Layher

More Possibilities. The Scaffolding System.

Quality management
certified according to
DIN EN ISO 9001

Energy management
certified according to
DIN EN ISO 50001

Environmental management
certified according to
DIN EN ISO 14001

Catalogue
2025/2026

# LAYHER PROTECTIVE SYSTEMS

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Layher Protective Systems 2025 / 2026

Subject to technical modification. Component weights are subject to fluctuations due to tolerances and may therefore diverge from what is specified.

Steel components are hot-dip galvanized according to EN ISO 1461 and DASt guideline 022. Connection parts or other small pieces can be galvanized according to EN ISO 4042.

Our deliveries shall be made exclusively in accordance with our at the conclusion of contract valid General Terms of Sale. These include the following provisions: The place of performance is Gueglingen-Eibensbach. Title to the delivered goods shall be retained until full payment has been made. The fully GTC you can find here: **gtc.layher.com**

Please request the specific instructions for assembly and use when ordering.

# 01 THE COMPANY

**Quality made by Layher comes from Gueglingen-Eibensbach.** Our company has set down deep local roots since it was established. Right up until today, development, production and management are all in one place. This proximity creates advantages that benefit our customers all over the world: short distances, short response times, controlled quality and production.

Layher's history began more than 75 years ago with the manufacture of ladders and other agricultural equipment. Since then, Layher has significantly influenced the market for scaffolding and access technology. Today, more than 2,700 employees create more possibilities for our customers every day with a comprehensive range of services, a sustainable training programme and customer proximity. In more than 50 countries worldwide.

Layher lives **economic and ecological sustainability** in all process steps. Social responsibility towards employees, customers and society takes centre stage.

Headquarters in Eibensbach

Plant 2 in Gueglingen

Plant 3 in Cleebronn

**Discover the world of Layher in its company film.**

# WITH LAYHER, THERE ARE MORE POSSIBILITIES.

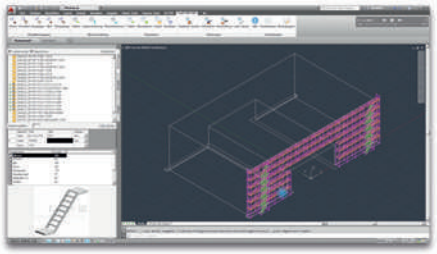
A comprehensive range of innovative products, application-orientated solutions and comprehensive services for easy, fast and safe working at height.

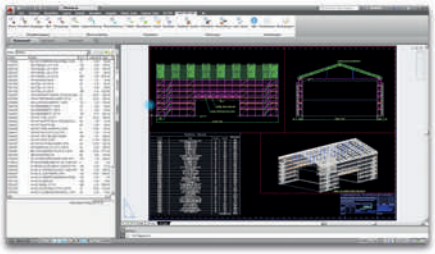
# 02 SOFT WARE

Time and materials are decisive factors in scaffolding construction. To utilise both as efficiently as possible, Layher has the practice-oriented scaffolding planning software LayPLAN in its range. The various LayPLAN CLASSIC and LayPLAN CAD software packages can be used to plan scaffolding constructions ranging from simple, small facade scaffolding to complex industrial scaffolding or even protective roofs and grandstands.

The data is then simply exported to LayPLAN CAD, which offers further options for detailed planning in 3D. A visual collision check is possible using the volume visualisation. Using a convenient search function with preview image, scaffolding planners can not only find an extensive library of Layher individual parts, but also prefabricated assemblies for even faster design. The detailed drawings are then available as a printout. Transfer to visualisation or animation software is also possible without any problems. In this way, projects can not only be planned economically and at the same time adapted precisely to requirements, but also presented professionally to clients.

Learn more in the Brochure "System Solutions Digitalisation and Software".





LayPLAN SUITE

LayPLAN CLASSIC

LayPLAN CAD

LayPLAN MATERIALMANAGER

LayPLAN TO RSTAB

Learn more on YouTube
Layher SIM

How can I purchase LayPLAN?
Further information and registration for ordering processes can be conveniently accessed via the Layher website:
http://software.layher.com
A contact form will provide you with access data to our software portal, where you can download a 30-day trial version and find the order form for the full version.

| Pos. | Description | Ref. No. |
|---|---|---|
| 1 | **LayPLAN CLASSIC**<br>scaffolding configurator for SpeedyScaf, Allround Scaffolding, weather protection roofs and rolling towers | 6345.102 |
| 2 | **LayPLAN CAD** | |
| | plug-in for AutoCAD, for designing complex scaffolding in 3D and for developing scaffolding proposals from LayPLAN CLASSIC | 6345.103 |
| | plug-in for BricsCAD, for designing complex scaffolding in 3D and for developing scaffolding proposals from LayPLAN CLASSIC | 6345.106 |
| 3 | **LayPLAN TO RSTAB**<br>To use LayPLAN TO RSTAB, only RSTAB 8 from Dlubal including the RS-COM interface is required. RSTAB 9 is not supported. | 6345.104 |

**WS** = wrench size **LC** = load class **PU** = packaging unit IND = Layher Individual possible = new in the catalogue = available ex works
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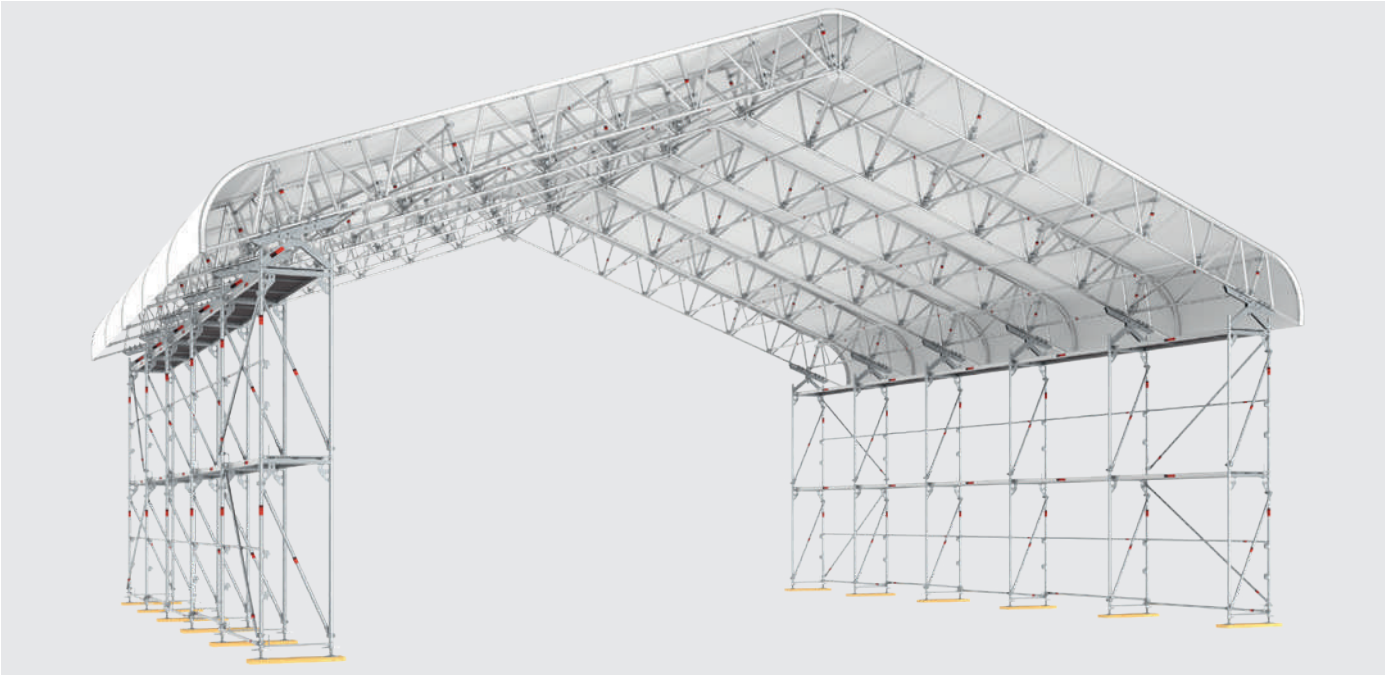
# 03 KEDER ROOF XL

The Layher Keder Roof XL is a lightweight and sustainable weather protection roof. According to the normal climatic conditions **spans of up to 30 m** are possible. Used in conjunction with Keder rails for wall cladding, it means that the entire construction can be designed to form a lightweight hall. The Layher Keder Roof XL is based on aluminium lattice beams 750 with integrated Keder section in the top chord.

The Layher Keder Roof has many areas of application, ranging from the **roofing during the addition of storeys,** the **repair of timber roofs and coverings, weather protection** for new structures, **refurbishment work on motorways** and **bridges,** and numerous applications for **events and normal work.**

It is a non-insulated cover, rainproof covering under normal conditions, under which condensation may form and drip uncontrolled, depending on the weather.



Notice: Potentially neccessary stabilizing measurement are not illustrated.

**The benefits for you:**

- Span up to 30 m and inclinations of 18° are possible.
- High snow loads (up to 1.0 kN / m²) on intermediate spans.
- Adaptation to all conditions thanks to roof widths and different designs as double-pitch, mono-pitch and polygonal barrel roof.
- Economical use thanks to flexible, well-thought-out and durable components, lightweight aluminium components and time-saving assembly (e.g. faster and easier fitting of Keder tarpaulins).
- Material and load bearing-capactity tables are available to ease the planning.
- No interruption of working due to weather influence.
- Fully combinable to Layher Allround Scaffolding and Layher SpeedyScaf.

# System Components

The Keder Roof XL is a lightweight, but very sturdy weather protection roof for great spans up to 30 m.

It has a standard roof angle of 18°.

## Stiffening variants

The Keder Roof XL permits, thanks to differing configurations of the stiffening components, three different stiffening variants for use depending on the span, snow load or wind load requirements.

The Keder Roof XL can be planned by using LayPLAN software. Material lists and load bearing capacity lists are available. That saves you real money when planning temporary weather protection roofs.

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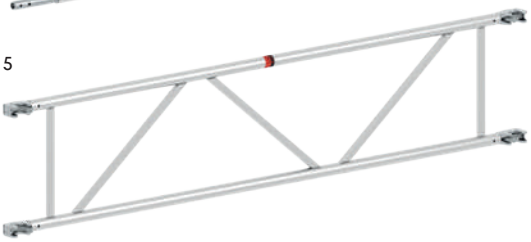

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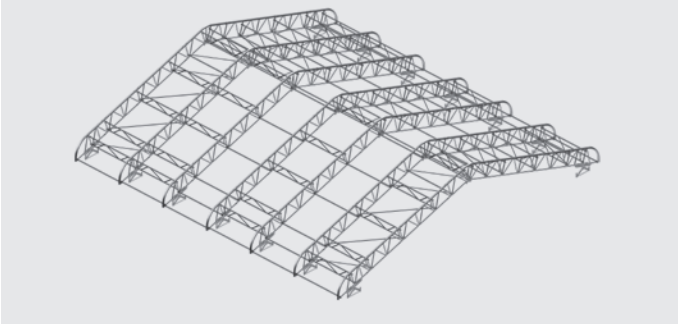
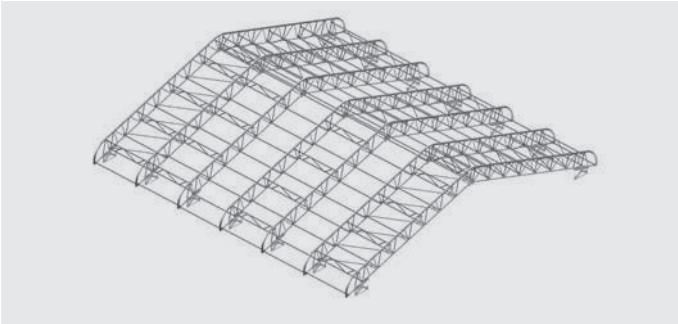
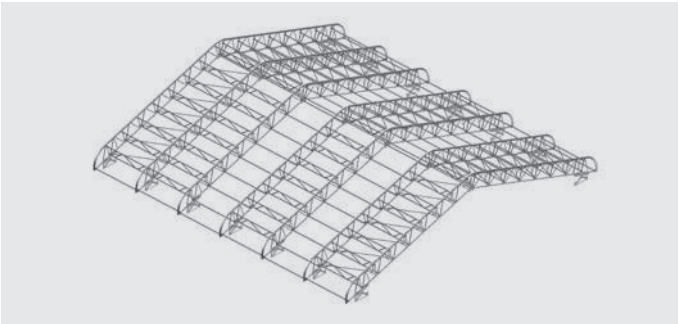


**Type "Light"**
Vertical stiffener: 2.00 m
Bottom chord stiffener: 2.00 m



**Type "Standard"**
Vertical stiffener: 2.00 m
Bottom chord stiffener: 1.00 m



**Type "Heavy"**
Vertical stiffener: 1.00 m
Bottom chord stiffener: 1.00 m

| Pos. | Description | WS [mm] | Dimensions L / H × W [m] | Weight approx. [kg] | PU [pc.] | Ref. No. |
|---|---|---|---|---|---|---|
| 1 | **Keder Roof XL lattice beam**<br>aluminium | | 2.00 × 0.78 | 17.3 | 25 | 5975.200 |
| | | | 3.00 × 0.78 | 24.4 | 25 | 5975.300 |
| 2 | **Keder Roof XL eaves section**<br>aluminium | | 2.00 × 0.78 | 14.3 | 25 | 5975.100 |
| 3 | **Keder Roof XL ridge section** | | | | | |
| | 18°-Version | | 2.54 × 0.78 | 24.5 | 20 | 5975.110 |
| | 20°-Version | | 2.57 × 0.78 | 24.5 | 20 | 5975.120 |
| 4 | **Keder Roof XL mono-pitch lattice beam**<br>aluminium | | 1.06 × 0.78 | 14.5 | 25 | 5975.106 |
| 5 | **Keder Roof XL stiffener**<br>aluminium | | 2.57 × 0.55 | 10.0 | 50 | 5940.257 |
| 6 | **Keder Roof XL ledger**<br>aluminium | | 2.57 | 4.2 | 50 | 5972.257 |
| 7 | **Keder Roof XL horizontal diagonal brace**<br>aluminium | | 2.57 × 1.00 | 4.2 | 50 | 5939.100 |
| | | | 2.57 × 2.00 | 5.0 | 50 | 5939.200 |
| 8 | **Swivelling roof support** | | 0.73 | 19.1 | 20 | 5975.073 |
| | | | 1.09 | 22.4 | 20 | 5975.109 |
| 9 | **Keder rail seal** | | | 0.5 | 50 ▦ | 5971.005 |
| 10 | **Bolt 12 x 95 mm** | 19 | | 2.5 | 25 ▦ | 5976.092 |
| 11 | **Securing pin d=2.8 mm** | | | 0.5 | 50 ▦ | 4905.002 |
| 12 | **Hinged pin**<br>d=12 mm, with pan head | | | 1.6 | 20 ▦ | 4905.668 |
| 13 | **Special bolt M12 x 60 mm**<br>with nut | 19 | | 4.0 | 50 ▦ | 4905.062 |
| 14 | **Special bolt M12 x 90**<br>with nut | 19 | | 2.8 | 25 ▦ | 5975.092 |

