



**MADE FOR BUILDING**  
BUILT FOR LIVING

**LIFTING SYSTEMS**  
WITH EC DECLARATION OF CONFORMITY



## IMPRINT

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## PREFACE

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# LIFTING SYSTEMS

In the form of this brochure we would like to give you an overview of the lifting systems installed by us for which we have obtained a corresponding EC Declaration of Conformity.

There are various factors to consider when selecting a lifting system :  
the location of the element during transport, the type of panel installation/handling on site, the size of the element, the visual requirements for the KLH<sup>®</sup> element and the cost of the lifting system.

The following lifting systems are described on the subsequent pages:

- flush mounted, visible and factory fitted lifting systems for wall, floor and roof elements
- concealed, factory fitted lifting systems for wall, floor and roof elements
- on site installed lifting systems

In addition to a detailed description concerning installation and application, you will also find a detailed overview of the respective lifting systems with EC Declaration of Conformity as well as the corresponding certificates.

## OVERVIEW OF LIFTING SYSTEMS WITH AN EC DECLARATION OF CONFORMITY

### W-SYSTEM (WALL SYSTEM)

For wall elements -with single holes and disposable lifting slings



### F-SYSTEMS (FLOOR SYSTEM)

#### FD-SYSTEM (FLOOR DIAGONAL - SYSTEM)

For floor and roof elements-with diagonally arranged holes and disposable lifting slings



#### FB-SYSTEM (FLOOR BOLT SYSTEM)

For floor and roof elements-with single holes using disposable lifting slings and reusable safety bolts



### VLS-SYSTEMS (VISIBLE LIFTING-SYSTEM)

#### VLS-SYSTEM TYPE VLS W AND TYPE VLS D

For wall, floor and roof elements using disposable - lifting slings and pins



#### VLS-SYSTEM TYPE VLS S

Handling of floor and roof elements using single-use lifting slings and bolts



Please also note the country-specific health and safety regulations for all lifting systems and adhere to the relevant site specific personal protective equipment and construction equipment requirements and regulations.

## ZERTIFIKAT

### DECLARATION of CONFORMITY

accord. Directive of Machinery 2006/42/EG

**The Signee:** *Dipl.-Ing. Dr. techn. Erich Moschik*  
*Zvilingenieur für Maschinenbau, A-9300 St. Veit/Glan*

declares, that the system / machinery

- 1. Product:** *KLH Lifting Systems*  
*for lifting wall and ceiling elements*  
*consisting of lifting loops, manuf. Pewag as well as bolts*
- 2. Type:** *W 1000, W 2500, FD 1000, FD 2500, FB 1000, FB 2500*
- 3. Year of Manufacture:** *2009 / test for adaption 2021*
- 4. User:** *KLH Massivholz GmbH, A-8842 Teufenbach-Katsch, Gewerbestraße 4*  
*KLH Massivholz Wiesenau GmbH, A-9400 Wolfsberg, Schwemmratten 7*

meets the following essential safety requirements and standards:

**- Bestimmungen der EG-Richtlinien:**

2006/42/EG *Directive of Machinery*

**- harmonisierte Normen**

EN 12100 -1	<i>Safety of machinery - General principles for design — Risk assessment and risk reduction</i>
EN 13854	<i>Standards on Safety of Machinery - Minimum gaps to avoid crushing of parts of the human body</i>
EN 414	<i>Safety of machinery - Rules for the drafting and presentation of safety standards</i>
EN 547-3	<i>Safety of machinery - Human body measurements</i>
EN 614-2	<i>Safety of machinery - Ergonomic design principles,</i> <i>Part 2: Interactions between the design of machinery and work tasks</i>
EN ISO 14123	<i>Safety of machinery - Reduction of risks to health from hazardous substances emitted by machinery</i>
EN 818-2	<i>Short link chain for lifting purposes - Safety</i> <i>Part 2: Medium tolerance chain for chain slings - Grade 8</i>
EN 953	<i>Safety of machinery - Guards - General requirements for the design and construction of fixed and movable guards</i>
EN 1492-1	<i>Textile slings - Safety</i> <i>Part 1: Flat woven webbing slings made of man-made fibers for general purpose use</i>
EN ISO 13857	<i>Safety of machinery - Safety distances to prevent hazard zones being reached by upper and lower limbs</i>

Original Certificate dated 16.06.2012  
 Prolongation 01.06.2021  
 Valid until 31.05.2026  
 St. Veit/Glan, 01.06.2021



*Dipl.-Ing. Dr. techn. Erich Moschik*  
*St. Veit / Glan*

The content of this declaration is in conformance with the DIN EN ISO/IEC 17050-1

## ZERTIFIKAT

### DECLARATION of CONFORMITY

accord. Directive of Machinery 2006/42/EG

**The Signee:** *Dipl.-Ing. Dr. techn. Erich Moschik*  
*Zvilingenieur für Maschinenbau, A-9300 St. Veit/Glan*

declares, that the system / machinery

- 1. Product:** **VLS Visible Lifting System**  
**for lifting wall and ceiling elements**  
**consisting of lifting loops, TGH rod and one-way bolt**
- 2. Type:** **W1, W2, W3, W4, W5 – wall elements**  
**D1, D2, D3 – ceiling elements**
- 3. Year of Manufacture:** **2009 / test for adaption 2021**
- 4. User:** **KLH Massivholz GmbH, A-8842 Teufenbach-Katsch, Gewerbestraße 4**  
**KLH Massivholz Wiesenau GmbH, A-9400 Wolfsberg, Schwemmratten 7**

meets the following essential safety requirements and standards:

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accord. Directive of Machinery 2006/42/EG

**The Signee:** *Dipl.-Ing. Dr. techn. Erich Moschik*  
*Zvilingenieur für Maschinenbau, A-9300 St. Veit/Glan*

*declares, that the system / machinery*

- 1. Product:** *VLS-S Visible Lifting System*  
*For lifting ceiling elements*
- 2. Type:** *S1, S2, S3, S4 – ceiling elements*
- 3. Year of Manufacture:** *2021*
- 4. User:** *KLH Massivholz GmbH, A-8842 Teufenbach-Katsch, Gewerbestraße 4*  
*KLH Massivholz Wiesenau GmbH, A-9400 Wolfsberg, Schwemmtratten 7*

*meets the following essential safety requirements and standards:*

**- Bestimmungen der EG-Richtlinien:**

2006/42/EG *Directive of Machinery*

**- harmonisierte Normen**

EN 12100-1 *Safety of machinery - General principles for design — Risk assessment and risk reduction*

EN 13854 *Standards on Safety of Machinery - Minimum gaps to avoid crushing of parts of the human body*

EN 414 *Safety of machinery - Rules for the drafting and presentation of safety standards*

EN 547-3 *Safety of machinery - Human body measurements*

EN 614-2 *Safety of machinery - Ergonomic design principles,*  
*Part 2: Interactions between the design of machinery and work tasks*

EN ISO 14123 *Safety of machinery - Reduction of risks to health from hazardous substances emitted by machinery*

EN 818-2 *Short link chain for lifting purposes - Safety*  
*Part 2: Medium tolerance chain for chain slings - Grade 8*

EN 953 *Safety of machinery - Guards - General requirements for the design and construction of fixed and movable guards*

EN 1492-1 *Textile slings - Safety*  
*Part 1: Flat woven webbing slings made of man-made fibers for general purpose use*

EN ISO 13857 *Safety of machinery - Safety distances to prevent hazard zones being reached by upper and lower limbs*

**Original Certificate dated** *16.06.2021*

**Valid until** *15.06.2026*

*St. Veit/Glan, 16.06.2021*



*Dipl.-Ing. Dr. techn. Erich Moschik*  
*St. Veit / Glan*

*The content of this declaration is in conformance with the DIN EN ISO/IEC 17050-1*

## VISIBLE FACTORY FITTED LIFTING SYSTEMS

### 01 FLUSH MOUNTED, VISIBLE AND FACTORY FITTED LIFTING SYSTEMS

Flush mounted, visible and factory fitted lifting systems are used for wall, floor and roof elements.

According to the weight of the KLH® elements disposable lifting slings of type 1000 Pewag or Pewag 2500 are used. A 30 mm diameter hole required for the insertion of the lifting strap will be visible. For exposed quality finish KLH®

surfaces, we recommend that following the element installation on site the lifting holes are plugged with timber plugs.

