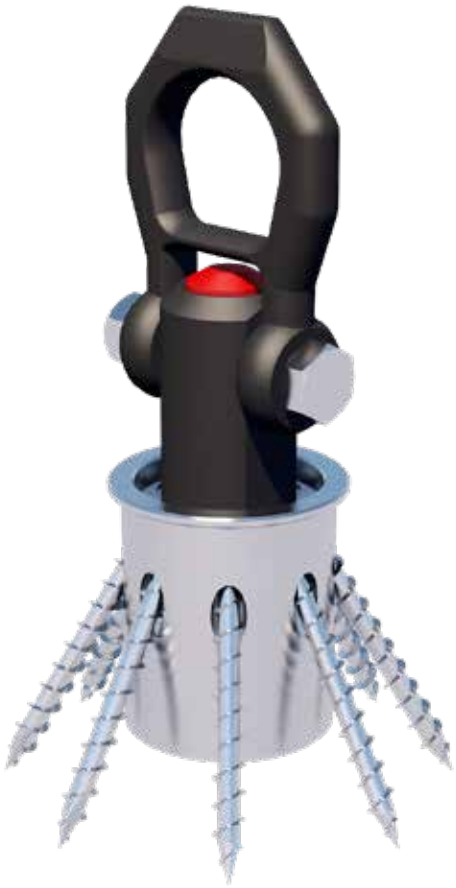
ASSEMBLY INSTRUCTIONS LIFTING ANCHOR MINI

TABLE OF CONTENTS



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ASSEMBLY INSTRUCTIONS LIFTING ANCHOR MINI

REQUIRED TOOLS

- Drill
- Forstner bit Ø 40 mm
- (Cordless) screwdriver

REQUIREMENTS

- To be carried out by experts only.
- Minimum material width: 120 mm
- Minimum material thickness: 60 mm

1 JOINING

1.1 Processing of the timber element - manually or mechanically

Manual

Drill a hole with a minimum depth of 47 mm in the centre of the wood using a Forstner bit. The distance from the edge must be at least 40 mm.

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Machine

Mill a circular pocket with a diameter of 40 mm and a depth of at least 47 mm. The distance from the edge must be at least 40 mm.

Optional: Mill an additional circular pocket with a diameter of min. 45 mm and a depth of 2 - 3 mm. This allows the Lifting Anchor Mini to be flush with the top edge of the wood.

1.2 Remove chips thoroughly.

2 ASSEMBLY

2.1 Press Lifting Anchor Mini into the hole/pocket.

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2.2 Screw in the 8 screws supplied.

2.3 Check the function. To do this, click the ball support bolt into the Lifting Anchor Mini. The ball support bolt must engage without any problems. When inserted, it must be possible to turn it around its own axis, but it must not be possible to pull it out.

PLEASE REFER TO THE FOLLOWING PAGE
FOR THE OPERATING INSTRUCTIONS.

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OPERATING INSTRUCTIONS BALL SUPPORTING BOLT

OPERATING INSTRUCTIONS FOR THE BALL SUPPORTING BOLT

Warning!
Ball supporting bolts are designed for lifting and holding individual loads.
The product is not intended for lifting persons. **In addition, they are not suitable for continuous load rotation.**
Contamination (e.g. grinding sludge, oil and emulsion deposits, dust, etc.) can impair the function of ball supporting bolts.

Damaged ball supporting bolts can put people's lives at risk. Before each use, ball supporting bolts must be inspected for visible defects (e.g. deformations, fractures, cracks, damage, missing balls, corrosion, function of the unlocking mechanism).
Damaged ball supporting bolts must be withdrawn from further use.
The ball carrier bolts have been tested by TÜV.

HANDLING AND LOADING

Press the button (A) to release the balls. The balls are locked again by releasing the button (A).
Please note: The button (A) is locked when the spring force has caused it to spring back to its original position. Do not press the button when loaded!
The load values F1/F2/F3 (see page 6) apply to lifting in a steel receptacle and x min. = 1.5 mm.

MAINTENANCE

Ball supporting bolts must be subjected to a safety inspection by a competent person at least once a year.

VISUAL INSPECTION

Deformations, fractures, cracks, missing/damaged balls, corrosion, screw connection damage on the shackle.

FUNCTIONAL TEST

The balls' locking and unlocking mechanism must close automatically by spring force.
Full shackle mobility is guaranteed.

