

HESS LIMITLESS

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ENDLESS. STRONG. TRANSPORTABLE.

Large span widths are no problem for glued laminated timber. However, the limits for very long glulam components are soon reached when it comes to overseas projects or narrow construction site access roads. For more than ten years now we have been realizing projects with our specifically developed, patented and approved all-in-one solution HESS LIMITLESS. Arbitrarily long glued laminated timber beams are specially pre-fabricated on our site and subdivided into short, convenient segments. The segmentation facilitates a flexible, safe and economical worldwide transport by trucks or in shipment containers. On the construction site, experienced assembly specialists subsequently glue the subsegments by using our patented HESS LIMITLESS joint system and prepare them for assembly.

AREAS OF APPLICATION

- + Architectural special projects
- + Sports and multipurpose halls
- + Industrial buildings
- + Logistics halls
- + Airports
- + Bridges
- + Stadiums

ADVANTAGES

- + Worldwide proven and patented solution
- + Certified and approved
- + Wide range of strength classes
- + Economical complete solution
- + Safe and cost-effective transport
- + Complete structural safety despite the jointing
- + Unobtrusive, pure wood-wood connection

PROCESS

ON SITE ASSEMBLY

A specially developed construction site setup guarantees the optimal temperature and humidity for a safe gluing process. The required gluing pressure is provided by patented clamps with which the segments are pressed together. All key processes and parameters are documented and externally monitored by a certified testing laboratory.

PLANNING

Professional and customized guidance to suit individual project requirements. From planning via production to transportation and on-site assembly. All from a single source.

LOGISTICS

The segmentation of the glued laminated timber parts enables compact transportation in standardized shipment containers. This saves both time and costs and considerably increases the logistic flexibility as compared to conventional glued laminated timber.

PRODUCTION

The production and segmentation of the glued laminated timber parts done accurately to the millimeter. The vulnerable joints are temporarily fitted with manufactured inserts that protect them during the handling and transportation phases.



FUNCTIONAL PRINCIPLE

GENERAL FINGER JOINT. SCARF JOINT. PREMIUM LAMELLAS.

The unique degree of effectiveness [$\eta = 1$] of the pure wood-wood connection results from the optimal interaction of the general finger joint and the so-called scarf joint. The scarf joint is a specially designed fitting piece with an angular cut on both sides and which, depending on the load case, is applied either on the upper or bottom side of the glued laminated timber construction part. In addition, both the subsegments and the scarf joint are equipped with specially sorted premium lamellas on the side that is under tensile load. The ingenious combination of the different components lessens the strength reduction the general finger joint and enables the realization of highly economical and optimally dimensioned glued laminated timber constructions.

SURFACE QUALITIES

- + Visual quality
- + Industrial quality

MECHANICAL PROPERTIES

Strength class			GL33c	GL35c	GL35c	GL38c
Wood species premium lamella			Spruce (Picea)	Fir (Abies alba)	Spruce (Picea)	Fir (Abies alba)
Bending strength	$f_{m,g,k}$	N/mm ²	33	35	35	38
Tensile strength	$f_{t,g,0,k}$	N/mm ²	21	21	21	21
	$f_{t,g,90,k}$	N/mm ²	0.5	0.5	0.5	0.5
Compressive strength	$f_{c,0,g,k}$	N/mm ²	26	26	26	26
	$f_{c,90,g,k}$	N/mm ²	2.5	2.5	2.5	2.5
Shear strength	$f_{v,g,k}$	N/mm ²	3.5	3.5	3.5	3.5
Modulus of elasticity	$E_{0,g,mean}$	N/mm ²	13,100	13,100	13,700	13,700
	$E_{90,g,mean}$	N/mm ²	300	300	300	300
Shear modulus	$G_{g,mean}$	N/mm ²	650	650	650	650
Density	$\rho_{g,k}$	kg/m ³	410	410	440	440

Further information on the product and its application or on mechanical and wood technological characteristics of this product can be found in the National technical approval (abZ) Z-9.1-755.

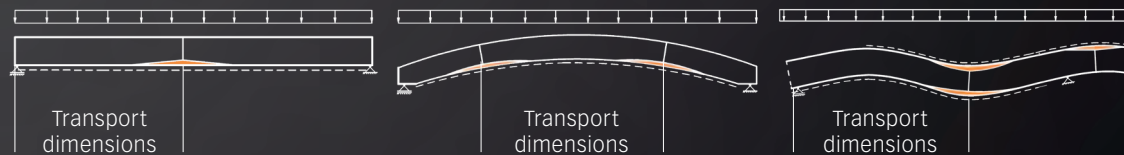
General finger joint

Premium lamella

Scarf joint

BEAM GEOMETRIES

Not only straight but also curved and complex glulam components can be realised with the HESS LIMITLESS solution. Depending on the load situation, the scarf joints are used on the upper side and/or on the underside of the glued laminated timber component.



HESS LIMITLESS

WORLDWIDE. HIGHEST PERFORMANCE. UNIQUE.

The combination of construction parts of theoretically endless lengths, the high technical performance capacity and the simplified transportability are what makes HESS LIMITLESS a high-performance, cost-effective all-in-one solution which is unique worldwide. A broad range of strength classes permits the most economical solution to be selected for each application because our engineers are planning HESS LIMITLESS according to the individual requirements of the construction project. We thus provide architects, project developers, construction companies and designers with a proven and innovative all-in-one solution for wide-span supporting structures and highly stressed constructions worldwide. For the limitless building with glued laminated timber.



TIBETAN CULTURAL CENTRE

ADEJE | TENERIFE

"For wide-span constructions, especially for those with complex geometries, which cannot be conventionally shipped, HESS LIMITLESS is the ideal solution with regard to cost efficiency. We are specialized in the development and realization of timber construction in Spain and meanwhile have gathered a great deal of experience with using HESS LIMITLESS. On the Tenerife island we thus have recently realized a glued laminated timber beam which is 55 m in length. This is one of the longest in Europe."

– Diego Núñez Jiménez, MADERGIA –

- + Beam lengths: 55 m
- + Volume: 140 m³
- + Joints (on site): 24 pcs

CONCERT HALL

PALANGA | LITHUANIA

The concert hall Palanga is an impressive testimony to the efficiency of the HESS LIMITLESS solution. The flexible and fast transport as well as the outstanding structural performance were the decisive success factors for this project.

- + Beam lengths: 37 m
- + Volume: 130 m³
- + Joints (on site): 24 pcs



TIMBER BRIDGE

ANAKLIA | GEORGIA

"The realization of the pedestrian timber bridge Anaklia in Georgia required a high degree of flexibility and quick implementation. That is why HESS LIMITLESS was the optimal solution."

– Niko Lortkipandize, Caucasus Road Project Ltd –

- + Beam lengths: 48 m
- + Free span: 84 m
- + Volume: 685 m³
- + Joints (on site): 141 pcs



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

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