Depending on the installation, we distinguish between the W-system, FD-system and FB-system.

#### LIFTING SYSTEMS OVERVIEW

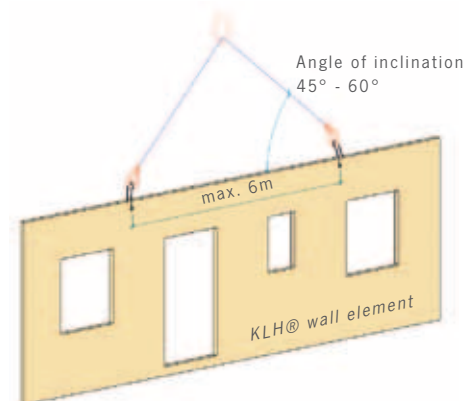
System type	Lifting sling type	minimum panel thickness [mm]	maximum panel thickness [mm]	minimum number of lifting slings	maximum number of lifting slings	maximum panel weight [kg] with 1 lifting sling	maximum panel weight [kg] with 2 lifting slings	maximum panel weight [kg] with 3 lifting slings	maximum panel weight [kg] with 4 lifting slings	Panel handling
W 1000	Pewag 1000	60	500	1	2	1000	2000	not permitted	not permitted	vertical
W 2500	Pewag 2500	125	500	1	2	2500	5000	not permitted	not permitted	vertical
FD 1000	Pewag 1000	60	500	1	4	1000	1000	1500	3000	horizontal
FD 2500	Pewag 2500	125	500	1	4	2500	2500	3750	7500	horizontal
FB 1000	Pewag 1000	60	500	1	4	1000	1000	1500	3000	horizontal
FB 2500	Pewag 2500	125	500	1	4	2500	2500	3750	7500	horizontal

Example:            Wall element    1,600kg            Required system:    2 pcs. W 1000  
                      Floor element    2,400kg            Required system:    4 pcs. FB 1000 or FD 1000

## VISIBLE FACTORY FITTED LIFTING SYSTEMS

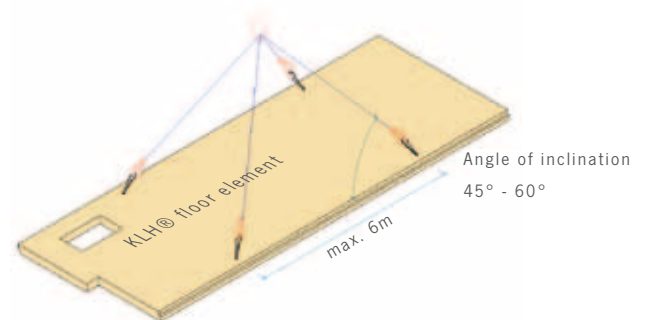
### W-SYSTEM

(vertical panel handling of wall units)



### F-SYSTEMS

FD-system (horizontal handling of floor and roof elements - diagonally arranged holes)



FB-system (horizontal panel handling of floor and roof elements – lifting sling with pin)

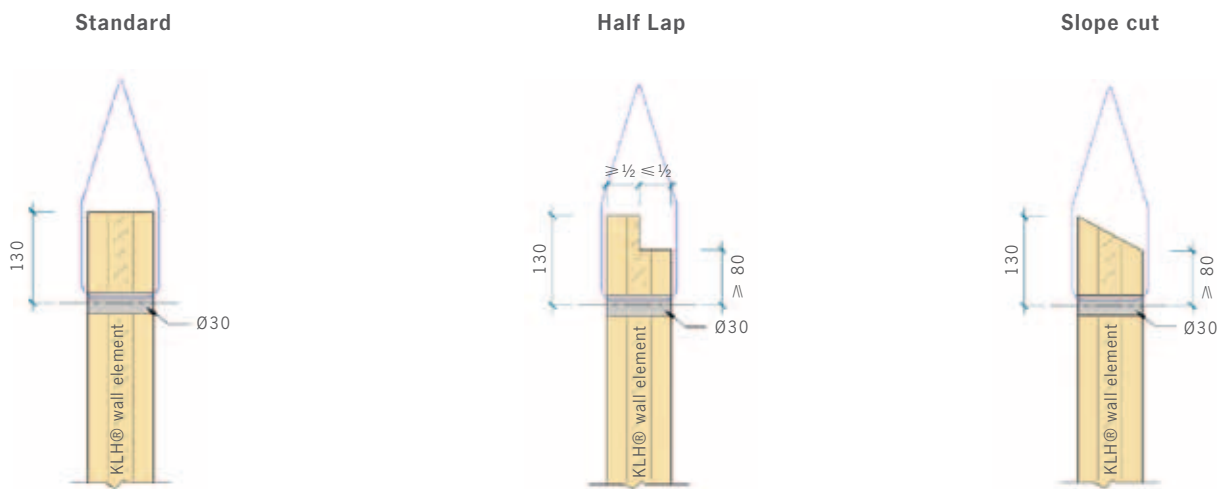


## VISIBLE FACTORY FITTED LIFTING SYSTEMS FOR WALL ELEMENTS

### ILLUSTRATION OF VISIBLE FACTORY FITTED LIFTING SYSTEMS FOR WALL ELEMENTS (W-SYSTEM)

#### EDGE DISTANCES W-SYSTEM

The following illustrations identify the edge distance requirements for lifting holes within the wall panel.



The holes for lifting slings will be incorporated into the fabrication drawings by the customer.

The position of the hole for the lifting sling will depend on the edge distance, the balance point and the handling position of the KLH® element. The specific lifting system type will normally be specified by the customer.

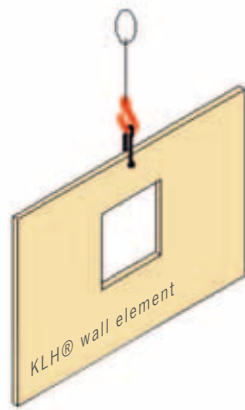
The maximum distance between 2 lifting slings is 6,000mm.

## VISIBLE FACTORY FITTED LIFTING SYSTEMS FOR WALL ELEMENTS

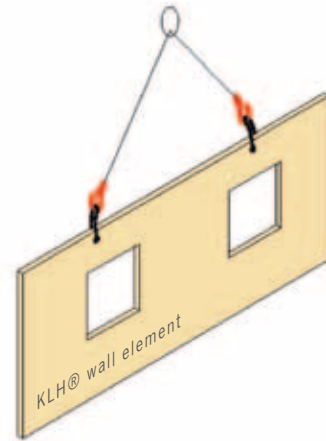
### DIAGRAMATIC ILLUSTRATION OF THE SYSTEM W 1000

Panel thickness ranging from 60 mm to 500 mm,  
1 lifting sling or 2 lifting slings

1 lifting sling -  
panel weight  
1,000 kg max.



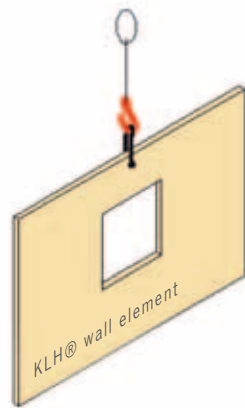
2 lifting slings -  
panel weight  
2,000 kg max.



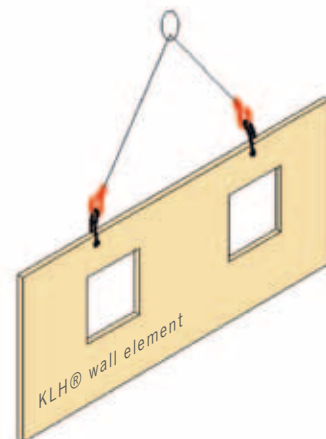
### DIAGRAMATIC ILLUSTRATION OF THE SYSTEM W 2500

Panel thickness ranging from 125 mm to 500 mm,  
1 lifting sling or 2 lifting slings

1 lifting sling -  
panel weight  
2,500 kg max.



2 lifting slings -  
panel weight  
5,000 kg max.



