

LAYHER PROTECTIVE SYSTEMS CATALOGUE 2021/2022



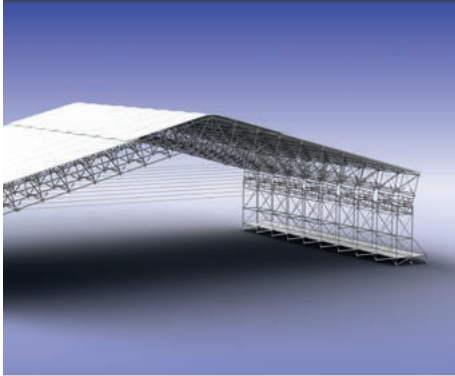
Edition 04.2021
Ref. No. 8121.260

Quality management
certified according
to DIN EN ISO 9001



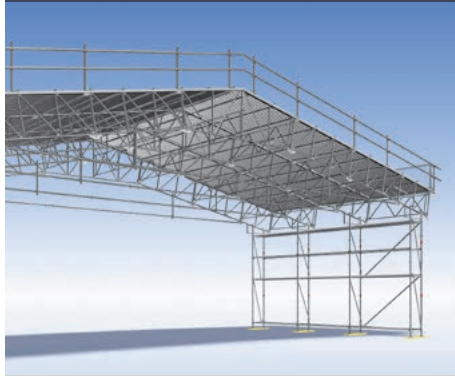


ALLROUND FW SYSTEM ROOF FROM PAGE 8



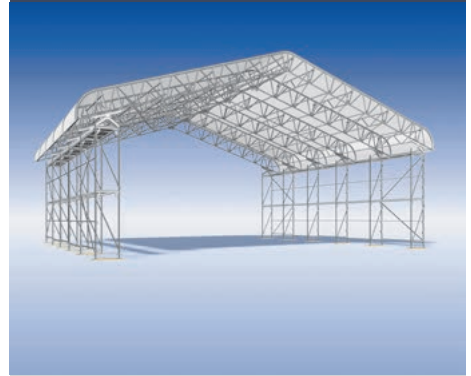
Overview	8
System Components	10

CASSETTE ROOF FROM PAGE 12



Overview	12
System Components	14
Roof cassettes	18
Logistics, fall protection	20
Safety gear	22

KEDER ROOF XL FROM PAGE 26



Overview	26
System Components	28
Tarpaulins	32
Material assembly	34
double-pitch roof / mono-pitch roof	
Keder halls	36



MIXED REALITY



In this catalogue, you can find images highlighted with the symbol for mixed reality.

By using the Layher App, you bring these scaffolding structures to life. Learn more and download the app:
app-en.layher.com

PRODUCT PORTFOLIO



The Layher product range – all catalogues at a glance

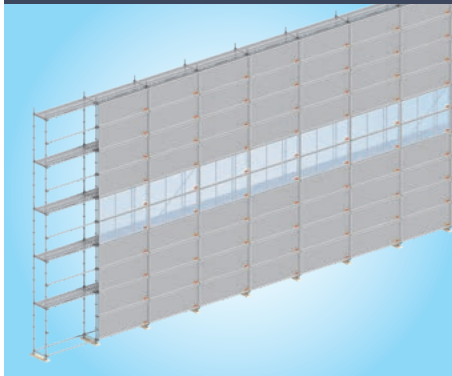
SpeedyScaf	Ref. No. 8102.262
Allround Scaffolding	Ref. No. 8116.258
System-free Accessories	Ref. No. 8103.260
Protective Systems	Ref. No. 8121.260
Event Systems	Ref. No. 8111.233
Access Technology	Ref. No. 8118.233

MOVABLE ROOFS FROM PAGE 38



Overview	38
System Components	40

PROTECT SYSTEM FROM PAGE 42



Overview	42
System Components	44
Material example	46

NOTICE

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. Protected by copyright. Not to be reproduced, either in whole or in part. Misprints and errors excepted.

QUALITY MADE BY LAYHER



Headquarters in Eibensbach



Plant 2 in Gueglingen

QUALITY MADE IN GERMANY.

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, sales and export department are all in one place, where the conditions are best for achieving quality made by Layher: in Gueglingen-Eibensbach. The two locations together cover a surface area of 318,000 m². This includes more than 148,000 m² of covered production and storage areas.

MORE POSSIBILITIES. THE SCAFFOLDING SYSTEM.

This brand promise made by Layher is the expression of a brand philosophy that we've been living by for over 75 years. More speed, more safety, more proximity, more simplicity and more future: values with which we strengthen our customers' competitiveness in the long term. With our innovative systems and solutions, we're working all the time on making scaffolding construction even simpler, even more economical and, above all, even safer.

SUSTAINABILITY AT LAYHER.

We've long been acting with a clear focus, with a view to both economic and ecological sustainability in all our process steps. Social responsibility towards employees, clients and society as a whole are at the very centre of this. We're a dependable employer, active in protecting our resources. The sparing use of work materials as a feature of our sustainable approach is fundamental to how we see ourselves: we already take care to ensure sustainable building methods when planning a new production facility, for example by greening the roofs or using photovoltaic systems. We also value locations that are close by, avoiding unnecessary CO₂ emissions due to long traffic routes. The topic of sustainability is firmly embedded in Layher's organisational structure thanks to its energy management team. Their work has paid off in particular in the form of DIN EN ISO 50001 certification.



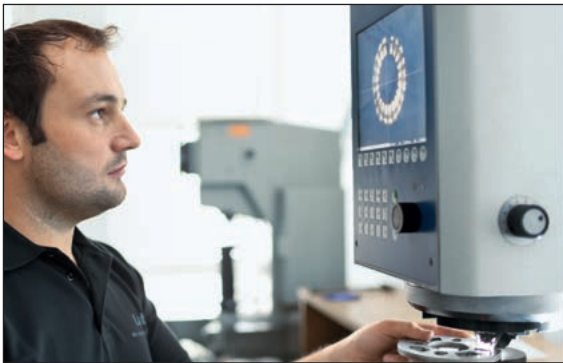
Discover the world of Layher in its company film at:
yt-image-en.layher.com





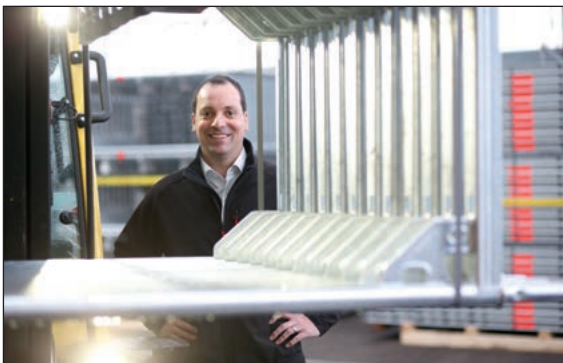
MORE SPEED

High level of material availability, effective delivery service and quick assembly and dismantling of the scaffolding systems thanks to 100% fitting accuracy.