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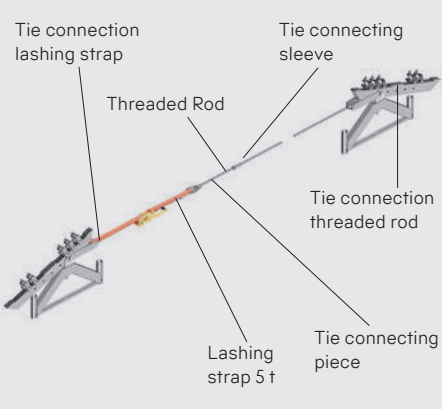
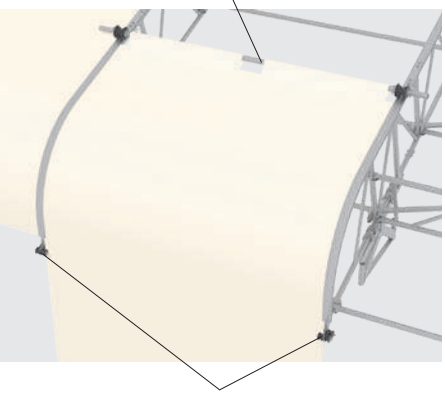
## Tie fastening to roof support*:




* statically recommended

### Set for tarpaulin pulling 9



### Keder tarpaulin feeder 11

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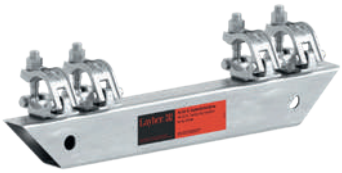

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| Pos. | Description | WS [mm] | Dimensions L / H × W [m] | Weight approx. [kg] | PU [pc.] | Ref. No. |
|---|---|---|---|---|---|---|
| 1 | Tie thread rod | | 2.00 | 2.9 | 100 | 5976.200 |
| | | | 3.00 | 4.4 | 100 | 5976.300 |
| | | | 4.00 | 5.8 | 100 | 5976.400 |
| | | | 5.00 | 7.3 | 100 | 5976.500 |
| 2 | Keder Roof XL tie attachment | 19 | | 6.1 | 50 | 5975.000 |
| 3 | Keder Roof XL tie connection threaded rod | 30 | | 2.2 | 100 | 5975.020 |
| 4 | Keder Roof XL tie connecting piece | 30 | | 0.8 | 250 | 5975.030 |
| 5 | Keder Roof XL tie connecting sleeve | 30 | | 0.4 | 100 | 5976.000 |
| 6 | Keder Roof XL tie connection lashing strap | 30 | | 2.0 | 100 | 5975.010 |
| 7 | Keder Roof XL lashing strap 5 t<br>5.00 m with ratchet and ABS function for stepwise release | | 5.00 | 2.8 | 1 | 5976.600 |
| 8 | Keder Roof XL polyester lashing strap<br>6.00 m with clamp lock for setting the tie | | 6.00 | 0.2 | 1 | 5976.610 |
| 9 | Set for tarpaulin pulling<br>consisting of 2 castors, 1 aluminium tube 3.00 m and 4 securing pins | | 3.00 | 5.8 | 1 | 5971.400 |
| 10 | Castor for tarpaulin pulling<br>for 48.3 mm tube | | | 0.4 | 2 | 5971.401 |
| 11 | Keder tarpaulin feeder | | | 1.5 | 1 | 5971.410 |

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# Roof Tarpaulins

Tarpaulins
Flammability acc. to DIN 4102
< 100 mm / min.
Cream-coloured PVC tarpaulins with a weight of 630 g / m².

Material:
PVC-coated polyester fabric,
heat and UV-resistant.

Flammability acc. to DIN 4102 B1,
low-inflammability.
PVC tarpaulins with a weight of 650 g / m².

In the case of public events, the building inspection authorities usually demand low-inflammability tarpaulins.

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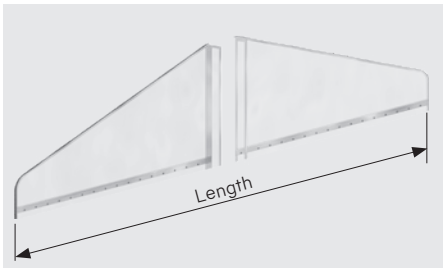


Other tarpaulins on request.

2


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| Pos. | Description | Dimensions L / H × W [m] | Weight approx. [kg] | PU [pc.] | Ref. No. |
|---|---|---|---|---|---|
| 1 | **Keder Roof XL gable tarpaulin** | | | | |
| | flame-retarding, 2-part | 9.6 | 13.8 | 1 | 5972.381 |
| | | 11.5 | 17.9 | 1 | 5972.382 |
| | | 13.4 | 22.1 | 1 | 5972.383 |
| | | 15.3 | 27.4 | 1 | 5972.384 |
| | | 17.2 | 33.1 | 1 | 5972.385 |
| | | 19.1 | 39.4 | 1 | 5972.386 |
| | | 21.0 | 44.7 | 1 | 5972.387 |
| | | 22.9 | 51.7 | 1 | 5972.388 |
| | | 24.8 | 59.5 | 1 | 5972.389 |
| | | 26.8 | 68.2 | 1 | 5972.390 |
| | flame-retarding, 4-part | 28.7 | 76.7 | 1 | 5972.391 |
| | | 30.6 | 85.8 | 1 | 5972.392 |
| | | 32.5 | 95.5 | 1 | 5972.393 |
| | low-inflammability, flammability acc. to DIN 4102 B1, 2-part | 9.6 | 13.8 | 1 | 5973.381 |
| | | 11.5 | 17.9 | 1 | 5973.382 |
| | | 13.4 | 22.1 | 1 | 5973.383 |
| | | 15.3 | 27.4 | 1 | 5973.384 |
| | | 17.2 | 33.1 | 1 | 5973.385 |
| | | 19.1 | 39.4 | 1 | 5973.386 |
| | | 21.0 | 44.7 | 1 | 5973.387 |
| | | 22.9 | 51.7 | 1 | 5973.388 |
| | | 24.8 | 59.5 | 1 | 5973.389 |
| | | 26.8 | 68.2 | 1 | 5973.390 |
| | low-inflammability, flammability acc. to DIN 4102 B1, 4-part | 28.7 | 76.7 | 1 | 5973.391 |
| | | 30.6 | 85.7 | 1 | 5973.392 |
| | | 32.5 | 95.5 | 1 | 5973.393 |
| 2 | **Keder Roof, roof tarpaulin** | | | | |
| | flame-retarding, design width 2.57 m | 11.00 × 2.57 | 23.5 | 1 | 5972.306 |
| | | 14.00 × 2.57 | 28.2 | 1 | 5972.307 |
| | | 17.00 × 2.57 | 35.5 | 1 | 5972.308 |
| | | 20.00 × 2.57 | 40.7 | 1 | 5972.309 |
| | | 22.50 × 2.57 | 46.3 | 1 | 5972.370 |
| | | 24.50 × 2.57 | 50.4 | 1 | 5972.371 |
| | | 26.50 × 2.57 | 54.5 | 1 | 5972.372 |
| | | 28.50 × 2.57 | 58.5 | 1 | 5972.373 |
| | | 30.50 × 2.57 | 62.7 | 1 | 5972.374 |
| | | 32.50 × 2.57 | 66.8 | 1 | 5972.375 |
| | | 34.50 × 2.57 | 70.9 | 1 | 5972.376 |
| | | 36.50 × 2.57 | 75.0 | 1 | 5972.377 |
| | | 38.50 × 2.57 | 79.2 | 1 | 5972.378 |
| | flame-retarding, design width 2.07 m | 11.00 × 2.07 | 18.4 | 1 | 5972.360 |
| | | 14.00 × 2.07 | 23.5 | 1 | 5972.361 |
| | | 17.00 × 2.07 | 28.5 | 1 | 5972.362 |
| | | 20.00 × 2.07 | 33.5 | 1 | 5972.363 |
| | low-inflammability, flammability acc. to DIN 4102 B1, design width 2.57 m | 11.00 × 2.57 | 24.0 | 1 | 5973.306 |
| | | 14.00 × 2.57 | 28.8 | 1 | 5973.307 |
| | | 17.00 × 2.57 | 36.3 | 1 | 5973.308 |
| | | 20.00 × 2.57 | 41.6 | 1 | 5973.309 |
| | | 22.50 × 2.57 | 46.8 | 1 | 5973.370 |
| | | 24.50 × 2.57 | 51.0 | 1 | 5973.371 |
| | | 26.50 × 2.57 | 55.2 | 1 | 5973.372 |
| | | 28.50 × 2.57 | 59.3 | 1 | 5973.373 |
| | | 30.50 × 2.57 | 63.5 | 1 | 5973.374 |
| | | 32.50 × 2.57 | 67.7 | 1 | 5973.375 |
| | | 34.50 × 2.57 | 73.9 | 1 | 5973.376 |
| | | 36.50 × 2.57 | 76.0 | 1 | 5973.377 |
| | | 38.50 × 2.57 | 80.1 | 1 | 5973.378 |
| | low-inflammability, flammability acc. to DIN 4102 B1, design width 2.07 m | 11.00 × 2.07 | 18.8 | 1 | 5973.360 |
| | | 14.00 × 2.07 | 24.0 | 1 | 5973.361 |
| | | 17.00 × 2.07 | 29.2 | 1 | 5973.362 |
| | | 20.00 × 2.07 | 34.4 | 1 | 5973.363 |
| 3 | **Tarpaulin clip** | | 2.0 | 50 | 5971.142 |

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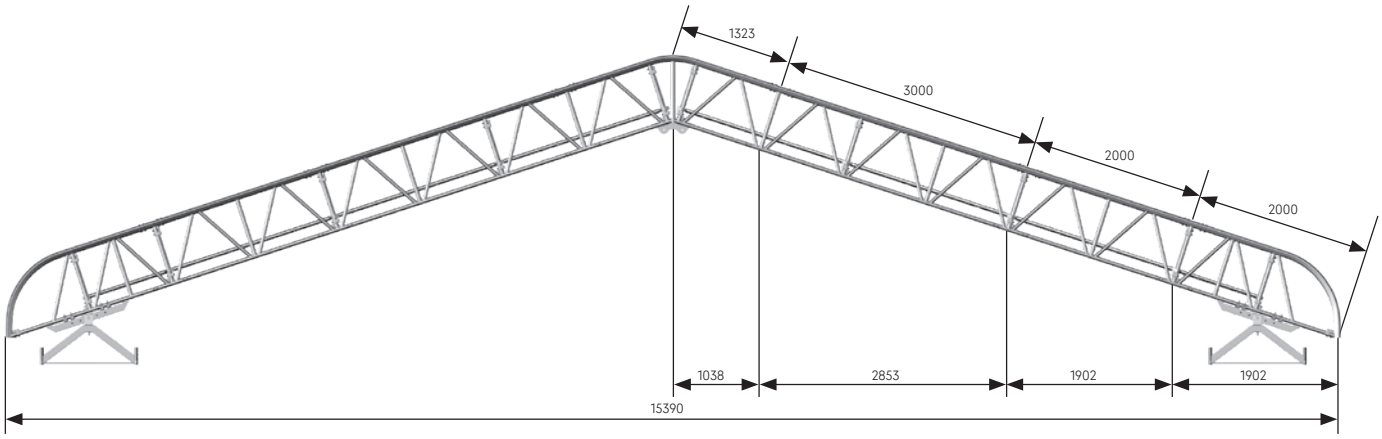
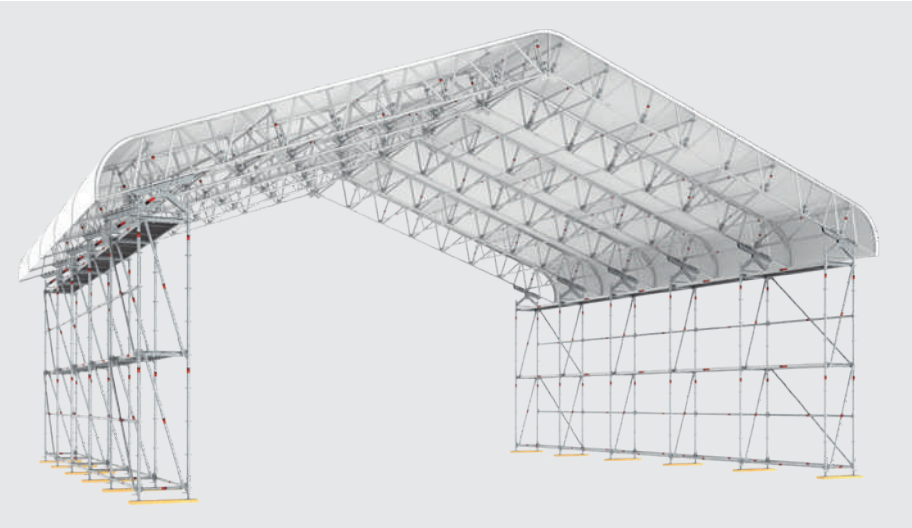
# Example structures

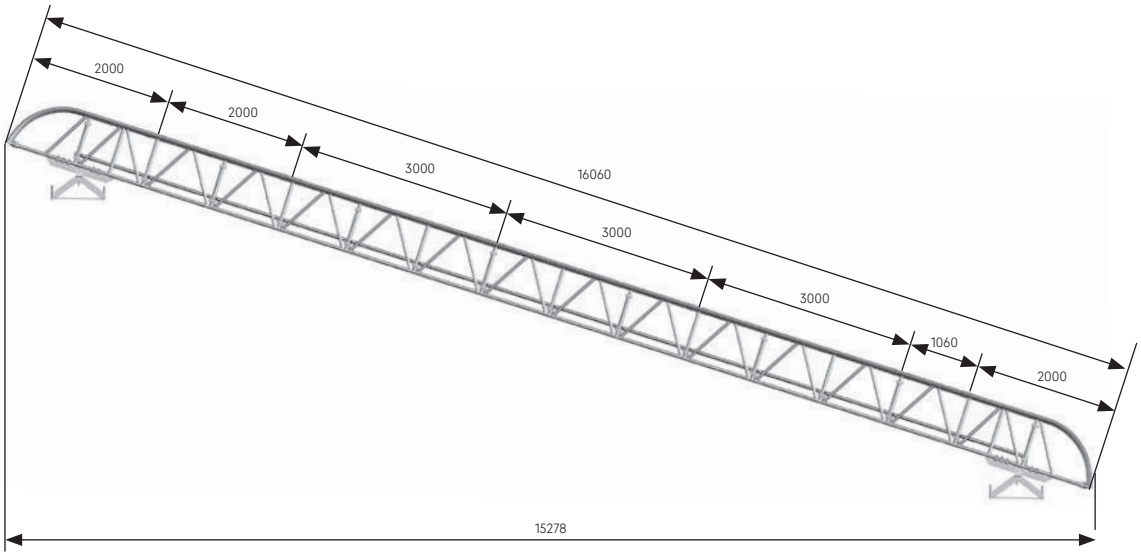



**Roofed Base Area:** 15.40 m x 12.86 m (5 bays each 2.57 m), without support scaffolding, weight: 1,942.3 kg (9.87 kg / m²)

| Following material is needed | Quantity | PU [pcs.] | | Ref. No. |
|---|---|---|---|---|
| Safety clips 2.8 mm (72 pcs. needed) | 2 | 50 | ▦ | 4905.002 |
| GI Securing pins (72 pcs. needed) | 4 | 20 | ▦ | 4905.668 |
| Horizontal diagonal brace 1.00 m x 2.57 m | 28 | | | 5939.100 |
| Stiffener 2.57 m | 30 | | | 5940.257 |
| Keder rail seal (36 pcs. needed) | 1 | 50 | ▦ | 5971.005 |
| Tarpaulin clips (100 pcs. needed) | 2 | 50 | ▦ | 5971.142 |
| Ledger 2.57 m | 60 | | | 5972.257 |
| Tarpaulin 2.57 x 20.00 m | 5 | | | 5972.309 |
| Support 0.73 m | 12 | | | 5975.073 |
| Eaves section | 12 | | | 5975.100 |
| Ridge section | 6 | | | 5975.110 |
| Lattice beam 2.00 m | 12 | | | 5975.200 |
| Lattice beam 3.00 m | 12 | | | 5975.300 |
| Bolt d=12 x 95 mm (72 pcs. needed) | 3 | 25 | ▦ | 5976.092 |

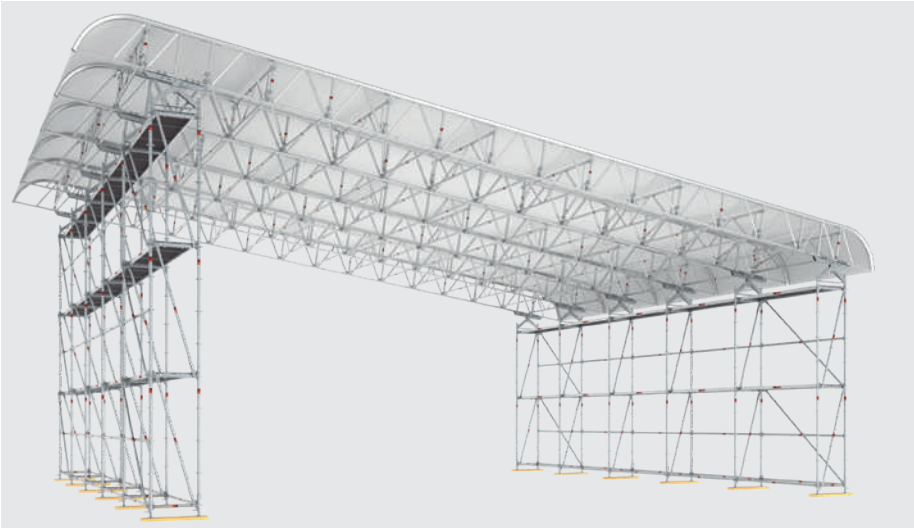


Notice: Potentially neccessary stabilizing measurement are not illustrated.




