

EN

HASSLACHER
NORICA TIMBER

From **wood** to **wonders**.



Structural finger jointed solid timber

The beam with the character of solid timber.

01

At a glance

Areas of application

- ⊕ Single and multiple family houses
- ⊕ Multi-storey residential buildings
- ⊕ Industrial and factory buildings

Fields of use

- ⊕ Rafters and purlins for roof structures
- ⊕ Floor joists, visual or hidden
- ⊕ Posts and beams for lightweight timber construction
- ⊕ Log house profiles
- ⊕ Rod-shaped wood material for carpentry
- ⊕ Supporting structures

Advantages

- ⊕ High loadbearing capacity with a low density
- ⊕ High dimensional stability through technical drying
- ⊕ High fire and chemical resistance
- ⊕ High thermal insulation properties
- ⊕ Solid wood without adhesive films
- ⊕ Maximum safety in the finger joint connection due to tensile tests according to ETA-13/0644
- ⊕ Transparent glue line of the finger joints



02 Overview

Product standard/certification

EN 15497
ETA-13/0644

Tensile proof loading

ETA-13/0644
ON B 4125

Surface qualities

Visual quality
Industrial quality

Maximum cross sections

Heights: 60 to 300 mm in 20 mm steps
Widths: 50 mm to 160 mm in 20 mm steps
Lengths: Standard 13 m
Specific lengths from 2.5 m to 18.0 m are possible

Strength classes

C24, C24M

Wood species

Spruce/Fir
Pine

Certification

The current certificates are available in the download area of our website at [HASSLACHER.COM](https://www.hasslacher.com).

Sustainability

The HASSLACHER group stands for a careful use of wood as a resource. Our raw materials come from sustainable and controlled forestry. Our locations are certified according to the strict PEFC standards.



03

Technical data

Bonding

Polyurethane adhesive
Adhesive type I for gluing loadbearing and non-loadbearing timber components, both indoors and outdoors

Moisture content

15 % ± 3 %

Density

Depending on the strength class,
approximately 400 kg/m³ to 500 kg/m³ in
average

Thermal conductivity

$\lambda = 0,13 \text{ W/mK}$

Diffusion resistance

According to EN ISO 10456
 $\mu = 50$ (dry) to 20 (wet)

Formaldehyde emissions

E1 according to EN 717-1 (<0.1 ppm)
Polyurethane adhesive is free from
formaldehyde emissions

Fire behaviour

D-s2, d0
D_{fi}-s1 when used as floor covering

Structural fire resistance

0.80 mm/min in accordance to EN 1995-1-2

Shrinkage and swelling behaviour

Perpendicular to the grain direction
 $\alpha_{u,90} = 0.24\%$ per 1% change in moisture content

Parallel to the grain direction
 $\alpha_{u,0} = 0.01\%$ per 1% change in moisture content

Dimensional tolerances

Cross section: in accordance to EN 15497
Twist/warping: in accordance to DIN 4074-1
Length: in accordance to EN 14080

Service classes (EN 1995-1-1)

Service class 1 heated interior
Service class 2 roofed outdoor area



04

GLT[®] – Girder Longitudinally Tensiletested

Triple security

Which is completely tested, is the safest! Each individual GLT[®] – girder longitudinally tensiletested as well as its finger joint connections are tested under extreme conditions.

Safety step 1:

Quality grading

Specifically selected and certified sawn timber is produced in our sawmill, where it is technically dried and carefully pre-graded by our specialists.

Safety step 2:

High-Tech strength grading

Using state-of-the-art X-ray and laser technology, strength-relevant wood defects are detected and eliminated without any compromise.

Safety step 3:

Patented tensile test

In common, the strength of loadbearing components is only monitored on a random basis – not in case of GLT[®]. Here, each individual GLT[®], without exception, is subjected to the patented tensile test procedure according to ON B 4125, thus ensuring a complete level of quality.

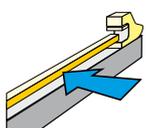
Advantages

- Safety in the finger joints' loadbearing behaviour
- Safety in the grading process
- The same design as glued laminated timber
- Up to 20% of material savings if compared to conventional solid construction timber
- Up to 15% in cost savings if compared to glued laminated timber

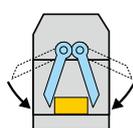


© JOST&BAYER

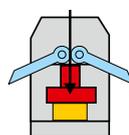
Tensile test procedure according to ON B 4125



