HASSLACHER NORICA TIMBER

From wood to wonders.

Glued laminated timber

The engineered timber beam.

Stand 20240306

HASSLACHER NORICA TIMBER

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

Sachsenburg | AT | Company Headquarters

HASSLACHER Holding GmbH | HASSLACHER DRAULAND Holzindustrie GmbH

NORITEC Holzindustrie GmbH | NORICA TIMBER Vertrieb GmbH | HASSLACHER Energie GmbH

Feistritz 1 | 9751 Sachsenburg | Carinthia | Austria | T +43 4769 22 49-0

Sawn timber | Saw by-products | Surfaced timber | Glued laminated timber | Glued solid timber Duo/Trio | Energy from biomass CHP


HASSLACHER
NORICA TIMBER
From wood to wonders.
Stall im Mölltal | AT
NORITEC Holzindustrie GmbH
Latzendorf 100 | 9832 Stall im Mölltal | Carinthia | Austria | T +43 4823 20 70-0
Cross laminated timber
© HASSLACHER group | Peter Maier

HASSLACHER NORICA TIMBER

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

Rangersdorf | AT

Gemson GmbH

Lainach 113 | 9833 Rangersdorf | Carinthia | Austria | T +43 4822 206 55

Glued laminated timber | Glued laminated timber special components | Single and multi-layer panels

HASSLACHER NORICA TIMBER

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

Hermagor | AT

HASSLACHER Holzbausysteme GmbH

Kühweg 35 | 9620 Hermagor | Carinthia | Austria | T +43 4282 22 48-0

Glued laminated timber | Glued laminated timber special components | Glued solid timber Duo/Trio


HASSLACHER
NORICA TIMBER
From wood to wonders.
Rennweg/Katschberg | AT
Lau Forstservice GmbH | Headquarters | Sites in AT, DE and IT
St. Georgen 39 | 9863 Rennweg | Carinthia | Austria | T +43 4734 299 14
Logging | Rope harvesting | Forestry services
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HASSLACHER NORICA TIMBER

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

Nikolsdorf | AT

Holzbau Hofer GmbH

Nikolsdorf 148 | 9782 Nikolsdorf | Carinthia | Austria | T +43 4852 623 46

Carpentry | Joinery | Timber construction systems

HASSLACHER NORICA TIMBER

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

Preding | AT

HASSLACHER PREDING Holzindustrie GmbH

Wohlsdorfer Straße 1 | 8504 Preding | Styria | Austria | T +43 3185 86 23-0

Sawn timber | Saw by-products | Surfaced timber | GLT® – Girder Longitudinally Tensiletested | Structural finger jointed solid timber | Pallets & packaging solutions | Pellets | Energy from biomass CHP

HASSLACHER NORICA TIMBER

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

Bohinjska Bistrica | SI

LIP Bohinj, d.o.o

Ulica Tomaža Godca 5 | 4264 Bohinjska Bistrica | Slovenia | T +386 4 57 95-800

Formwork panels | Saw by-products

Kleinheubach | DE

HASSLACHER Holzbauteile GmbH & CO. KG | HESS TIMBER GmbH

Am Hundsrück 2 | 63924 Kleinheubach | Bayern | Germany | T +49 9371 40 03-0

Architectural engineering timber constructions | Glued laminated timber | Glued laminated timber special components | Glued solid timber Duo/Trio

HASSLACHER NORICA TIMBER

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

Magdeburg | DE

NORDLAM GmbH

Gasereistraße 1 | 39126 Magdeburg | Sachsen-Anhalt | Germany | T +49 391 28 88-100

Glued laminated timber | Cross laminated timber

HASSLACHER NORICA TIMBER

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

Schmallenberg | DE

Dickel-Holz GmbH & CO. KG

Bettenkamp 1 | 57392 Schmallenberg | Nordrhein-Westfalen | Germany | T +49 2974 96 69-0

Sawn timber | Saw by-products | Structural finger jointed solid timber

HASSLACHER NORICA TIMBER
From **wood** to **wonders.**

Ea | ES

Egoin Wood Group | Headquarters | Another site in Legutio, ES

Barrio Olagorta | S/N | 48311 Natxitua | Biskaya | Spain | T +34 946 27 60 00

Glued laminated timber | Cross laminated timber | Surfaced timber | Special solutions

At a glance

HASSLACHER NORICA TIMBER
From **wood** to **wonders.**

Areas of application

- Single and multiple family houses
- Multi-storey residential and office buildings
- Public and administrative buildings
- Agricultural facilities
- Industrial and production halls
- Recreational and sport-hall facilities