MORE SAFETY

Outstanding quality and precision coupled with a long service life – confirmed internationally through independent certifications, inspections and approvals. Continuity and long-term partnership.



MORE PROXIMITY

Comprehensive personal consultation and close-knit delivery network. Global presence through our own subsidiaries. Family-owned company that works closely with its customers.



MORE SIMPLICITY

Economical scaffolding systems that have been proven in practice, available with an extensive product range. Cross-system combinations for versatile use. Rapid decision making thanks to efficient structures and processes.



MORE FUTURE

Thanks to permanent product innovations and the improvement of existing parts. By opening up new areas of business. With an integrated system to ensure high profitability and retention of investment value. Through an extensive range of training opportunities and seminars to ensure that customers are always right up-to-date with the latest technical and commercial developments.

Layher Lightweight: Through the use of high-tensile steel, a new production process, and an improved design, we have succeeded in minimising the weight of the core components of our systems – while maintaining or raising load-bearing capacity.



Layher LayPLAN

Time and material are crucial factors in scaffolding construction. To make the most efficient use of both, the Layher range includes the practical LayPLAN scaffolding planning software.

With the several software packages LayPLAN CLASSIC and LayPLAN CAD, it is possible to plan scaffolding structures from simple, small facade scaffolding up to complex industrial scaffolding or protective roofs and grandstands.

LayPLAN CLASSIC

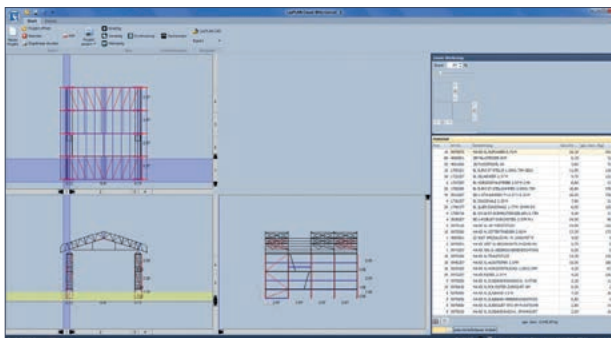
With the LayPLAN CLASSIC modules for Allround Scaffolding and SpeedyScaf, individualised scaffolding solutions can be configured quickly and easily: whether they're for circular or facade scaffolding made from SpeedyScaf, for birdcage scaffolding and free-standing towers made from Allround Scaffolding, or for structures with temporary roofs. Once the dimensions and the required assembly variant have been entered, LayPLAN CLASSIC delivers within seconds a scaffolding proposal, including anchoring, bracing and side protection. During the design phase, the overall length, standing heights and areas are continuously calculated and displayed to reflect the current plan. A materials list can also be created at the click of a button and then printed out, together with an assembly sketch for the area to be enclosed in scaffolding plus the total weight. This also helps with the logistics – the required material is guaranteed to be there where it's needed. Scaffolding erectors benefit from more certainty when planning the commercial and technical details, from optimised use of stocks, and from full cost transparency at every stage of the project.

After finalisation of the scaffolding proposal, the LayPLAN Material Manager provides you with complete lists of required parts to ensure you always have precisely the material you need at the site.

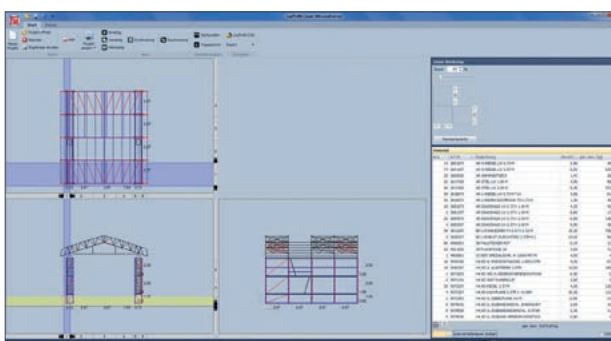
LayPLAN CAD

For more complex structures, LayPLAN CAD is available. This is a plug-in for Autodesk AutoCAD. It enables 3-dimensional planning of scaffolding structures of all types.

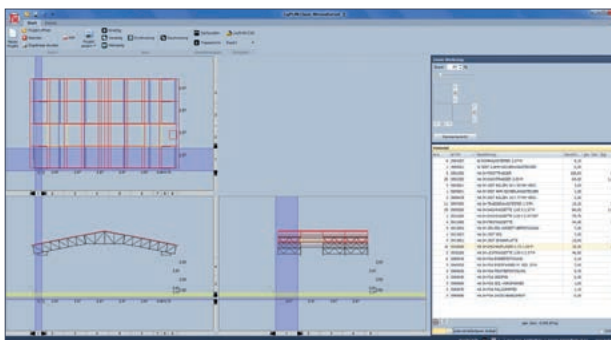
Thanks to integration into the LayPLAN system, the basic planning can be handled in automated form using the proven LayPLAN CLASSIC. Project data can be quickly recorded using input masks, ensuring a time saving for every order. The data are then simply exported into the AutoCAD program, which offers further possibilities for detailed 3D planning. A visual collision check is possible with the aid of volume rendering. Using a convenient search function with preview image, scaffolding planners will find not only an extensive library of individual Layher parts, but also assemblies already prefabricated for even faster design work. The detailed drawings can then be printed out. A transfer to visualisation or animation software is also possible without any problem. This allows projects not only to be planned economically and also adapted precisely to actual requirements, but also to be presented professionally to customers.



