

**DECLARATION OF PERFORMANCE (according EU 305/2011, Annex V)
Nr. 04-0001-01**

Identification code of the product type
STEICOjoist

Name and address of the manufacturer
STEICO SE, Hans-Riedl-Straße 21, D-85622 Feldkirchen, Germany, Email: info@steico.com

Name and address of the authorized representative
not relevant

Table 1

Product type	Intended use	AVCP*	Notified Body reference	Notified Test Institute
Light composite woodbased beams and columns	Structural component in dry conditions	1	Materialprüfungsanstalt der Universität Stuttgart MPA Stuttgart – Otto-Graf-Institut (FMPA) Postfach 80 11 40 70511 Stuttgart / Germany	No 0672
*Assessment and verification of constancy of performance system according to Annex V of regulation (EU) No 305/2011				

Declared performance

Table 2

Essential characteristics		Performance	Harmonised technical specification
Mechanical resistance and stability	II.2.ER1 Mechanical resistance and stability	s. Tab. 3-7, 10-11	ETA-06/0238
Reaction to fire	II.2.ER2 Safety in case of fire	D-s2,d0	
Release of formaldehyd	II.2.ER3 Hygiene, health and environment	E1	
Release (content) of pentachlorophenol (PCP)	II.2.ER3 Hygiene, health and environment	n.a.	
Safety in use	II.2.ER4 Safety in use	NPD	
Protection against noise	II.2.ER5 Protection against noise	NPD	
Energy economy and heat retention	II.2.ER6 Energy economy and heat retention	s. Tab. 8	
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 3 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 ²	MN
SJ 45	160	L 36	4.96	9.64	183	1.42
	200	L 36	7.09	11.72	327	2.09
	220	L 36	8.00	12.72	416	2.42
	240	L 36	8.92	13.69	516	2.76
	250	L 36	9.38	14.11	571	2.93
	300	L 36	11.74	16.13	888	3.77
	350	L 36	13.64	18.02	1281	4.61
	360	L 36	14.01	18.39	1369	4.78
SJ 60	160	L 36	6.75	10.28	249	1.42
	200	L 36	9.45	12.22	436	2.09
	220	L 36	10.66	13.25	554	2.42
	240	L 36	11.87	14.25	687	2.76
	250	L 36	12.48	14.68	759	2.93
	300	L 36	15.57	16.72	1177	3.77
	350	L 36	18.03	18.63	1693	4.61
	360	L 36	18.52	19.00	1808	4.78
	400	L 36	20.45	20.43	2310	5.45
	450	L 36	22.83	22.15	3030	6.29
SJ 90	160	L 36	10.04	10.63	370	1.42
	200	L 36	14.13	12.70	651	2.09
	220	L 36	15.96	13.76	827	2.42
	240	L 36	17.75	14.78	1025	2.76
	250	L 36	18.65	15.21	1132	2.93
	300	L 36	23.21	17.28	1752	3.77
	350	L 36	26.80	19.20	2513	4.61
	360	L 36	27.51	19.57	2683	4.78
	400	L 36	30.30	21.00	3419	5.45
	450	L 36	33.74	22.70	4472	6.29
500	L 36	37.12	23.90	5675	7.13	

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

Table 4 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 ²	MN
SJ 45	160	LVL 2.0	5.90	9.64	195	1.83
	200	LVL 2.0	7.81	11.66	343	2.50
	220	LVL 2.0	8.79	12.63	433	2.84
	240	LVL 2.0	9.78	13.57	536	3.18
	250	LVL 2.0	10.27	13.97	591	3.34
	300	LVL 2.0	12.82	15.91	912	4.18
	350	LVL 2.0	15.43	17.74	1308	5.02
	360	LVL 2.0	15.96	18.09	1397	5.19
	400	LVL 2.0	17.75	19.48	1783	5.86
SJ 60	160	LVL 2.0	7.85	10.09	259	1.83
	200	LVL 2.0	10.36	12.19	455	2.50
	220	LVL 2.0	11.65	13.18	575	2.84
	240	LVL 2.0	12.94	14.15	709	3.18
	250	LVL 2.0	13.60	14.56	782	3.34
	300	LVL 2.0	16.91	16.53	1203	4.18
	350	LVL 2.0	20.30	18.37	1721	5.02
	360	LVL 2.0	20.98	18.73	1836	5.19
	400	LVL 2.0	23.61	20.12	2337	5.86
	450	LVL 2.0	26.48	21.78	3056	6.70
	500	LVL 2.0	29.34	22.46	3880	7.54
SJ 90	160	LVL 2.0	11.82	10.53	389	1.82
	200	LVL 2.0	15.47	12.71	679	2.50
	220	LVL 2.0	17.37	13.73	857	2.84
	240	LVL 2.0	19.28	14.72	1056	3.18
	250	LVL 2.0	20.24	15.14	1164	3.34
	300	LVL 2.0	25.09	17.13	1785	4.18
	350	LVL 2.0	30.03	18.98	2545	5.02
	360	LVL 2.0	31.02	19.34	2714	5.19
	400	LVL 2.0	35.04	20.72	3447	5.86
	450	LVL 2.0	39.73	22.36	4493	6.70
	500	LVL 2.0	44.13	23.53	5687	7.54