Fields of use

- Roof structures
  also as visible components
- Main beams with large spans
  also with special shapes
- Columns
- Floor structures
  or as girder grid system

At a glance

HASSLACHER NORICA TIMBER
From **wood** to **wonders.**

Advantages

- Innovation at its best:
  direct, pre-cambered and with special shapes
- Large spans
- High loadbearing capacity with a low density
- High dimensional stability through bonding
- Can be assembled with simple tools
- High fire and chemical resistance
- High thermal insulation properties
- Natural, renewable and 100 % recyclable building material

Overview

HASSLACHER NORICA TIMBER
From **wood** to **wonders.**

Product standard/certification
EN 14080

Surface qualities
Visual quality
Industrial quality

Cross sections
Heights: 80 to 1,280 mm in 40 mm steps
Special components up to 4,000 mm are possible
Widths: 80 mm to 280 mm in 20 mm steps
Any desired extension is possible through block bonding
Lengths: up to 27 m; or up to 42 m as special components

Strength classes
GL24h GL24c up to a beam width of 280 mm
GL28h GL28c up to a beam width of 280 mm
GL30h GL30c up to a beam width of 240 mm
GL32h GL32c up to a beam width of 200 mm
Other strength classes available on request

Overview

HASSLACHER NORICA TIMBER
From **wood** to **wonders.**

Wood species

- Spruce/fir
- Larch
- Pine
- Other wood species on request

Certification

The current certificates
are available in the download area
of our website at 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.

PEFC
PEFC/06-32-12
Promoting Sustainable Forest Management
www.pefc.org

Technical data

HASSLACHER NORICA TIMBER
From **wood** to **wonders.**

Bonding
Melamine resin adhesive with bright glue line, adhesive type I according to EN 301 approved for bonding loadbearing and non-loadbearing timber components, both indoors and outdoors

Lamella thickness
Maximum lamella thicknesses: 45 mm
Maximum service class 3 lamella thicknesses: 35 mm (also, 40 mm to 60,000 mm² of cross sectional area) For curved/arched special components: Lamella thickness from 6 to 45 mm
Rod bonding for three-dimensional shaped components

Moisture content
12 % ± 2.5 %

Density
For spruce, and depending on the strength class, approximately 400 kg/m³ to 500 kg/m³ in average

Thermal conductivity
l = 0,13 W/mK

Diffusion resistance
According to EN ISO 10456
μ = 50 (dry) to 20 (wet)

Technical data

HASSLACHER NORICA TIMBER
From **wood** to **wonders.**

Formaldehyde emissions
E1 according to EN 717-1 (< 0,1 ppm)

Fire behaviour
D-s2, d0
Dfl-s1 when used as floor covering

Structural fire resistance
0.70 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
In accordance to EN 14080

Service classes (EN 1995-1-1)

Service class 1	heated interior
Service class 2	roofed outdoor area
Service class 3	Exposed to the elements (on request)

Quality description

HASSLACHER NORICA TIMBER
From **wood** to **wonders.**

Characteristics	Visual Quality	Industry Quality
General	Optimised for a visible use, e.g. as visible rafters and beams for carports and upscale residential areas. All knots are sound knots and knotholes are patched. The occurrence of blue stains, red stripes and/or pitch pockets is minimised. The cracks are minimised and hardly any heart centre is present due to core-free cutting. A homogeneous appearance is aspired.	Optimised for a non-visual use. Discolouration such as blue stain, nail-proof brown and/or red stripes are permitted. Fallen-out knots and pitch pockets may casually occur. For loadbearing and non-loadbearing use in engineered timber structures with lower aesthetic requirements.
Black knots	Permitted, provided that they do not fall out	Permitted
Falling knots	Permitted up to approximately 20 mm, sound knots are permitted	Permitted
Wane	Not permitted	Not permitted
Rotten areas	Not permitted	Not permitted
Pith	Permitted	Permitted
Pitch pockets	Permitted up to approximately 5 x 50 mm, larger pockets must be patched	Permitted
Insect infestations	Not permitted	Permitted up to a diameter of 2 mm
Red stripes	Up to approximately 5 % of the surface	Permitted
Blue stain	Up to approximately 5 % of the surface	Permitted
Planing quality	Rough areas are not permitted. Planer marks up to a length of 10 mm and a depth of 1 mm are permitted	Rough areas and planer marks are permitted
Cracks	Permitted up to a depth of 1/6 of the component width (per side); as long as the required static loadbearing capacity is not impared	Permitted up to a depth of 1/6 of the component width (per side); as long as the required static loadbearing capacity is not impared
Scope of validity	The specified surface qualities are valid at time of delivery.	

