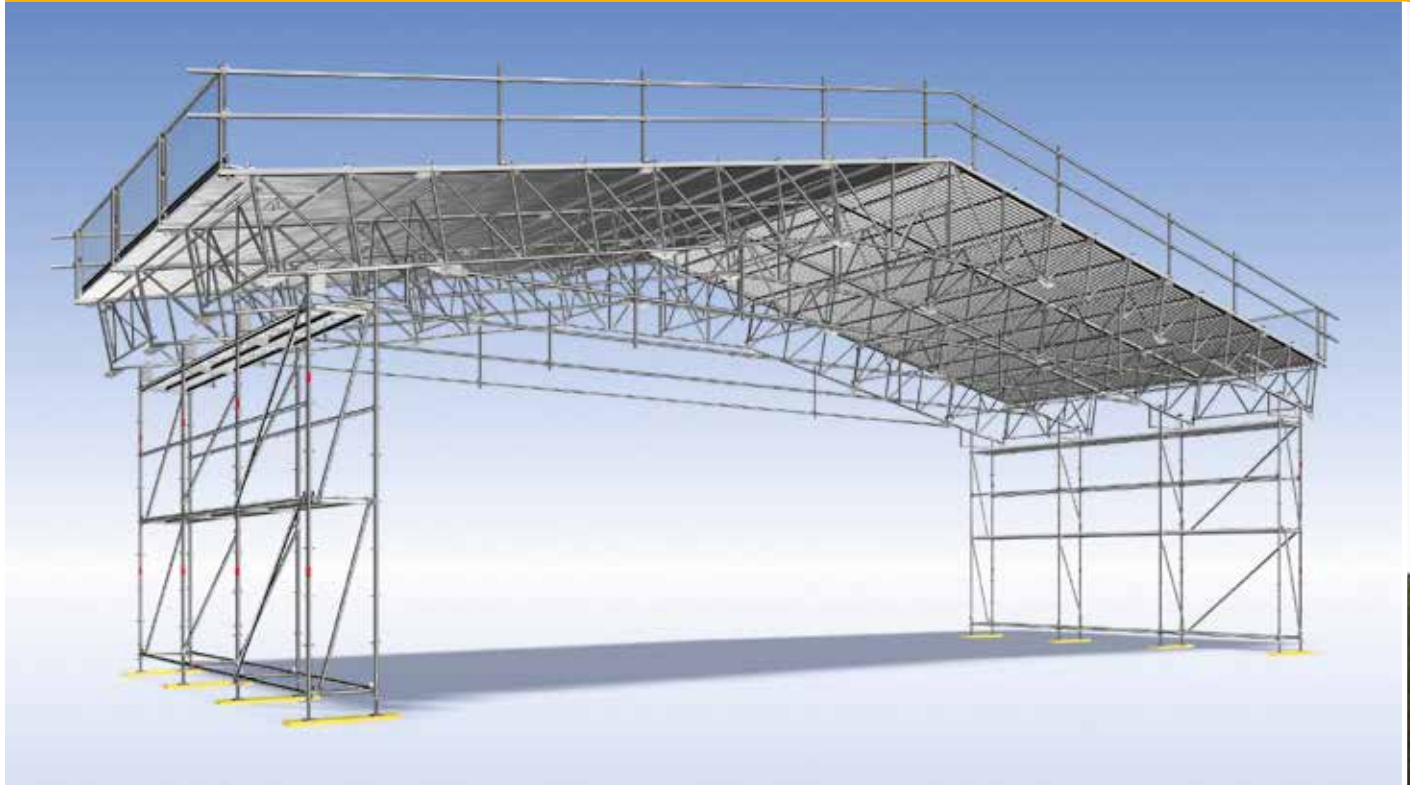


# LAYHER CASSETTE ROOF

FOR WEATHERPROOFING AND TEMPORARY HALLS – LOW-COST, LABOUR-SAVING ROOFING



Notice: Potentially necessary stabilizing measurement are not illustrated.

Layher cassette roofs have established themselves as a firm favourite at construction sites for conversion, renovation and restoration. The structure itself and all the equipment is protected during the conversion or roof repair and normal business operations can continue under a secure roof.

If weatherproofing is the aim then there are many reasons to choose the Layher cassette roof system.

## ► Economical thanks to top-class technology

A sophisticated, proven construction consisting of high-quality components, specially equipped for recurrent, changing assembly and dismantling operations.