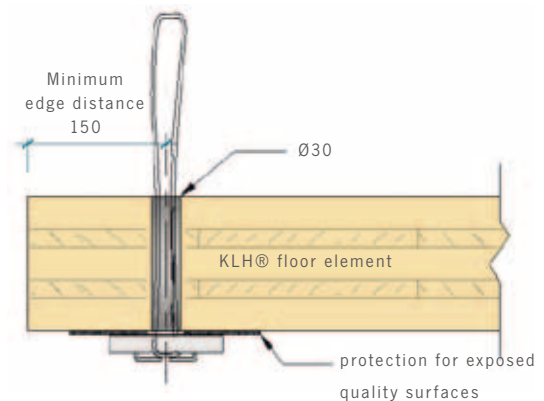
## VISIBLE FACTORY FITTED LIFTING SYSTEMS FOR FLOOR AND ROOF ELEMENTS

### ILLUSTRATION OF THE VISIBLE FACTORY FITTED LIFTING SYSTEM FOR FLOOR AND ROOF ELEMENTS (F-SYSTEM)

Within the F-system we distinguish between the FD- and the FB-system. The FD-system utilizes lifting slings; the FB-system consists of lifting slings with metal pins.

#### EDGE DISTANCE REQUIREMENTS OF THE F-SYSTEM

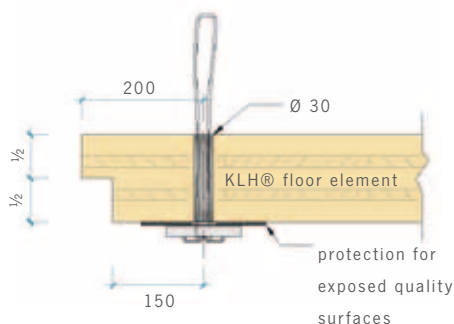
The following diagrams illustrate the recommended minimum edge distances for the lifting holes.



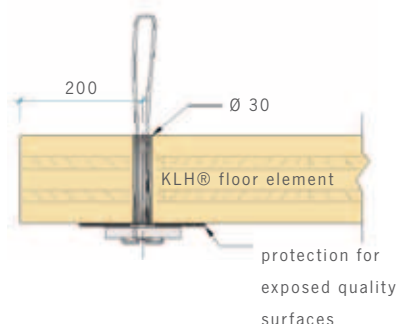
The holes for lifting slings will be incorporated into the fabrication drawings by the customer.

The position of the hole for the lifting sling will depend on the edge distance, the balance point and the handling position of the KLH® element. The specific lifting system type will normally be specified by the customer.

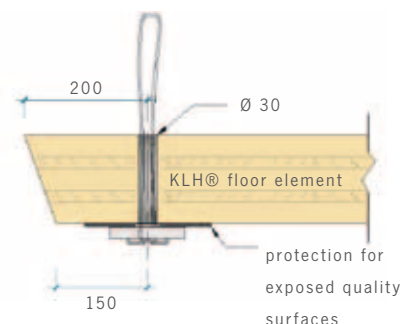
Half Lap



Standard



Slope cut



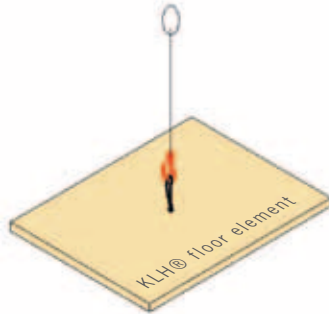
## VISIBLE FACTORY FITTED LIFTING SYSTEMS FOR FLOOR AND ROOF ELEMENTS

### DIAGRAMMATIC ILLUSTRATION OF THE SYSTEMS FD 1000 / 1000 FB

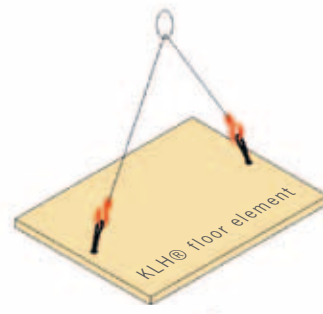
Panel thickness ranging from 60 mm to 500 mm

1 Lifting sling or 2, 3 or 4 Lifting slings

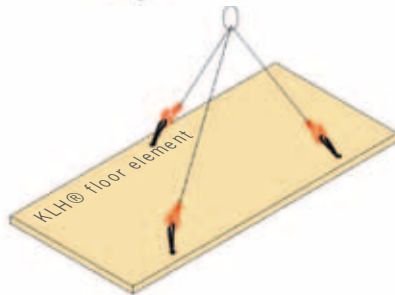
1 lifting sling -  
panel weight  
1,000 kg max.



2 lifting slings -  
panel weight  
1,000 kg max.



3 lifting slings -  
panel weight  
1,500 kg max.



4 lifting slings -  
panel weight  
3,000 kg max.

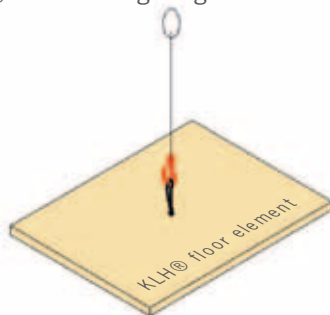


### DIAGRAMMATIC ILLUSTRATION OF THE SYSTEMS FD 2500 / FB 2500

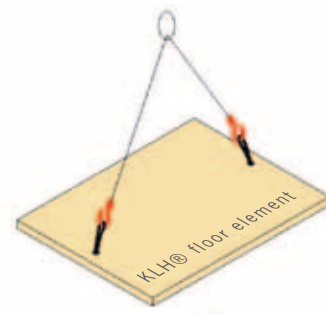
Panel thickness from 125 mm to 500 mm,

1 Lifting sling or 2, 3 or 4 Lifting slings

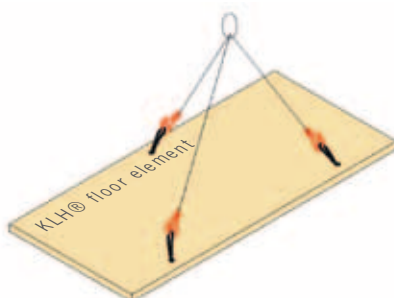
1 lifting sling -  
panel weight  
2,500 kg max.



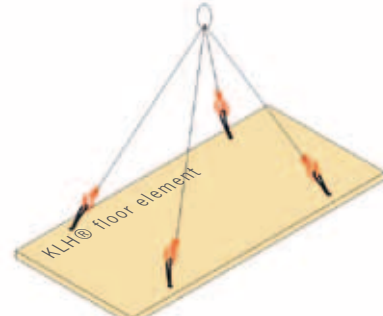
2 lifting slings -  
panel weight  
2,500 kg max.



3 lifting slings -  
panel weight  
3,750 kg max.



4 lifting sling -  
panel weight  
7,500 kg max.



## VISIBLE FACTORY FITTED LIFTING SYSTEMS FOR FLOOR AND ROOF ELEMENTS

### GENERAL COMMENTS REGARDING THE INSTALLATION OF THE DISPOSABLE LIFTING SLINGS

The type of lifting system will be determined during the fabrication drawing procedure and usually ordered by the customer. Typically the lifting slings are installed in the factory.

Exception: To load and unload vertically transported elements and panels with F-systems, lifting slings in

the W-system will be fitted in the factory. For further handling of the panels, the supplied lifting system components for the F-system need to be installed on site (see also page 27).

It is imperative that the lifting slings provided are installed strictly in accordance with the below illustrations.

### INSTALLATION OF LIFTING SLINGS FOR THE FD-SYSTEM



1 Insert the lifting sling into the lifting hole



2 Pull the sling up again and through the second hole



3 Lifting situation with FD-system. Edge distance between holes 100 mm.  
Hole locations 45 degrees to the direction of the grain. See photo

## VISIBLE FACTORY FITTED LIFTING SYSTEMS FOR FLOOR AND ROOF ELEMENTS

### INSTALLATION OF LIFTING SLINGS WITH THE FB-SYSTEM



1 Insert the lifting sling into the lifting hole



2 Locate the metal pin and lifting hook away from the seam of the lifting sling



3 Insert the metal pin with the locking clip down and secure



4 Lifting situation with FB-system

## CONCEALED FACTORY FITTED LIFTING SYSTEMS

## 02 CONCEALED AND FLUSH FACTORY FITTED LIFTING SYSTEMS

### 02.1 VLS-SYSTEM TYPE VLS W AND TYPE VLS D

The VLS-system type VLS W and type VLS D described in the following is a lifting system KLH® developed in-house. It is particularly suited for lifting KLH® elements with exposed quality surfaces.