Straight beams

Standard packing units

HASSLACHER NORICA TIMBER
From **wood** to **wonders.**

Packaging units

260 mm and 280 mm widths are available on request. Can be expanded by block bonding if desired. Heights up to 4.000 mm are possible

Height in mm	t unit	m³ cm	t unit	m³ cm	t unit	m³ cm	t unit	m³ cm	t unit	m³ cm	t unit	m³ cm	t unit	m³ cm	t unit	m³ cm
1,280	2.5	5.5	3.1	6.9	1.9	4.1	2.2	4.8	1.2	2.8	1.4	3.1	1.6	3.5	1.9	4.1
	4	128 x 32	**4**	128 x 40	**2**	128 x 24	**2**	128 x 28	**1**	128 x 16	**1**	128 x 18	**1**	128 x 20	**1**	128 x 24
1,240	2.4	5.4	3.0	6.7	1.8	4.0	2.1	4.7	2.4	5.4	1.4	3.0	1.5	3.3	1.8	4.0
	4	124 x 32	**4**	124 x 40	**2**	124 x 24	**2**	124 x 28	**2**	124 x 32	**1**	124 x 18	**1**	124 x 20	**1**	124 x 24
1,200	2.3	5.2	2.9	6.5	1.7	3.9	2.0	4.5	2.3	5.2	1.3	2.9	1.5	3.2	1.7	3.9
	4	120 x 32	**4**	120 x 40	**2**	120 x 24	**2**	120 x 28	**2**	120 x 32	**1**	120 x 18	**1**	120 x 20	**1**	120 x 24
1,160	2.3	5.0	2.8	6.3	1.7	3.8	2.0	4.4	2.3	5.0	1.3	2.8	1.4	3.1	1.7	3.8
	4	116 x 32	**4**	116 x 40	**2**	116 x 24	**2**	116 x 28	**2**	116 x 32	**1**	116 x 18	**1**	116 x 20	**1**	116 x 24
1,120	2.2	4.8	2.7	6.0	1.6	3.6	1.9	4.2	2.2	4.8	2.4	5.4	1.4	3.0	1.6	3.6
	4	112 x 32	**4**	112 x 40	**2**	112 x 24	**2**	112 x 28	**2**	112 x 32	**2**	112 x 36	**1**	112 x 20	**1**	112 x 24
1,080	2.1	4.7	2.6	5.8	1.6	3.5	1.8	4.1	2.1	4.7	2.4	5.2	1.3	2.9	1.6	3.5
	4	108 x 32	**4**	108 x 40	**2**	108 x 24	**2**	108 x 28	**2**	108 x 32	**2**	108 x 36	**1**	108 x 20	**1**	108 x 24
1,040	2.0	4.5	2.5	5.6	1.5	3.4	1.8	3.9	2.0	4.5	2.3	5.1	1.3	2.8	1.5	3.4
	4	104 x 32	**4**	104 x 40	**2**	104 x 24	**2**	104 x 28	**2**	104 x 32	**2**	104 x 36	**1**	104 x 20	**1**	104 x 24
1,000	1.9	4.3	2.4	5.4	1.5	3.2	1.7	3.8	1.9	4.3	2.2	4.9	2.4	5.4	2.9	6.5
	4	100 x 32	**4**	100 x 40	**2**	100 x 24	**2**	100 x 28	**2**	100 x 32	**2**	100 x 36	**2**	100 x 40	**2**	100 x 48
960	1.9	4.1	2.3	5.2	1.4	3.1	1.6	3.6	1.9	4.1	2.1	4.7	2.3	5.2	2.8	6.2
	4	96 x 32	**4**	96 x 40	**2**	96 x 24	**2**	96 x 28	**2**	96 x 32	**2**	96 x 36	**2**	96 x 40	**2**	96 x 48
920	1.8	4.0	2.2	5.0	1.3	3.0	1.6	3.5	1.8	4.0	2.0	4.5	2.2	5.0	2.7	6.0
	4	92 x 32	**4**	92 x 40	**2**	92 x 24	**2**	92 x 28	**2**	92 x 32	**2**	92 x 36	**2**	92 x 40	**2**	92 x 48
880	1.7	3.8	2.1	4.8	1.3	2.9	1.5	3.3	1.7	3.8	1.9	4.3	2.1	4.8	2.6	5.7
	4	88 x 32	**4**	88 x 40	**2**	88 x 24	**2**	88 x 28	**2**	88 x 32	**2**	88 x 36	**2**	88 x 40	**2**	88 x 48
840	1.6	3.6	2.0	4.5	1.2	2.7	1.4	3.2	1.6	3.6	1.8	4.1	2.0	4.5	2.4	5.4
	4	84 x 32	**4**	84 x 40	**2**	84 x 24	**2**	84 x 28	**2**	84 x 32	**2**	84 x 36	**2**	84 x 40	**2**	84 x 48
800	1.6	3.5	1.9	4.3	1.2	2.6	1.4	3.0	1.6	3.5	1.7	3.9	1.9	4.3	2.3	5.2
	4	80 x 32	**4**	80 x 40	**2**	80 x 24	**2**	80 x 28	**2**	80 x 32	**2**	80 x 36	**2**	80 x 40	**2**	80 x 48
760	1.5	3.3	1.8	4.1	1.1	2.5	1.3	2.9	1.5	3.3	1.7	3.7	1.8	4.1	2.2	4.9
	4	76 x 32	**4**	76 x 40	**2**	76 x 24	**2**	76 x 28	**2**	76 x 32	**2**	76 x 36	**2**	76 x 40	**2**	76 x 48
720	1.4	3.1	1.7	3.9	1.0	2.3	1.2	2.7	1.4	3.1	1.6	3.5	1.7	3.9	2.1	4.7
	4	72 x 32	**4**	72 x 40	**2**	72 x 24	**2**	72 x 28	**2**	72 x 32	**2**	72 x 36	**2**	72 x 40	**2**	72 x 48
680	1.3	2.9	1.7	3.7	1.0	2.2	1.2	2.6	1.3	2.9	1.5	3.3	1.7	3.7	2.0	4.4
	4	68 x 32	**4**	68 x 40	**2**	68 x 24	**2**	68 x 28	**2**	68 x 32	**2**	68 x 36	**2**	68 x 40	**2**	68 x 48
Width in mm	80		100		120		140		160		180		200		240	