USE

The Lifting Anchor Mini must only be used by competent staff.

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OPERATING INSTRUCTIONS BALL SUPPORTING BOLT

ORIGINAL EC CONFORMITY MARK

The product complies with the regulations set down in the EC Directive 2006/42/EC.

CE

Manufacture*: Erwin Halder KG
Address*: Erwin-Halder-Straße 5-9
88480 Achstetten-Bronnen
Germany

Make: Ball supporting bolt
Type: EH 22350
Applied standards: DIN EN 13155

S. Halder

Achstetten-Bronnen, December 22, 2016 Stefan Halder, General Manager

*Responsible for documentation

MAINTENANCE INSTRUCTIONS HOISTING DEVICE

Maintenance:
The hoisting device must be subjected to a safety inspection by a competent person at least once a year.

Visual inspection:
The hoisting device must be checked before each use. If there are any indentations in the material due to the ball bearing bolt, corrosion, fractures, damages, tears and deformations of any kind, the hoisting device must be replaced. Contamination (e.g. grinding sludge, oil and emulsion deposits, dust, etc.) can impair the function of the hoisting device. In case of contamination, the component must be cleaned. Standard commercial cleaning agents can be used. Lubricants must be avoided.

INSTRUCTIONS FOR USE

The S235JR grade steel hoisting device, in accordance with EN 10025-2, is used to connect wooden structures designed in accordance with EN 1995-1-1:2008 Eurocode 5 - Design of timber structures - Part 1-1: General - Common rules and regulations for the building industry were designed and engineered. It may only be used for static or quasi-static loads. Connections with the Hoisting Device are used as structural timber connections and for the transport and assembly of timber components made of laminated timber or CLT. The minimum cross-section thickness for walls and beams is 100 mm. The minimum distances between the edges of the connectors parallel to the component plane is 200 mm. The values in the table apply to characteristic raw densities of at least 350 kg/m^3 for CLT and 385 kg/m^3 for BSH. The table values are only valid for lifting or assembly states. Do not use a hammer directly to drive the hoisting device into the wood. A separation layer must be used to prevent damage to the hoisting device. The hoisting device may only be used with the corresponding screws 6 x 60 or longer according to EN14952. The component is zinc-nickel coated. Zinc-nickel coatings are resistant to the initial corrosion of base metals (according to DIN EN ISO 9227) for more than 1000 hours in the salt spray test (NSS).

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OPERATING INSTRUCTIONS BALL SUPPORTING BOLT

HORIZONTAL WALL OR BEAM: SET UPRIGHT, THEN LIFT

Glue-laminated timber beams			
Connection in the	Connector	Stop bracket β	Total weight [kg] with two strands
Side area	Lifting Anchor Mini Ø 40 mm + 8 x VSS 6 x 60	30°	273
		45°	324
		60°	350
		75°	361
		β	with n strands
		90°	n x 183

Glue-laminated timber wall			
Connection in the	Connector	Stop bracket β	Total weight [kg] with two strands
End grain area	Lifting Anchor Mini Ø 40 mm + 8 x VSS 6 x 60	30°	142
		45°	201
		60°	246
		75°	275
		β	with n strands
		90°	n x 142

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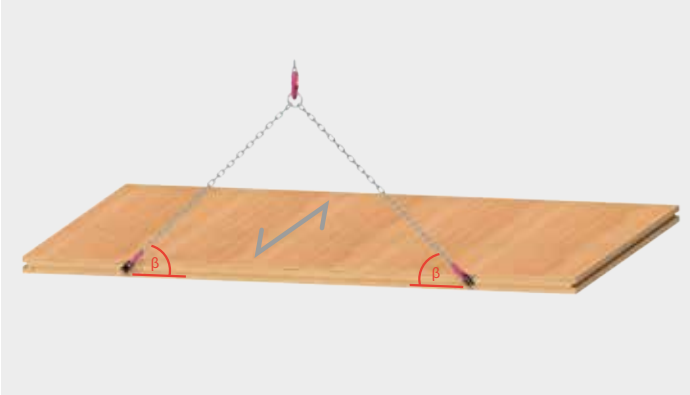
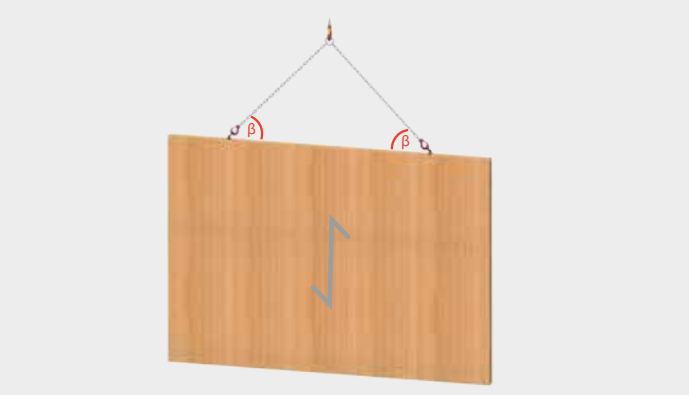
OPERATING INSTRUCTIONS BALL SUPPORTING BOLT