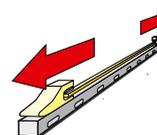
Entry



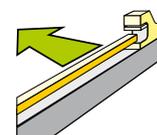
Centring



Clamping



Tensile testing



Exit

05

Product portfolio

Spruce/fir – available cross sections and package units

Height in mm	t	m ³	t	m ³	t	m ³	t	m ³	t	m ³	t	m ³	t	m ³
	unit	cm	unit	cm	unit	cm	unit	cm	unit	cm	unit	cm	unit	cm
300			2.5	5.62	2.8	6.24	2.8	6.24						
			24	120 x 36	20	120 x 40	16	120 x 40						
280			2.4	5.24	2.6	5.82	2.6	5.82	2.4	5.24				
			24	112 x 36	20	112 x 40	16	112 x 40	12	112 x 36				
260			2.2	4.87	2.4	5.41	2.4	5.41						
			24	104 x 36	20	104 x 40	16	104 x 40						
240			2.0	4.49	2.2	4.99	2.2	4.99	2.0	4.49	2.4	5.24	2.2	4.99
			24	96 x 36	20	96 x 40	16	96 x 40	12	96 x 36	12	96 x 42	10	96 x 48
220			2.3	5.15	2.6	5.72	2.6	5.72	2.3	5.15	2.7	6.01		
			30	110 x 36	25	110 x 40	20	110 x 40	15	110 x 36	15	110 x 42		
200	2.0	4.55	2.1	4.68	2.3	5.20	2.3	5.20	2.1	4.68	2.5	5.46	2.8	6.24
	35	110 x 35	30	100 x 36	25	100 x 40	20	100 x 40	15	100 x 36	15	100 x 42	15	100 x 48
180	2.2	4.91	2.3	5.05	2.5	5.62	2.5	5.62	2.3	5.05	2.7	5.90		
	42	108 x 35	36	108 x 36	30	108 x 40	24	108 x 40	18	108 x 36	18	108 x 42		
160			2.4	5.24	2.6	5.82	2.6	5.82	2.4	5.24	2.8	6.12	3.1	6.99
			42	112 x 36	35	112 x 40	28	112 x 40	21	112 x 36	21	112 x 42	21	112 x 48
140	2.3	5.10	2.4	5.24	2.6	5.82	2.6	5.82	2.4	5.24	2.8	6.12		
	56	112 x 35	48	112 x 36	40	112 x 40	32	112 x 40	24	108 x 36	24	112 x 42		
120	2.2	4.91	2.3	5.05	2.5	5.62	2.5	5.62	2.3	5.05				
	63	108 x 35	54	108 x 36	45	108 x 40	36	108 x 40	27	108 x 36				
100	2.3	5.01	2.3	5.15	2.6	5.72	2.6	5.72						
	77	110 x 35	66	110 x 36	55	110 x 40	44	110 x 40						
80			2.4	5.24	2.6	5.82								
			84	112 x 36	70	112 x 40								
60			0.9	1.9										
			108	112 x 36										
Width in mm	50		60		80		100		120		140		160	

Available exclusively in NSI quality and with a length of 13 m

NSI quality: produced of double-width
NSI select: produced of single-stem

Available exclusively in NSI quality and with a length of 5 m

Cross section produced of double-width
Quality: maximum possible is standard quality

PINE

Height in mm	t	m ³
	unit	cm
240	2.0	4.49
	24	96 x 36
200	2.1	4.68
	30	100 x 36
180	2.3	5.05
	36	100 x 36
160	2.4	5.24
	42	112 x 36
140	2.4	5.24
	48	112 x 36
120	2.3	5.05
	54	108 x 36
100	2.3	5.15
	66	110 x 36
80	2.4	5.24
	84	112 x 36
Width in mm	60	

Available exclusively in NSI quality

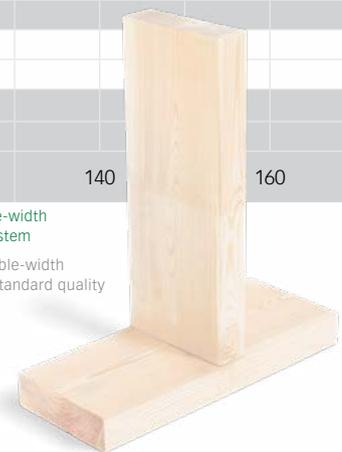


Advantages

- ⊕ Higher durability than spruce
- ⊕ High dimensional stability
- ⊕ Cost-efficient
- ⊕ Also available as pressure-impregnated modification

Areas of application

- ⊕ Post and beam structures
- ⊕ Timber frame constructions
- ⊕ Rafters
- ⊕ Supporting structures