Straight beams

Standard packing units

HASSLACHER NORICA TIMBER
From **wood** to **wonders.**

Packaging units

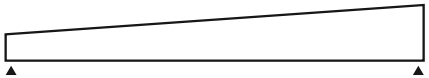
260 mm and 280 mm widths are available on request. Can be expanded by block bonding if desired. Heights up to 4.000 mm are possible

Height in mm	t	m³	t	m³	t	m³	t	m³	t	m³	t	m³	t	m³	t	m³
	unit	cm	unit	cm	unit	cm	unit	cm	unit	cm	unit	cm	unit	cm	unit	cm
640	1.2	2.8	1.6	3.5	0.9	2.1	1.1	2.4	1.2	2.8	1.4	3.1	1.6	3.5	1.9	4.1
	4	64 x 32	**4**	64 x 40	**2**	64 x 24	**2**	64 x 28	**2**	64 x 32	**2**	64 x 36	**2**	64 x 40	**2**	64 x 48
600	2.3	5.2	2.9	6.5	1.7	3.9	2.0	4.5	2.3	5.2	2.6	5.8	2.9	6.5	3.5	7.8
	8	120 x 32	**8**	120 x 40	**4**	120 x 24	**4**	120 x 28	**4**	120 x 32	**4**	120 x 36	**4**	120 x 40	**4**	120 x 48
560	2.2	4.8	2.7	6.0	1.6	3.6	1.9	4.2	2.2	4.8	2.4	5.4	2.7	6.0	3.3	7.3
	8	112 x 32	**8**	112 x 40	**4**	112 x 24	**4**	112 x 28	**4**	112 x 32	**4**	112 x 36	**4**	112 x 40	**4**	112 x 48
520	2.0	4.5	2.5	5.6	1.5	3.4	1.8	3.9	2.0	4.5	2.3	5.1	2.5	5.6	3.0	6.7
	8	104 x 32	**8**	104 x 40	**4**	104 x 24	**4**	104 x 28	**4**	104 x 32	**4**	104 x 36	**4**	104 x 40	**4**	104 x 48
480	1.9	4.1	2.3	5.2	1.4	3.1	1.6	3.6	1.9	4.1	2.1	4.7	2.3	5.2	2.8	6.2
	8	96 x 32	**8**	96 x 40	**4**	96 x 24	**4**	96 x 28	**4**	96 x 32	**4**	96 x 36	**4**	96 x 40	**4**	96 x 48
440	1.7	3.8	2.1	4.8	1.3	2.9	1.5	3.3	1.7	3.8	1.9	4.3	2.1	4.8	2.6	5.7
	8	88 x 32	**8**	88 x 40	**4**	88 x 24	**4**	88 x 28	**4**	88 x 32	**4**	88 x 36	**4**	88 x 40	**4**	88 x 48
400	2.3	5.2	2.9	6.5	1.7	3.9	2.0	4.5	2.3	5.2	2.6	5.8	2.9	6.5	3.5	7.8
	12	120 x 32	**12**	120 x 40	**6**	120 x 24	**6**	120 x 28	**6**	120 x 32	**6**	120 x 36	**6**	120 x 40	**6**	120 x 48
360	2.1	4.7	2.6	5.8	1.6	3.5	1.8	4.1	2.1	4.7	2.4	5.2	2.6	5.8	3.1	7.0
	12	108 x 32	**12**	108 x 40	**6**	108 x 24	**6**	108 x 28	**6**	108 x 32	**6**	108 x 36	**6**	108 x 40	**6**	108 x 48
320	1.9	4.1	2.3	5.2	1.4	3.1	1.6	3.6	1.9	4.1	2.1	4.7	2.3	5.2	2.8	6.2
	12	96 x 32	**12**	96 x 40	**6**	96 x 24	**6**	96 x 28	**6**	96 x 32	**6**	96 x 36	**6**	96 x 40	**6**	96 x 48
280	2.2	4.8	2.7	6.0	1.6	3.6	1.9	4.2	2.2	4.8	2.4	5.4	2.7	6.0	1.6	7.3
	16	112 x 32	**16**	112 x 40	**8**	112 x 24	**8**	112 x 28	**8**	112 x 32	**8**	112 x 36	**8**	112 x 40	**8**	112 x 48
240	2.3	5.2	2.9	6.5	1.7	3.9	2.0	4.5	2.3	5.2	2.6	5.8	2.9	6.5	3.5	7.8
	20	120 x 32	**20**	120 x 40	**10**	120 x 24	**10**	120 x 28	**10**	120 x 32	**10**	120 x 36	**10**	120 x 40	**10**	120 x 48
200	2.3	5.2	2.9	6.5	1.7	3.9	2.0	4.5	2.3	5.2	2.6	5.8	2.9	6.5		
	24	120 x 32	**24**	120 x 40	**12**	120 x 24	**12**	120 x 28	**12**	120 x 32	**12**	120 x 36	**12**	120 x 40		
160	2.2	4.8	2.7	6.0	1.6	3.6	1.9	4.2	2.2	4.8						
	28	112 x 32	**28**	112 x 40	**14**	112 x 24	**14**	112 x 28	**14**	112 x 32						
120	2.3	5.2	2.9	6.5	1.7	3.9										
	40	120 x 32	**40**	120 x 40	**20**	120 x 24										
Width in mm	80		100		120		140		160		180		200		240	