The VLS-system is fully concealed and installed in the factory. After installation of the KLH® element on site, the lifting sling can be cut off flush.

**TYPE OVERVIEW TABLE FOR VLS-SYSTEM TYPE VLS W AND TYPE VLS D FOR WALL, FLOOR AND ROOF ELEMENTS**

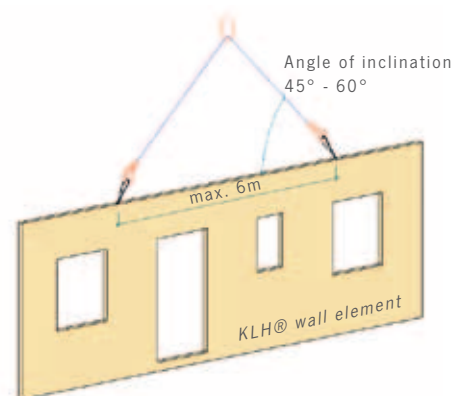
System type	Transport – loading type	minimum panel thickness [mm]	maximum panel thickness [mm]	minimum number of lifting slings	maximum number of lifting slings	maximum panel weight [kg] with 1 lifting sling	maximum panel weight [kg] with 2 lifting slings	maximum panel weight [kg] with 3 lifting slings	maximum panel weight [kg] with 4 lifting slings	Panel handling
VLS W2	horizontal/vertical	75	90	1	2	500	1000	not permitted	not permitted	vertical
VLS W2 D	horizontal/vertical	75	90	1	2	1000	2000	not permitted	not permitted	vertical
VLS W3	horizontal/vertical	95	120	1	2	800	1600	not permitted	not permitted	vertical
VLS W3 D	horizontal/vertical	95	120	1	2	1600	3200	not permitted	not permitted	vertical
VLS W4	horizontal/vertical	125	185	1	2	800	1600	not permitted	not permitted	vertical
VLS W4 D	horizontal/vertical	125	185	1	2	1600	3200	not permitted	not permitted	vertical
VLS W5	horizontal/vertical	190	500	1	2	800	1600	not permitted	not permitted	vertical
VLS W5 D	horizontal/vertical	190	500	1	2	1600	3200	not permitted	not permitted	vertical

VLS D1	horizontal	60	500	1	4	700	700	1400	2100	horizontal
VLS D1	vertical	60	500	1	4	700	1400	1400	1400	vertical
VLS D1 D	horizontal	60	500	1	4	1400	1400	2800	4200	horizontal
VLS D1 D	vertical	60	500	1	4	1400	2800	2800	2800	vertical
VLS D2	horizontal	90	500	1	4	1050	1050	2100	3150	horizontal
VLS D2	vertical	90	500	1	4	1050	2100	2100	2100	vertical
VLS D2 D	horizontal	90	500	1	4	2100	2100	4200	6300	horizontal
VLS D2 D	vertical	90	500	1	4	2100	4200	4200	4200	vertical
VLS D3	horizontal	140	500	1	4	1750	1750	3500	5250	horizontal
VLS D3	vertical	140	500	1	4	1750	3500	3500	3500	vertical
VLS D3 D	horizontal	140	500	1	4	3500	3500	7000	10500	horizontal
VLS D3 D	vertical	140	500	1	4	3500	7000	7000	7000	vertical

## CONCEALED FACTORY FITTED LIFTING SYSTEMS

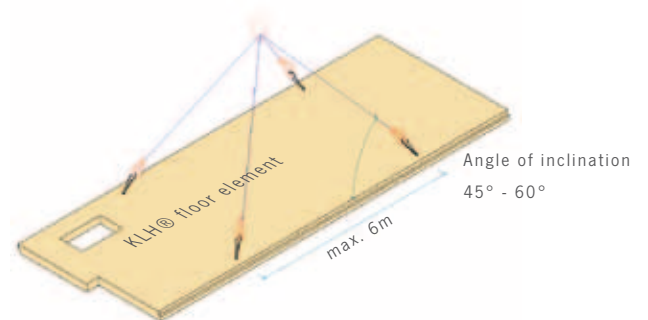
### VLS-SYSTEM

System VLS W2-fitted to a wall element



### VLS-SYSTEM

System VLS D2- fitted to a floor element



## CONCEALED FACTORY FITTED LIFTING SYSTEMS

### ILLUSTRATION OF CONCEALED FACTORY FITTED LIFTING SYSTEMS - THE VLS-SYSTEM FOR WALL, FLOOR AND ROOF ELEMENTS

#### EDGE DISTANCES FOR THE VLS-SYSTEM

Installation will be carried out in the KLH® factory and exclusively in accordance with the edge distance requirements as described below.

The 25 mm  $\varnothing$  holes for lifting slings will be incorporated into the fabrication drawings by the customer.

The position of the hole for the lifting sling will depend on the edge distance, the balance point and the handling position of the KLH® element. The specific lifting system type will normally be specified by the customer.

The maximum distance between 2 lifting slings is 6,000mm.

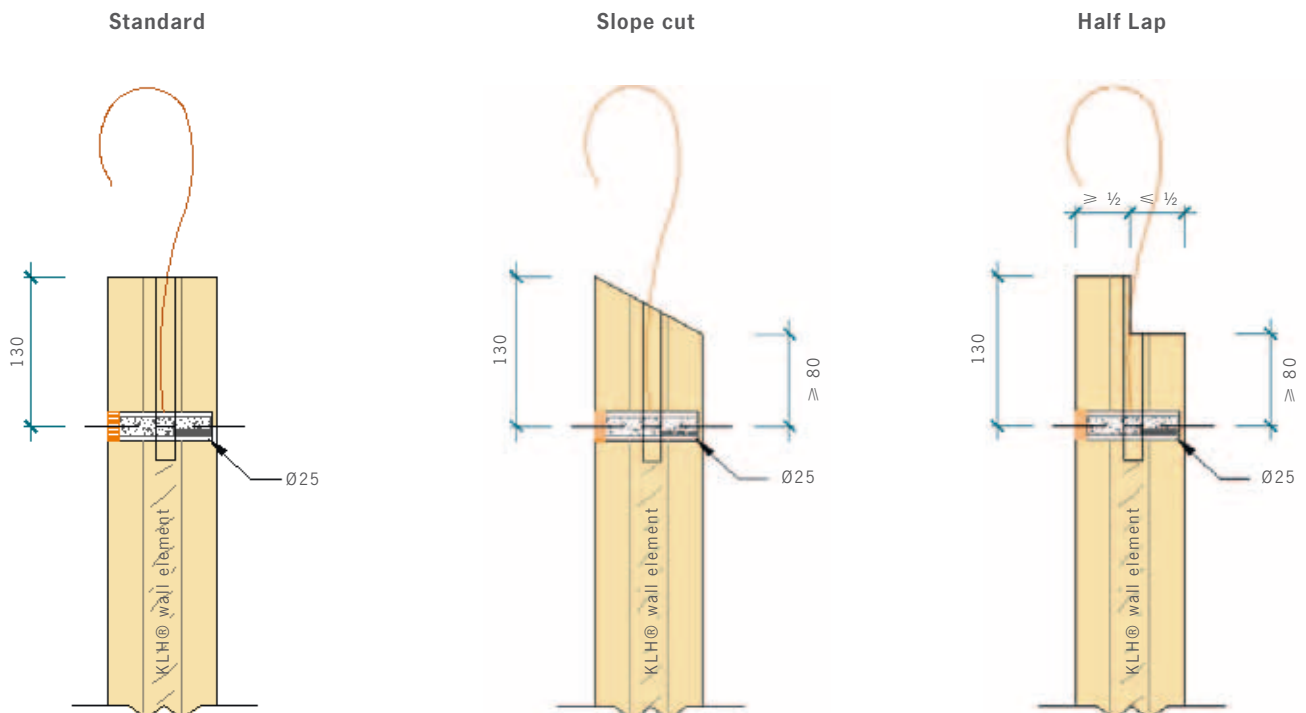
#### VLS-SYSTEM FOR VERTICAL PANEL HANDLING (E.G. WALL ELEMENTS)

The following VLS-systems are available for vertical panel handling

VLS W2 to VLS W5 and VLS W2 D to VLS W5 D

For full details regarding the available VLS lifting systems please refer to the overview.