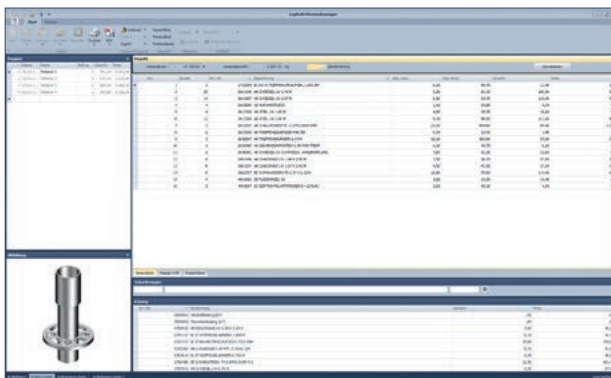
Keder Roof XL with SpeedyScaf as substructure



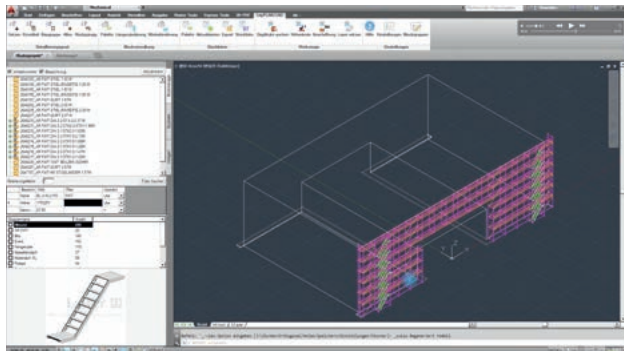
Keder Roof XL with Allround Scaffolding as substructure



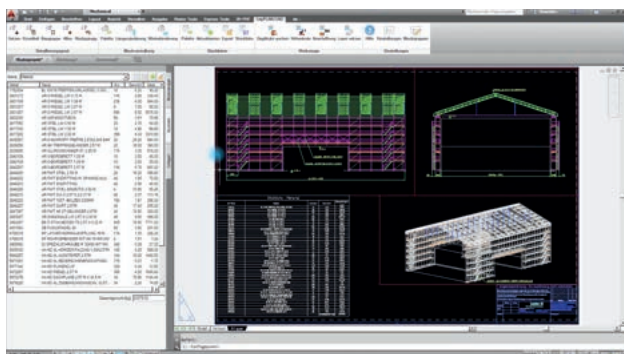
Cassette Roof



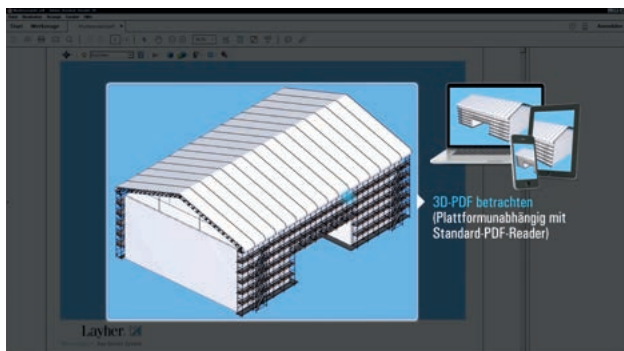
Component images in LayPLAN Material Manager
Part of LayPLAN CLASSIC and LayPLAN CAD



Planning of individualised scaffolding structures in LayPLAN CAD



Creation of planning documents with integral material lists in LayPLAN CAD



Enhanced use of 3D Models in 3D Viewers or 3D PDF.

How can I acquire LayPLAN?

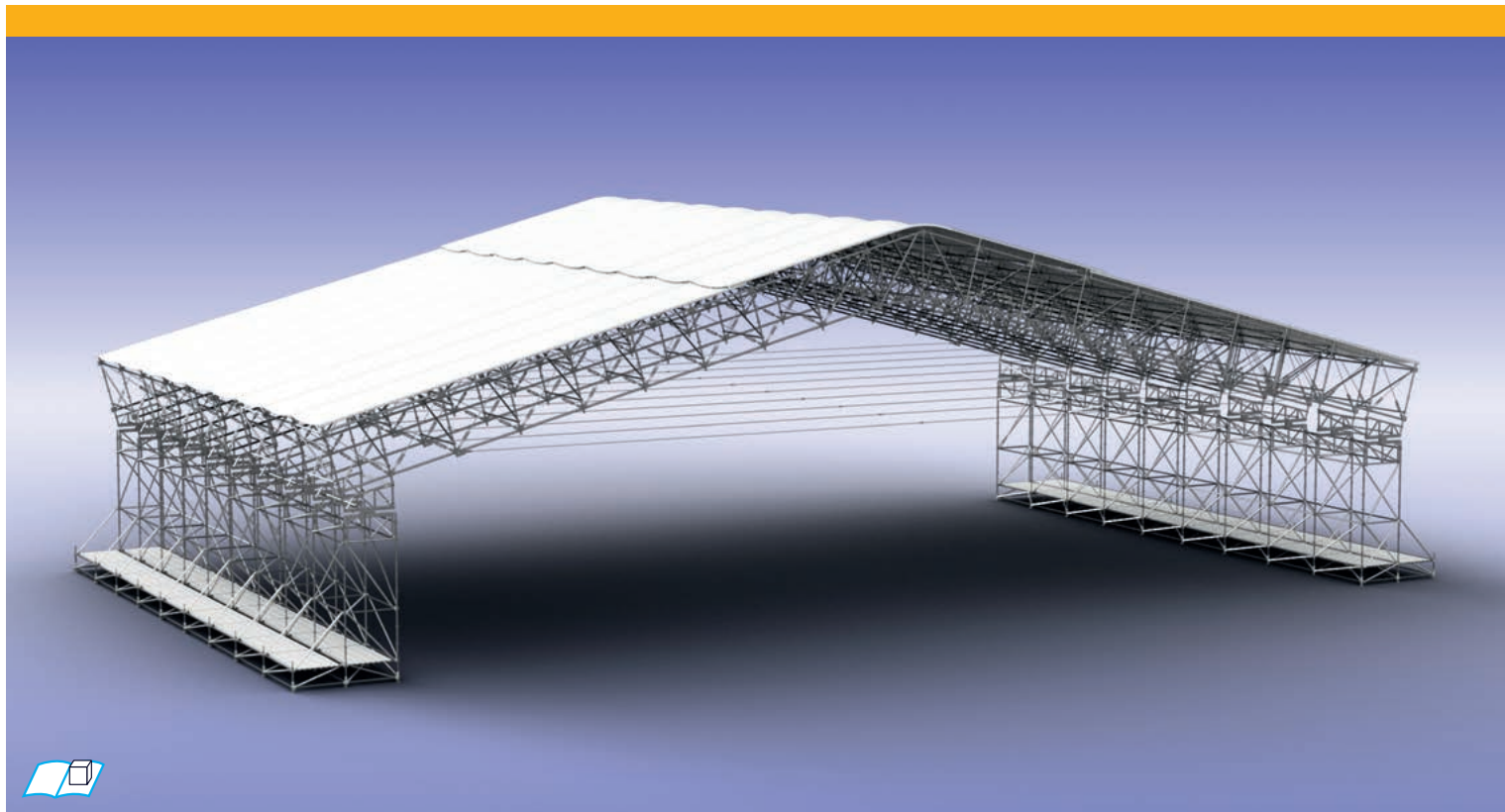
Registration and all the ordering processes can be conveniently accessed at the Layher website: <http://software.layher.com>

A contact form gives you the data to access our software portal, where you can download a 30-day test version and also find the order form for the full version.