Special components

Product portfolio

HASSLACHER NORICA TIMBER
From **wood** to **wonders.**

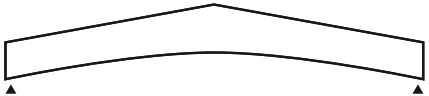


Single tapered beams

Beam length:	up to 40 m
Width:	80 to 280 mm
Block bonding:	>280 mm possible on request
Heights:	up to 4,000 mm

Curved beams or pre-cambered parallel beams

Beam length:	up to 40 m
Width:	80 to 280 mm
Block bonding:	>280 mm possible on request
Heights:	up to 4,000 mm



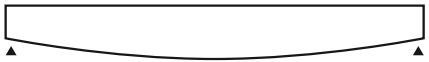
Double-tapered or pitched cambered beams

Beam length:	up to 40 m
Width:	80 to 280 mm
Block bonding:	>280 mm possible on request
Heights:	up to 4,000 mm

Special components

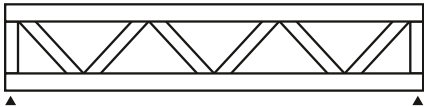
Product portfolio

HASSLACHER NORICA TIMBER
From **wood** to **wonders.**



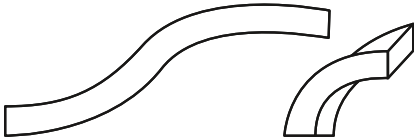
Fish beams

Beam length:	up to 40 m
Width:	80 to 280 mm
Block bonding:	>280 mm possible on request
Heights:	up to 4,000 mm



Trussed girders

Span lengths:	>40 m
Width:	80 to 280 mm
Block bonding:	>280 mm possible on request
Heights:	>4,000 mm are possible



Free forms

Lengths:	up to 40 m
Widths:	up to 280 mm
Block bonding:	>280 mm possible on request
Heights:	up to 4,000 mm

Mechanical properties

HASSLACHER NORICA TIMBER
From **wood** to **wonders.**

Glued Laminated Timber – Mechanical properties

characteristic strength and stiffness properties for homogeneous glued laminated timber