Below an illustration of the edge distances for VLS W-systems:



## CONCEALED FACTORY FITTED LIFTING SYSTEMS

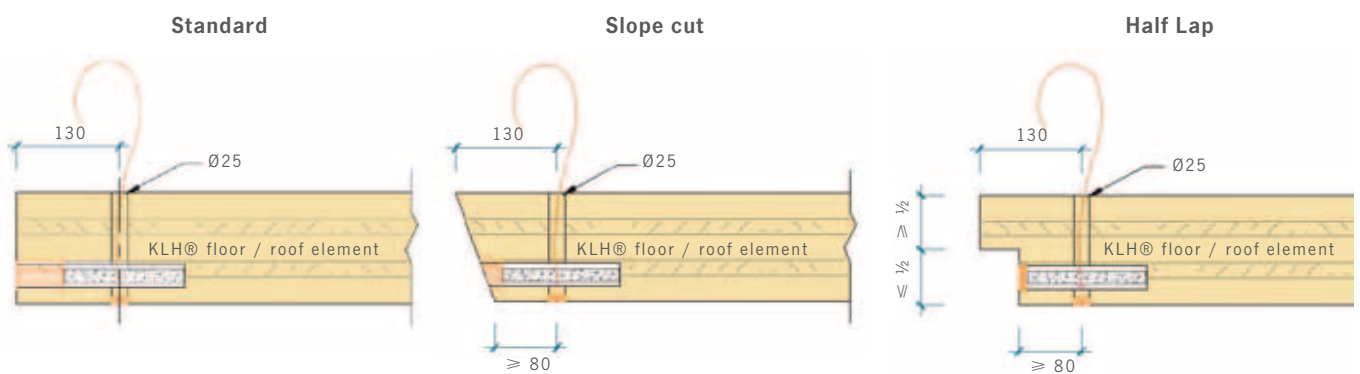
### VLS LIFTING SYSTEM FOR HORIZONTAL PANEL HANDLING (E.G. FLOOR AND ROOF ELEMENTS)

The following VLS-systems are available for horizontal panel handling

VLS D1 to VLS D3 and VLS D1 D to VLS D3 D

For full details regarding the available VLS lifting systems please refer to the overview.

Below an illustration of the edge distances for VLS D-systems:



### INSTALLATION WITH SINGLE OR DOUBLE LIFTING SLING

Typically a single lifting sling is sufficient. For high load requirements a double sling arrangement can be installed.

Example VLS W3



Example VLS W3 D



When lifting with the double sling arrangement it is imperative that the lifting hook is inserted into both slings.

## CONCEALED FACTORY FITTED LIFTING SYSTEMS

### 02.2 VLS-SYSTEM TYPE VLS S

The VLS-system type VLS S marks an evolution of a proven system for the horizontal handling of floor and roof elements. It is also installed in the factory and its lifting

slings are tucked away in the bore hole (68 mm diameter). After installation, the client has to seal the bore hole on the upper panel side.

#### OVERVIEW OF VLS-SYSTEM TYPE VLS S FOR FLOOR AND ROOF ELEMENTS

System type	Sling type	Min. panel thickness in [mm]	Max. panel thickness in [mm]	Min. number of slings	Max. number of slings	Max. panel weight in [kg] With 2 installed slings	Max. panel weight in [kg] With 3 built-in slings	Max. panel weight in [kg] With 4 built-in slings	Panel handling	Bolt axis parallel to cover layer on 3-ply panels (3s panels)	Bolt axis parallel to cover layer on panels with 5 or more plies
VLS S1	600	80	95	2	4	600	900	1800	horizontal	impermissible	-
VLS S1	600	100	360	2	4	800	1200	2400	horizontal	impermissible	permissible
VLS S2	1000	120	360	2	4	900	1350	2700	horizontal	impermissible	permissible
VLS S3	2500	140	360	2	4	1400	2100	4200	horizontal	-	permissible
VLS S4	2500	180	360	2	4	2500	3750	7500	horizontal	-	permissible

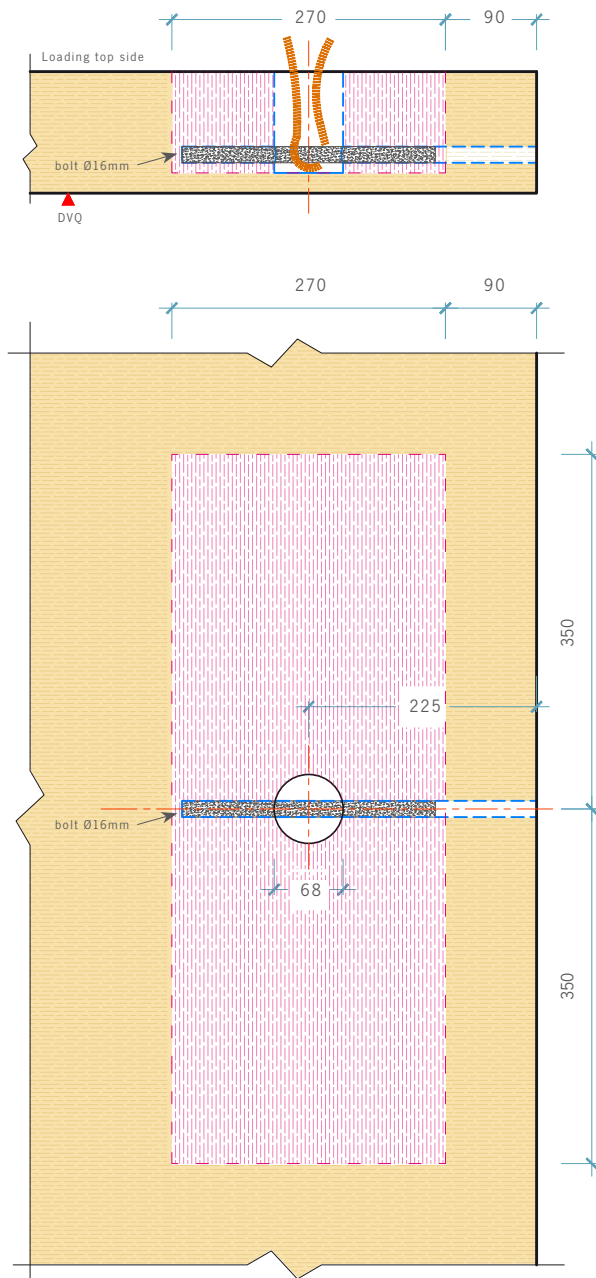
## CONCEALED FACTORY FITTED LIFTING SYSTEMS

VLS-SYSTEM FOR HORIZONTAL PANEL HANDLING (FOR INSTANCE WHEN INSTALLING FLOOR AND ROOF ELEMENTS)

For suitable systems see type overview. Suitable are VLS S1 and VLS S4.

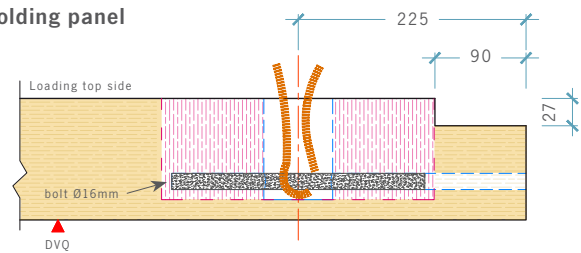
View of the edge distances on VLS S systems

(the area highlighted in red must not be processed):

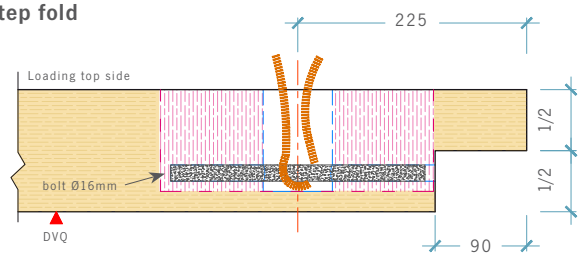


Examples of permissible edge processing:

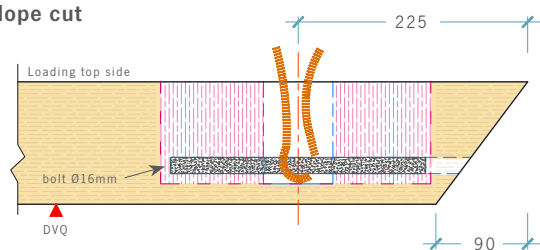
**Folding panel**



**Step fold**



**Slope cut**



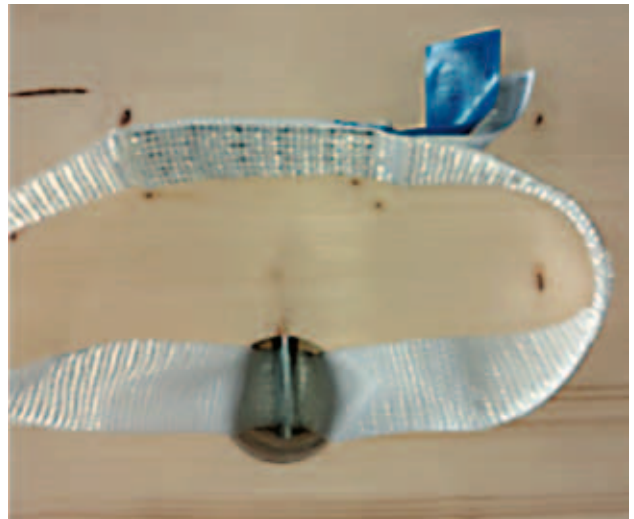
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**CONCEALED FACTORY FITTED LIFTING SYSTEMS**

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**VLS S SYSTEM SLING INSTALLATION**

1. Insert sling and bolt into bore hole



2. Lifting with installed VLS S system



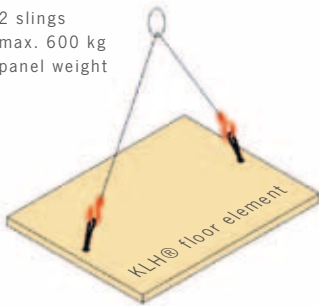
3. Transporting with rolled-up sling in the bore hole

## CONCEALED FACTORY FITTED LIFTING SYSTEMS

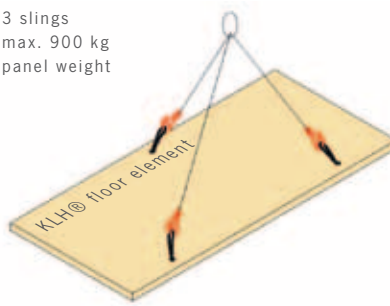
### DIAGRAMMATIC ILLUSTRATION OF THE VLS S1 SYSTEM

Panel thickness 80 - 95 mm,  
2, 3 or 4 slings

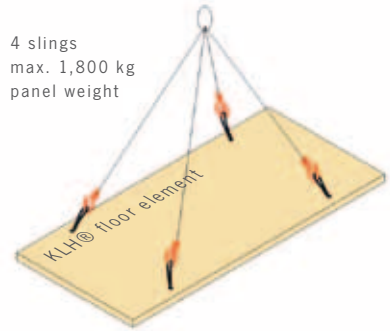
2 slings  
max. 600 kg  
panel weight



3 slings  
max. 900 kg  
panel weight

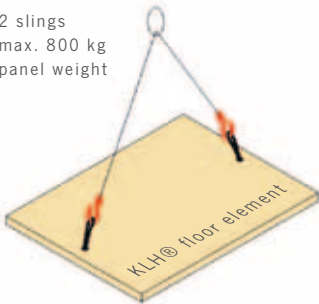


4 slings  
max. 1,800 kg  
panel weight

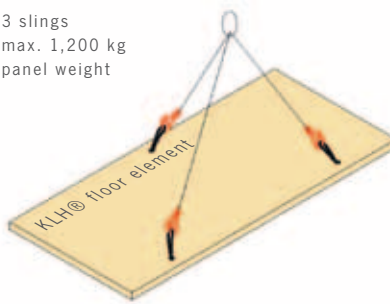


Panel thickness 100 - 360 mm,  
2, 3 or 4 slings

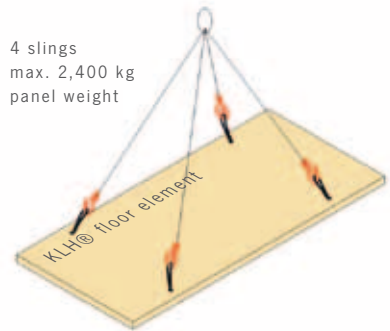
2 slings  
max. 800 kg  
panel weight



3 slings  
max. 1,200 kg  
panel weight



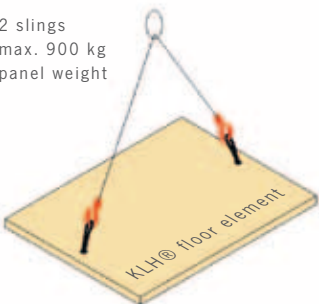
4 slings  
max. 2,400 kg  
panel weight



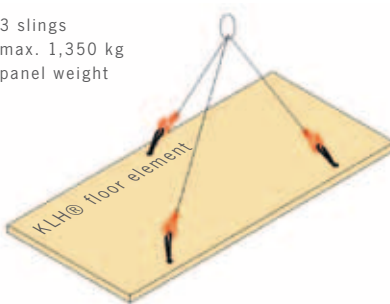
### DIAGRAMMATIC ILLUSTRATION OF THE VLS S2 SYSTEM

Panel thickness 120 - 360 mm,  
2, 3 or 4 slings

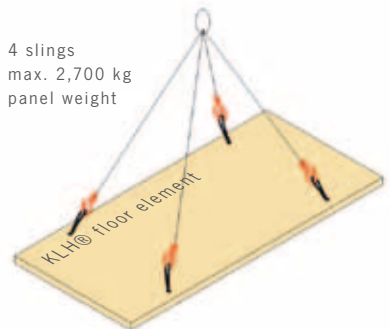
2 slings  
max. 900 kg  
panel weight



3 slings  
max. 1,350 kg  
panel weight



4 slings  
max. 2,700 kg  
panel weight

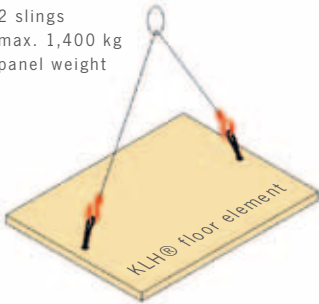


## CONCEALED FACTORY FITTED LIFTING SYSTEMS

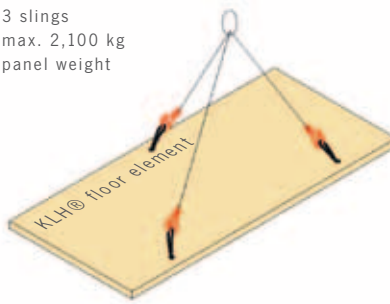
### DIAGRAMMATIC ILLUSTRATION OF THE VLS S3 SYSTEM

Panel thickness 140 - 360 mm,  
2, 3 or 4 slings

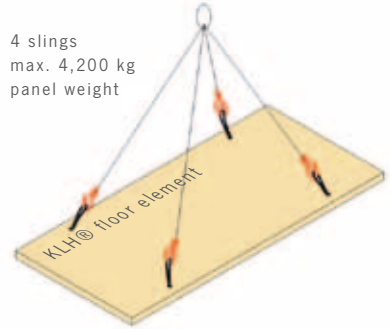
2 slings  
max. 1,400 kg  
panel weight



3 slings  
max. 2,100 kg  
panel weight



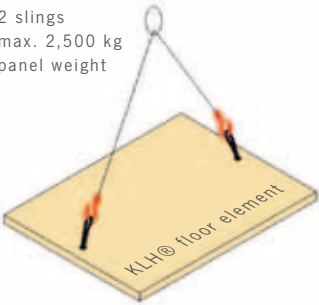
4 slings  
max. 4,200 kg  
panel weight



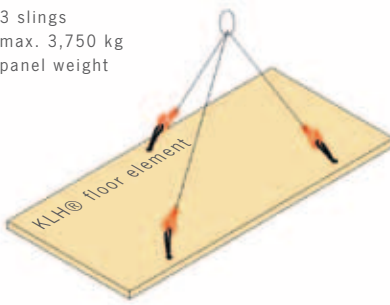
### DIAGRAMMATIC ILLUSTRATION OF THE VLS S4 SYSTEM