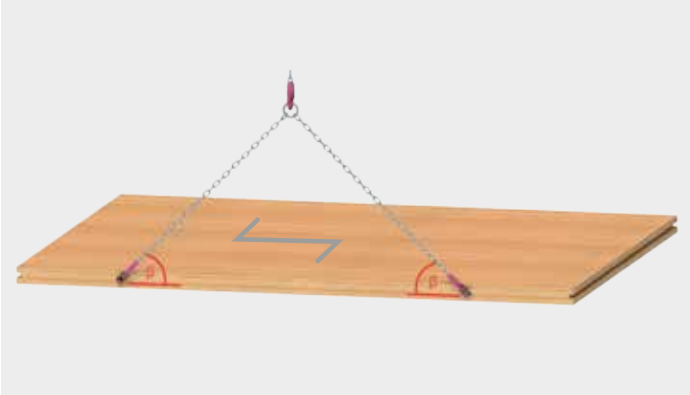
HORIZONTAL WALL OR BEAM: SET UPRIGHT, THEN LIFT



Horizontal GLT wall or beam, grain flow: vertical



Horizontal GLT wall or beam, grain flow: vertical



Horizontal GLT wall or beam, grain flow: horizontal

Horizontal GLT wall or beam, grain flow: horizontal

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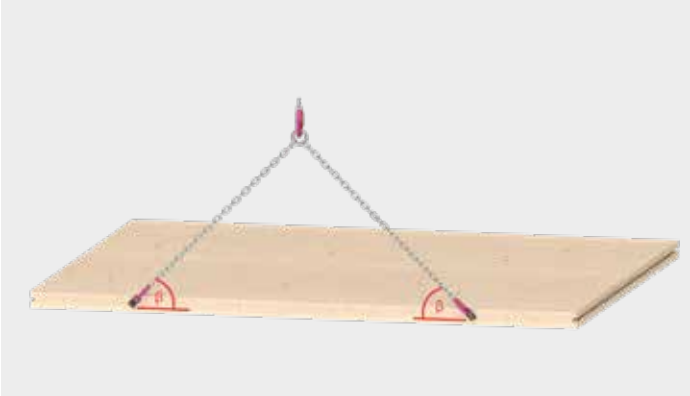
OPERATING INSTRUCTIONS BALL SUPPORTING BOLT

HORIZONTAL WALL OR BEAM: SET UPRIGHT, THEN LIFT

CLT wall or beam			
Connection in the	Connector	Stop bracket β	Total weight [kg] with two strands
End grain area	Lifting Anchor Mini Ø 40 mm + 8 x VSS 6 x 60	30°	248
		45°	295
		60°	318
		75°	328
		β	with n strands
		90°	n x 166



Horizontal CLT wall or beam

Vertical CLT wall or beam

Notes:

- The tables are based on the expert Evaluation report entitled 'Load-Carrying Capacity of Connections with E.u.r.o. Tec Hebe***Fix*** Mini Lifting Anchors' by H. J. Blaß, 01/12/2020.
- The tables illustrate the 'Horizontal wall or beam: Set upright, then lift' load case.
- The table values are only valid for lifting or assembly states.
- The minimum cross-section thickness for walls and beams is 100 mm.
- The minimum distances between the edges of the connectors parallel to the component plane is 200 mm.
- The connectors must be screwed into the components' centre plane flush, plus perpendicular to the surfaces of the narrow sides and side or end grain areas.
- The values in the table apply to characteristic raw densities of min. 350 kg/m³ for CLT and 385 kg/m³ for GLT.
- According to the above-mentioned expert report, a vibration coefficient of min. $\varphi = 2.0$ must be used.
- The values stated in the table take a vibration coefficient of $\varphi = 2.0$ into account. For deviating vibration coefficients, the table values must be multiplied by the factor $2.0/\varphi$.