## ► Long, useful service life

The Layher cassette roof is almost indestructible. Its practical design coupled with the chosen materials are key reasons making it an investment that will retain its value over many years. The use of cassette roof girders ensures rapid assembly. The roof trusses are assembled astonishingly quickly at ground level, then mounted on the

supporting structure using a crane. The roof cassettes for the intermediate bays are inserted into the channel section and locked in place with clamping plates and wedges. That's all there is to it! No tensioning or tying is required.

The cassettes act as bracing elements. Only every second bay is assembled as a so-called truss bay, and there are no doubled roof trusses. This represents an additional saving of material and, consequently, also of money and assembly time.

## ► Economical modular system

Variable roof areas are possible thanks to the well-conceived section lengths of the roof trusses and the U-shaped top chord.

## ► Vast spans

Depending on the static system and the load, it is possible to create roof structures with spans of more than 40 m.



#### ► Easy to open for material supply

To permit material supply to the site, the Layher cassette roof can be opened at any location by simply removing one or more roof cassettes. No crane is needed.

#### ► System-independent

The Layher cassette roof does not require any specific substructure. This means that no unwanted additional investments are required. The Layher cassette roof can be mounted easily on almost any scaffolding or other suitable substructure.

#### ► Total weatherproofing

Rainwater is excluded correctly thanks to the over-lapping, shaped roof surface elements. This is a basic requirement for any weatherproofing roof.

#### ► Notes on construction and use

When assembling and using the roof, it is essential to observe the applicable regulations and the manufacturer's assembly instructions. Personal safety apparatus (PSA) for protection against falls must be used.

A structural analysis for spans of up to 27.10 m exists for the roof structure. It is necessary to check the stability of the supporting structure (e.g. scaffolding) and the roof structure.

This cassette roof is a non-insulated, rainproof covering under which condensation may form and drip depending on the outside weather. The connections between the cassettes are not sealed and rainwater may penetrate due to unfavourable wind conditions. We cannot therefore accept any liability for damage to the covered structure. However, additional sealing options exist.

### THE BENEFITS TO YOU:

- Economical thanks to well-thought-out and durable components.
- Enormous spans up to 40 metres.
- System-free – the cassette roof can be mounted on almost all suitable substructures.

## Roof beam system as truss elements

The system for large spans and rapid assembly for everyday use

### Truss elements

These one metre high **roof beams 1** are the elements that support the cassette roof (U-shaped top chord for the insertion of the roof cassettes, tubular bottom chord and posts of diameter 48.30 mm). The **ridge support 2** is intended for the construction of double-pitch roofs with a roof angle of approximately 11°.

The **roof beams 1** or **ridge supports 2** are connected to one another at the bottom chord with **30 x 50 mm bolts 3** and **4 mm safety clips 4**. At the top chord, it is possible to use either two **M14 x 80 bolts 7** with nuts or **14 x 77 mm bolts 5a** with **2.80 mm safety clips 5b**.

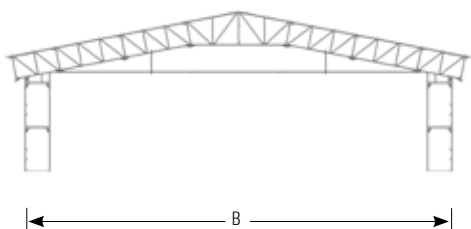
Depending on the structural analysis, some construction variants may require the use of a third **14 x 107 mm bolt 6a** and **2.80 mm safety clip 6b** at the top chord.

A truss bay consisting of a pair of roof trusses connected to **beam stiffeners 8** is pre-assembled at ground level and the roof cassettes are mounted on it and wedged in place.

A crane is used to place the pre-mounted truss bays on the scaffolding at intervals of 2.57 m, while the unoccupied intermediate bays are reinforced with **tubular stiffeners 9** and then closed using roof cassettes.