Strength class		GL20h	GL24h	GL28h	GL30h	GL32h
Bending strength	$f_{m,g,k}$	20	24	28	30	32
Tensile strength	$f_{t,0,g,k}$	16	19.2	22.3	24	25.6
	$f_{t,90,g,k}$			0.5		
Compressive strength	$f_{c,0,g,k}$	20	24	28	30	32
	$f_{c,90,g,k}$	2.5				
Shear strength	$f_{v,g,k}$	3.5				
Rolling shear strength	$f_{r,g,k}$	1.2				
Modulus of elasticity	$E_{0,g,mean}$	8,400	11,500	12,600	13,600	14,200
	$E_{0,g,05}$	7,000	9,600	10,500	11,300	11,800
	$E_{90,g,mean}$			300		
	$E_{90,g,05}$			250		
Shear modulus	$G_{g,mean}$			650		
	$G_{g,05}$			540		
Rolling shear modulus	$G_{r,g,mean}$			65		
	$G_{r,g,05}$			54		
Density	$P_{g,k}$	340	385	425	430	440
	$P_{g,mean}$	370	420	460	480	480

Mechanical properties

HASSLACHER NORICA TIMBER
From **wood** to **wonders.**

Glued Laminated Timber – Mechanical properties

Characteristic strength and stiffness properties for combined glued laminated timber

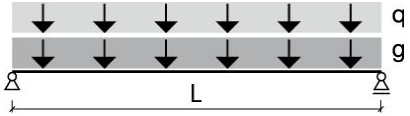
Strength class			GL24h	GL28h	GL30h	GL32h
Bending strength	$f_{m,g,k}$		24	28	30	32
Tensile strength	$f_{t,0,g,k}$		17	19.5	19.5	19.5
	$f_{t,90,g,k}$			0.5		
Compressive strength	$f_{c,0,g,k}$		21.5	24	24.5	24.5
	$f_{c,90,g,k}$			2.5		
Shear strength	$f_{v,g,k}$			3.5		
Rolling shear strength	$f_{r,g,k}$			1.2		
Modulus of elasticity	$E_{0,g,mean}$		11,000	12,500	13,000	13,500
	$E_{0,g,05}$		9,100	10,400	10,800	11,200
	$E_{90,g,mean}$			300		
	$E_{90,g,05}$			250		
Shear modulus	$G_{g,mean}$			650		
	$G_{g,05}$			540		
Rolling shear modulus	$G_{r,g,mean}$			65		
	$G_{r,g,05}$			54		
Density	$P_{g,k}$		365	390	390	400
	$P_{g,mean}$		400	420	430	440