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OPERATING INSTRUCTIONS BALL SUPPORTING BOLT

VERTICAL WALL OR BEAM: LIFT

Glue-laminated timber beams			
Connection in the	Connector	Stop bracket β	Total weight [kg] with two strands
Side area	Lifting Anchor Mini Ø 40 mm + 8 x VSS 6 x 60	30°	396
		45°	642
		60°	928
		75°	929
		β	with n strands
		90°	n x 464

Glue-laminated timber wall			
Connection in the	Connector	Stop bracket β	Total weight [kg] with two strands
End grain area	Lifting Anchor Mini Ø 40 mm + 8 x VSS 6 x 60	30°	163
		45°	279
		60°	468
		75°	864
		β	with n strands
		90°	n x 743

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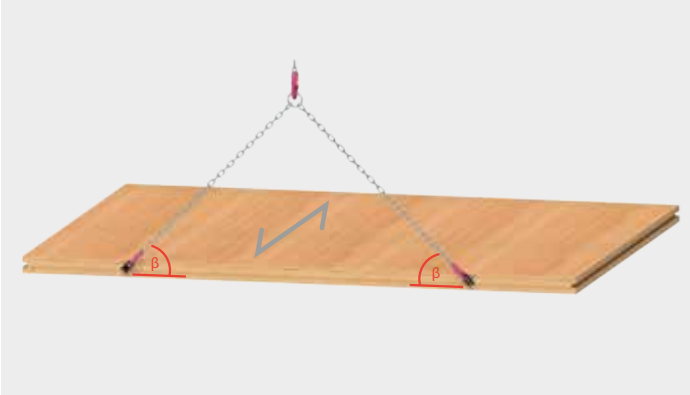
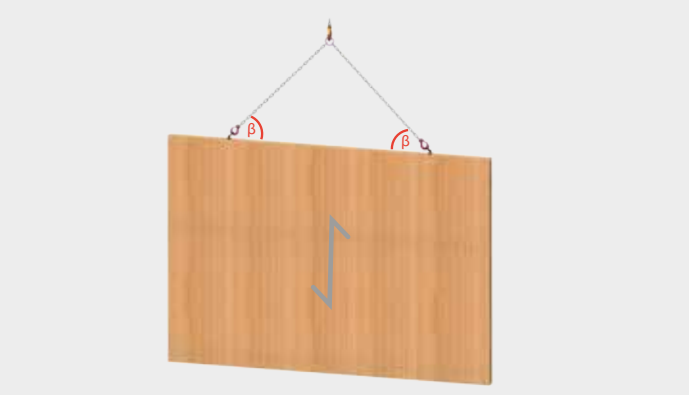
OPERATING INSTRUCTIONS BALL SUPPORTING BOLT