Pos.	Description	Ref. No.
1	LayPLAN CLASSIC 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

ALLROUND FW SYSTEM ROOF

REALISABLE SPANS UP TO 45 METERS



Notice: Potentially necessary stabilizing measurement are not illustrated.

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.

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

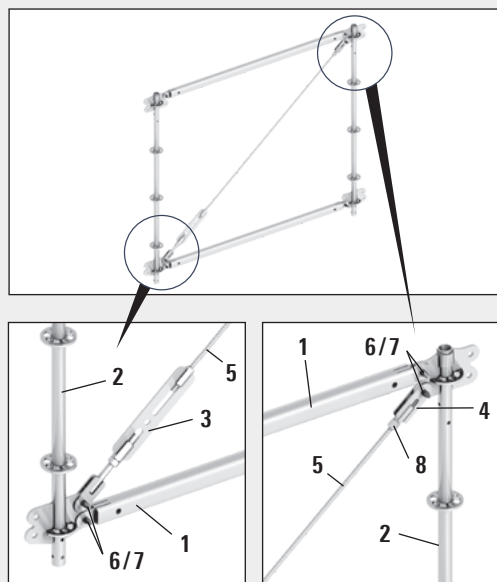
- ▶ Spans of up to 45 m possible under normal climatic conditions.
- ▶ Flexible uses, e.g. for weather protection roofs, bridges and supports for scaffolding.
- ▶ Extension by only 3 additional expansion parts to the Allround Scaffolding.
- ▶ The components are inside the system axes in all 3 directions.



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 **3/4/5/8**. The cross-bracing is made by serial Allround equipment. By its structural height a high load-transmission is guaranteed.

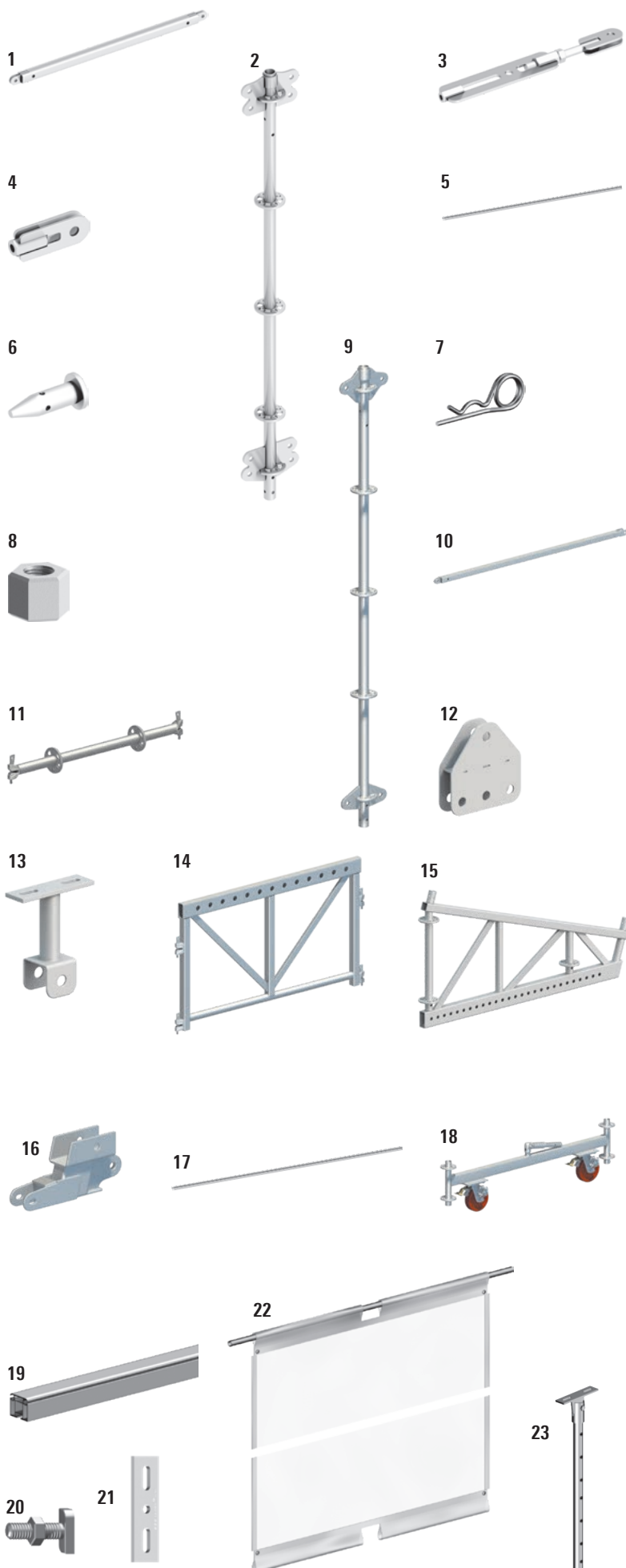
A further special feature is the stepless adjustment of the diagonal rods using a **turnbuckle 3** – for example to build slightly higher structures. This compensates for unwelcome sagging. A crossed diagonal configuration is also possible for transmitting both positive and negative lateral forces.



To fix the tarpaulins, the bending stiff **Keder rails 3000 19** will be assembled on the FW System roof binders.



Application possibilities, assembly information and possible spans can be found in the **Instructions for assembly and use for the FW System**.