Tables for preliminary design

HASSLACHER NORICA TIMBER
From **wood** to **wonders.**

Glued Laminated Timber – Strength class GL24h

Height in mm	Width in mm	Persistent loads q incl. imposed load p in kN/m																
		2.5	3	3.5	4	4.5	5	6	7	8	9	10	11	12	15	20	25	30
360	240	9.64	9.15	8.74	8.40	8.11	7.85	7.42	7.07	6.78	6.53	6.32	6.13	5.96	5.44	4.73	360	240
	220	9.40	8.92	8.52	8.18	7.89	7.64	7.22	6.88	6.60	6.35	6.14	5.96	5.79	5.21	4.53		220
	200	9.15	8.67	8.28	7.95	7.67	7.42	7.01	6.68	6.40	6.16	5.96	5.78	5.55	4.97	4.32		200
	180	8.87	8.40	8.02	7.70	7.42	7.18	6.78	6.46	6.19	5.96	5.76	5.50	5.27	4.73	4.10		180
	160	8.57	8.11	7.73	7.42	7.15	6.92	6.53	6.22	5.96	5.72	5.44	5.19	4.97	4.46	3.87		160
	140	8.23	7.78	7.42	7.12	6.86	6.63	6.26	5.96	5.68	5.36	5.09	4.86	4.66	4.18	3.62		140
320	200	8.17	7.74	7.38	7.09	6.83	6.61	6.24	5.94	5.70	5.48	5.30	5.14	4.94	4.43	3.84	320	200
	180	7.92	7.49	7.15	6.86	6.61	6.40	6.04	5.75	5.51	5.30	5.12	4.89	4.69	4.21	3.65		180
	160	7.64	7.23	6.89	6.61	6.37	6.16	5.82	5.53	5.30	5.10	4.84	4.62	4.43	3.97	3.44		160
	140	7.34	6.94	6.61	6.34	6.11	5.91	5.57	5.30	5.06	4.77	4.53	4.33	4.15	3.72	3.22		140
	120	7.00	6.61	6.30	6.04	5.82	5.62	5.30	5.01	4.69	4.43	4.21	4.01	3.84	3.44	2.99		120
280	200	7.18	6.80	6.48	6.22	6.00	5.80	5.47	5.21	4.99	4.81	4.65	4.50	4.33	3.88	3.37	280	200
	180	6.96	6.58	6.28	6.02	5.80	5.61	5.29	5.04	4.83	4.65	4.49	4.29	4.11	3.68	3.20		180
	160	6.71	6.35	6.05	5.80	5.59	5.40	5.10	4.85	4.65	4.47	4.24	4.05	3.88	3.48	3.02		160
	140	6.44	6.09	5.80	5.56	5.36	5.18	4.88	4.65	4.43	4.18	3.97	3.79	3.63	3.25	2.82		140
	120	6.14	5.80	5.52	5.29	5.10	4.93	4.65	4.39	4.11	3.88	3.68	3.52	3.37	3.02	2.62		120
	100	5.80	5.47	5.21	4.99	4.81	4.65	4.33	4.01	3.76	3.55	3.37	3.21	3.08	2.76	2.22		100
240	200	6.19	5.85	5.58	5.35	5.15	4.98	4.70	4.47	4.29	4.13	3.99	3.86	3.72	3.33	2.89	240	200
	180	5.99	5.66	5.40	5.17	4.98	4.82	4.55	4.33	4.14	3.99	3.85	3.68	3.53	3.16	2.74		180
	160	5.78	5.46	5.20	4.98	4.80	4.64	4.38	4.16	3.99	3.83	3.64	3.48	3.33	2.98	2.59		160
	140	5.54	5.23	4.98	4.78	4.60	4.45	4.19	3.99	3.81	3.59	3.41	3.25	3.12	2.79	2.42		140
	120	5.28	4.98	4.74	4.55	4.38	4.23	3.99	3.77	3.53	3.33	3.16	3.02	2.89	2.59	2.24		120
	100	4.98	4.70	4.47	4.29	4.13	3.99	3.72	3.44	3.23	3.04	2.89	2.76	2.64	2.36	1.91		100



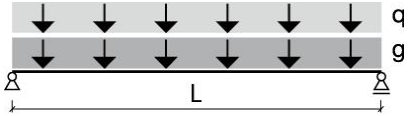
Note: the table only represents a feature for preliminary design and therefore does not replace the necessary static proof.

Tables for preliminary design

HASSLACHER NORICA TIMBER
From **wood** to **wonders.**

Glued Laminated Timber – Strength class GL24h

Height in mm	Width in mm	Persistent loads q incl. imposed load p in kN/m																
		2.5	3	3.5	4	4.5	5	6	7	8	9	10	11	12	15	20	25	30
200	160	4.83	4.56	4.35	4.16	4.01	3.88	3.65	3.47	3.33	3.2	3.04	2.90	2.78	2.49	2.16	1.93	1.70
	140	4.63	4.37	4.16	3.99	3.84	3.71	3.50	3.33	3.18	3.00	2.85	2.72	2.60	2.33	2.02	1.78	1.49
	120	4.41	4.16	3.96	3.80	3.65	3.53	3.33	3.14	2.94	2.78	2.64	2.52	2.41	2.16	1.87	1.53	1.27
	100	4.16	3.93	3.74	3.58	3.44	3.33	3.10	2.87	2.69	2.54	2.41	2.30	2.20	1.97	1.59	1.27	1.06
160	120	3.54	3.34	3.18	3.04	2.93	2.83	2.66	2.52	2.36	2.23	2.11	2.02	1.93	1.73	1.50	1.22	1.02
	100	3.34	3.15	2.99	2.87	2.76	2.66	2.49	2.30	2.16	2.03	1.93	1.84	1.76	1.58	1.27	1.02	0.85
	80	3.11	2.93	2.78	2.66	2.56	2.44	2.23	2.06	1.93	1.82	1.73	1.65	1.58	1.36	1.02	0.82	0.68
120	100	2.51	2.37	2.25	2.15	2.07	2.00	1.87	1.73	1.62	1.53	1.45	1.38	1.32	1.18	0.96	0.77	0.64
	80	2.34	2.20	2.09	2.00	1.92	1.83	1.67	1.55	1.45	1.37	1.30	1.24	1.18	1.02	0.77	0.61	0.51
100	100	2.10	1.97	1.88	1.80	1.73	1.67	1.56	1.44	1.35	1.27	1.21	1.15	1.10	0.99	0.80	0.64	0.53
	80	1.95	1.83	1.74	1.67	1.61	1.53	1.39	1.29	1.21	1.14	1.08	1.03	0.99	0.85	0.64	0.51	0.43