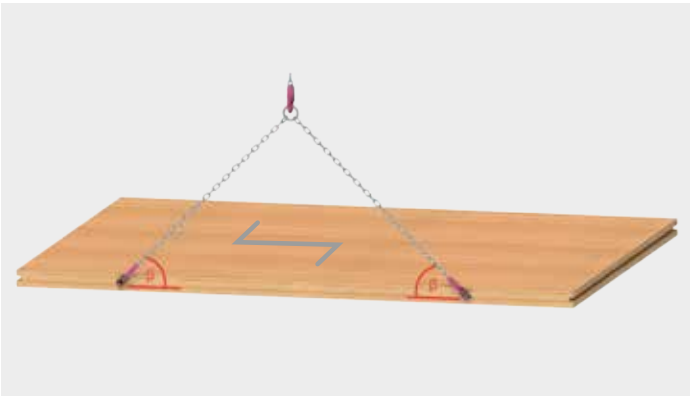
LIFT THE HORIZONTAL CEILING



Horizontal GLT wall or beam, grain flow: vertical



Horizontal GLT wall or beam, grain flow: vertical



Horizontal GLT wall or beam, grain flow: horizontal

Horizontal GLT wall or beam, grain flow: horizontal

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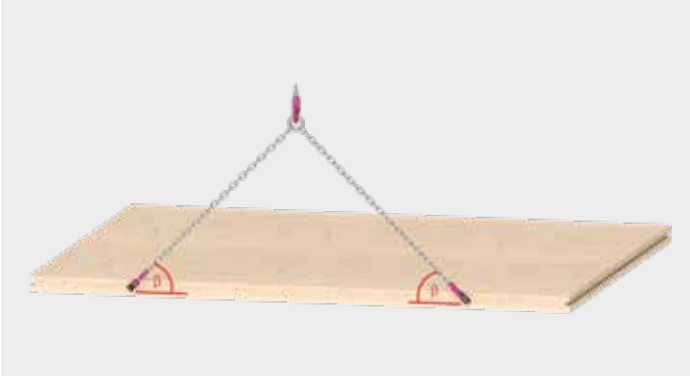
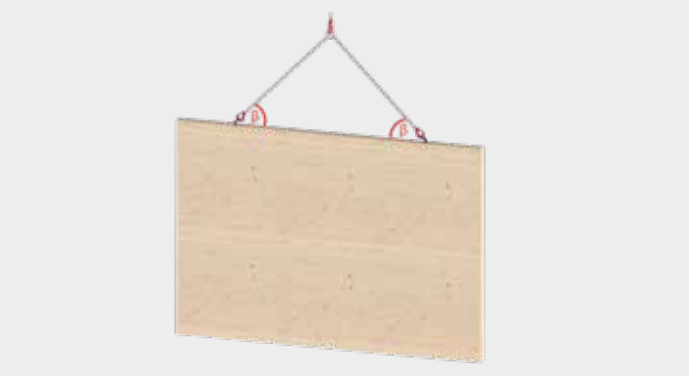
OPERATING INSTRUCTIONS BALL SUPPORTING BOLT

CLT wall or beam			
Connection in the	Connector	Stop bracket β	Total weight [kg] with two strands
Narrow surface	Lifting Anchor Mini Ø 40 mm + 8 x VSS 6 x 60	30°	360
		45°	585
		60°	869
		75°	1196
		β	with n strands
		90°	n x 688



Horizontal CLT wall or beam



Vertical CLT wall or beam

Notes:

- The tables are based on the expert Evaluation report entitled 'Load-Carrying Capacity of Connections with E.u.r.o. Tec Hebe***Fix*** Mini Lifting Anchors' by H. J. Blaß, 01/12/2020.
- The tables illustrate the 'Lifting an upright wall or a beam' load case.
- The table values are only valid for lifting or assembly states.
- The minimum cross-section thickness for walls and beams is 100 mm.
- The minimum distances between the edges of the connectors parallel to the component plane is 200 mm.
- The connectors must be screwed into the components' centre plane flush, plus perpendicular to the surfaces of the narrow sides and side or end grain areas.
- The values in the table apply to characteristic raw densities of min. 350 kg/m³ for CLT and 385 kg/m³ for GLT.
- According to the above-mentioned expert report, a vibration coefficient of min. φ = 2.0 must be used.
- The values stated in the table take a vibration coefficient of φ = 2.0 into account. For deviating vibration coefficients, the table values must be multiplied by the factor 2.0/φ.

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OPERATING INSTRUCTIONS BALL SUPPORTING BOLT

LIFT THE HORIZONTAL CEILING

Glue-laminated timber beams				
Connection in the	Connector	Stop bracket	Ground plan bracket	Total weight [kg]
		β	δ	with four strands
Side area	Lifting Anchor Mini Ø 40 mm + 8 x VSS 6 x 60	30°	5°	784
			15°	731
			25°	654
			35°	581
			45°	522
			60°	461
			75°	427
		45°	5°	1273
			15°	1196
			25°	1082
			35°	970
			45°	877
			60°	780
			75°	726
		60°	5°	1858
			15°	1800
			25°	1666
			35°	1526
			45°	1403
			60°	1267
			75°	1189
		75°	5°	1858
			15°	1858
			25°	1859
			35°	1858
			45°	1858
			60°	1858
			75°	1858
		β	δ	with two strands
		30°	0°	396
			90°	208
		45°	0°	642
			90°	354
		60°	0°	928
			90°	582
		75°	0°	929
			90°	929
		β	δ	with n strands
		90°	0°	n x 464

