.79	195	1.83
	200	LVL 2.0	781	11.98	343	2.50
	220	LVL 2.0	8.79	13.04	433	2.84
	240	LVL 2.0	9.78	14.07	536	3.18
	250	LVL 2.0	10.27	14.43	591	3.34
	300	LVL 2.0	12.82	16.14	912	4.18
	350	LVL 2.0	15.43	17.72	1308	5.02
	360	LVL 2.0	15.96	18.02	1397	5.19
	400	LVL 2.0	17.75	19.20	1783	5.86
SJ 60	160	LVL 2.0	7.85	10.36	259	1.83
	200	LVL 2.0	10.36	12.64	455	2.50
	220	LVL 2.0	11.65	13.74	575	2.84
	240	LVL 2.0	12.94	14.81	709	3.18
	250	LVL 2.0	13.60	15.18	782	3.34
	300	LVL 2.0	16.91	16.93	1203	4.18
	350	LVL 2.0	20.30	18.52	1721	5.02
	360	LVL 2.0	20.98	18.83	1836	5.19
	400	LVL 2.0	23.61	20.01	2337	5.86
	450	LVL 2.0	26.48	21.41	3056	6.70
	500	LVL 2.0	29.34	21.62	3880	7.54
SJ 90	160	LVL 2.0	11.82	11.18	389	1.82
	200	LVL 2.0	15.47	13.65	679	2.50
	220	LVL 2.0	17.37	14.82	857	2.84
	240	LVL 2.0	19.28	15.96	1056	3.18
	250	LVL 2.0	20.24	16.35	1164	3.34
	300	LVL 2.0	25.09	18.17	1785	4.18
	350	LVL 2.0	30.03	19.82	2545	5.02
	360	LVL 2.0	31.02	20.13	2714	5.19
	400	LVL 2.0	35.04	21.34	3447	5.86
	450	LVL 2.0	39.73	22.77	4493	6.70
	500	LVL 2.0	44.13	23.46	5687	7.54

NOTE 1: The characteristics for beams within the depth range not listed in the table can be calculated by linear interpolation

NOTE 2: The shear stiffness shall be reduced with the factor 0.85 by using OSB as a web materi

Table 4 Hygrothermal properties<sup>(1)</sup>

Material	Density <sup>(2)</sup> (mean)	Design thermal conductivity	Specific heat capacity	Water vapour resistance factor <sup>(3)</sup>	
	$\rho_m$	$\lambda$	$c_p$	$\mu$	
	( $\text{kg}\cdot\text{m}^{-3}$ )	( $\text{W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ )	( $\text{J}\cdot\text{kg}^{-1}\cdot\text{K}^{-1}$ )	dry	wet
<b>LVL flanges</b>	500	0,13	1600	50	20
<b>Solid timber flanges</b>	500	0,13	1600	50	20
<b>Hardboard web</b>	900	0,14	1700	10	20
<b>OSB webs</b>	600	0,13	1700	200	200

(1) Standard values

(2) The density for timber- and wood-based products is the density in equilibrium with 20°C and 65% relative humidity.

(3) Water vapour resistance factors are given as dry cup and wet cup values (see EN ISO 12572 : 2001).

Table 5 Manufacturing tolerances (mm)

Description	Tolerances (mm)
Joist depth – $H$	–2 to + 1
Joist width – $B$	–2 to + 2
Flange depth – $h_f$	–2 to + 2
Web thickness – $b_w$	–0.7 to + 0.7