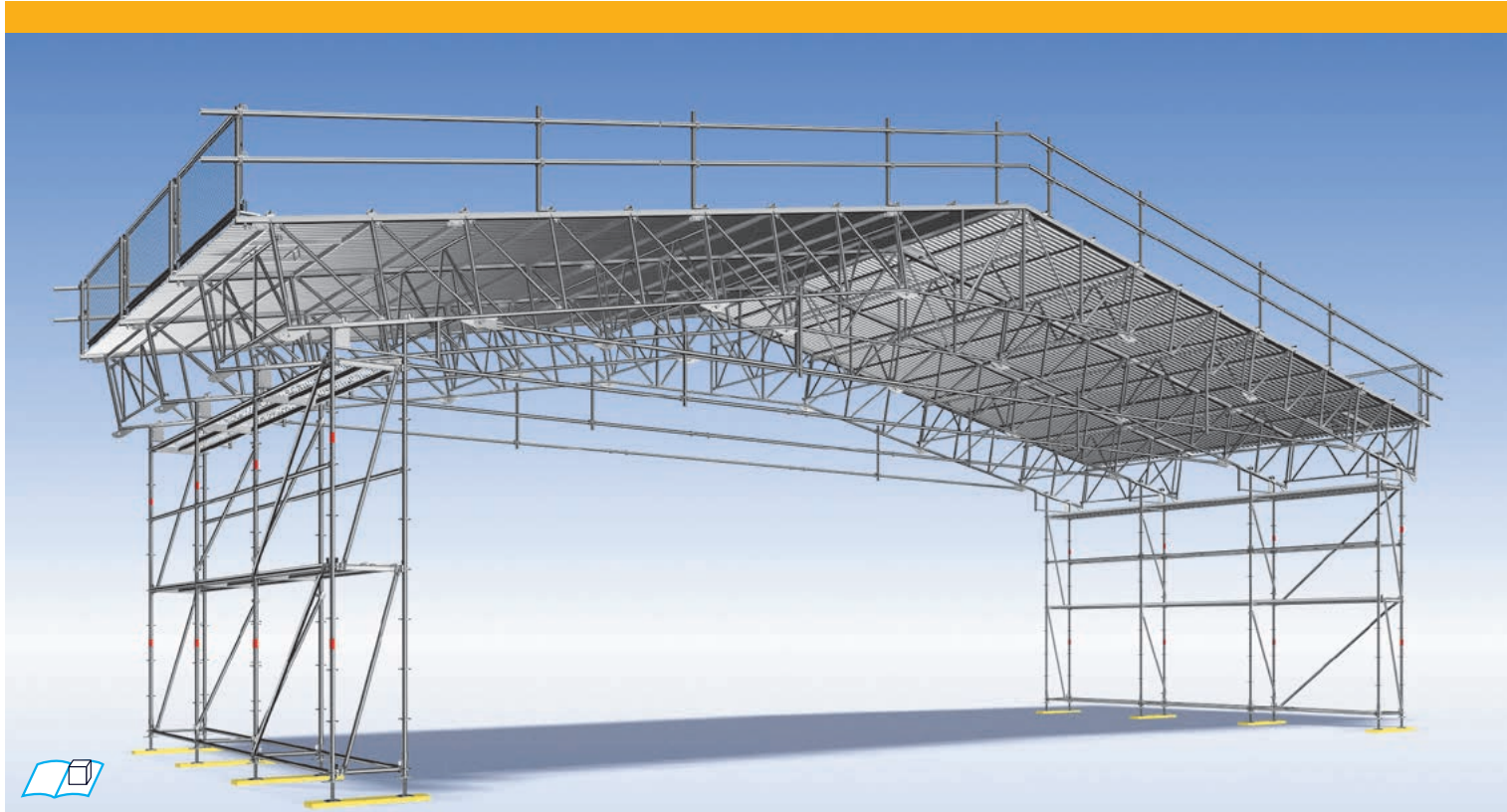


Pos.	Description	Dimensions L/H x W [m]	Weight approx. [kg]	PU [pcs.]	Ref.-No.
1	FW System chord	1.57	10.5	20	2646.157
		2.07	13.9	20	2646.207
2	FW System post	2.00	16.2	28	2646.200
3	FW System end fitting with turnbuckle, WS 30 and WS 36		3.8	250	2646.202
4	FW System end fitting, WS 30		1.0	500	2646.203
5	FW System diagonal rod for 2.07 x 2.00 m bay for 1.57 x 2.00 m bay	1.96	2.8	20	2646.211
		1.63	2.4	20	2646.214
6	Bolt for Ref. No. 2646.224, 2646.275 and 2664.226 for Ref. No. 2646.265 for all other connections	20 x 113 mm	3.0	10	2646.281
		30 x 130 mm	6.3	10	2646.284
		20 x 66 mm	1.6	10	2646.221
7	Safety clip D=4 mm		1.5	50	5905.002
8	Allround FW System lock nut, WS 30		1.5	10	2646.231
9	FW System ridge post	2.25	17.5	28	2646.223
10	FW System ridge diagonal brace	2.53	15.1	50	2646.224
11	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
12	FW System support adapter		4.4	45	2646.265
13	FW System keder rail holder		1.3	250	2646.275
14	FW System support beam	1.57	35.2	10	2655.157
15	FW System chord support	1.57	27.0	10	2652.157
16	FW System tie connector		2.8	100	2664.226
17	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
18	FW System trolley	1.57	30.0	50	2646.228
19	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	20	5574.600
20	Groove bolt for keder rail M12 x 40, with nut		5.0	50	4206.003
21	Joint plate for keder rail, 2 groove bolts are needed	0.17	0.5	50	4208.000
22	Keder Roof tarpaulin see page 32/33				
23	Hinged attachment		3.4	25	5573.001

WS = wrench size PU = packaging unit = available ex works = delivery time on request = only available in this packaging unit

LAYHER CASSETTE ROOF

FOR WEATHERPROOFING AND TEMPORARY HALLS – LOW-COST, FLEXIBLE 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 refurbishment and normal business operations can continue under a weather protection proof roof.

Following points highlight the advantages of the Layher Cassette Roof.

► **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 chord.

► **Vast spans**

Depending on the static system and the climatic conditions, it is possible to create roof structures with spans of more than 30 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 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. 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 about 0.75 kN / m²) with medium spans.

This cassette roof is a non-insulated 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 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

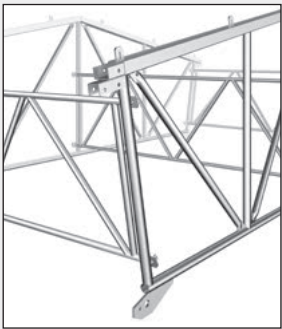
Truss elements

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 48.3 mm). The **ridge support 2** is intended for the construction of double-pitch roofs with a roof angle of approximately 11°.