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OPERATING INSTRUCTIONS BALL SUPPORTING BOLT

CLT ceiling				
Connection in the	Connector	Stop bracket	Ground plan bracket	Total weight [kg]
		β	δ	with four strands
Side area	Lifting Anchor Mini Ø 40 mm + 8 x VSS 6 x 60	30°	5°	714
			15°	665
			25°	595
			35°	529
			45°	475
			60°	419
			75°	389
		45°	5°	1161
			15°	1091
			25°	986
			35°	884
			45°	799
			60°	710
			75°	645
		60°	5°	1727
			15°	1648
			25°	1524
			35°	1394
			45°	1281
			60°	1155
			75°	1061
		75°	5°	2385
			15°	2339
			25°	2257
			35°	2160
			45°	2063
			60°	1943
			75°	1841
		β	δ	with two strands
		30°	0°	721
			90°	189
		45°	0°	1171
			90°	322
		60°	0°	1738
			90°	530
		75°	0°	2392
			90°	920
		β	δ	with n strands
		90°	0°	n x 688

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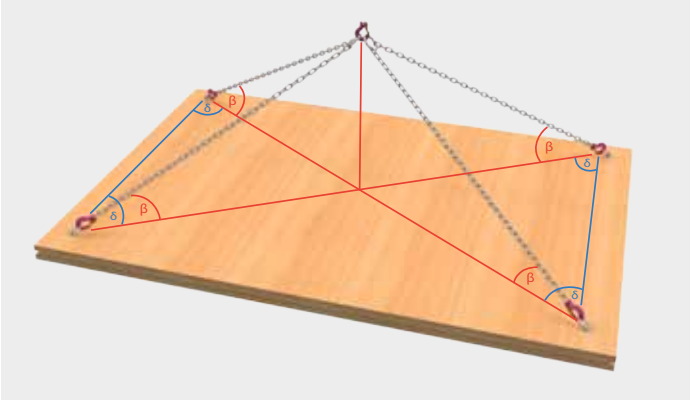
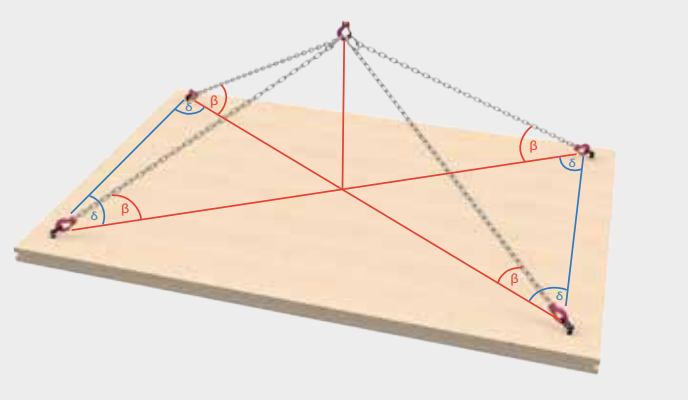
OPERATING INSTRUCTIONS BALL SUPPORTING BOLT



Glue-laminated timber beams



CLT ceiling

Notes:

- The tables are based on the expert Evaluation report entitled 'Load-Carrying Capacity of Connections with E.u.r.o. Tec Hebe***Fix*** Mini Lifting Anchors' by H. J. Blaß, 01/12/2020.
- The tables illustrate an example of ´Lifting of horizontal ceiling elements.'
- The table values are only valid for lifting or assembly states.
- The minimum cross-section thickness for walls and beams is 100 mm.
- The minimum distances between the edges of the connectors parallel to the component plane is 200 mm.
- The connectors must be screwed into the components' centre plane flush, plus perpendicular to the surfaces of the narrow sides and side or end grain areas.
- The values in the table apply to characteristic raw densities of min. 350 kg/m³ for CLT and 385 kg/m³ for GLT.
- According to the above-mentioned expert report, a vibration coefficient of min. $\varphi = 2.0$ must be used.
- The values stated in the table take a vibration coefficient of $\varphi = 2.0$ into account. For deviating vibration coefficients, the table values must be multiplied by the factor $2.0/\varphi$.

If you are not familiar with how this product is used, and particularly with the product's intended use, please contact our Application Technology department (technik@eurotec.team).

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