**Roofed Base Area:** 15.30 m x 12.86 m (5 bays each 2.57 m with a roof angle of 18°), without support scaffolding, weight: 1,869.1 kg (9.50 kg / m²)

| Following material is needed | Quantity | PU [pcs.] | | Ref. No. |
|---|---|---|---|---|
| Safety clips 2.8 mm (72 pcs. needed) | 2 | 50 | ▦ | 4905.002 |
| GI Securing pins (72 pcs. needed) | 4 | 20 | ▦ | 4905.668 |
| Horizontal diagonal brace 1.00 m x 2.57 m | 28 | | | 5939.100 |
| Stiffener 2.57 m | 30 | | | 5940.257 |
| Keder rail seal (36 pcs. needed) | 1 | 50 | ▦ | 5971.005 |
| Tarpaulin clips (100 pcs. needed) | 2 | 50 | ▦ | 5971.142 |
| Ledger 2.57 m | 61 | | | 5972.257 |
| Tarpaulin 2.57 x 20.00 m | 5 | | | 5972.309 |
| Support 0.73 m | 12 | | | 5975.073 |
| Eaves section | 12 | | | 5975.100 |
| Ridge section | 6 | | | 5975.106 |
| Lattice beam 2.00 m | 6 | | | 5975.200 |
| Lattice beam 3.00 m | 18 | | | 5975.300 |
| Bolt d=12 x 95 mm (72 pcs. needed) | 3 | 25 | ▦ | 5976.092 |



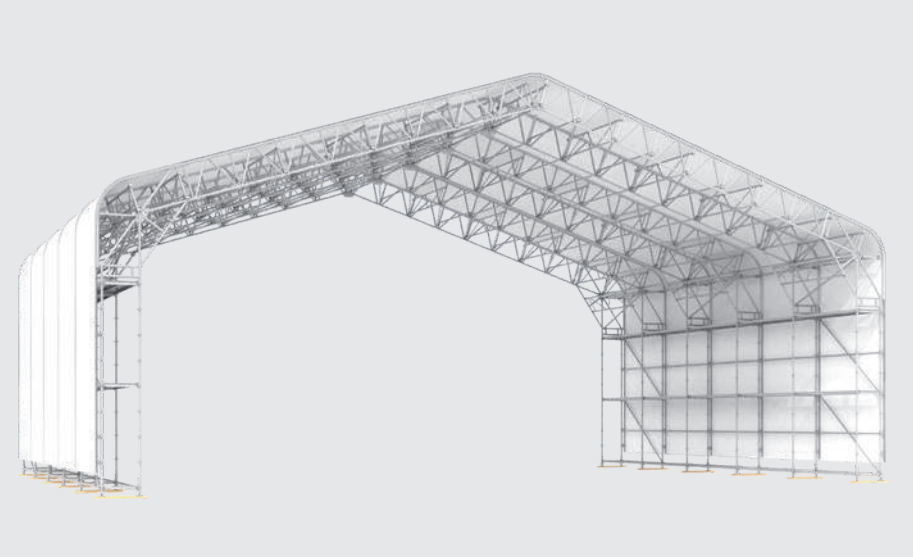
Notice: Potentially neccessary stabilizing measurement are not illustrated.

# Keder halls

## Keder halls

The Bending-Resistant Corner is available as a special roof support, to create visually attractive and closed halls with wide spans using the Keder Roof XL. It can be mounted on support scaffolding made from Allround parts, on Speedy-Scaf and on AGS systems.

This means that only one additional component – the bending-resistant corner – is required to construct closed keder halls. The support scaffolding can be fully utilised as working scaffolding and the attachment of brackets or cantilevers to the inside is easily possible with parts from the Layher construction kit.



The bending-resistant corner XL 1 is quickly connected by simply placing it on the spigots of the support structure.

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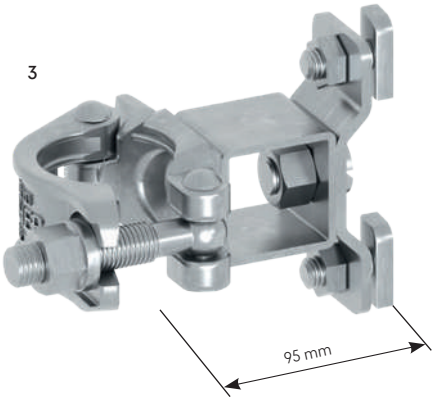


The roof tarpaulins are joined to the wall covering using rotatable **keder rail holders** 2/3 and **keder rails 2000** 4 from the Layher accessories range.


| Pos. | Description | WS [mm] | Dimensions L / H × W [m] | Weight approx. [kg] | PU [pc.] | Ref. No. |
|---|---|---|---|---|---|---|
| 1 | **Bending-resistant corner XL**<br>aluminium | | | 34.7 | 10 | 5975.160 |
| 2 | **Keder rail holder with wedge head**<br>rotable, incl. 2 groove bolts | | 0.10 | 0.9 | 25 | 5573.000 |
| 3 | **Keder rail holder with half-coupler**<br>rotable, incl. 2 groove bolts | 19 | 0.16 | 1.0 | 25 | 5573.006 |
| 4 | **Aluminium keder rail 2000** | | 1.30 | 1.9 | 50 | 4201.130 |
| | | | 2.00 | 3.0 | 50 | 4201.200 |
| | | | 2.25 | 3.3 | 50 | 4201.220 |
| | | | 2.50 | 3.8 | 50 | 4201.250 |
| | | | 3.00 | 4.5 | 50 | 4201.300 |
| | | | 4.00 | 6.0 | 50 | 4201.400 |

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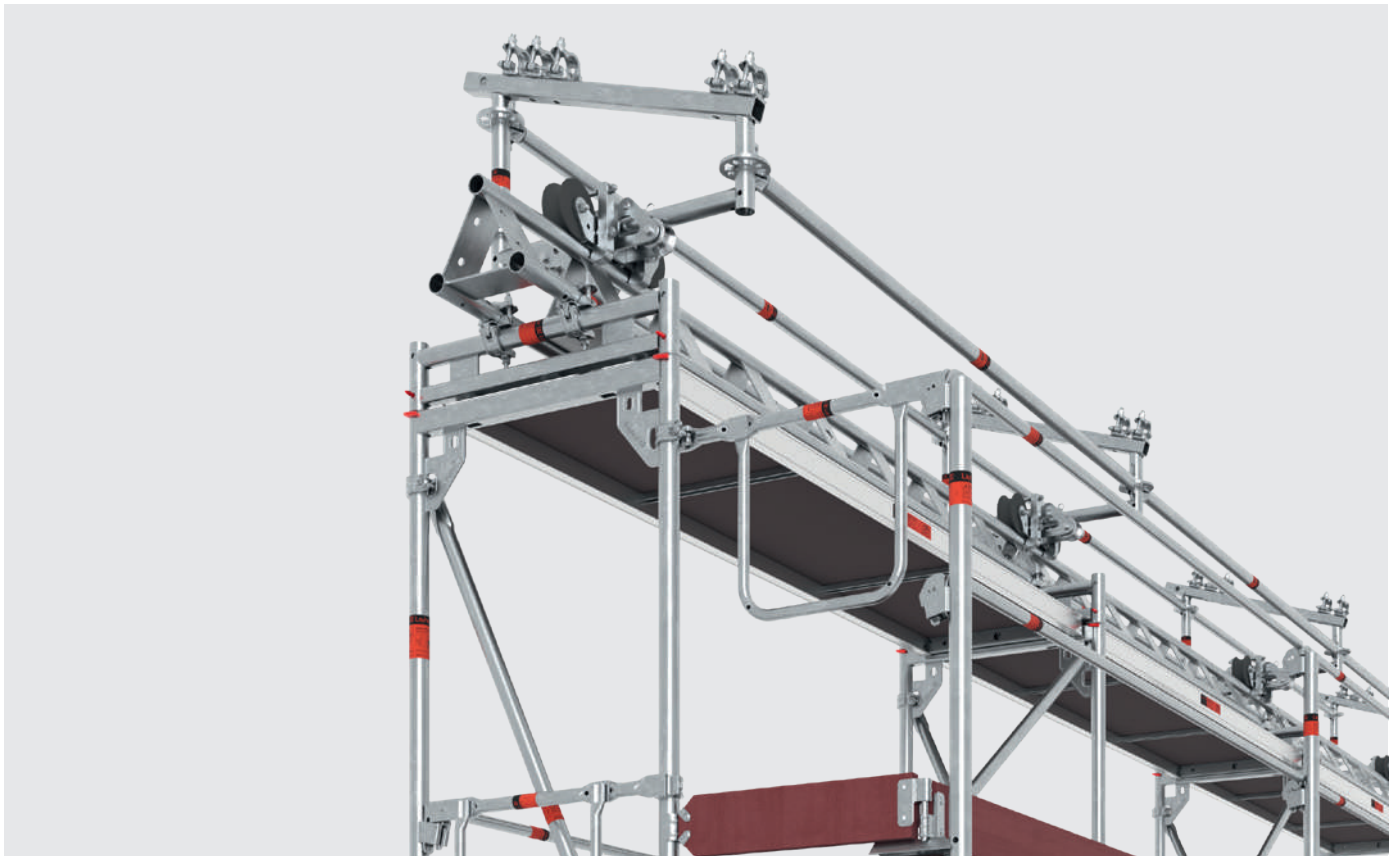
= delivery time on request = only available in this packaging unit = the approval process is not yet completed

# 04

# MOBILE ROOFS

Whether on a rapidly advancing construction site or under cramped conditions, you can get Layher's protective roofs rolling to where the action is with only a few extra components.

Flexibility and economy to the highest degree with mobile roofs from Layher.



**The benefits for you:**

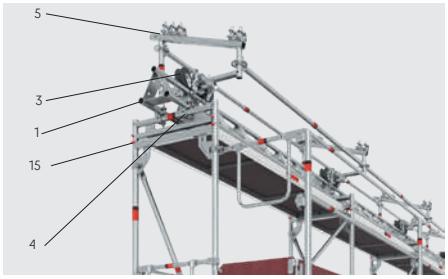
- Extension for the Layher weather roofs.
- Flexibility is guaranteed thanks to possible openings to slide the roof apart. Also overlapping roofs are possible.
- Flexible and economic solution by moving the roof if the complete site is not needed to be covered.
- Slight variations in the alignment of the rails can be compensated with a transverse adjustment on the trolley.
- Fully combinable with Layher SpeedyScaf and Layher Allround Scaffolding.

# System Components

## Mobile Roofs

Layher wheather protection roofs can easily be made mobile with a few additional parts. This can then be moved section by section to keep pace with construction progress, so it's no longer essential to provide a roof over the entire surface, or alternatively to dismantle and rebuild a roof for each stage of building work. The mobile roofs fit onto all scaffolding systems and are also flexible and economical to use. The **rails** 1 or **Aluminium O-beam FlexBeam** 2 don't need to be laid exactly parallel, since the **trolley** 3 permits equalization in the transverse direction.

The support scaffolding bay widths are completely independent of the mobile roof, allowing the scaffolding to be built with wider bays. Besides faster assembly, the supporting structure also permits material savings. The assembly of the roofs themselves is also simple and quick: the roof bays can for example be assembled at a readily accessible point at the gable end of the building, from an auxiliary scaffolding or using a crane. One bay at a time is assembled, then moved, and has the next bay attached to it.




The **overlap bracket T18** 6 can be used, when the roof binders are mobile. If separate segments of the roof must be put togehter, there will be a gap in the roof. By using the **overlap bracket T18** 6 combined with aluminium **keder rails 2000** 16 and roof tarpaulins 0.69 m wide, these gaps can be closed. For the eaves, the **overlap bracket eaves T18** 7 and the **overlap keder bow 2000** 8 is used.

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Further components for Aluminium FlexBeam, you can find in the catalogue for Allround Scaffolding.

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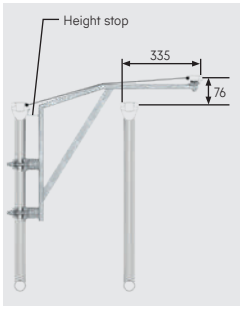
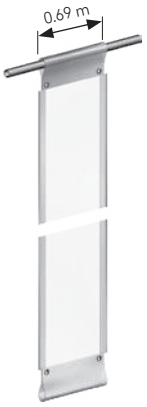



A height stop replaces tedious measuring during installation and prevents the bracket from twisting sideways. The 30 cm overlap ensures a high level of protection against precipitation.