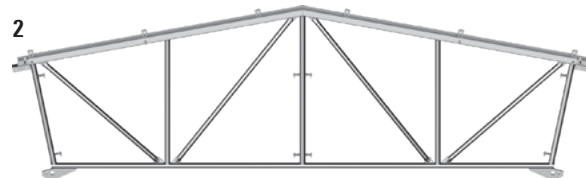
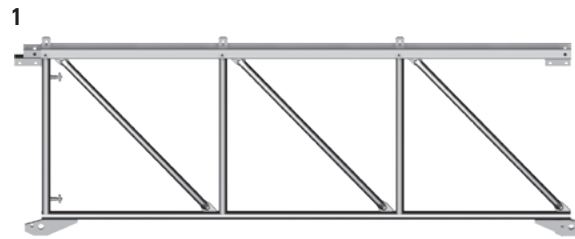
The **roof beams 1** or **ridge supports 2** are connected to one another at the bottom chord with **30 x 50 mm bolts 3** and **4 mm safety clips 4**. At the top chord, it is possible to use either two **M14 x 80 bolts 6** with nuts or **14 x 77 mm bolts 4a** with **2.8 mm safety clips 4b**.

Depending on the structural documentation some construction variants may require the use of a third **14 x 107 mm bolt 5a** and **2.8 mm safety clip 5b** at the top chord.

A truss bay consisting of a pair of roof trusses connected to **beam stiffeners 7** 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.



3 a/b



4 a/b



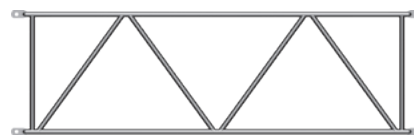
5 a/b



6



7





















8



9



Pos.	Description	Dimensions L/H x W [m]	Weight approx. [kg]	PU [pcs.]	Ref.-No.
1	Roof beam 2.00 m 3.00 m	2.00 x 1.00	48.2	16	5902.200 
		3.00 x 1.00	64.5	16	5902.300 
2	Ridge support	4.30x1.00/1.50	106.0	10	5901.000 
3a	Bolt , 30 x 50 mm for connecting the roof beams and ridge supports	0.05	3.0	10 	5903.002 
3b	Safety clip , 4 mm for 30 x 50 mm bolts and roof support wedges	0.08	1.5	50 	5905.002 
4a	Bolt , 14 x 77 mm and	0.08	2.2	20 	5906.079 
4b	Safety clip , 2.8 mm		0.5	50 	4905.002
5a	Bolt , 14 x 107 mm and	0.11	3.0	20 	5906.109 
5b	Safety clip , 2.8 mm		0.5	50 	4905.002
6	Bolt , M14 x 80 with washer and nut		2.8	20 	5906.082 
7	Beam stiffener	2.57	15.2	35	5907.000 
8	End post for mono-pitch roofs		6.6	50	5901.100 
9	Tubular stiffener	2.57	5.1	150	2504.257 

System Components

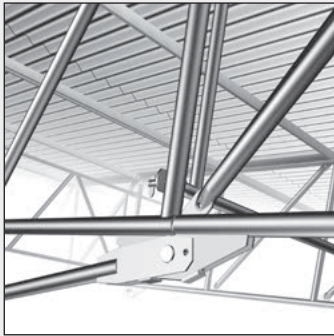
Tie elements

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 4** 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 4 are used to connect the tie end pieces or spacers. Each of these requires either two **M14 x 65 bolts 5** with nuts or four **14 x 77 mm bolts 6a** with **2.8 mm safety clips 6b**.



Tie connection

Wedges and clamping plates 7/8 for securing the roof cassettes both on the roof trusses and in the intermediate bay.

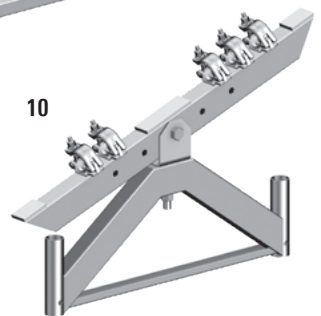
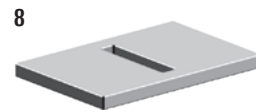
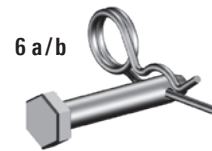
The **carrying handles 9** are inserted in the edge section of the roof cassettes and simplify the insertion and removal of individual roof cassettes without there being any need to bend or go too close to the opening.

Roof supports as connecting elements for the supporting structure

For the cassette roof, 2 types of roof supports are available. The **swivelling roof support 10** has a movable seesaw, which also can be used for mono-pitch roofs. The rigid **roof support 11** fits for support scaffolding with widths of 0.73 m and 1.09 m. The pre-mounted truss bays are inserted in the roof support and secured using **2 wedges 12** with **safety clips 13** 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



Top scaffolding guardrail, secure assembly thanks to lower bracket levels



Pos.	Description	Dimensions L/H x W [m]	Weight approx. [kg]	PU [pcs.]	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 
3a	Bolt , 30 x 64 mm for assembly of the tie end pieces	0.06	4.0	10 	5904.002 
3b	Safety clip , 4 mm for securing the 30 x 64 mm bolts	0.08	1.5	50 	5905.002 
4	Lattice beam connector , round steel for joining the tie elements Ref. Nos. 5917 and 5918	0.44	3.4	20	4916.000
5	Bolt , M14 x 65 with nut	0.07	6.5	50	4908.067 
6a	Bolt , 14 x 77 mm and	0.08	2.2	20 	5906.079 
6b	Safety clip , 2.8 mm		0.5	50 	4905.002
7	Wedge, for fixing cassette	0.18	7.5	25 	5913.004 
8	Clamping plate , for fixing cassette	0.12 x 0.08	15.0	25 	5914.002 
9	Carrying handle , for roof cassette, steel	0.75	1.2	4	5931.100 
10	Swivelling roof support	0.73	19.1	20	5975.073 
		1.09	22.4	20	5975.109 
11	Roof support , 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 x 0.47	15.3	20	5915.000 
12	Wedge for roof support	0.18	7.5	25 	5913.005 
13	Safety clip , 4 mm for bolts and roof support wedges	0.08	1.5	50 	5905.002 

Roof cassettes

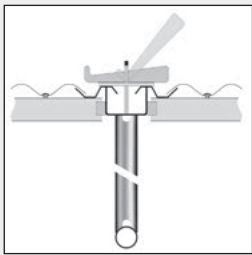
Roof cassettes with corrugated sheet

The **roof cassettes 1** consist of a robust, hot-dip galvanized steel frame with shaped steel sheets. 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.

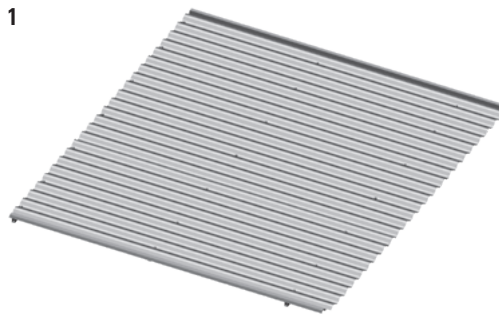
Ridge cassettes 3 for use with roof trusses consisting of roof girders and ridge supports.