### Maximum spans as a function of the structural analysis

(in all cases, external scaffolding dimensions)



#### Snow load 0.75 kN/m²:

B = 15.30 m without tie

B = 23.20 m with tie

#### Snow load 0.25 kN/m²:

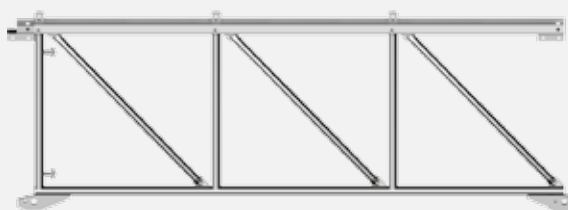
B = 21.20 m without tie

B = 27.10 m with tie

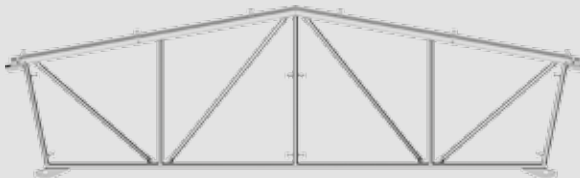
Larger spans are possible in individual cases subject to verification.

## Roof beam system as truss elements

1



2



3



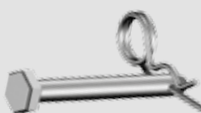
4



5a + b



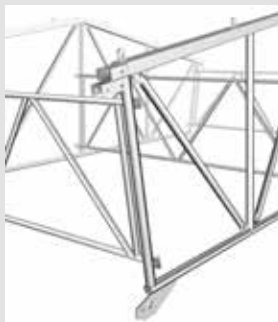
6a + b



7




















8



9



Pos.	Description	Dimensions L/H x W [m]	Weight approx. [kg]	PU [St.]	Ref. No.
1	<b>Roof beam</b> 2.00 m 3.00 m				
		2.00 x 1.00	48.2	16	<b>5902.200</b> 
		3.00 x 1.00	64.5	16	<b>5902.300</b> 
2	<b>Ridge support</b>	4.30 x 1.00/1.50	106.0	10	<b>5901.000</b> 
3	<b>Bolt, 30 x 50 mm</b> for connecting the roof beams and ridge supports	0.05	3.0	10 	<b>5903.001</b> 
4	<b>Safety clip, 4 mm</b> for 30 x 50 mm bolts and roof support wedges	0.08	1.5	50 	<b>5905.001</b> 
5a	<b>Bolt, 14 x 77 mm and</b>	0.08	2.2	20 	<b>5906.078</b> 
5b	<b>Safety clip, 2.80 mm</b>		0.5	50 	<b>4905.001</b>
6a	<b>Bolt, 14 x 107 mm and</b>	0.11	3.0	20 	<b>5906.108</b> 
6b	<b>Safety clip, 2.80 mm</b>		0.5	50 	<b>4905.001</b>
7	<b>Bolt, M14 x 80</b> with washer and nut		2.8	20 	<b>5906.081</b> 
8	<b>Beam stiffener</b>	2.57	15.2	35	<b>5907.000</b> 
9	<b>Tubular stiffener</b>	2.57	5.1	150	<b>2504.257</b> 

## Roof girder system as truss elements

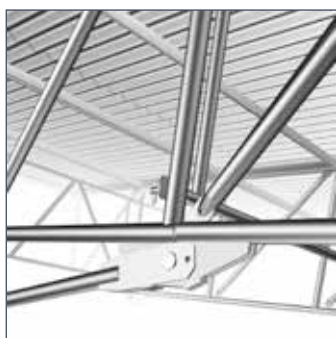
### Tie elements

In the case of high levels of snow and/or large spans, it is necessary to install a **tie 2**. The **end pieces of the ties 1** are connected to the last bottom chord joint using **30 x 64 mm bolts 3** and extended by one or more tie spacers.

The tie elements are joined to one another using **lattice beam connectors 5** and are suspended using scaffolding tubes and couplers.