Keder tarpaulin for overlap brackent on request

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| Pos. | | Description | | WS [mm] | Dimensions L / H × W [m] | Weight approx. [kg] | PU [pc.] | Ref. No. |
|---|---|---|---|---|---|---|---|---|
| 1 | | **Rail T19**<br>3.00 m | | 22 | 3.00 × 0.30 | 58.8 | 21 | 5938.041 |
| 2 | | **Aluminium O-beam FlexBeam** | | | 3.00 | 30.6 | 12 | 2657.301 |
| | | | | | 4.00 | 40.8 | 12 | 2657.401 |
| | | | | | 5.00 | 51.0 | 12 | 2657.501 |
| | | | | | 6.00 | 61.2 | 12 | 2657.601 |
| | | | | | 7.00 | 71.4 | 12 | 2657.701 |
| 3 | | **Trolley T17**<br>Castors of Polyamide, permanent lift-off preventer | | 19 | 0.40 × 0.45 | 16.2 | 50 | 5938.040 |
| 4 | | **Adapter for rail T12** | | | 0.73 × 0.17 | 5.5 | 100 | 5938.027 |
| | | | | | 1.09 × 0.17 | 11.5 | 100 | 5938.028 |
| 5 | | **Roof support** | | | | | | |
| | a | 20° rigid, 0.73 m (for Keder Roof) | | | 0.51 × 0.80 | 12.4 | 20 | 5938.022 |
| | b | 18° rigid, 0.73 m (for Keder Roof XL) with Allround rosettes | | | 0.51 × 0.80 | 15.5 | 20 | 5938.073 |
| 6 | | **Overlap bracket T18** | | 19 | | 5.5 | 25 | 5938.044 |
| 7 | | **Overlap bracket eaves T18** | | 19 | | 5.4 | 25 | 5938.043 |
| 8 | | **Overlap Keder bow 2000** | | | | 2.3 | 50 | 5938.042 |
| 9 | | **Lattice beam connector T16**<br>d=38 mm for straight extension of lattice beam 450 of steel and aluminium, 750 sluminium and rails T19 | | | 0.54 | 2.4 | 350 | 4925.000 |
| 10 | | **Connector for trolley**<br>for roof support 5938.022 | | | 2.63 × 0.13 | 11.1 | 50 | 5938.019 |
| 11 | | **Bolt 12 x 65 mm** | | | | 3.5 | 50 | 4905.067 |
| 12 | | **Securing pin d=2.8 mm** | | | | 0.5 | 50 | 4905.002 |
| 13 | | **Hinged pin**<br>d=12 mm, with pan head | | | | 1.6 | 20 | 4905.668 |
| 14 | | **Rapid double coupler**<br>Description as 4700.xxx, acc. to approval Z-8.331-947 | | 19 | | 1.3 | 25 | 4777.019 |
| | | | | 22 | | 1.3 | 25 | 4777.022 |
| 15 | | **Locking pin**<br>red, d=11 mm | | | | 0.1 | 100 | 4000.001 |
| 16 | | **Aluminium keder rail 2000** | | | 1.30 | 1.9 | 50 | 4201.130 |
| | | | | | 2.00 | 3.0 | 50 | 4201.200 |
| | | | | | 2.25 | 3.3 | 50 | 4201.220 |
| | | | | | 2.50 | 3.8 | 50 | 4201.250 |
| | | | | | 3.00 | 4.5 | 50 | 4201.300 |
| | | | | | 4.00 | 6.0 | 50 | 4201.400 |
| 17 | | **Groove bolt for keder rail**<br>M12 x 25 mm, with nut | | | | 4.3 | 50 | 4206.004 |

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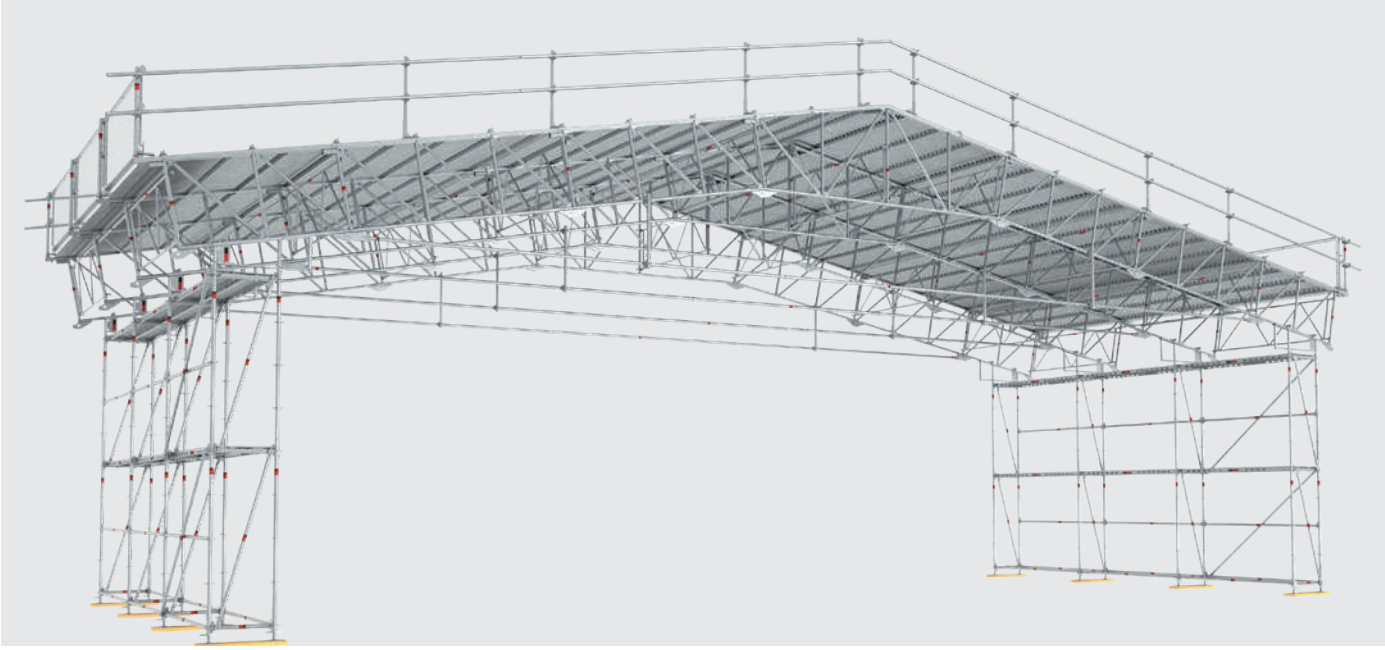
# 05 CASSETTE ROOF

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 refurbishment and normal business operations can continue under a wheather protection proof roof.



Notice: Potentially neccessary stabilizing measurement are not illustrated.

### 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 and vast spans

Variable roof areas are possible thanks to the well-conceived section lengths of the roof trusses chord. Depending on the static system and the climatic conditions, it is possible to create roof structures with spans of more than 45 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 effectively thanks to the overlapping, shaped-roof surface elements. This is a basic requirement for any weather-proofing 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. All data is calculated to the best of Layher's knowledge and based on relevant technical regulations or is adopted from other regulations. It is necessary to check the stability of the supporting structure (e.g. scaffolding) and the roof structure. The Layher cassette roof is made for high snow loads up to approx. 120 kg/m². This cassette roof is a non-insulated covering under which condensation may form and drip dependingon 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 for you:**

- Economical thanks to well-thought-out and durable components and time-saving assembly.
- Investment protection thanks to long, useful service life and high-quality components, specially equipped for recurrent, changing assembly and dismantling operations.
- Application as temporary storehouse, the repair of timber roofs and coverings, refurbishment work on motorways or over bridges and applications for events.
- No interruption of working due to weather influence.
- Fully combinable to Layher Allround Scaffolding and Layher SpeedyScaf.

# System Components

The system for large spans and rapid assembly for everyday use

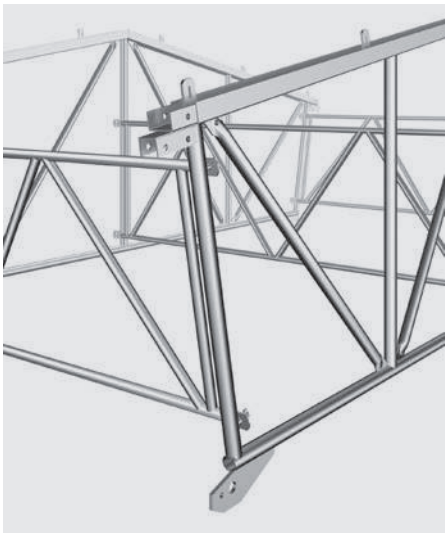
## Truss elements

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 d=48.3 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 **bolts 30 x 50 mm** 3 and **securing pins d=4 mm** 4. At the top chord, it is possible to use either two **M14 x 80 bolts** 8 with nuts or **14 x 77 mm bolts** 5 **with securing pins d=2.8 mm** 6.

Depending on the structural documentation some construction variants may require the use of a third **bolts 14 x 107 mm** 7 and **securing pin d=2.8 mm** 6 at the top chord.

A truss bay consisting of a pair of roof trusses connected to **beam stiffeners** 9 is pre-assembled at ground level and the roof cassettes are mounted on it and wedged in place.



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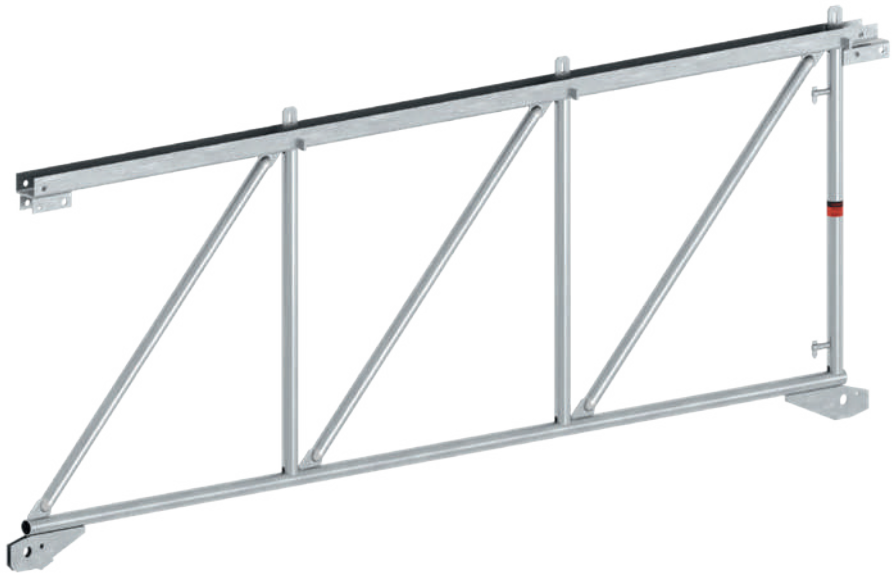

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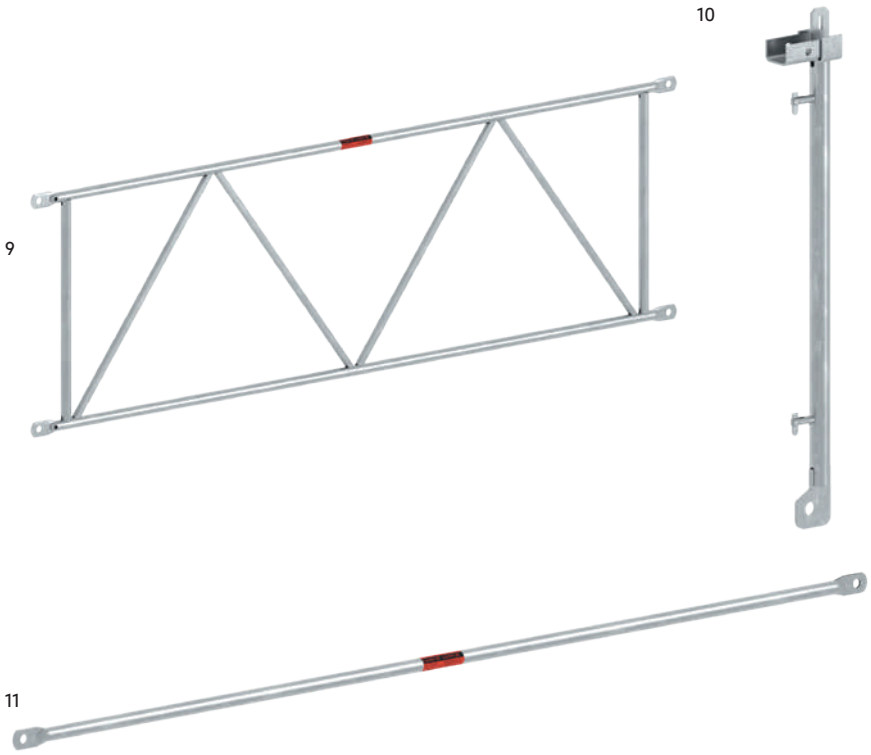
A crane is used to place the pre-mounted truss bays on the scaffolding at intervals of 2.57 m, while the unoccupied intermediate bays are reinforced with **tubular stiffeners** 11 and then closed using roof cassettes.




| Pos. | Description | WS [mm] | Dimensions L / H × W [m] | Weight approx. [kg] | PU [pc.] | Ref. No. |
|---|---|---|---|---|---|---|
| 1 | **Roof beam** | | | | | |
| | 2.00 m | | 2.00 × 1.00 | 48.2 | 16 | 5902.200 |
| | 3.00 m | | 3.00 × 1.00 | 64.5 | 16 | 5902.300 |
| 2 | **Ridge support** | | 4.30 × 1.00 / 1.50 | 106.0 | 10 | 5901.000 |
| 3 | **Bolt 30 x 50 mm** | | 0.05 | 3.0 | 10 | 5903.002 |
| 4 | **Securing pin d=4 mm** | | | 1.5 | 50 | 5905.002 |
| 5 | **Bolt 14 x 77 mm** | 22 | | 2.2 | 20 | 5906.079 |
| 6 | **Securing pin d=2.8 mm** | | | 0.5 | 50 | 4905.002 |
| 7 | **Bolt 14 x 107 mm** | | 0.11 | 3.0 | 20 | 5906.109 |
| 8 | **Bolt**<br>M14 x 80 mm with washer and nut | 22 | | 2.8 | 20 | 5906.082 |
| 9 | **Beam stiffener** | | 2.57 | 15.2 | 35 | 5907.000 |
| 10 | **End post for mono-pitch roofs** | | | 6.6 | 50 | 5901.100 |
| 11 | **Tubular stiffener** | | 2.57 | 5.1 | 150 | 2504.257 |

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## 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 **bolts 30 x 64 mm** 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 **bolts M14 x 65** 6 with nuts or four **bolts 14 x 77 mm** 7 **with securing pins d=2.8 mm** 8.

Tie connection

**Wedges and clamping plates** 9/10 for securing the roof cassettes both on the roof trusses and in the intermediate bay.

The **carrying handles** 11 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.

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## Roof supports as connecting elements for the supporting structure

For the cassette roof, 2 types of roof supports are available. The **swivelling roof support** 12 has a movable seesaw, which also can be used for mono-pitch roofs. The rigid **roof support** 13 fits for support scaffolding with widths of 0.73 m and 1.09 m. The premounted truss bays are inserted in the roof support and secured using 2 **wedges** 14 with **securing pins** 4 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

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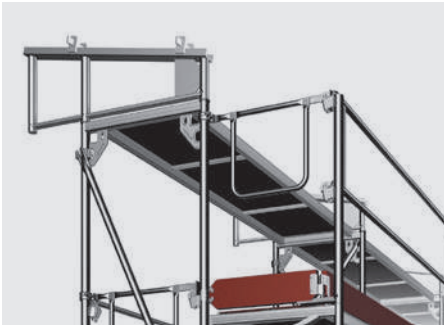

Top scaffolding guardrail, secure assembly thanks to lower bracket levels

| Pos. | Description | WS [mm] | Dimensions L / H × W [m] | Weight approx. [kg] | PU [pc.] | Ref. No. |
|---|---|---|---|---|---|---|
| 1 | **Tie end piece, for roof girder** | | 6.00 | 29.5 | 50 | 5917.000 |
| 2 | **Tie** | | 2.00 | 7.1 | 50 | 5918.200 |
| | | | 4.00 | 17.0 | 50 | 5918.400 |
| | | | 6.00 | 25.5 | 50 | 5918.600 |
| 3 | **Bolt 30 x 64 mm** | | 0.06 | 4.0 | 10 | 5904.002 |
| 4 | **Securing pin d=4 mm** | | | 1.5 | 50 | 5905.002 |
| 5 | **Lattice beam connector, round steel**<br>d=38 mm for straight extension of lattice beam Ref. No. 4906.xxx | | 0.44 | 3.4 | 500 | 4916.000 |
| 6 | **Bolt M14 x 65 mm**<br>nut, strength class 8.8 | 22 | | 6.5 | 50 | 4908.067 |
| 7 | **Bolt 14 x 77 mm** | 22 | | 2.2 | 20 | 5906.079 |
| 8 | **Securing pin d=2.8 mm** | | | 0.5 | 50 | 4905.002 |
| 9 | **Wedge, for fixing cassette** | | 0.18 | 7.5 | 25 | 5913.004 |
| 10 | **Clamping plate, for fixing cassette** | | 0.12 × 0.08 | 15.0 | 25 | 5914.002 |
| 11 | **Carrying handle**<br>for roof cassette, steel | | 0.75 | 1.2 | 2 | 5931.100 |
| 12 | **Swivelling roof support** | | 0.73 | 19.1 | 20 | 5975.073 |
| | | | 1.09 | 22.4 | 20 | 5975.109 |
| 13 | **Roof support**<br>rigid, 0.73 / 1.09 m 2 wedges Ref. No. 5913.003 and 2 safety clips Ref. No. 5905.001 are required for each roof support | | 1.14 × 0.47 | 15.3 | 20 | 5915.000 |
| 14 | **Wedge for roof support** | | 0.18 | 7.5 | 25 | 5913.005 |

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# Roof cassettes

## Roof cassettes with corrugated sheet

The **roof cassettes T20** 1 consist of a robust, hot-dip galvanized steel frame with shaped steel sheets and have a load capacity of 120 kg/m². 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** 2 to provide you with a safe, easy way onto the roof.