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

Table 5 Values of k_{mod} to be used with Eurocode 5 when designing STEICO I-joint products

Duration of load	Bending and axial resistance		Shear resistance		Bearing resistance	
	Use class 1	Use class 2	Use class 1	Use class 2	Use class 1	Use class 2
Permanent	0.60	0.60	0.42	0.34	0.60	0.60
Long term	0.70	0.70	0.56	0.45	0.70	0.70
Medium term	0.80	0.80	0.72	0.60	0.80	0.80
Short term	0.90	0.90	0.87	0.73	0.90	0.90
Instantaneous	1.10	1.10	1.10	1.10	1.10	1.10

Table 6 Values of k_{def} to be used with Eurocode 5 when designing STEICO I-joint products

Duration of load	Bending and axial deformation		Shear deformation	
	Use class 1	Use class 2	Use class 1	Use class 2
Permanent	0.60	0.80	2.25	3.00
Long term	0.50	0.50	1.50	2.00
Medium term	0.25	0.25	0.75	1.00
Short term	0.00	0.00	0.30	0.40

Table 7 Recommended values of γ_m to be used with Eurocode 5 when designing STEICO I-joint products in absence of nationally determined parameters

	Bending and axial resistance	Shear resistance	Bearing resistance
Fundamental	1.2	1.3	1.2
Accidental	1.0	1.0	1.0

Table 8 Hygrothermal properties⁽¹⁾

Material	Density ⁽²⁾ (mean)	Design thermal conductivity	Specific heat capacity	Water vapour resistance factor ⁽³⁾	
	ρ_m ($\text{kg}\cdot\text{m}^{-3}$)			λ ($\text{W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$)	c_p ($\text{J}\cdot\text{kg}^{-1}\cdot\text{K}^{-1}$)
LVL flanges	500	0,13	1600	50	20
Solid timber flanges	500	0,13	1600	50	20
Hardboard web	900	0,14	1700	10	20

(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 9 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 10 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
SJ 45	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
SJ 60	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
SJ 90	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 11 Characteristic bearing resistance — LVL flange

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
SJ 45	160	LVL 2.0	9.1	16.0	11.3	17.9	17.9	21.3	21.2	25.2
	200	LVL 2.0	9.1	16.6	11.3	18.5	17.9	21.9	21.2	25.8
	220	LVL 2.0	9.1	16.9	11.3	18.8	17.9	22.2	21.2	26.1
	240	LVL 2.0	9.1	17.2	11.3	19.1	17.9	22.5	21.2	26.4
	250	LVL 2.0	9.1	17.4	11.3	19.2	17.9	22.7	21.2	26.6
	300	LVL 2.0	9.1	18.1	11.3	20.0	17.9	23.4	21.2	27.3
	350	LVL 2.0	9.1	18.9	11.3	20.7	17.9	24.2	21.2	28.1
	360	LVL 2.0	9.1	19.0	11.3	20.9	17.9	24.3	21.2	28.2
	400	LVL 2.0	9.1	19.6	11.3	21.5	17.9	24.9	21.2	28.8
SJ 60	160	LVL 2.0	12.2	17.1	14.3	17.6	22.5	31.0	25.3	34.5
	200	LVL 2.0	12.2	17.7	14.3	18.2	22.5	31.6	25.3	35.1
	220	LVL 2.0	12.2	18.0	14.3	18.5	22.5	31.9	25.3	35.4
	240	LVL 2.0	12.2	18.3	14.3	18.8	22.5	32.2	25.3	35.7
	250	LVL 2.0	12.2	18.4	14.3	18.9	22.5	32.3	25.3	35.8
	300	LVL 2.0	12.2	19.2	14.3	19.7	22.5	33.1	25.3	36.6
	350	LVL 2.0	12.2	19.9	14.3	20.4	22.5	33.8	25.3	37.3
	360	LVL 2.0	12.2	20.1	14.3	20.6	22.5	34.0	25.3	37.5
	400	LVL 2.0	12.2	20.7	14.3	21.2	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	15.6	23.5	16.5	23.4	27.1	38.2	31.3	42.5
	200	LVL 2.0	15.6	24.1	16.5	24.0	27.1	38.8	31.3	43.1
	220	LVL 2.0	15.6	24.4	16.5	24.3	27.1	39.1	31.3	43.4
	240	LVL 2.0	15.6	24.7	16.5	24.6	27.1	39.4	31.3	43.7
	250	LVL 2.0	15.6	24.9	16.5	24.7	27.1	39.6	31.3	43.8
	300	LVL 2.0	15.6	25.6	16.5	25.5	27.1	40.3	31.3	44.6
	350	LVL 2.0	15.6	26.4	16.5	26.2	27.1	41.1	31.3	45.3
	360	LVL 2.0	15.6	26.5	16.5	26.4	27.1	41.2	31.3	45.5
	400	LVL 2.0	15.6	27.1	16.5	27.0	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

The performance of the product identified is in conformity with the declared performance.
This declaration of performance is issued under the sole responsibility of the manufacturer identified above.

Signed for and on behalf of the manufacturer by:

Dr. Michael Makas Head of R&D / QM (name and function)	Feldkirchen, 27/06/2013 (place and date of issue)	b.o. (signature) 
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Date: 27/06/2013	Revised: -
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