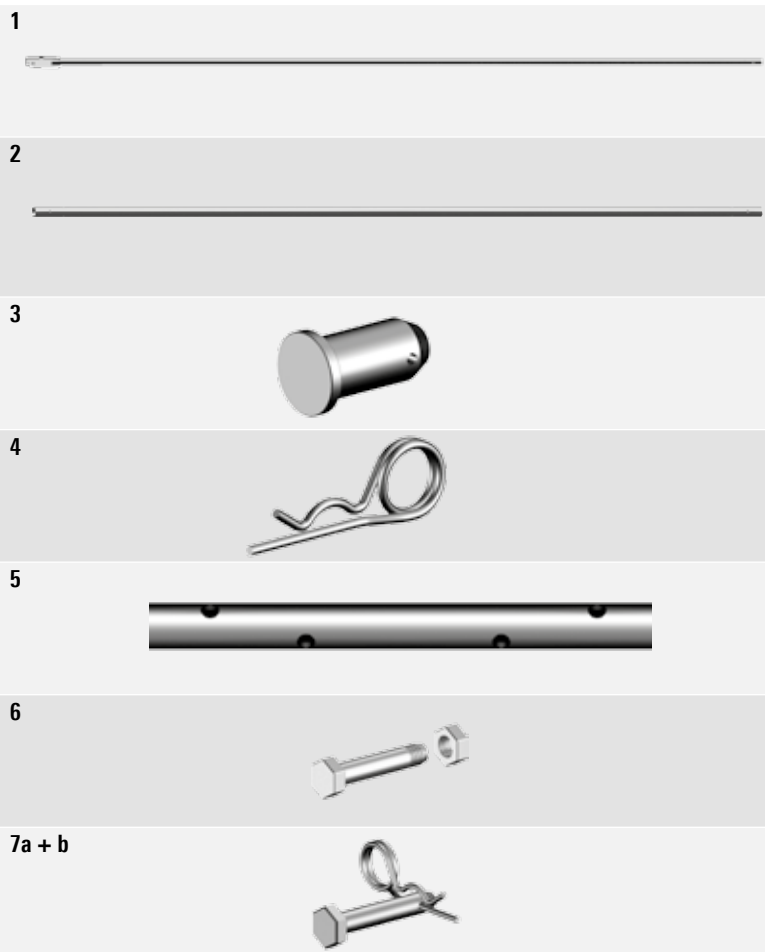
When mounting ties, it is necessary to install a 2.00 m long roof girder as the external roof girder.

**Lattice beam connectors 5** are used to connect the tie end pieces or spacers. Each of these requires either two **M14 x 65 bolts 6** with nuts or four **14 x 77 mm bolts 7a** with 2.80 mm safety clips **7b**.



Tie connection

### Roof girder system as truss elements



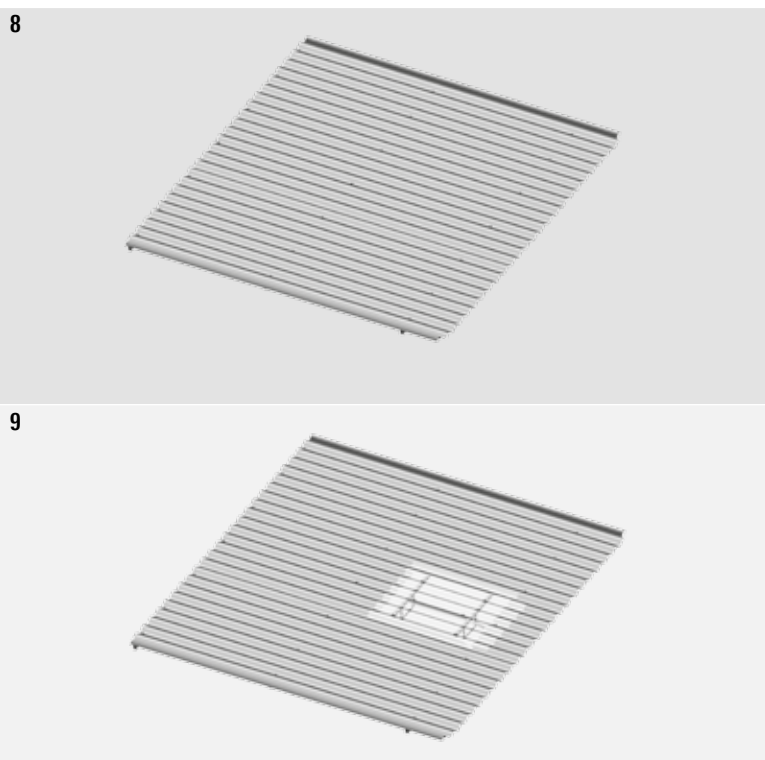
## Roof cassette elements

### Roof cassettes with corrugated sheet
















The **roof cassettes 8** consist of a robust, hot-dip galvanized steel frame with shaped steel sheets and form the rainproof, walk-on roof covering of the cassette roof. The cassettes improve the horizontal rigidity of the roof. They can be supplied in lengths of 1.00 m and 2.00 m. The roof cassettes are inserted in the channel section of the top chord and are secured positively and non-positively using wedges and clamping plates. In this case, the clamping plate acts as a force-distributing base while the specially shaped wedge prevents slippage.




The 2.00 m-long cassette is also available with an **access hatch 9** to provide you with a safe, easy way onto the roof.