**Ridge cassettes T20** 3 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 T20** 4 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.

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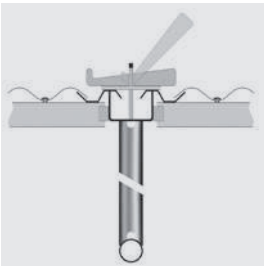

Cassette fixing

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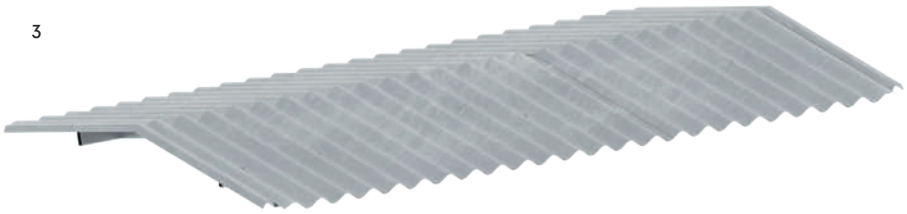

4

| Pos. | Description | Dimensions L / H × W [m] | Weight approx. [kg] | PU [pc.] | Ref. No. |
|---|---|---|---|---|---|
| 1 | **Roof cassette T20** | | | | |
| | 1.00 m, corrugated sheet | 1.00 × 2.57 | 43.6 | 20 | 5911.100 |
| | 2.00 m, corrugated sheet | 2.00 × 2.57 | 71.4 | 20 | 5911.200 |
| 2 | **Roof cassette with access hatch T20**<br>2.00 m, corrugated sheet | 2.00 × 2.57 | 82.7 | 5 | 5911.210 |
| 3 | **Ridge cassette T20**<br>with corrugated sheet | 1.45 × 2.57 | 43.9 | 10 | 5911.001 |
| 4 | **Light cassette T20**<br>2.00 m, with corrugated plastic panels, installation only in intermediate bays in alternation with roof cassettes | 2.00 × 2.57 | 50.0 | 10 | 5911.205 |

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# 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 galvanised

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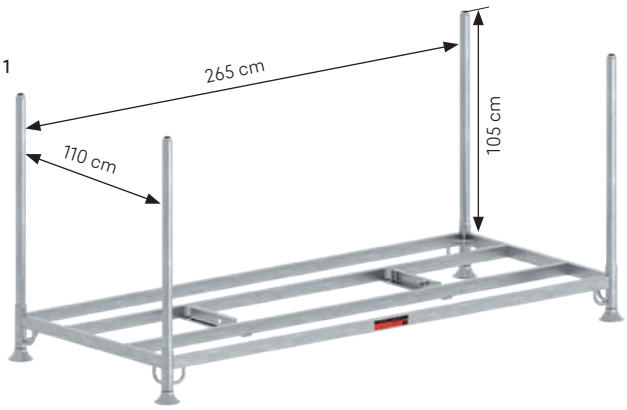


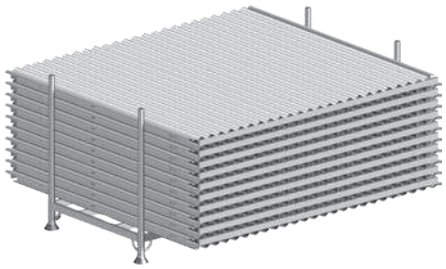

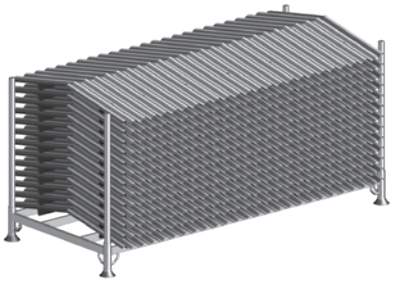

The **modular skeleton box** 2 in standardized European dimensions has a carrying capacity of 2 t and is stackable with Euro pallets. The upper part has crane eyelets.

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 galvanised

More logistic solutions you'll find in the catalogue System-free Accessories.

2

| Pos. | Description | Dimensions L / H × W [m] | Weight approx. [kg] | PU [pc.] | Ref. No. |
|---|---|---|---|---|---|
| 1 | **Tubular pallet 265**<br>steel, hot-dip galvanised, length of pallet posts 1.20 m, load 1,300 kg | 2.77 × 1.22 | 50.6 | 10 | 5113.265 |
| 2 | **Modular skeleton box with timber base plate**<br>steel, hot-dip galvanised, Internal dimensions 1.08 x 0.68 x 0.61 m, load 2,000 kg, perm. onload 6,000 kg, stackable with Euro pallets | 1.20 × 0.80 | 85.8 | | 5113.002 |

# 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** 5 in the eaves area of the side protection.

To this end, the **connecting piece** 1 accommodates the **guardrail support** 4 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** 3 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** 2 can be used alternatively to the **connecting piece** 1 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.

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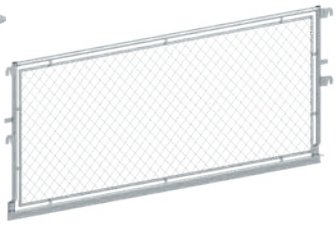
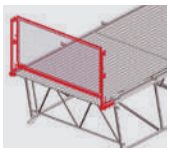
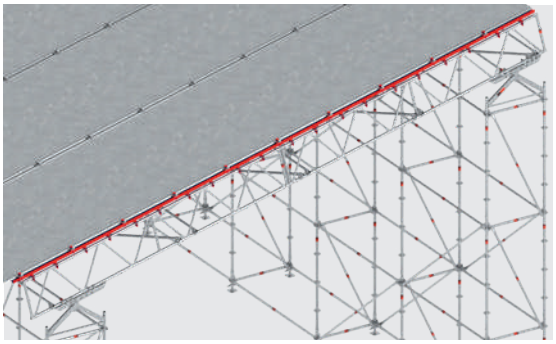


Side protection, gable



Side protection, eaves

6



| Pos. | Description | Dimensions L / H × W [m] | Weight approx. [kg] | PU [pc.] | Ref. No. |
|---|---|---|---|---|---|
| 1 | **Connecting piece for cassette supports** | 0.3 | 4.1 | 100 | 5932.000 |
| 2 | **Base support for walkway**<br>steel, for assembly of a walkway at the eaves area | 0.73 | 8.7 | 40 | 5916.073 |
| 3 | **Standard connection** | 0.22 | 3.2 | 100 | 5934.000 |
| 4 | **Guardrail support**<br>single with guardrail wedge housings, steel | 1.00 | 5.5 | 100 | 1716.000 |
| 5 | **Roof guard** | 1.00 × 2.57 | 21.1 | 30 | 1749.257 |
| 6 | **U-section**<br>steel | 2.00 | 18.0 | 63 | 5919.219 |

WS = wrench size LC = load class PU = packaging unit IND = Layher Individual possible = new in the catalogue = available ex works
= delivery time on request = only available in this packaging unit = the approval process is not yet completed

# Rope safety gear

**Rope safety gear system 20 m / 40 m** 1 / 2

- **Oval carabiner:** Connection element between end fastener and fall arrester
- **Fall arrester:** Reduction of the impact force when falling. Element for one-time operation
- **Rope pre-tensioner:** Tensioning unit for the safety rope
- **Runner:** Connection element between PSA-connecting line and roof safety rope
- **Fork head:** Fixation for the safety rope
- **Intermediate element:** For installation on ridge fastener and intermediate fastener

1 / 2

3

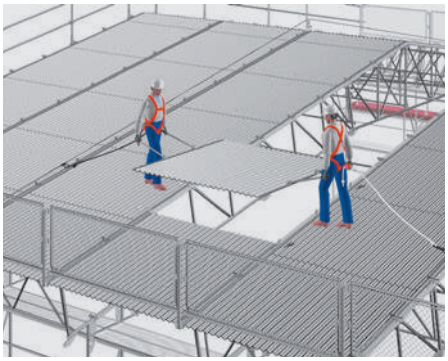
4

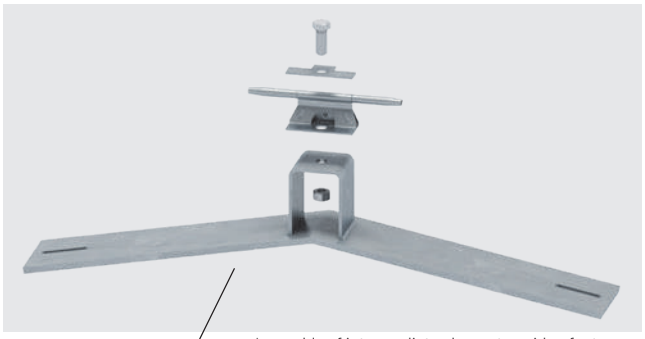
**End fastener** 3 for suspending fall arrester / pre-tensioner. Fastened in each case with wedge.

**Intermediate fastener** 4 for assembly of an intermediate element, max. distance 15 m. Each fastening with wedge.

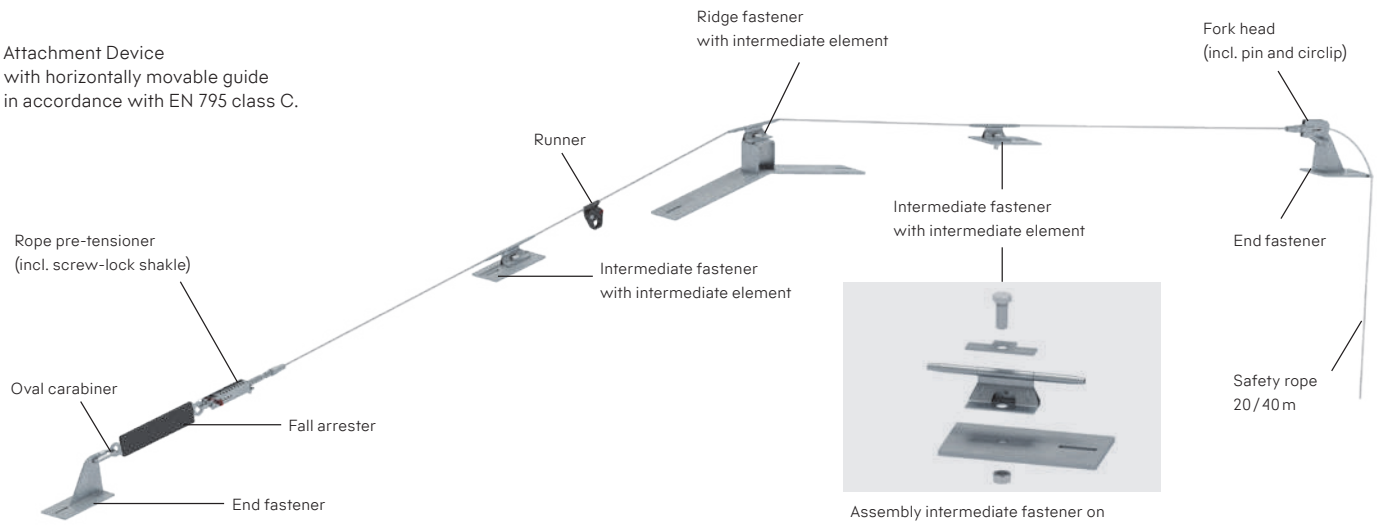
**Ridge fastener** 5 for fitting of an intermediate element in the ridge area. Fastened in each case with wedge.

5

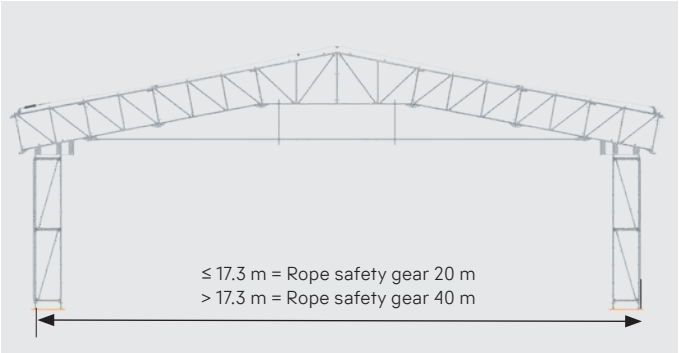




Assembly of intermediate element on ridge fastener




Assembly intermediate fastener on intermediate element




| KIT 1 – Rope safety gear system up to span of 20 m<br>Ref. No. 5969.120 | Quantity |
|---|---|
| Safety rope, Length 20 m | 1 |
| Fall arrester | 1 |
| Rope pre-tensioner | 1 |
| Fork head | 1 |
| Runner | 1 |
| Oval carabiner | 1 |
| Intermediate element | 1 |
| Instructions for assembly and use | 1 |
| Identification sign | 1 |
| Spare part for tensioning element | 1 |

| KIT 2 – Rope safety gear system up to span of 40 m<br>Ref. No. 5969.140 | Quantity |
|---|---|
| Safety rope, Length 40 m | 1 |
| Fall arrester | 1 |
| Rope pre-tensioner | 1 |
| Fork head | 1 |
| Runner | 1 |
| Oval carabiner | 1 |
| Intermediate element | 3 |
| Instructions for assembly and use | 1 |
| Identification sign | 1 |
| Spare part for tensioning element | 1 |

The **PPE safety harness** 6 has impressive features:
- Comfortable, padded and ergonomic back support.
- Convenient tool holders and click-locks for easy fastening.
- High operational dependability and absolute freedom from maintenance, plus very simple fastening.
- Operating errors are not possible, as the equipment operates in any position.
- Excellent running even under gruelling working conditions.
- Enormous distribution of forces in the event of a fall.

Before use, visual checks must be performed regularly to ensure correct working order. In accordance with German BGR 198 regulations, all personal safety equipment must be inspected at least once a year by an expert. The maximum permissible period of use for the equipment must not be exceeded.

**Travelling arrester system ASK 1** 7
Travelling rope shortener made of stainless steel, firmly sewn belt fall arrester (conforms to EN 355) with snap hook, rope length 5.00 m, conforms to EN 353-2.

**PPE connecting line Y-version** 8 Belt fall arrester with two coated-core ropes, d=12 mm. Aluminium one-hand snap hook and two tube hooks FS 90 (conforming to EN 354 / EN 355).