Table 6 Characteristic bearing resistance — solid timber

Type of beam	Depth	Flange	End bearing capacity [kN]				Intermediate bearing capacity [kN]			
			45 mm		89 mm		75 mm		89 mm	
	H	Grade	stiffener		stiffener		stiffener		stiffener	
	[mm]	-	without	with	without	with	without	with	without	with
<b>SJ 45</b>	160	L 36	8.1	9.1	8.7	10.1	17.8	20.9	20.1	21.2
	200	L 36	8.1	9.7	8.7	10.7	17.8	21.5	20.1	21.8
	220	L 36	8.1	10.0	8.7	11.0	17.8	21.8	20.1	22.1
	240	L 36	8.1	10.3	8.7	11.3	17.8	22.1	20.1	22.4
	250	L 36	8.1	10.5	8.7	11.5	17.8	22.2	20.1	22.5
	300	L 36	8.1	11.2	8.7	12.2	17.8	23.0	20.1	23.3
	350	L 36	8.1	12.0	8.7	13.0	17.8	23.7	20.1	24.0
	360	L 36	8.1	12.1	8.7	13.1	17.8	23.9	20.1	24.2
	400	L 36	8.1	12.7	8.7	13.7	17.8	24.5	20.1	24.8
<b>SJ 60</b>	160	L 36	12.0	12.1	12.6	13.6	19.9	20.7	21.6	22.4
	200	L 36	12.0	12.7	12.6	14.2	19.9	21.3	21.6	23.0
	220	L 36	12.0	13.0	12.6	14.5	19.9	21.6	21.6	23.3
	240	L 36	12.0	13.3	12.6	14.8	19.9	21.9	21.6	23.6
	250	L 36	12.0	13.5	12.6	15.0	19.9	22.1	21.6	23.8
	300	L 36	12.0	14.2	12.6	15.7	19.9	22.8	21.6	24.5
	350	L 36	12.0	15.0	12.6	16.5	19.9	23.6	21.6	25.3
	360	L 36	12.0	15.1	12.6	16.6	19.9	23.7	21.6	25.4
	400	L 36	12.0	15.7	12.6	17.2	19.9	24.3	21.6	26.0
	450	L 36	10.8	16.5	11.4	18.0	18.7	25.1	20.4	26.8
	500	L 36	9.5	17.2	10.1	18.7	17.4	25.8	19.1	27.5
<b>SJ 90</b>	160	L 36	12.9	13.2	15.3	14.8	27.1	31.0	29.3	35.3
	200	L 36	12.9	13.8	15.3	15.4	27.1	31.6	29.3	35.9
	220	L 36	12.9	14.1	15.3	15.7	27.1	31.9	29.3	36.2
	240	L 36	12.9	14.4	15.3	16.0	27.1	32.2	29.3	36.5
	250	L 36	12.9	14.6	15.3	16.2	27.1	32.3	29.3	36.7
	300	L 36	12.9	15.3	15.3	16.9	27.1	33.1	29.3	37.4
	350	L 36	12.9	16.1	15.3	17.7	27.1	33.8	29.3	38.2
	360	L 36	12.9	16.2	15.3	17.8	27.1	34.0	29.3	38.3
	400	L 36	12.9	16.8	15.3	18.4	27.1	34.6	29.3	38.9
	450	L 36	11.7	17.6	14.1	19.2	25.8	35.3	28.1	39.7
	500	L 36	10.4	18.3	12.8	19.9	24.6	36.1	26.8	40.4

NOTE: The characteristics for beams within the depth range not listed in the table can be calculated by linear interpolation