06

Further Processing

Advantages

- ⊕ High precision with an optimal material utilization
- ⊕ Versatile machining options due to modern technology
- ⊕ Ongoing development through regular and continuous quality control
- ⊕ Professional support during the engineering phase
- ⊕ Consultation and services provided by qualified master carpenters
- ⊕ Rapid and cost-efficient assembly on the construction site thanks to a high level of prefabrication

Further Processing – Machining Capabilities

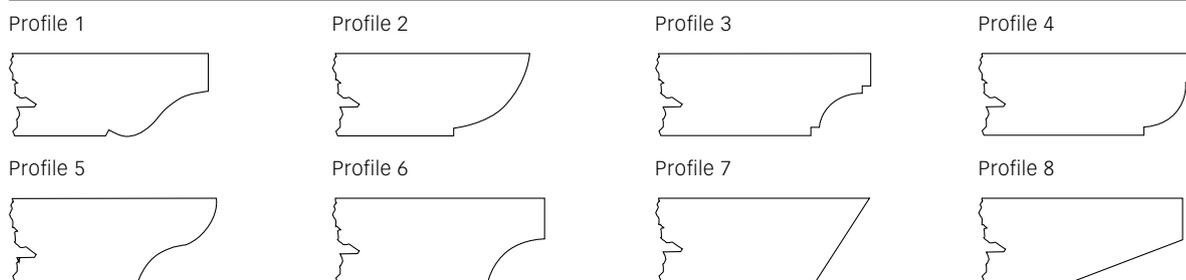
5-axis CNC machining	Hundegger K2i 450 (HPH)
Component dimensions	Length: up to 14.5 m Height: up to 450 mm Width: up to 280 mm

IT Interfaces | Import Formats

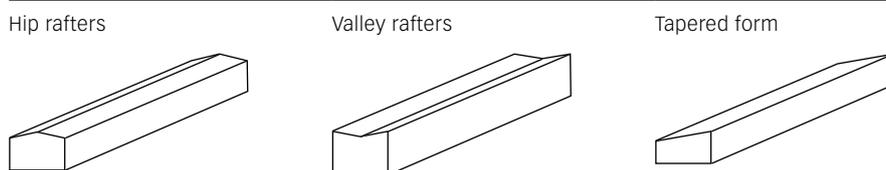
- (1) *.bvn, *.bvx | Direct control of the systems
- (2) From SEMA 3D, Dietrich's 3D-CAD/CAM and cadwork *.bvn, *.bvx files are created.
- (3) 2D/3D *.dxf, *.dwg, *.sat (ACIS) files can be converted into machine files at an extra charge.