6


7


8


| Pos. | Description | Dimensions<br>L / H × W [m] | Weight approx.<br>[kg] | PU<br>[pc.] | Ref. No. |
|---|---|---|---|---|---|
| 1 | **Rope safety gear system 20 m**<br>KIT 1 | 20.00 | 10.0 | 1 | 5969.120 |
| 2 | **Rope safety gear system 40 m**<br>KIT 2 | 40.00 | 13.0 | 1 | 5969.140 |
| 3 | **End fastener**<br>steel, hot-dip galvanised | 0.23 × 0.12 | 3.1 | 1 | 5969.010 |
| 4 | **Intermediate fastener**<br>steel, hot-dip galvanised | 0.23 × 0.12 | 1.8 | 1 | 5969.020 |
| 5 | **Ridge fastener**<br>steel, hot-dip galvanised | 0.87 × 0.12 | 9.7 | 1 | 5969.030 |
| 6 | **PPE safety harness**<br>with extension 0.50 m conforms to EN 361 | | 1.8 | 1 | 5969.161 |
| 7 | **Travelling arrester system ASK 1**<br>Polyamide, d=12 mm | | 2.7 | 1 | 5969.200 |
| 8 | **PPE connecting line Y-version**<br>with snap hook FS 90 (conforming to EN 354 / EN 355) | | 1.6 | 1 | 5969.600 |

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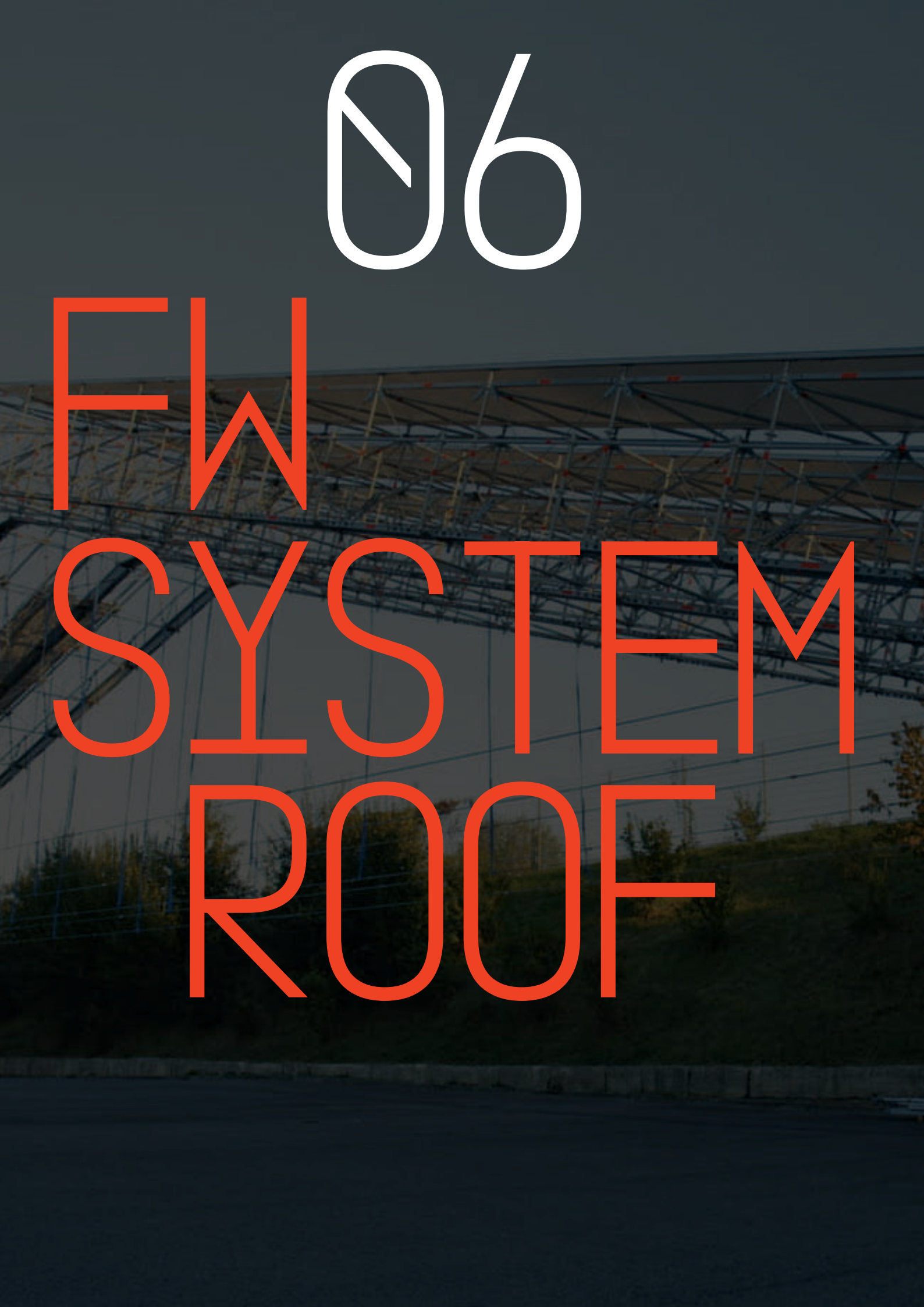
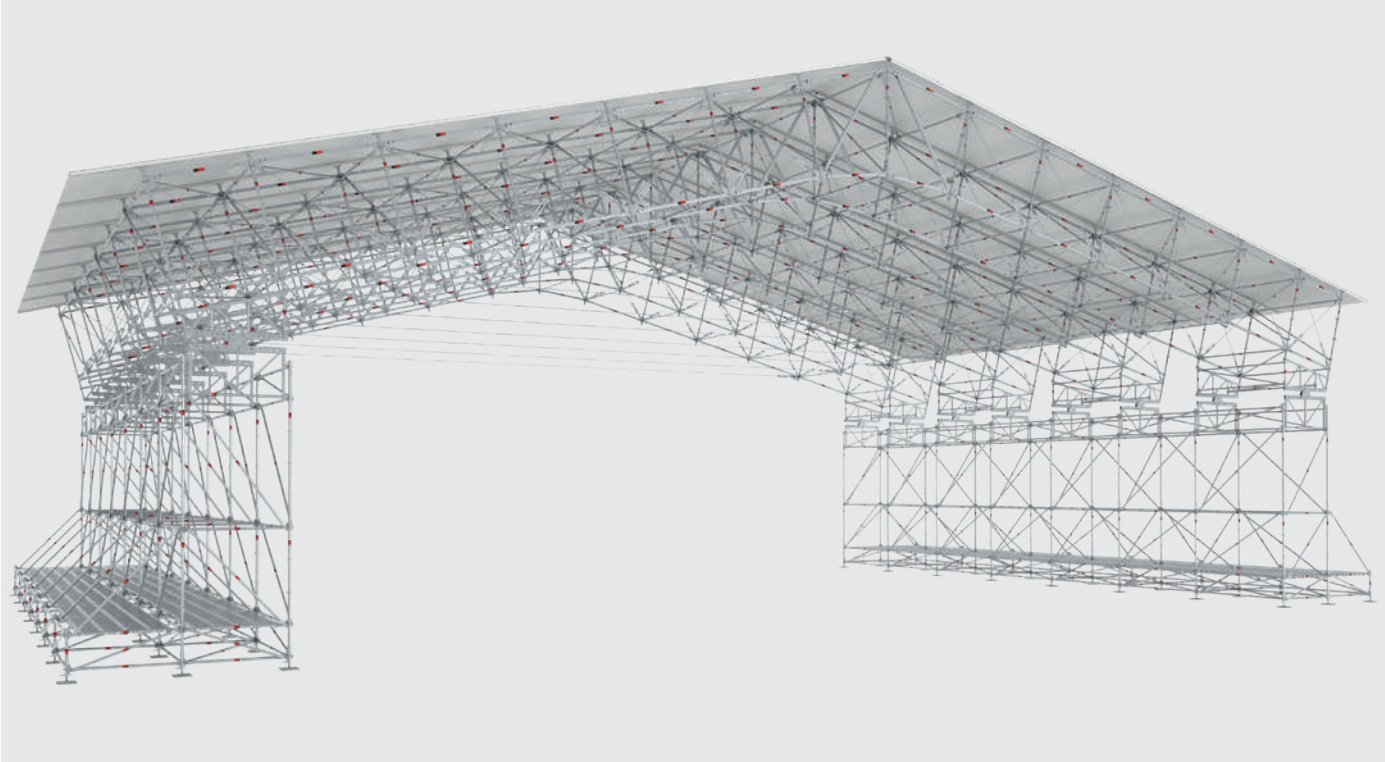


# 06

# FW SYSTEM ROOF

The Allround FW System can be used for a wide variety of applications, for example **bridging** or **bracing**, and also for roof supporting structure for temporary weather protection roofs. Spans of up to 45 meters can be realized under normal climatic conditions.



Notice: Potentially neccessary stabilizing measurement are not illustrated.

Due to the **bolt connection** and the proven **Allround wedge head technique,** the pre-assembly of the roof trusses on the floor is quick and efficient.

The roof trusses, braced using Allround standard components, are then positioned **by crane** onto the shoring. Thanks to Layher's standardised system dimensions, no tiresome measurement is needed.
The system can be assembled as a classic double-pitch roof or as a mono-pitch roof with a roof angle of 15°. For supplying materials to the sign, the Allround FW system roof can be opened by bays.

It is also possible to attach walkways made of Layher's standard scaffolding decks to the roof truss. That makes assembly, maintenance and any snow-clearing work that might be needed easier to manage.

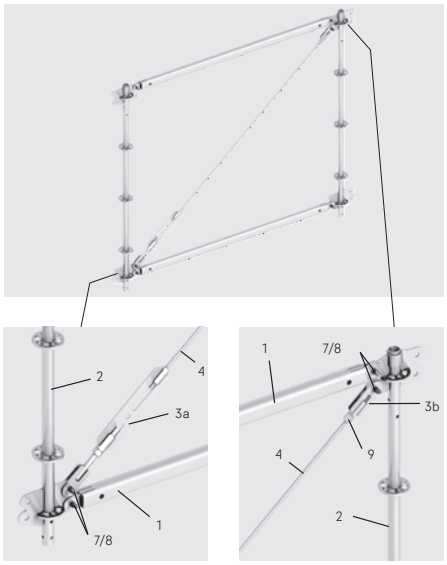
**The benefits for you:**

- Spans of up to 45 m possible under normal climatic conditions.
- Flexible uses, e.g. for weather protection roofs, bridges and supports for scaffolding.
- Extension by only 3 additional expansion parts to the Allround Scaffolding.
- The components are inside the system axes in all 3 directions.

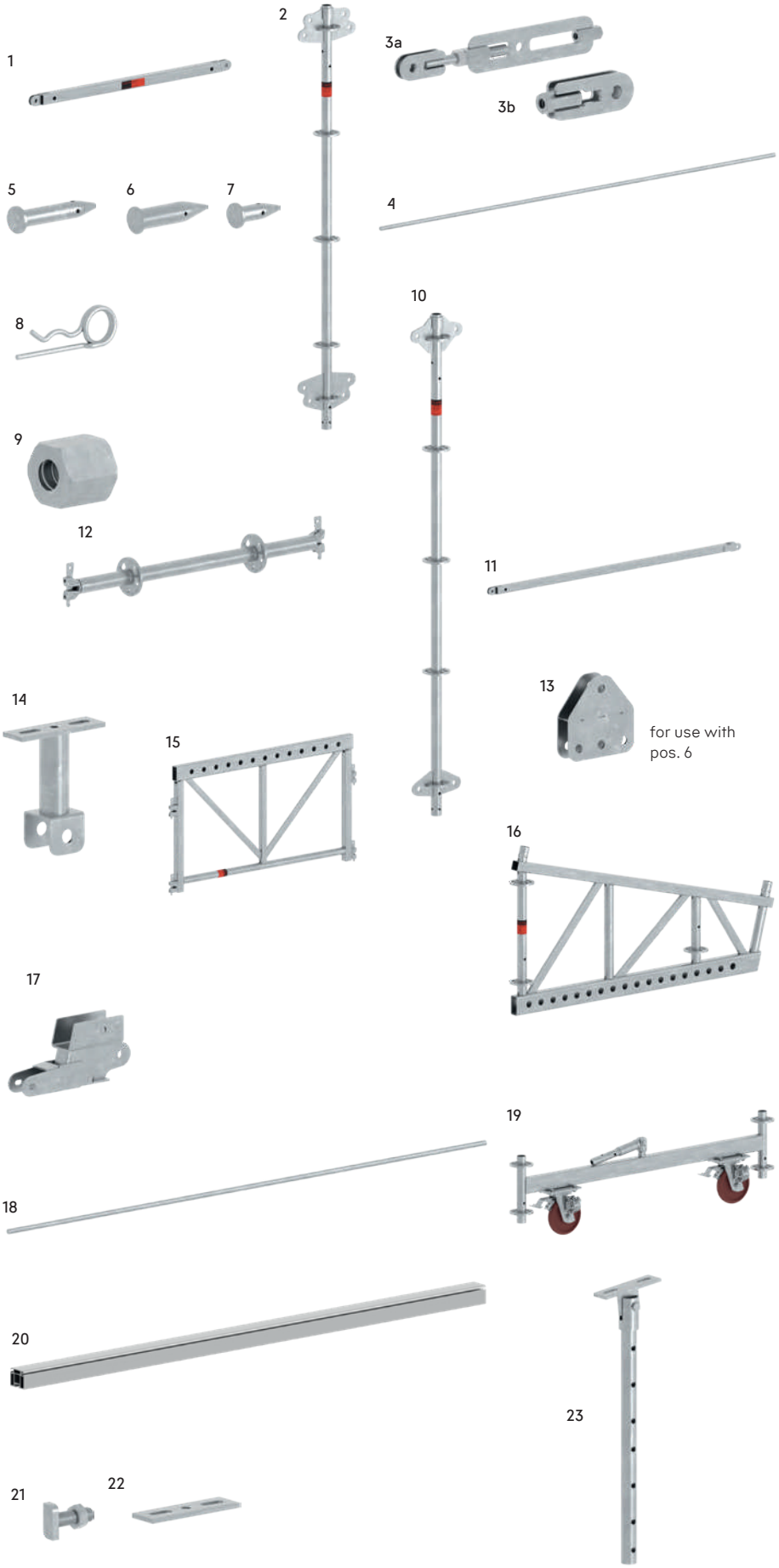
# System Components

To provide wide-span bridging too, or to support heavier loads, the Layher range now includes the **Allround FW System FW.** This additional Allround component is a modular-designed lattice beam of high load-bearing capacity that can be completely integrated into the Allround construction kit thanks to the standardised system dimensions. For lattice structures, only three essential supplementary components are needed, and they can be rapidly connected using pins: an **Allround FW post** 2, a sturdy Allround **FW chord** 1 as the top and bottom chord, and a length-adjustable **Allround FW diagonal rod consisting of** 3 – 5. The cross-bracing is made by serial Allround equipment. By its structural height a high load-transmission is guaranteed.

A further special feature is the stepless adjustment of the diagonal rods using a **turnbuckle** 3a – for example to build slightly higher structures. This compensates for unwelcome sagging. A crossed diagonal configuration is also possible for transmitting both positive and negative lateral forces.