Table 7 Characteristic bearing resistance — LVL flange

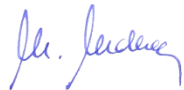
Type of beam	Depth	Flange	End bearing capacity [kN]						Intermediate bearing capacity [kN]					
			35 mm		45 mm		89 mm		45 mm		75 mm		89 mm	
	H	Grade	stiffener		stiffener		stiffener		stiffener		stiffener		stiffener	
	[mm]	-	without	with	without	with	without	with	without	with	without	with	without	with
SJ 45	160	LVL 2.0	8.1	14,0	9.1	16.0	11.3	17.9	15.9	20.8	17.9	21.3	21.2	25.2
	200	LVL 2.0	8.1	14,6	9.1	16.6	11.3	18.5	15.9	21.4	17.9	21.9	21.2	25.8
	220	LVL 2.0	8.1	14,9	9.1	16.9	11.3	18.8	15.9	21.7	17.9	22.2	21.2	26.1
	240	LVL 2.0	8.1	15,2	9.1	17.2	11.3	19.1	15.9	22.0	17.9	22.5	21.2	26.4
	250	LVL 2.0	8.1	15,3	9.1	17.4	11.3	19.2	15.9	22.2	17.9	22.7	21.2	26.6
	300	LVL 2.0	8.1	16,1	9.1	18.1	11.3	20.0	15.9	22.9	17.9	23.4	21.2	27.3
	350	LVL 2.0	8.1	16,8	9.1	18.9	11.3	20.7	15.9	23.7	17.9	24.2	21.2	28.1
	360	LVL 2.0	8.1	17,0	9.1	19.0	11.3	20.9	15.9	23.8	17.9	24.3	21.2	28.2
	400	LVL 2.0	8.1	17,6	9.1	19.6	11.3	21.5	15.9	24.4	17.9	24.9	21.2	28.8
SJ 60	160	LVL 2.0	9.5	16,3	12.2	17.1	14.3	17.6	18.9	28.8	22.5	31.0	25.3	34.5
	200	LVL 2.0	9.5	16,9	12.2	17.7	14.3	18.2	18.9	29.4	22.5	31.6	25.3	35.1
	220	LVL 2.0	9.5	17,2	12.2	18.0	14.3	18.5	18.9	29.7	22.5	31.9	25.3	35.4
	240	LVL 2.0	9.5	17,5	12.2	18.3	14.3	18.8	18.9	30.0	22.5	32.2	25.3	35.7
	250	LVL 2.0	9.5	17,7	12.2	18.4	14.3	18.9	18.9	30.2	22.5	32.3	25.3	35.8
	300	LVL 2.0	9.5	18,4	12.2	19.2	14.3	19.7	18.9	30.9	22.5	33.1	25.3	36.6
	350	LVL 2.0	9.5	19,2	12.2	19.9	14.3	20.4	18.9	31.7	22.5	33.8	25.3	37.3
	360	LVL 2.0	9.5	19,3	12.2	20.1	14.3	20.6	18.9	31.8	22.5	34.0	25.3	37.5
	400	LVL 2.0	9.5	19,9	12.2	20.7	14.3	21.2	18.9	32.4	22.5	34.6	25.3	38.1
	450	LVL 2.0	-	-	10.9	21.4	13.0	21.9	-	-	21.3	35.3	24.0	38.8
	500	LVL 2.0	-	-	9.7	22.2	11.8	22.7	-	-	20.0	36.1	22.8	39.6
SJ 90	160	LVL 2.0	11.1	20,9	15.6	23.5	16.5	23.4	23.1	36.8	27.1	38.2	31.3	42.5
	200	LVL 2.0	11.1	21,5	15.6	24.1	16.5	24.0	23.1	37.4	27.1	38.8	31.3	43.1
	220	LVL 2.0	11.1	21,8	15.6	24.4	16.5	24.3	23.1	37.7	27.1	39.1	31.3	43.4
	240	LVL 2.0	11.1	22,1	15.6	24.7	16.5	24.6	23.1	38.0	27.1	39.4	31.3	43.7
	250	LVL 2.0	11.1	22,3	15.6	24.9	16.5	24.7	23.1	38.2	27.1	39.6	31.3	43.8
	300	LVL 2.0	11.1	23,0	15.6	25.6	16.5	25.5	23.1	38.9	27.1	40.3	31.3	44.6
	350	LVL 2.0	11.1	23,8	15.6	26.4	16.5	26.2	23.1	39.7	27.1	41.1	31,3	45.3
	360	LVL 2.0	11.1	23,9	15.6	26.5	16.5	26.4	23.1	39.8	27.1	41.2	31.3	45.5
	400	LVL 2.0	11.1	24,5	15.6	27.1	16.5	27.0	23.1	40.4	27.1	41.8	31.3	46.1
	450	LVL 2.0	-	-	14.4	27.9	15.3	27.7	-	-	25.8	42.6	30.1	46.8
	500	LVL 2.0	-	-	13.1	28.6	14.0	28.5	-	-	24.6	43.3	28.8	47.6

NOTE: The characteristics for beams within the depth range not listed in the table can be calculated by linear interpolation

7. The performance of the product identified in point 1 is in conformity with the declared performance in point 6.

This declaration of performance is issued under the sole responsibility of the manufacturer identified in point 4.

Signed for and on behalf of the manufacturer by:

Dr. Michael Makas Head of R&D / QM (name and function)	Feldkirchen, 09.01.2017 (place and date of issue)	b.o. (signature) 
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Date: 27.06.2013	Revised: 09.01.2017
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