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

Further processing

HASSLACHER NORICA TIMBER
From **wood** to **wonders.**

Advantages

- High precision with optimal material utilisation
- Versatile machining options due to modern technology
- Ongoing development through regular and continuous quality control
- Professional support during the planning 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 K3 5-axis 900, Hundegger K2i 5-axis 900 and Hundegger Robot 1,280
6-axis CNC machining	Hundegger K2-Industry 1,280 and Hundegger Robot 1,250
Component dimensions	Length: up to 27 m
	Height: up to 1,280 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

HASSLACHER NORICA TIMBER
From **wood** to **wonders.**

Further processing – Special components

Portal Machining Centre		CMS Hermagor	MAKA BC 570 Kleinheubach
Component dimensions and axes.	X-axis (longitudinal direction) Y-axis (transverse direction) Z-axis (vertical stroke) C-axis (rotation) B-axis (panning)	42 m 5.80 m 1.25 m 360° ± 110°	35 m or 41 m up to 4.80 m uo to 1.60 m 360° ± 105°
Precision		±2 mm to 40 m length	±2 mm to 40 m length
Spindle speed		Continuously variable from 0 to 10,000 rpm	Continuously variable from 0 to 12,000 rpm
CNC controller		NUM 1,060W	BWO 920
Online program transfer		CAD/CNC-Working Space	NC Codes from the CNC- Production Control
Workpiece measurement		Renishaw - Services	no services available
Workpiece positioning		Supported by laser	Supported by laser
Automatic changing of tools		Circular magazine with 16 tools Rotary magazine with 2 saw blades max. 750mm	20 tools saw blade max. 800mm
Workpiece fixation		Using vacuum working blocks and single vacuum units	Using flexible vacuum units and hydraulic clamp cylinders
Import formats		*.btl | Direct control of the portal system	NC Codes generated by post - processors. AlphaCam: CAD-Import: Acis, dwg, dxf, IGES, Inventor, Rhino, Step LignoCam: *.btl-Files

IT Interfaces | Import Formats	
2D/3D-DXF (*.dxf) | 2D/3D DWG (*.dwg) | ACIS (*.sat) IFC (*.ifc) | STEP (*.stp) (*.ste) (*.step) | DSTV (*.stp)	Inventor (*.ipt) (*.iam) (*.3ds) (*.fbx) (*.jt) (*.mwf) (*.dgn) cadwork (*.2d) und (*.3d)

Further Processing

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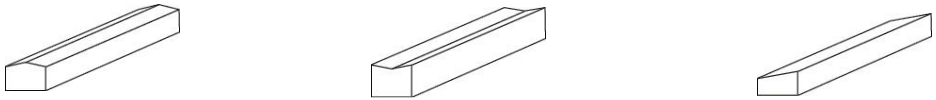
Further Processing – possibilities and examples

Rafter and Purlin profiles

Profile 1 Profile 2 Profile 3 Profile 4 Profile 5 Profile 6 Profile 7 Profile 8

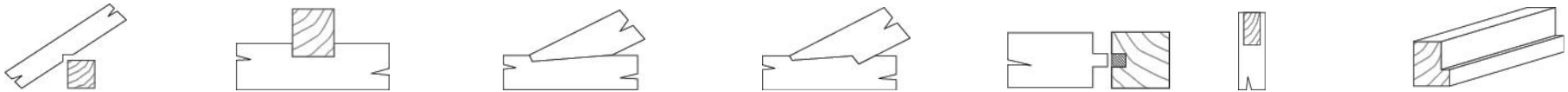
Valley and hip rafter

Hip rafters Valley rafters Tapered form



Carpentery joints

Rafter notch Cross cogging Stepped joint Double stepped joint Tenon Forked support Rebate



Dovetail joint "Tiroler Schloss" corner joint Dovetail Log house

Products

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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


Pallets & packaging solutions


Formwork panels

Your open question

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- Darf BSH in höheren Festigkeiten zurückgehobelt werden?
- Unterschied zwischen Gebrauchsklassen und Nutzungsklassen
- Brettschichtholz Birke - gibt es dazu schon Qualitätskriterien/Sortierkriterien?
- Entwicklung/Historie BSH bzw. gibt es Entwicklungsideen?
  Wie läuft die Umstellung auf Keilzinkenlänge 10 mm?
- Aus welchem Grund wird bei der BSH-Produktion die letzte Lamelle gewendet, sodass die beiden Außenseiten jeweils rechte Seiten sind?
- Was sind die wesentlichen Vorteile von BSH gegenüber anderen Werkstoffen (z.B. Stahl) oder auch gegenüber KVH? Wie hoch ist speziell die Belastbarkeit im Vergleich?


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