Panel thickness 180 - 360 mm,  
2, 3 or 4 slings

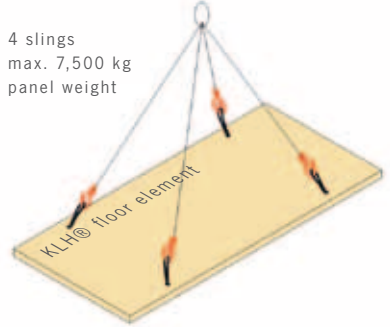
2 slings  
max. 2,500 kg  
panel weight



3 slings  
max. 3,750 kg  
panel weight



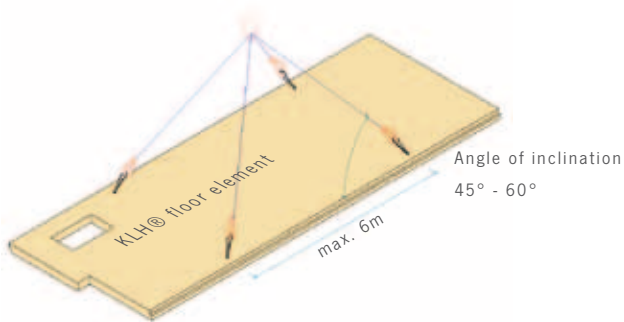
4 slings  
max. 7,500 kg  
panel weight



## CONCEALED FACTORY FITTED LIFTING SYSTEMS

### HORIZONTAL PANEL HANDLING USING THE SYSTEMS VLS S1 TO VLS S4

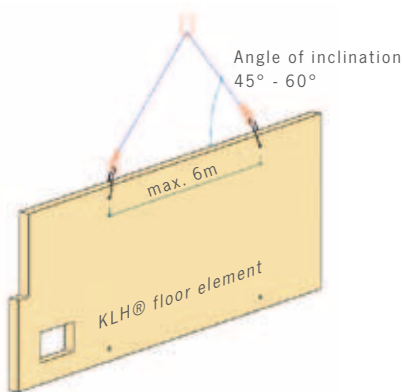
The systems VLS S1 to VLS S4 are only approved for horizontal panel handling during loading, transport, unloading and installation.



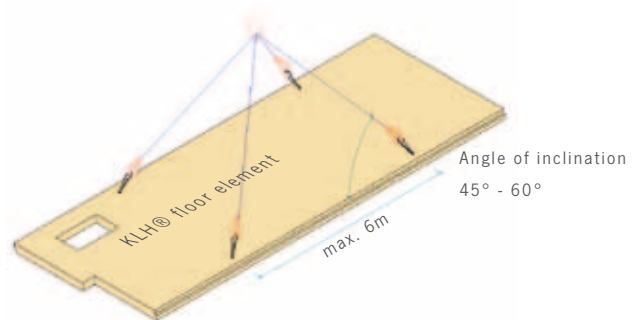
1. Unloading and installation using installed VLS S installation lifting system

### VERTICAL PANEL HANDLING USING THE SYSTEMS VLS S1 TO VLS S4

When vertically handling panels – for example when transporting them upright – one must use an additional unloading lifting system (W-system or VLS-system type VLS W). After putting the element down in horizontal position, the lifting gear must be attached to the VLS S installation lifting system.



1. Unloading using installed unloading lifting system (W system or type VLS W)



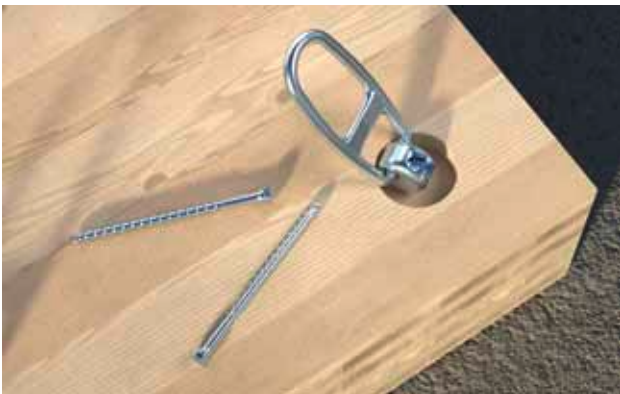
2. Installation using installed type VLS S lifting system

### 03 LIFTING SYSTEMS INSTALLED ON SITE

#### WÜRTH ASSY® TRANSPORT ANCHOR SYSTEM

Certified in accordance with the Machinery Directive, this lifting system consists of a 3-t ball-ended anchor and a dedicated ASSY® 4 COMBI T Transport anchor screw programme. It is distinguished by simple installation and handling and a wide range of applications. Depending on

the application, a 70 mm Ø Forstner bit and an SW 17 hexagonal socket or RW 40 drive are required for assembly - permissible lifting gear and, if necessary, a compensating crossbeam for lifting the loads.



Experience has shown that the Würth lifting system is very well suited for horizontal panel delivery and horizontal panel manipulation (for example, for floor elements). The highest loads are achieved in the application case of a screw loaded on diagonal tension with a precisely fitting 70 mm milled recess of the coupling head.

It is also possible to use ASSY® transport anchor screws in the end faces of cross laminated timber. As a rule, two hitching points are applied in this transport case. Compared to horizontal panel transport with 4 attachment points, only lower loads or smaller component sizes can be transported in these cases, and the lifting processes (standing component / erecting the component) must be taken into account.

The load-bearing capacity of the lifting anchor in conjunction with the ASSY 4 Combi T lifting anchor screw or ASSY 3.0 Combi lifting anchor screw must be checked before each lifting operation in accordance with the test report / expert opinion and must be verified separately.

Detailed operating instructions, load tables, proof of certification in accordance with the Machinery Directive, expert opinions and processing instructions are available for download at [www.wuerth.de/assy](http://www.wuerth.de/assy).