Support scaffolding for cassette roofs is usually clad with translucent scaffolding tarpaulins. If additional light is required, **light cassettes 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.

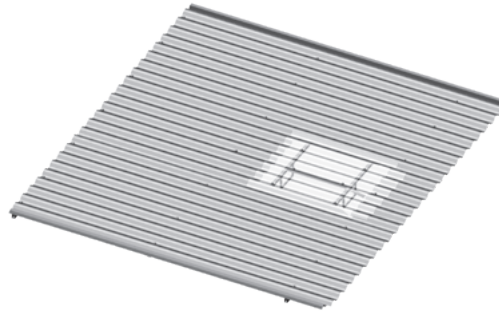


Cassette fixing

1



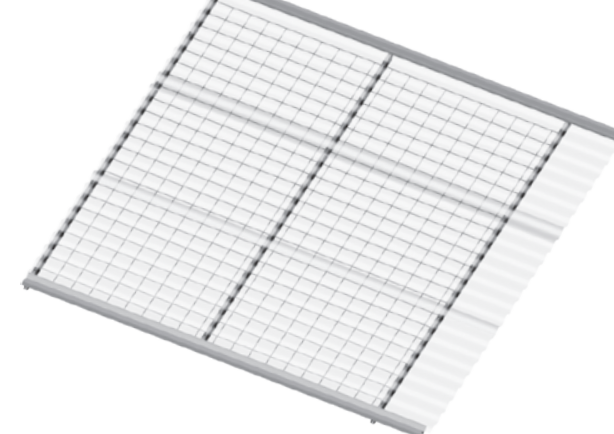
2








3



4



Pos.	Description	Dimensions L/H x W [m]	Weight approx. [kg]	PU [pcs.]	Ref. No.
1	Roof cassette , 1.00 m, corrugated sheet	1.00 x 2.57	35.2	20	5909.100 
	Roof cassette , 2.00 m, corrugated sheet	2.00 x 2.57	66.0	20	5909.200 
2	Roof cassette with access hatch , 2.00 m, corrugated sheet	2.00 x 2.57	75.7	10	5910.200 
3	Ridge cassette , with corrugated sheet	1.40 x 2.57	44.4	10	5911.000 
4	Light cassette , 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	5930.200 

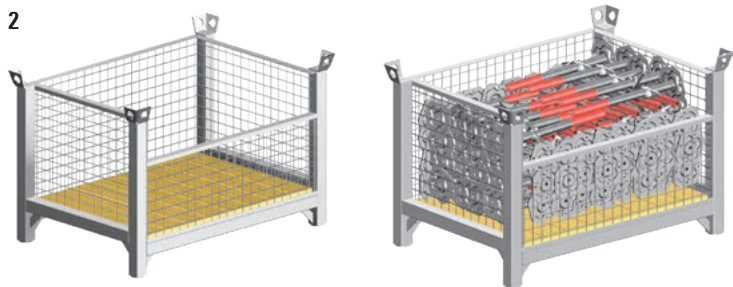
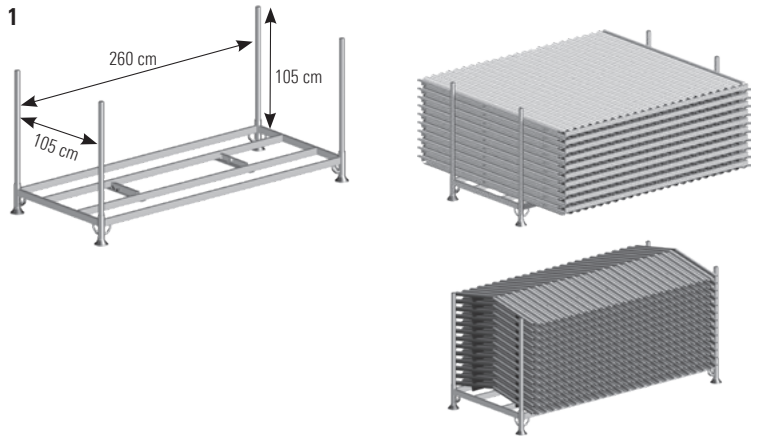
Tubular pallet 1 for the transport and storage of 13 ridge cassettes or 20 roof cassettes, also suitable for brick guards.

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 pallets you'll find in the catalogue System-free Accessories.



Fall protection

Safety when walking on the roof

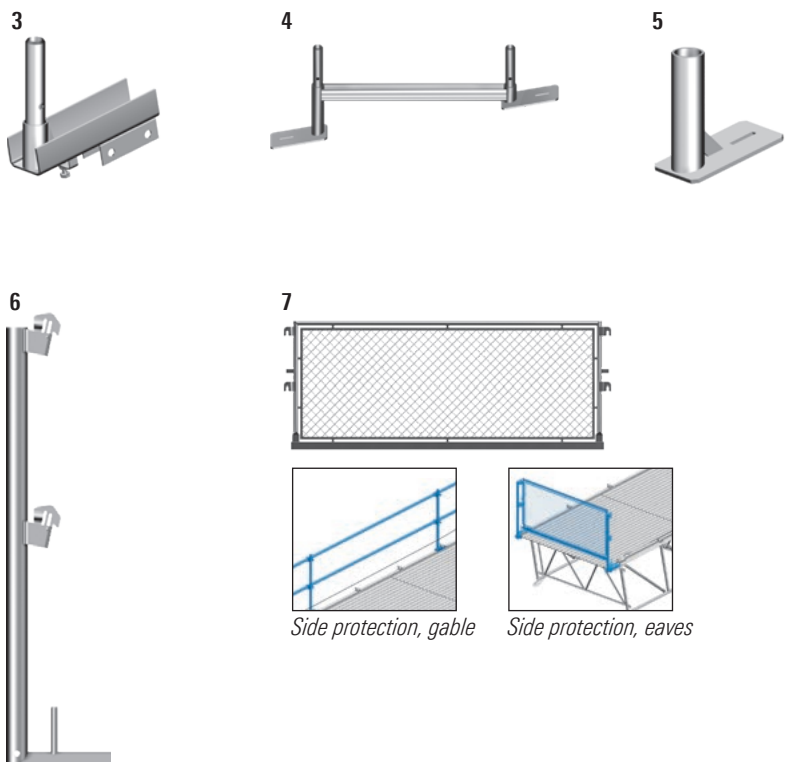
Safety when walking on the roof and the fall protection of anyone who slips on the roof is provided by **roof guards 7** in the eaves area of the side protection.