To fix the tarpaulins, the bending stiff **Aluminium keder rails 3000** 20 will be assembled on the FW System roof binders.



| Pos. | | Description | WS [mm] | Dimensions L / H × W [m] | Weight approx. [kg] | PU [pc.] | Ref. No. |
|---|---|---|---|---|---|---|---|
| 1 | | **FW chord** | | 1.57 | 10.5 | 20 | 2646.157 |
| | | | | 2.07 | 13.9 | 20 | 2646.207 |
| 2 | | **FW post** | | 2.00 | 17.2 | 28 | 2646.200 |
| 3 | | **FW endfitting** | | | | | |
| | a | with turnbuckle | | | 3.8 | 250 | 2646.202 |
| | b | w/o turnbuckle | | | 0.9 | 500 | 2646.203 |
| 4 | | **FW diagonal rod** | | | | | |
| | | for 2.07 x 2.00 m bay | | 1.96 | 2.8 | 100 | 2646.211 |
| | | for 2.07 x 1.50 m bay and 1.57 x 2.00 m bay | | 1.63 | 2.4 | 100 | 2646.214 |
| 5 | | **Bolt 20 x 113 mm** | | | 3.0 | 10 | 2646.281 |
| 6 | | **Bolt 30 x 130 mm** | | | 6.3 | 10 | 2646.284 |
| 7 | | **Bolt 20 x 66 mm** | | | 1.6 | 10 | 2646.221 |
| 8 | | **Securing pin d=4 mm** | | | 1.5 | 50 | 5905.002 |
| 9 | | **Nut 30 x 15 mm** | 30 | | 1.5 | 10 | 2646.231 |
| 10 | | **FW System ridge post** | | 2.25 | 17.5 | 28 | 2646.223 |
| 11 | | **FW System ridge diagonal brace** | | 2.53 | 15.1 | 50 | 2646.224 |
| 12 | | **FW System ridge ledger with rosettes** | | 1.09 | 5.0 | 28 | 2664.109 |
| | | | | 1.57 | 6.5 | 28 | 2664.157 |
| | | | | 2.07 | 8.0 | 28 | 2664.207 |
| | | | | 2.57 | 9.5 | 28 | 2664.257 |
| 13 | | **FW System support adapter**<br>use with bolt 2646.284 | | | 4.4 | 45 | 2646.265 |
| 14 | | **FW System keder rail holder** | | | 1.3 | 250 | 2646.275 |
| 15 | | **FW System support beam** | | 1.57 | 35.2 | 10 | 2655.157 |
| 16 | | **FW System chord support** | | 1.57 | 27.0 | 10 | 2652.157 |
| 17 | | **FW System tie connector** | | | 2.8 | 100 | 2664.226 |
| 18 | | **Tie thread rod** | | 2.00 | 2.9 | 100 | 5976.200 |
| | | | | 3.00 | 4.4 | 100 | 5976.300 |
| | | | | 4.00 | 5.8 | 100 | 5976.400 |
| | | | | 5.00 | 7.3 | 100 | 5976.500 |
| 19 | | **FW System trolley** | 19 | 1.57 | 30.0 | 50 | 2646.228 |
| 20 | | **Aluminium keder rail 3000** | | 2.00 | 6.1 | 20 | 5574.200 |
| | | | | 3.00 | 9.2 | 20 | 5574.300 |
| | | | | 4.00 | 12.2 | 20 | 5574.400 |
| | | | | 5.00 | 15.3 | 20 | 5574.500 |
| | | | | 6.00 | 18.3 | 50 | 5574.600 |
| 21 | | **Groove bolt for keder rail M12 x 40**<br>with nut | | | 5.0 | 50 | 4206.003 |
| 22 | | **Joint plate for keder rail**<br>2 groove bolts 4206.003 are required | | 0.17 | 0.5 | 50 | 4208.000 |
| 23 | | **Hinged attachment** | | 0.70 | 3.4 | 100 | 5573.001 |

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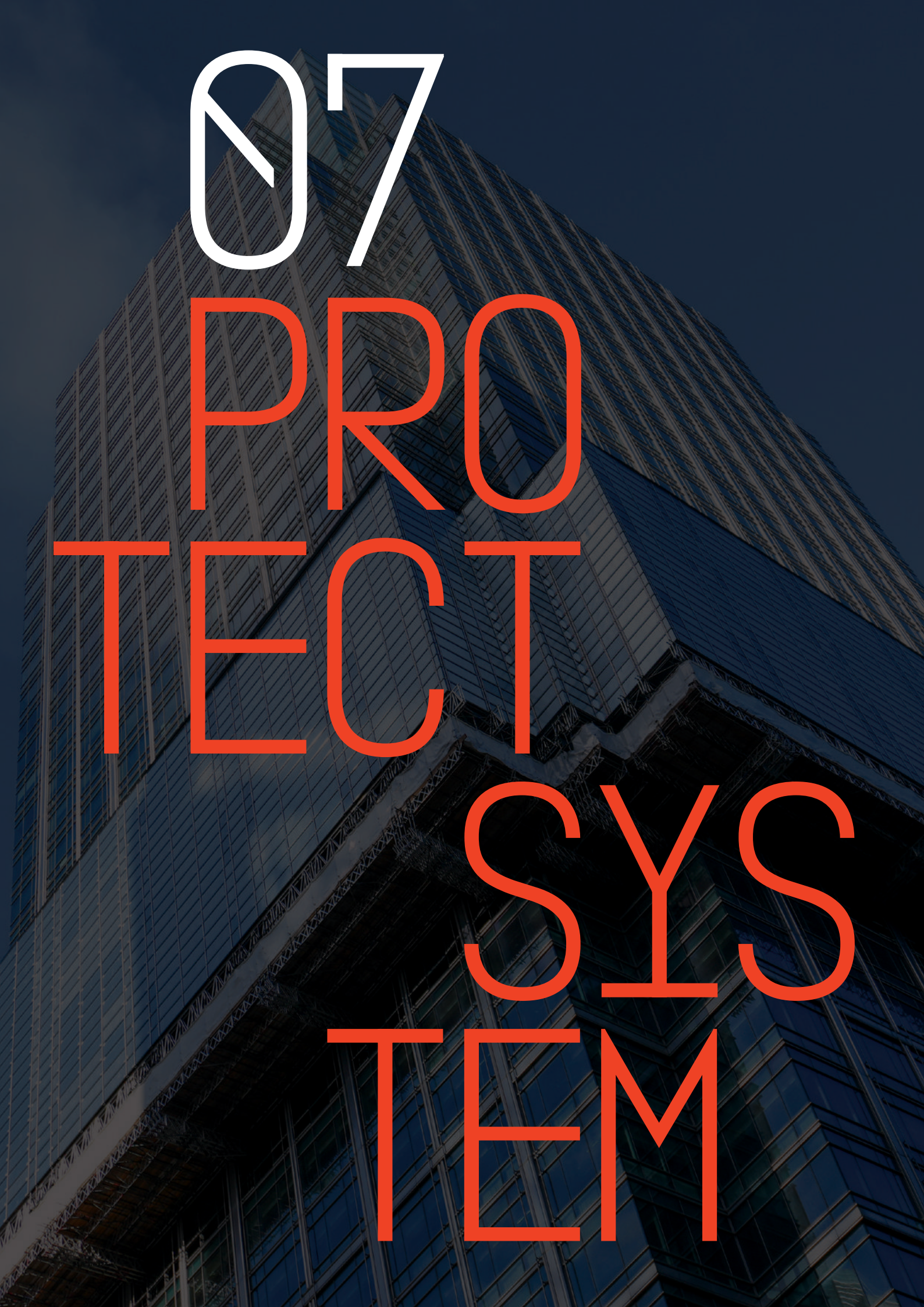
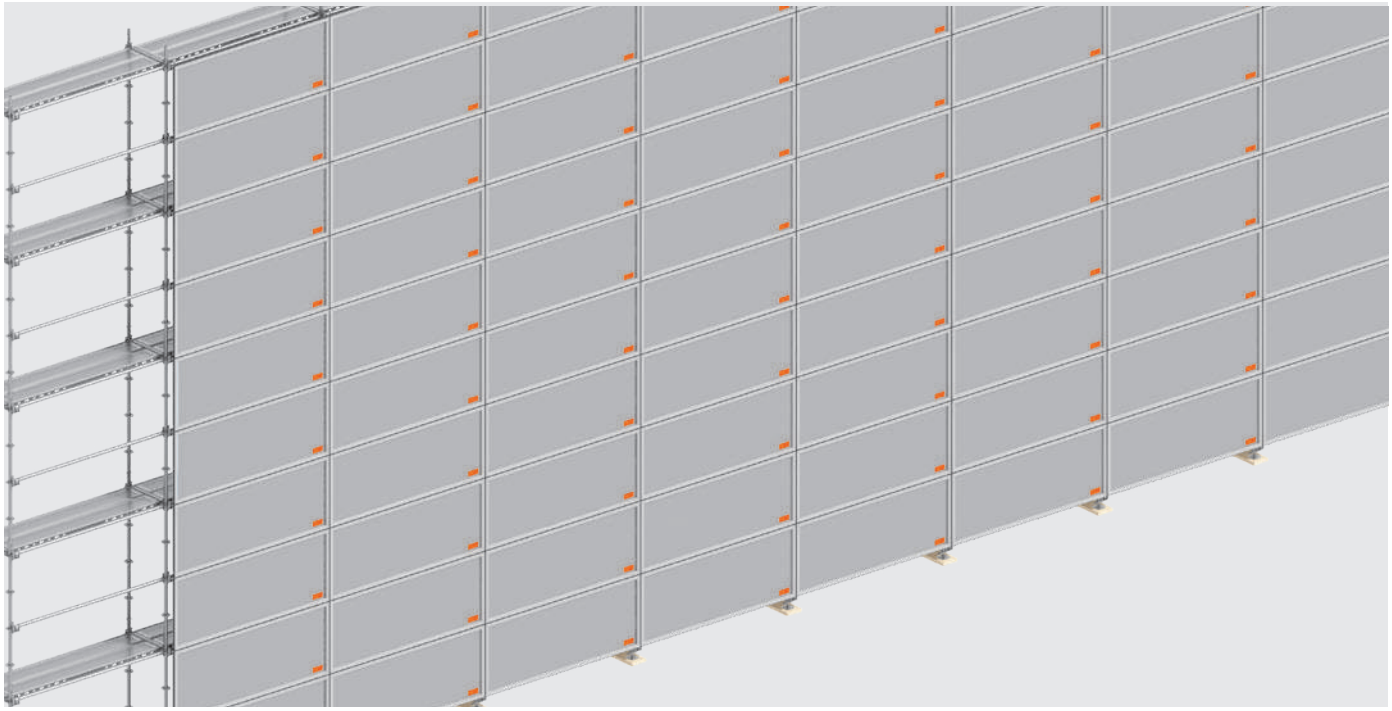


# 07 PROTECT SYSTEM

With the **Protect System**, Layher can supply a cassette enclosure system which is compatible with the Layher Allround Scaffolding and SpeedyScaf systems and which meets requirements concerning environmental protection and insulation from noise and weather. It is an **exceptionally economical solution which boasts Layher's renowned quality.**




- **Only a small number of individual parts, designed for frequent, changing applications.**
- **Rapid, easy assembly in a simple, logical sequence.**
- The cassettes are designed for Layher axis dimensions (max. width: 3.07 m) and, with a height of 1.00 m, are very simple to assemble and move into the scaffolding.
- The surrounding rubber seal makes the cassette elements almost
- dustproof **(facade coating),** vacuum-compatible **(removal of asbestos),** waterproof **(sandblasting work).**
- Electrostatically inert and therefore easy to clean.
- The wall cassettes can be used with a dimension of **airborne sound insulation** of Rw'=26 dB.
- **Light cassettes** permit work in daylight conditions within the enclosure.
- Cassette elements exist for **external and internal corners.**
- A specially developed **connection rail** is used to establish a connection with the existing building or the ground.
- Practical solutions for horizontal and vertical dimension compensation are available.
- The anchoring layout corresponds to that of scaffolding which is clad with tarpaulins.
- **Access elements** compatible with system and individual requirements are available.

**The benefits for you:**

- Requirements of environmental, sound and weather protection are fulfilled.
- Rapid, easy assembly in a simple, logical sequence.
- The all-round rubber seal makes the cassette elements almost dustproof (facade coating), vacuum-compatible (removal of asbestos), waterproof (sandblasting work).
- Only few and optical attractive components, designed for frequently changing applications.
- Fully combinable to Layher Allround Scaffolding, Layher-SpeedyScaf and Layher AGS System.

# System Components

Cassette elements Frames made from aluminium sections with galvanized sheet steel inserts. A surrounding rubber seal provides a clean, precise connection to neighbouring elements.

The **wall cassettes** 1 can be used with a dimension of airborne sound insulation of Rw'=26 dB.

On request, it is also possible to supply special wall cassette variants with enhanced sound isolation properties in accordance with the "Supplementary Technical Requirements and Guidelines for Highway Noise Insulation Walls" ZTV-Lsw 88:1988 and the evaluation in accordance with DB guideline 800.2001, section 2.

A test report concerning the airborne sound insulation of scaffolding coverings issued by the Fraunhofer Institute for Building Mechanics in accordance with ZTV-Lsw 88:1988 or DB guideline 800.2001 is available.

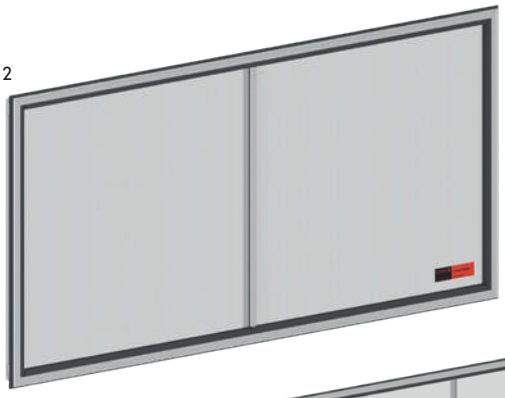
Thanks to the use of **light cassettes** 2, it is possible to work in daylight conditions behind the enclosure. In this case, a translucent plastic web plate replaces the steel plate in the aluminium section frame.

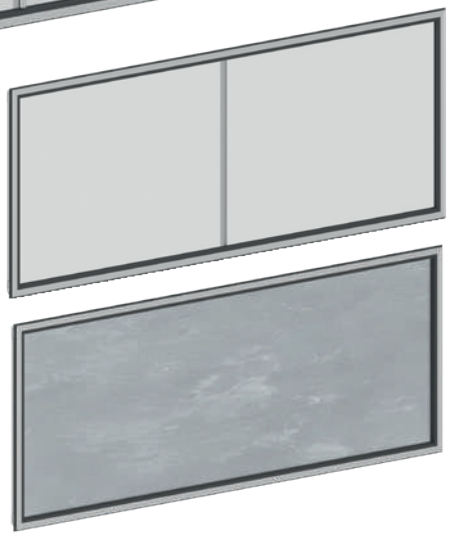
**Connection rails** 3 close the enclosure at the ground or building. These are clamped to the cassettes and make it possible to pull a Keder tarpaulin into the built-in Keder groove. Alternatively, a sheet or board can be adapted for use with the wooden strip intended for this purpose. Connection rails also permit the clean, close-fitting connection of fitted bays.

Internal and external corners are formed using **corner cassettes** 4/5, while the corresponding **connection rails** 6, which are inserted in the holder, permit a close-fitting connection to the neighbouring cassettes and close the system both visually and in functional terms.