## UNLOADING AND STORAGE

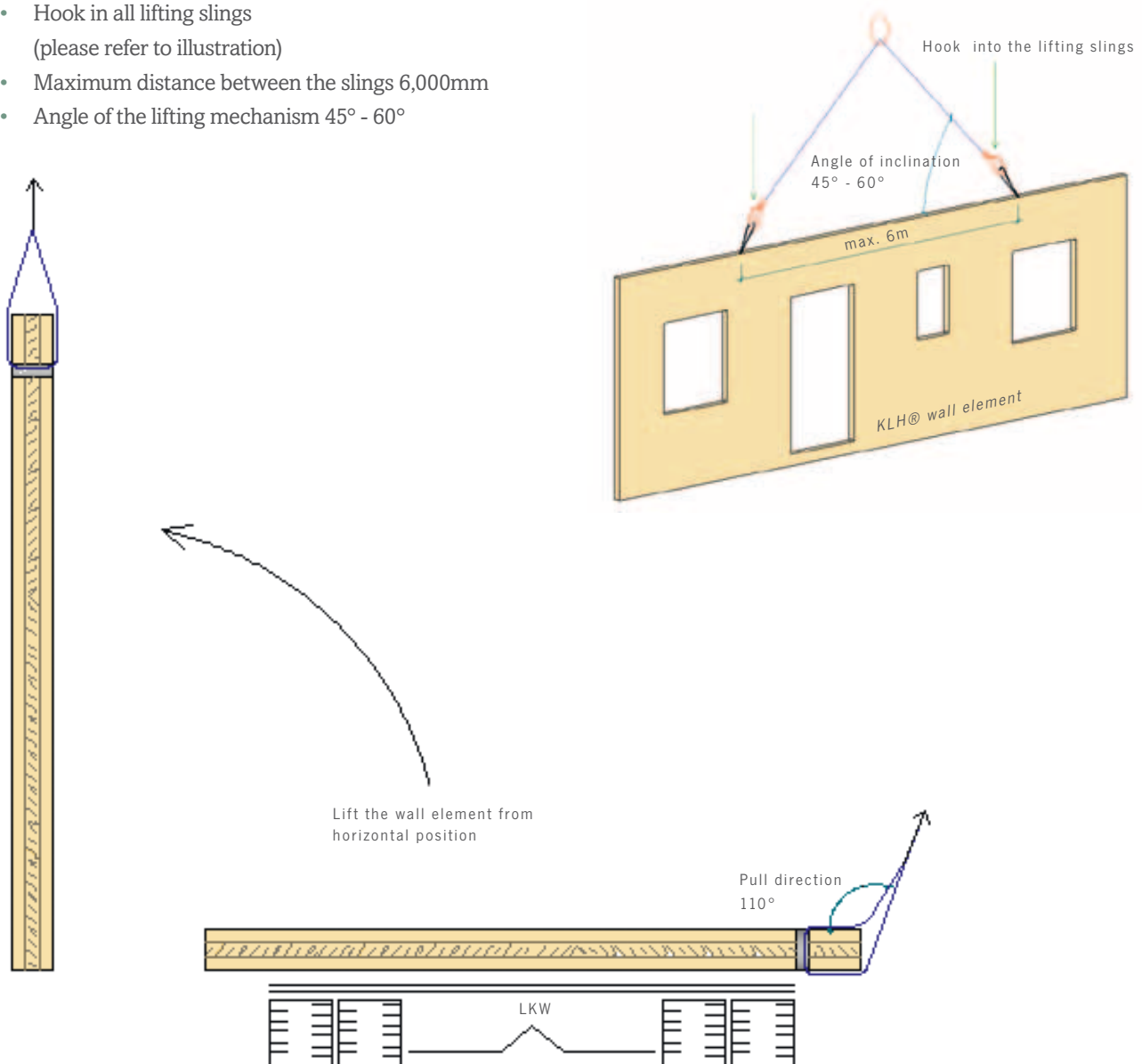
### 04 UNLOADING AND STORAGE

#### GUIDELINES FOR W-SYSTEMS FOR VERTICAL AND HORIZONTAL TRANSPORT/HANDLING

Use a high capacity lifting device (minimum diameter 10 mm) in accordance with EN 818-2.

Please note the following procedures:

- Visual inspection of the fitted disposable lifting slings
- Hook in all lifting slings  
(please refer to illustration)
- Maximum distance between the slings 6,000mm
- Angle of the lifting mechanism  $45^\circ - 60^\circ$



Cargo securing system in accordance with the relevant rules and regulations

## UNLOADING AND STORAGE

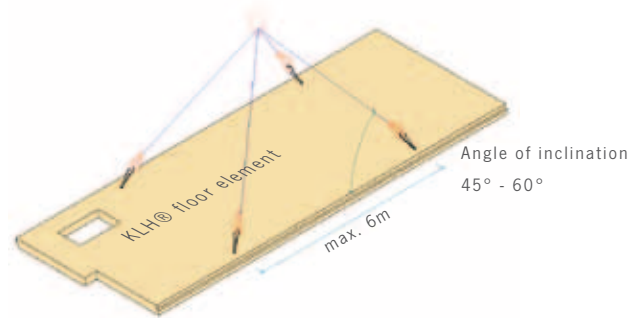
### GUIDELINES FOR F- AND VLS-SYSTEMS FOR VERTICAL AND HORIZONTAL TRANSPORT/HANDLING

Use a high capacity lifting device (minimum diameter 10 mm) in accordance with EN 818-2.

Please note the following procedures:

#### FLOOR/ROOF SLAB - HORIZONTAL TRANSPORT

- Visual inspection of the fitted disposable lifting slings
- Hook in all lifting slings (please refer to illustration)
- Maximum distance between the slings 6,000mm
- Angle of the lifting mechanism 45° - 60°



#### FLOOR/ROOF SLAB - VERTICAL TRANSPORT/HANDLING

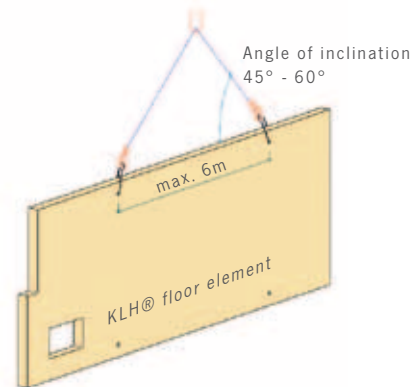
##### Unloading procedure for F- and VLS-systems

The panels are unloaded using the factory installed lifting slings. The panel is then temporarily placed horizontally and secured.

##### Onsite installation with the VLS-system

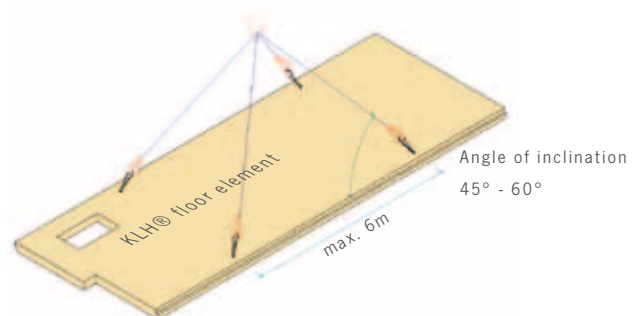
On the VLS D system, the lifting sling is likewise hooked into the remaining factory-installed slings and the element moved that way.

On the VLS S1 to S4 system, the lifting sling is transferred from the unloading lifting system to the VLS S1 to S4 lifting system for assembly.



##### Onsite installation with the F-system

Following the unloading procedure with the F-system the supplied lifting slings are installed on site into all lifting holes and the element lifted into position (see installation of F-system pages 13/14).



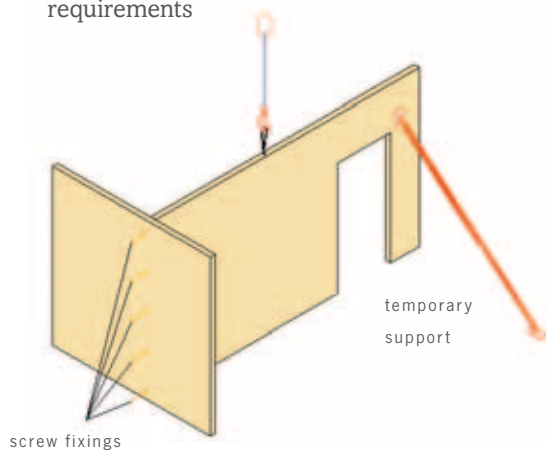
## INSTALLATION

### 05 INSTALLATION

#### VERTICAL ELEMENT INSTALLATION - WALL ELEMENTS

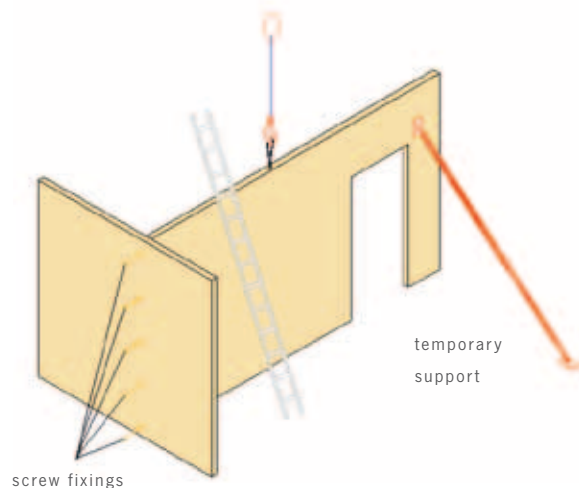
##### INSTALLATION OF WALL ELEMENT

- Correctly position wall panel-note temporary stability requirements



##### UNHOOK LIFTING GEAR

- Follow the relevant occupational health and safety rules and regulations



##### DISPOSAL OF LIFTING SLINGS

- EWC 200 139 plastics from household waste
- CFC 170 203 plastic from construction and demolition waste
- According to EU - waste disposal of non-recyclable waste

#### HORIZONTAL ELEMENT INSTALLATION - FLOOR AND ROOF ELEMENTS

##### FLOOR / ROOF ELEMENT INSTALLATION

- Install floor / roof element in correct position – note temporary stability requirements

##### UNHOOK LIFTING GEAR

- Follow the relevant occupational health and safety rules and regulations when installing floor and roof elements



##### THE VLS-SYSTEM - CUTTING OF LIFTING SLINGS

- Wear safety gloves and use a safety knife strictly in accordance with the relevant Health and Safety rules and regulations







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