### Roof cassette elements





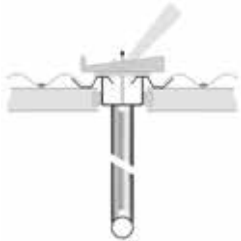
Pos.	Description	Dimensions L/H x W [m]	Weight approx. [kg]	PU [St.]	Ref. No.
1	<b>Tie, end piece</b> for roof girder	6.00	29.5	50	5917.000 
2	<b>Tie</b>	0.68	3.0	50	5918.068 
		1.18	5.1	50	5918.118 
		2.00	7.1	50	5918.200 
		4.00	17.0	50	5918.400 
		6.00	25.5	50	5918.600 
3	<b>Bolt, 30 x 64 mm</b> for assembly of the tie end pieces	0.06	4.0	10 	5904.001 
4	<b>Safety clip, 4 mm</b> for securing the 30 x 64 mm bolts	0.08	1.5	50 	5905.001 
5	<b>Lattice beam connector</b> , round steel for joining the tie elements Ref. Nos. 5917 and 5918	0.44	3.4	20	4916.000
6	<b>Bolt, M14 x 65</b> with nut	0.07	6.5	50 	4908.066 
7a	<b>Bolt, 14 x 77 mm and</b>	0.08	2.2	20 	5906.078 
7b	<b>Safety clip, 2.80 mm</b>		0.5	50 	4905.001

Pos.	Description	Dimensions L/H x W [m]	Weight approx. [kg]	PU [St.]	Ref. No.
8	<b>Roof cassette, 1.00 m, with corrugated sheet</b>	1.00 x 2.57	35.2	20	5909.100 
	<b>Roof cassette, 2.00 m, with corrugated sheet</b>	2.00 x 2.57	66.0	20	5909.200 
9	<b>Roof cassette with access hatch, 2.00 m, corrugated sheet</b>	2.00 x 2.57	75.7	10	5910.200 

## Roof cassette elements

**Ridge cassettes 1** for use with roof trusses consisting of roof girders and ridge supports.

Support scaffolding for cassette roofs is usually clad with translucent scaffolding tarpaulins. If additional light is required, **light cassettes 2** can also be installed. The light cassettes are fitted with transparent corrugated plastic panels together with a grid at the bottom to prevent people falling through. There is therefore no need for safety guards around the light cassette.



*Cassette fixing*

**Wedges and clamping plates 3/4** for securing the roof cassettes both on the roof trusses and in the intermediate bay.

The **carrying handles 5** are inserted in the edge section of the roof cassettes and simplify the insertion and removal of individual roof cassettes without there being any need to bend or go too close to the opening.

### Roof supports as connecting elements for the supporting structure

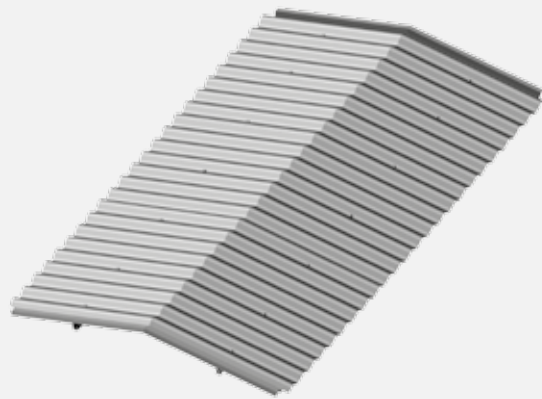
The **roof support 6** is mounted on the appropriate support scaffolding. It can be used for SpeedyScaf and Allround scaffolding of width 0.73 m or 1.09 m. The premounted truss bays are inserted in the roof support and secured using 2 **wedges 7** with **safety clips 8** to ensure that they cannot lift out of position. And if the roof has to be mounted on another structure? Our engineers have even found solutions for this requirement. Please consult us.