Further Processing – Possibilities and examples

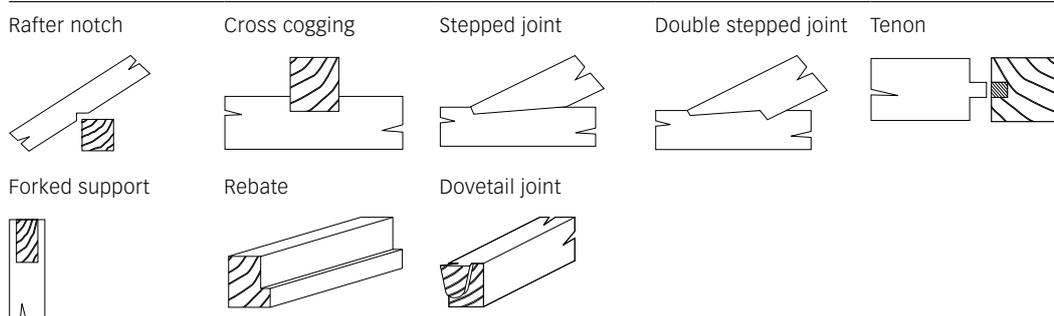
Rafter and Purlin profiles



Valley and hip rafter



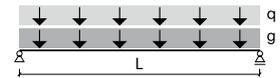
Carpenter joints and profiles



07

Tables for preliminary design

Solid structural timber c24, single span beams



Maximum span L, in m for single-span beams																		
Height in mm	Width in mm	Persistent load q including imposed load p in kN/m																
		1	1.5	2	2.5	3	3.5	4	4.5	5	6	7	8	9	10	15	20	25
240	140	7.23	6.44	5.91	5.52	5.22	4.97	4.76	4.59	4.44	4.16	3.86	3.62	3.42	3.25	2.65	2.00	1.6
200		6.08	5.40	4.95	4.62	4.36	4.15	3.98	3.83	3.70	3.48	3.23	3.02	2.85	2.71	2.22	1.67	1.34
140		4.32	3.82	3.49	3.25	3.07	2.92	2.8	2.69	2.6	2.45	2.27	2.12	2.00	1.90	1.56	1.17	0.94
240	120	6.92	6.15	5.64	5.26	4.97	4.73	4.54	4.37	4.22	3.86	3.58	3.36	3.17	3.01	2.28	1.71	1.37
200		5.82	5.16	4.72	4.40	4.15	3.95	3.79	3.65	3.52	3.23	2.99	2.80	2.65	2.51	1.90	1.43	1.15
160		4.69	4.15	3.79	3.53	3.33	3.17	3.04	2.92	2.83	2.59	2.40	2.25	2.12	2.01	1.52	1.15	0.92
120		3.55	3.13	2.86	2.66	2.51	2.39	2.28	2.20	2.12	1.95	1.80	1.69	1.59	1.51	1.15	0.86	0.69
280	100	7.61	6.76	6.19	5.78	5.46	5.20	4.98	4.73	4.50	4.12	3.82	3.58	3.38	3.21	2.22	1.67	1.34
240		6.57	5.82	5.33	4.97	4.69	4.47	4.28	4.07	3.86	3.54	3.28	3.07	2.90	2.75	1.90	1.43	1.15
200		5.51	4.88	4.46	4.15	3.92	3.73	3.57	3.40	3.23	2.95	2.74	2.56	2.42	2.30	1.59	1.19	0.96
160		4.44	3.92	3.58	3.33	3.14	2.99	2.86	2.73	2.59	2.37	2.19	2.05	1.94	1.84	1.27	0.96	0.77
140		3.90	3.44	3.14	2.92	2.75	2.62	2.51	2.39	2.27	2.07	1.92	1.80	1.70	1.61	1.11	0.84	0.67
120		3.36	2.95	2.69	2.51	2.36	2.25	2.15	2.05	1.95	1.78	1.65	1.54	1.45	1.38	0.96	0.72	0.57
280	80	7.14	6.32	5.78	5.39	5.08	4.80	4.50	4.25	4.04	3.69	3.42	3.21	2.94	2.65	1.78	1.34	1.07
240		6.15	5.44	4.97	4.63	4.37	4.12	3.86	3.65	3.47	3.17	2.94	2.75	2.53	2.28	1.52	1.15	0.92
200		5.16	4.55	4.15	3.87	3.65	3.44	3.23	3.05	2.89	2.65	2.45	2.30	2.11	1.90	1.27	0.96	0.77
160		4.15	3.65	3.33	3.10	2.92	2.76	2.59	2.44	2.32	2.12	1.96	1.84	1.69	1.52	1.02	0.77	0.61
140		3.64	3.20	2.92	2.72	2.56	2.42	2.27	2.14	2.03	1.86	1.72	1.61	1.48	1.34	0.89	0.67	0.54
120		3.13	2.75	2.51	2.33	2.20	2.08	1.95	1.84	1.74	1.59	1.48	1.38	1.27	1.15	0.77	0.57	0.46
280	60	6.55	5.78	5.28	4.91	4.50	4.17	3.91	3.69	3.51	3.21	2.84	2.49	2.22	2.00	1.34	1.00	0.80
240		5.64	4.97	4.54	4.22	3.86	3.58	3.36	3.17	3.01	2.75	2.44	2.14	1.90	1.71	1.15	0.86	0.69
200		4.72	4.15	3.79	3.52	3.23	2.99	2.80	2.65	2.51	2.30	2.04	1.78	1.59	1.43	0.96	0.72	0.57
160		3.79	3.33	3.04	2.83	2.59	2.40	2.25	2.12	2.01	1.84	1.63	1.43	1.27	1.15	0.77	0.57	0.46
140		3.33	2.92	2.66	2.47	2.27	2.10	1.97	1.86	1.76	1.61	1.43	1.25	1.11	1.00	0.67	0.50	0.40
120		2.86	2.51	2.28	2.12	1.95	1.80	1.69	1.59	1.51	1.38	1.23	1.07	0.96	0.86	0.57	0.43	0.35
100		2.39	2.09	1.91	1.77	1.62	1.50	1.41	1.33	1.26	1.15	1.02	0.90	0.80	0.72	0.48	0.36	0.29

The table only represents a feature for preliminary design and therefore does not replace the necessary static proof.