1

2

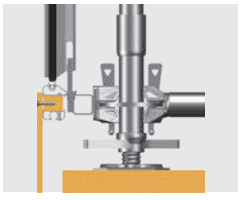


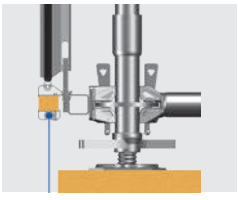


**Real glass cassettes** with laminated safety glass on request

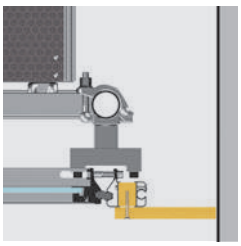
**Wall cassettes with enhanced sound insulation** in accordance with ZTV-Lsw 88:1988 or DB guidelines 800.2001 (section 2) on request

3

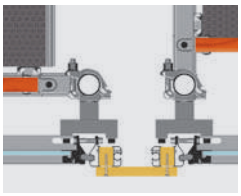


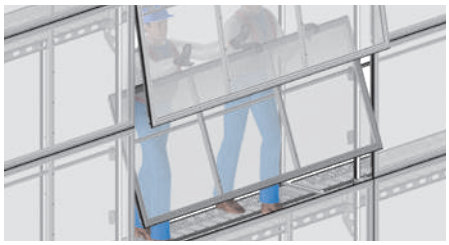


Wall connection



Equalizing bay connection





To remove single wall cassettes, the upper brackets of the wall cassette must be dismantled and the upper wall cassette will be tilted outwards. The wall cassette below can now be be lifted up and removed. The dismantled holders must be bolted in their old positions. While dismantling the cassettes, the handrail of the cassettes must not be removed, unlesse unless the scaffold erector provides further for fall protection.

Corner elements with other angles upon request.

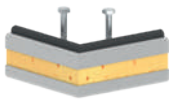
For an increased noise reduction value, different special configurations of Protect cassettes are available

- Protect wall cassette with increased metal sheet thickness.
- Noise reduction mat for Protect cassettes.

4

5

6



| Pos. | Description | Dimensions L / H × W [m] | Weight approx. [kg] | PU [pc.] | Ref. No. |
|---|---|---|---|---|---|
| 1 | **Wall cassette** | | | | |
| | 0.73 m long | 0.73 × 1.00 | 7.7 | 15 | 5980.073 |
| | 1.09 m long | 1.09 × 1.00 | 10.5 | 15 | 5980.109 |
| | 1.40 m long | 1.40 × 1.00 | 13.5 | 15 | 5980.140 |
| | 1.57 m long | 1.57 × 1.00 | 14.3 | 15 | 5980.157 |
| | 2.07 m long | 2.07 × 1.00 | 18.2 | 15 | 5980.207 |
| | 2.57 m long | 2.57 × 1.00 | 22.2 | 15 | 5980.257 |
| | 3.07 m long | 3.07 × 1.00 | 27.2 | 15 | 5980.308 |
| | 0.50 m long, metric | 0.50 × 1.00 | 6.0 | 30 | 5980.050 |
| | 1.00 m long, metric | 1.00 × 1.00 | 10.0 | 15 | 5980.100 |
| | 1.50 m long, metric | 1.50 × 1.00 | 14.0 | 15 | 5980.150 |
| | 2.00 m long, metric | 2.00 × 1.00 | 18.0 | 15 | 5980.200 |
| | 2.50 m long, metric | 2.50 × 1.00 | 22.0 | 15 | 5980.250 |
| | 3.00 m long, metric | 3.00 × 1.00 | 27.0 | 15 | 5980.301 |
| 2 | **Light cassette** | | | | |
| | 0.73 m long | 0.73 × 1.00 | 5.2 | 15 | 5981.073 |
| | 1.09 m long | 1.09 × 1.00 | 7.1 | 15 | 5981.109 |
| | 1.57 m long | 1.57 × 1.00 | 9.5 | 15 | 5984.157 |
| | 2.07 m long | 2.07 × 1.00 | 11.5 | 15 | 5984.207 |
| | 2.57 m long | 2.57 × 1.00 | 14.2 | 15 | 5984.257 |
| | 3.07 m long | 3.07 × 1.00 | 16.2 | 15 | 5984.307 |
| | 0.50 m long, metric | 0.50 × 1.00 | 4.0 | 15 | 5981.050 |
| | 1.00 m long, metric | 1.00 × 1.00 | 6.0 | 15 | 5981.100 |
| | 1.50 m long, metric | 1.50 × 1.00 | 8.6 | 15 | 5984.150 |
| | 2.00 m long, metric | 2.00 × 1.00 | 10.6 | 15 | 5984.200 |
| | 2.50 m long, metric | 2.50 × 1.00 | 13.0 | 15 | 5984.250 |
| | 3.00 m long, metric | 3.00 × 1.00 | 15.5 | 15 | 5984.300 |
| 3 | **Connection rail** | | | | |
| | 0.73 m long | 0.73 | 1.7 | 20 | 5983.073 |
| | 1.09 m long | 1.09 | 1.9 | 30 | 5983.109 |
| | 1.57 m long | 1.57 | 2.9 | 30 | 5983.157 |
| | 2.07 m long | 2.07 | 3.7 | 30 | 5983.207 |
| | 2.57 m long | 2.57 | 4.6 | 30 | 5983.257 |
| | 3.07 m long | 3.07 | 5.5 | 30 | 5983.307 |
| | 0.50 m long, metric | 0.50 | 1.2 | 30 | 5983.050 |
| | 1.00 m long, metric | 1.00 | 1.9 | 30 | 5983.100 |
| | 1.50 m long, metric | 1.50 | 2.6 | 30 | 5983.150 |
| | 2.00 m long, metric | 2.00 | 3.6 | 30 | 5983.200 |
| | 2.50 m long, metric | 2.50 | 4.5 | 50 | 5983.250 |
| | 3.00 m long, metric | 3.00 | 5.4 | 30 | 5983.300 |
| 4 | **Corner cassette 90°** | 0.16 × 1.00 | 4.2 | 50 | 5985.010 |
| 5 | **Inner corner cassette 90°** 1.00 m | 0.39 × 1.00 | 10.2 | 20 | 5985.040 |
| 6 | **Connection rail 90°** | 0.17 × 0.17 | 0.6 | 100 | 5985.011 |
| | | 0.39 × 0.39 | 1.8 | 40 | 5985.041 |

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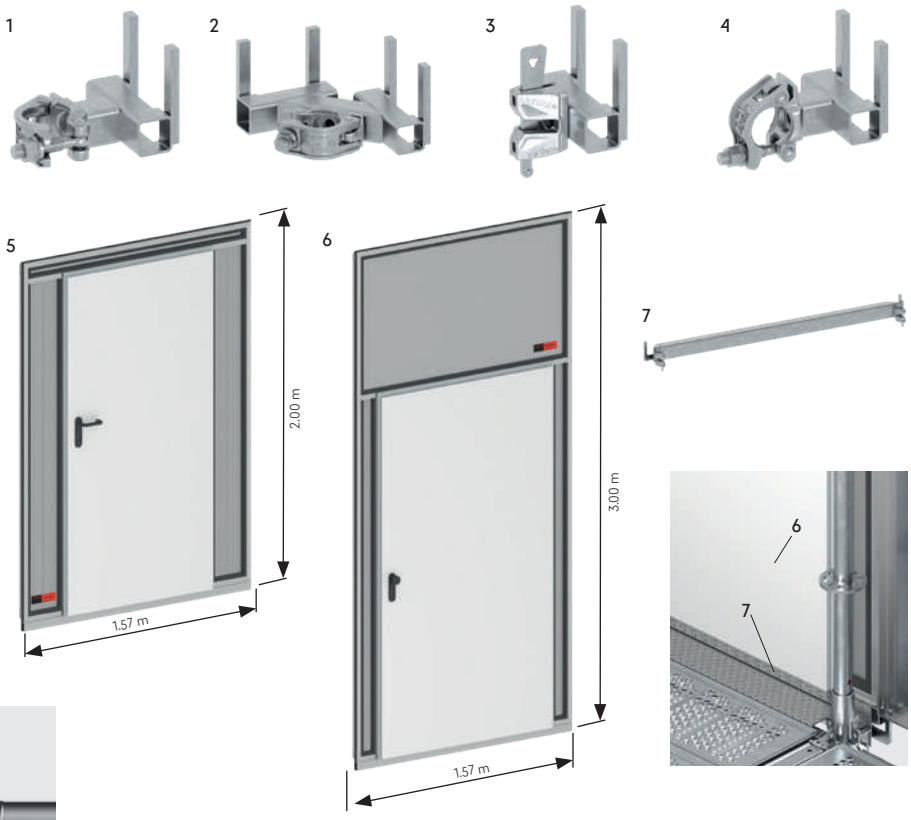
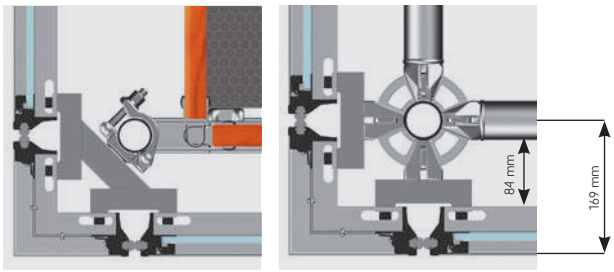
The cassettes are secured to the scaffolding using special **holders** 1 – 4, which are installed at a standard height of 1.00 m. Once the lower row of cassettes has been installed and aligned, all the other cassettes are mounted and secured simply using holders. The subsequent removal and installation of individual cassettes for material covering or other purposes is possible.

For access to the cladded scaffolding, the **light door elements** 5/6 are available. Both doors are for axis dimensions 1.57 m and thanks to the **cover ledger** 7 they are free of tripping hazards.

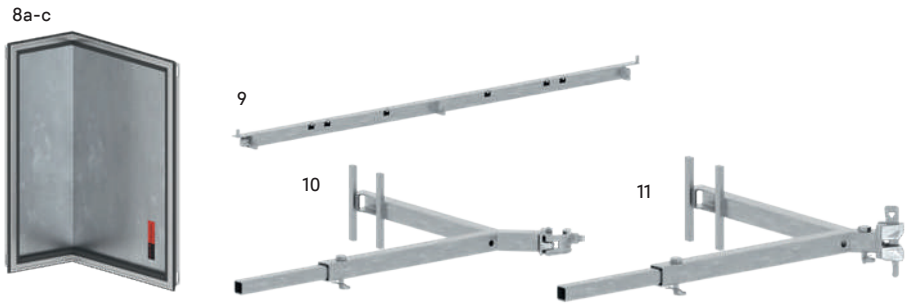
If required, the light cassettes can be equipped with single-glazed safety glass (particularly resistant to mechanical loads).

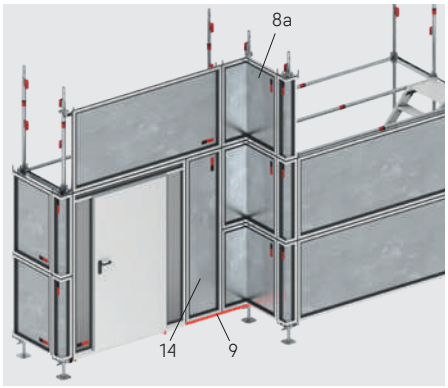


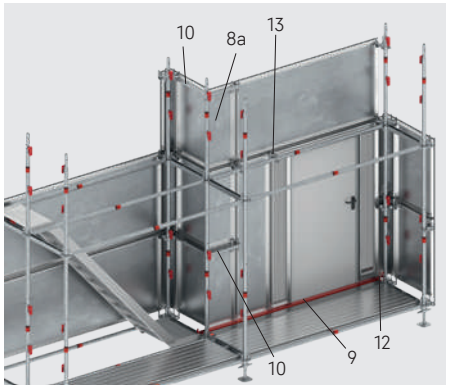



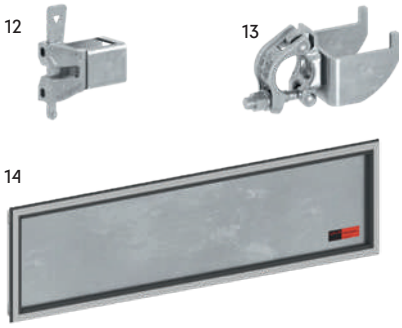

# Access protection with external stairs

Items 8–14 can be used to enclose a external platform stairtower. By using the SpeedyScaf, it must be noted whether the platform stair tower is connected to the main scaffolding with distance couplers or swivel couplers.

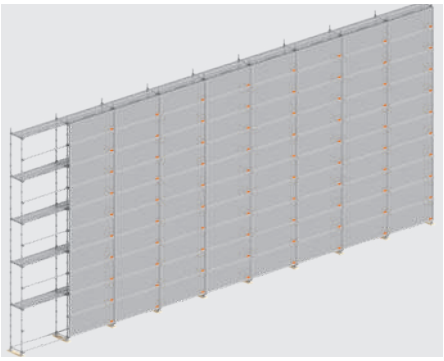


**Enclosure area:** 205.60 m² (10 x 8 bays, each 2.57 m x 1.00 m) The connecting rails were installed at the bottom edge of the cassettes



| Following material is needed | Quantity | PU [pc.] | Ref. No. |
|---|---|---|---|
| Wall cassette 2.57 x 1.00 m | 80 | 15 | 5980.257 |
| Allround holder | 99 | 250 | 5986.031 |
| Connection rail 2.57 m | 8 | | 5983.257 |

| Pos. | | Description | WS [mm] | Dimensions L / H × W [m] | Weight approx. [kg] | PU [pc.] | Ref. No. |
|---|---|---|---|---|---|---|---|
| 1 | | **SpeedyScaf holder for wall cassette T9** | 19 | | 1.6 | 250 | 5986.011 |
| 2 | | **SpeedyScaf corner holder for wall cassette T9** | 19 | | 2.4 | 250 | 5986.021 |
| 3 | | **Allround holder for wall cassette T9** | | | 1.2 | 250 | 5986.031 |
| 4 | | **Ledger holder for half-coupling T9** | 19 | | 1.6 | 300 | 5986.041 |
| 5 | | **Light door element for site access**<br>Hinged DIN right, width clearance 0.94 m, height clearance 1.84 m | | 1.57 × 2.00 | 45.5 | 1 | 5985.156 |
| 6 | | **Light door element for escape ways**<br>Hinged DIN right with anti-panic handle, width clearance 1.19 m, height clearance 2.09 m | | 1.57 × 3.00 | 68.6 | 1 | 5985.157 |
| 7 | | **Cover ledger**<br>for Protect light door element, combined use with 2675.157 | | 1.57 | 12.7 | 50 | 5985.158 |
| 8 | | **Inner corner cassette 90°** | | | | | |
| | a | for Allround Scaffolding and AGS System | | 0.39 x 0.62 x 1.00 | 13.3 | 10 | 5985.042 |
| | b | for SpeedyScaf with distance coupler | | 0.39 × 0.73 × 1.00 | 14.7 | 10 | 5985.050 |
| | c | for SpeedyScaf with swivel coupler | | 0.39 x 0.69 x 1.00 | 14.2 | 10 | 5985.051 |
| 9 | | **Cover ledger**<br>for Protect door in Allround Scaffolding and AGS | | 2.57 | 19.5 | 50 | 5985.257 |
| 10 | | **SpeedyScaf/AGS corner holder for wall cassette**<br>Support for corner cassettes | 19 | | 6.1 | 40 | 5986.022 |
| 11 | | **Allround corner holder for wall cassette**<br>Support for corner cassettes | | | 6.1 | 40 | 5986.032 |
| 12 | | **Square-tube ledger**<br>with 1 wedge head | | 0.134 | 1.0 | 250 | 5985.000 |
| 13 | | **Protect ledger holder with half-coupler** | 19 | | 1.6 | 250 | 5986.042 |
| 14 | | **Wall cassette**<br>2.00 m long, metric | | 2.00 × 0.50 | 11.3 | 30 | 5982.200 |

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