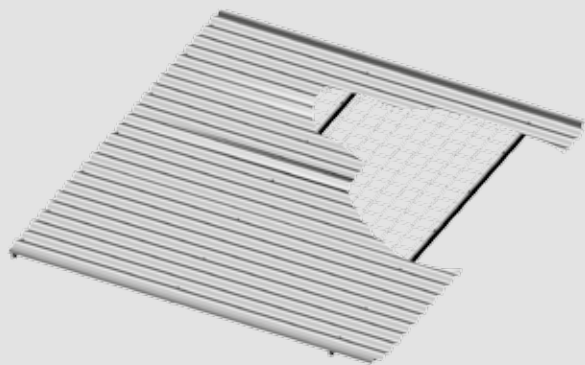
*Detail for roof support*

## Roof cassette elements

1



2



3



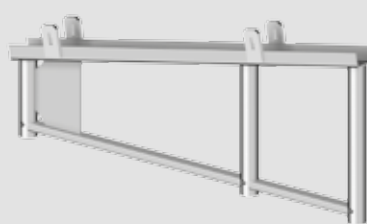
4



5



6



*Top scaffolding guardrail, secure assembly thanks to lower bracket levels*

7















8



**Layher** 

More Possibilities. The Scaffolding System.

Pos.	Description	Dimensions L/H x W [m]	Weight approx. [kg]	PU [St.]	Ref. No.
1	<b>Ridge cassette</b> , with corrugated sheet	1.40 x 2.57	44.4	10	<b>5911.000</b> 
2	<b>Light cassette</b> , 2.00 m, with corrugated plastic panels, installation only in intermediate bays in alternation with roof cassettes	2.00 x 2.57	46.0	10	<b>5930.200</b> 
3	<b>Wedge</b> , for fixing cassette	0.18	7.5	25 	<b>5913.002</b> 
4	<b>Clamping plate</b> , for fixing cassette	0.12 x 0.08	15.0	25 	<b>5914.001</b> 
5	<b>Carrying handle</b> , for roof cassette, steel	0.75	1.2		<b>5931.100</b> 
6	<b>Roof support</b> , 0.73/1.09 m 2 wedges Ref. No. 5913.000 and 2 safety clips Ref. No. 5905.000 are required for each roof support	1.14 x 0.47	15.3	20	<b>5915.000</b> 
7	<b>Wedge for roof support</b>	0.18	7.5	25 	<b>5913.003</b> 
8	<b>Safety clip</b> , 4 mm for bolts and roof support wedges	0.08	1.5	50 	<b>5905.001</b> 



## Logistics

**Tubular pallet 1** for the transport and storage of 13 ridge cassettes or 20 roof cassettes, also suitable for brick guards.

Design: **hot-dip galvanized**

The **modular skeleton box 2** in standardized European dimensions has a **carrying capacity of 2 t** and is stackable with Euro pallets. The upper part has crane eyelets.

A side opening makes it possible to remove the stacked items even if several pallets are positioned on top of one another.

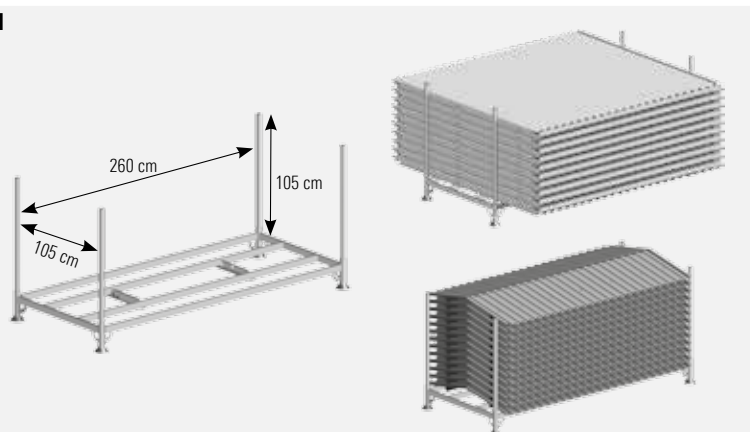
Design: **hot-dip galvanized**

More paletts you can find in our catalogue  
Scaffolding Accessories.

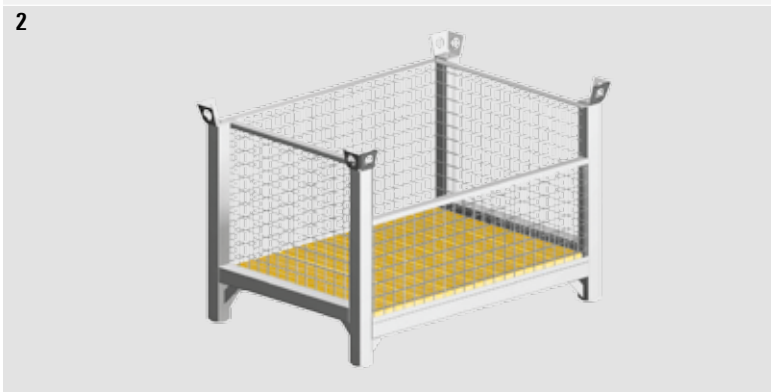


### Logistics

1



2



## Fall protection

### Safety when walking on the roof

Safety when walking on the roof and the fall protection of anyone who slips on the roof is provided by **roof guards 7** in the eaves area of the side protection.