Example calculation

Persistent load	$g = 1.60 \text{ kN/m}$
Variable load	$p = 1.20 \text{ kN/m}$
Total load	$q = g + p = 2.80 \text{ kN/m}$
Table value	3.0 kN/m
Span length	4.10 m
Potential cross sections	$120/200 \text{ mm}, 80/240 \text{ mm}, 60/280 \text{ mm}$

08

Mechanical properties

Characteristic Strength and stiffness properties

Strength class			C24	GLT [®] 24
Bending strength	$f_{m,k}$ ¹⁾	N/mm ²	24	24 x k_{pl}
Tensile strength	$f_{t,0,k}$	N/mm ²	14	14 x k_{pl}
	$f_{t,90,k}$	N/mm ²	0.4	0.4
Compressive strength	$f_{c,0,k}$ ¹⁾	N/mm ²	21	21 x k_{pl}
	$f_{c,90,k}$	N/mm ²	2,5	2.5
Shear strength	$f_{v,k}$ ²⁾	N/mm ²	4.0	4.0
Modulus of elasticity	$E_{0,mean}$	N/mm ²	11,000	11,600
	$E_{0,05}$	N/mm ²	7,400	7,400
	$E_{90,mean}$	N/mm ²	370	370
Shear modulus	G_{mean}	N/mm ²	690	690
Rolling shear modulus	ρ_k	kg/m ³	350	350
	ρ_{mean}	kg/m ³	420	420

1) The values for bending strength, tensile strength and compressive strength can be multiplied by the k_{pl} factor according to ETA-13/0644 for GLT[®]-tested glued timber beams

2) The shear strength must be multiplied by the factor k_{cr} (cracking factor)

Quality description

Parameters	Visual Quality	Industrial Quality
Description	For loadbearing and non-loadbearing components in visual form, such as visible rafters, visible beams, etc.	For loadbearing and non-loadbearing components in non-visual form, e.g. as lightweight timber construction, covered rafters and purlins, etc.
Wood species	Spruce	Spruce (fir is also possible) or pine
Mistletoe infestation	Not permitted	Not permitted
Moisture content	Maximum of 18%	Maximum of 18%
Cut type	Separated at the core	Separated at the core
Bark embedding	Not permitted	To be treated as knots
Pitch pockets	Up to 5 mm wide, no clusters	Permitted
Surface	Smoothly planed and chamfered on all sides	Planed and chamfered on all sides, rough areas are permitted
Dimensional accuracy	Dimensional tolerance class 2 according to EN 336 has to be applied. In case of visual and standard quality, undersize of up to 2 mm is possible.	
Finishes	Trimmed square, dimensional accuracy of length according to EN 390	
Wane	Not permitted	Up to 10% of the cross section
Knots⁽¹⁾	Up to 40% of the cross section's side ⁽²⁾	Up to 40% of the cross section's side
Average annual ring width⁽³⁾	Up to 6 mm	Up to 6 mm
Grain slope	Up to 12 cm/m	Up to 12 cm/m
Shrinkage cracks	Crack width of up to 3 mm	Permissible crack depth of up to 50%
Edge cracks	Not permitted	Permitted
Lightning/frost cracks, ring shake	Not permitted	Not permitted
Blue stain	Not permitted	Permitted
Nailing stripes (red, brown)	Not permitted	Permitted
Red and white rot	Not permitted	Not permitted
Compression wood / redwood	Up to 40% of the surface	Up to 40% of the surface
Insect damage	Not permitted	Permissible up to a diameter of 2 mm
Scope of validity	The specified surface qualities are valid at time of delivery	

(1) A knot diameter of up to 40% of the cross section's height or width is permitted

(2) loose knots, falling-out knots, knocked-out and isolated knots with black rimmed knots are permitted up to 20 mm of the knot diameter

(3) The average annual ring width according to EN 1310 is applicable. Thereby, an area of 25 mm around the pith is not taken into account. For reasons of inevitable grading errors and variability of moisture content within the cross sections, the requirements and grading criteria specified in the table must be complied in 95% of the supplied pieces. In case of mechanical grading, related parameters are according to EN 14081. Therefore, deviations from the ones shown in the table may occur.

10

HASSLACHER group product range



Sawn timber



Surfaced timber



Structural finger jointed
solid timber & GLT®



Glued solid timber Duo/Trio



Glued laminated timber



Glued ceiling systems



Cross laminated timber



Glued laminated timber
special components



Solid wood boards



Pellets



Formwork panels



Pallets & packaging solutions

HASSLACHER **NORICA TIMBER**

From **wood** to **wonders**.

HASSLACHER group

Feistritz 1 | 9751 Sachsenburg | Austria
T +43 4769 22 49-0 | F +43 4769 22 49-129
info@hasslacher.com | hasslacher.com