

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

Identification code of the product type
STEICO joist

Name and address of the manufacturer
STEICO SE, Otto-Lilienthal-Ring 30, 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.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 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 | 9.79 | 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 | 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 | 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 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 | 9.79 | 195 | 1.83 |
| | 200 | LVL 2.0 | 7.81 | 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 material.

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 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 ($\text{J}\cdot\text{kg}^{-1}\cdot\text{K}^{-1}$) |
| | | | | dry | wet |
| 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 |
| OSB webs | 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 7 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 8 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

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, 26.11.2014 (place and date of issue) | b.o. (signature)  |
|--|--|---|

| | |
|------------------|---------------------|
| Date: 27.06.2013 | Revised: 26.11.2014 |
|------------------|---------------------|