To this end, the **connecting piece 3** accommodates the **guardrail support 6** and, if necessary, commercially available semicircular gutter supports can be installed on the structure for the controlled removal of water from the roof.

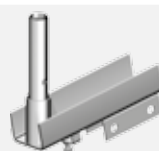
A **standard connection 5** is provided for the construction of the side protection in the gable area or at the barge board and for the Allround scaffolding of openings on the roof surface.

This is installed instead of the clamping plate. The standard connector accommodates a steel scaffolding tube as a guardrail post. Max. distance between posts: 3.00 m.

The **base support for walkway 4** can be used alternatively to the **connecting piece 3** at the eaves area for fixation of the fall protection. It can additionally bear scaffolding decks for a horizontal walkway. It's mounted to the top chord of the lattice beam with 2 wedges.

### Fall protection

3



4



5



6



7



Side protection, gable







Side protection, eaves

**Layher** 

More Possibilities. The Scaffolding System.

Pos.	Description	Dimensions L/H x W [m]	Weight approx. [kg]	PU [St.]	Ref. No.
1	<b>Tubular pallet 265</b> steel, hot-dip galvanized, length of pallet posts 1.20 m, load 1300 kg	2.77 x 1.22	50.6	10	5113.265 
2	<b>Modular skeleton box</b> steel, hot-dip galvanized Internal dimensions 1.08 x 0.68 x 0.61 m load 2000 kg, perm. onload 6000 kg stackable with Euro pallets  consisting of 5113.000 Modular skeleton box and 6494.514 timber base plate	1.20 x 0.80	85.8		5113.002

Pos.	Description	Dimensions L/H x W [m]	Weight approx. [kg]	PU [St.]	Ref. No.
3	<b>Connecting piece for cassette supports</b> 1 spigot	0.30	4.1		5932.000 
4	<b>Base support for walkway, steel</b> for assembly of a walkway at the eaves area	0.73	8.7		5916.073 
5	<b>Standard connection</b>	0.22	3.2		5934.000 
6	<b>Euro guardrail post single</b> with guardrail wedge housings, steel	1.00	5.5	100	1716.000
7	<b>Roof guard</b>	1.00 x 2.57	21.1	30	1749.257 

## Safety gear

**End fastener 1** for suspending fall arrester / pre-tensioner. Fastened in each case with wedge.

**Intermediate fastener 2** for assembly of an intermediate element, max. distance 15 m. Each fastening with wedge.

**Ridge fastener 4** for fitting of an intermediate element in the ridge area. Fastened in each case with wedge.

**Intermediate element 3** as rope guide on intermediate and ridge fastener.



**Gripper 5** for the use on slinging ropes with snap-on hooks for securing the gripper and for connecting the safety rope.

**End fastener with rope 6** – slinging rope with fastening mechanism. On the opposite side the **fall arrester 8** will be bolted.

**Pre-tensioner 7** for holding the safety rope with parallel-adjustable clamping jaws, for suspension from the end fastener. The tips of the pressure pads must be checked for flattening before every installation. The pressure pads must be replaced at the latest after they have been used 25 times.

**Fall arrester 8** is fitted between end fastener and end tensioner, element for once-only release!

## Safety gear

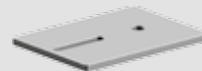


According to German BGV C22 regulations, equipment to prevent falls by personnel must be provided for work areas and walkways where the height of the fall is more than 2.00 m.

1



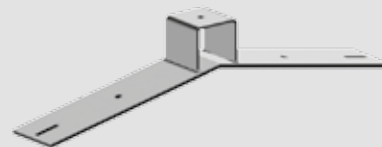
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3



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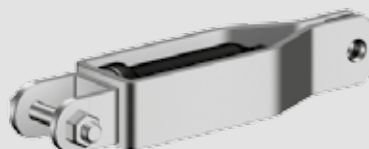
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7



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Layher® 

More Possibilities. The Scaffolding System.