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.



Pos.	Description	Dimensions L/H x W [m]	Weight approx. [kg]	PU [pcs.]	Ref. No.
1	Tubular pallet 265 steel, hot-dip galvanized, length of pallet posts 1.20 m, load 1,300 kg	2.77 x 1.22	50.6	10	5113.265 
2	Modular skeleton box with timber base plate steel, hot-dip galvanized 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 x 0.80	85.8		5113.002

Pos.	Description	Dimensions L/H x W [m]	Weight approx. [kg]	PU [pcs.]	Ref. No.
3	Connecting piece for cassette supports 1 spigot	0.30	4.1	100	5932.000 
4	Base support for walkway, steel for assembly of a walkway at the eaves area	0.73	8.7	60	5916.073 
5	Standard connection	0.22	3.2	500	5934.000 
6	Guardrail support single with guardrail wedge housings, steel	1.00	5.5	100	1716.000
7	Roof guard	1.00 x 2.57	21.1	30	1749.257 

WS = wrench size PU = packaging unit  = available ex works  = delivery time on request  = only available in this packaging unit

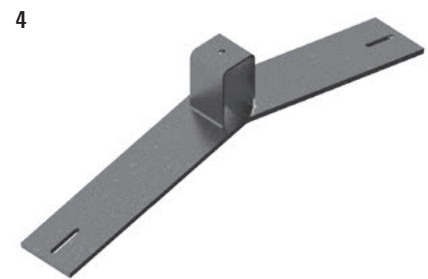
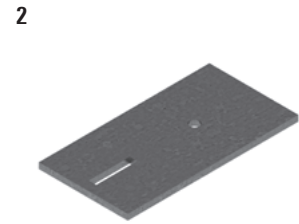
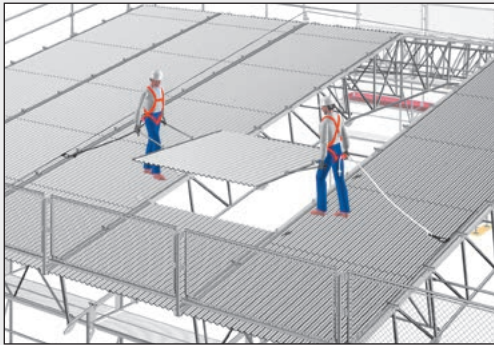
Rope safety gear

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.



5/6



Rope safety gear system 20 m / 40 m 5 / 6

► **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:**

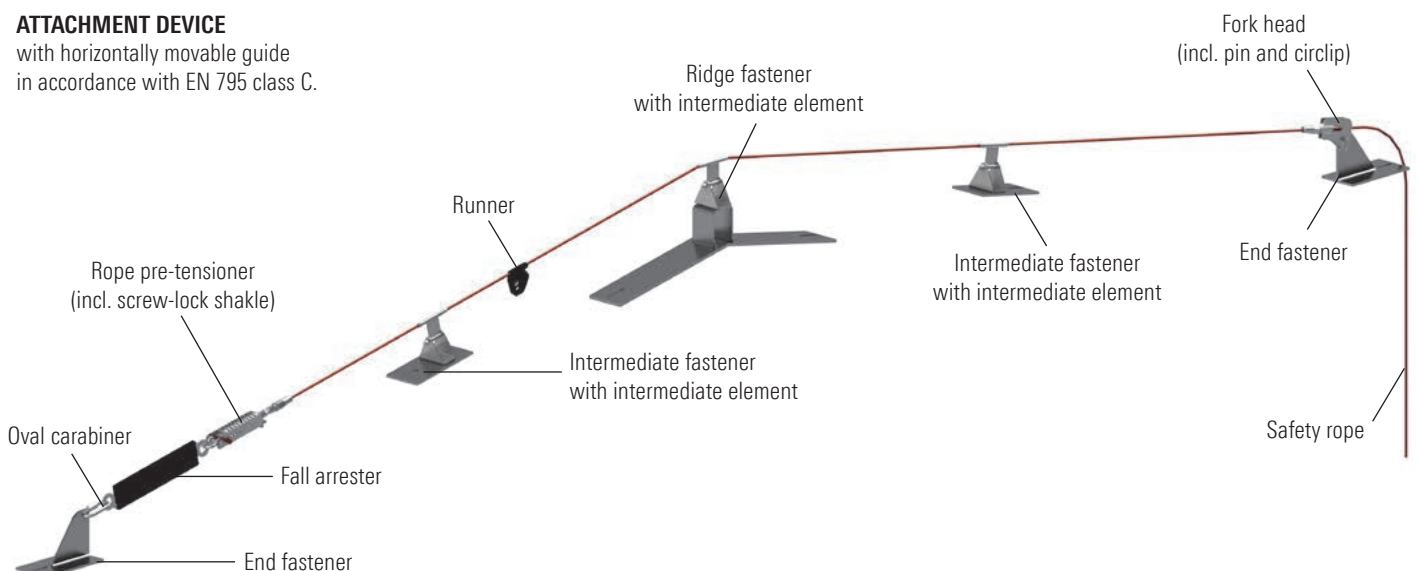
Connection element between PSA-connecting line and roof safety rope

► **Fork head:**

Fixation for the safety rope

ATTACHMENT DEVICE

with horizontally movable guide in accordance with EN 795 class C.



Pos.	Description	Dimensions L/H x W [m]	Weight approx. [kg]	PU [pcs.]	Ref. No.
1	End fastener , steel, hot-dip galvanized	0.23 x 0.12	3.1		5969.010 
2	Intermediate fastener , steel, hot-dip galvanized	0.23 x 0.12	2.2		5969.020 
3	Intermediate element , stainless steel, breaking load > 12 kN, incl. M12 x 40 hexagon bolt and lock nut	0.12	0.5		5969.080 
4	Ridge fastener , steel, hot-dip galvanized	0.87 x 0.12	9.7		5969.030 
5	Rope safety gear system 20 m, KIT 1		10.0		5969.120 
6	Rope safety gear system 40 m, KIT 2		13.0		5969.140 

KIT 1 – Rope safety gear system 20 m Ref. No. 5969.120	Quantity
Safety rope, Länge 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 40 m Ref. No. 5969.140	Quantity
Safety rope, Länge 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

Rope up protection

The **PSA safety harness AX 60 C 1** 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 2

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.

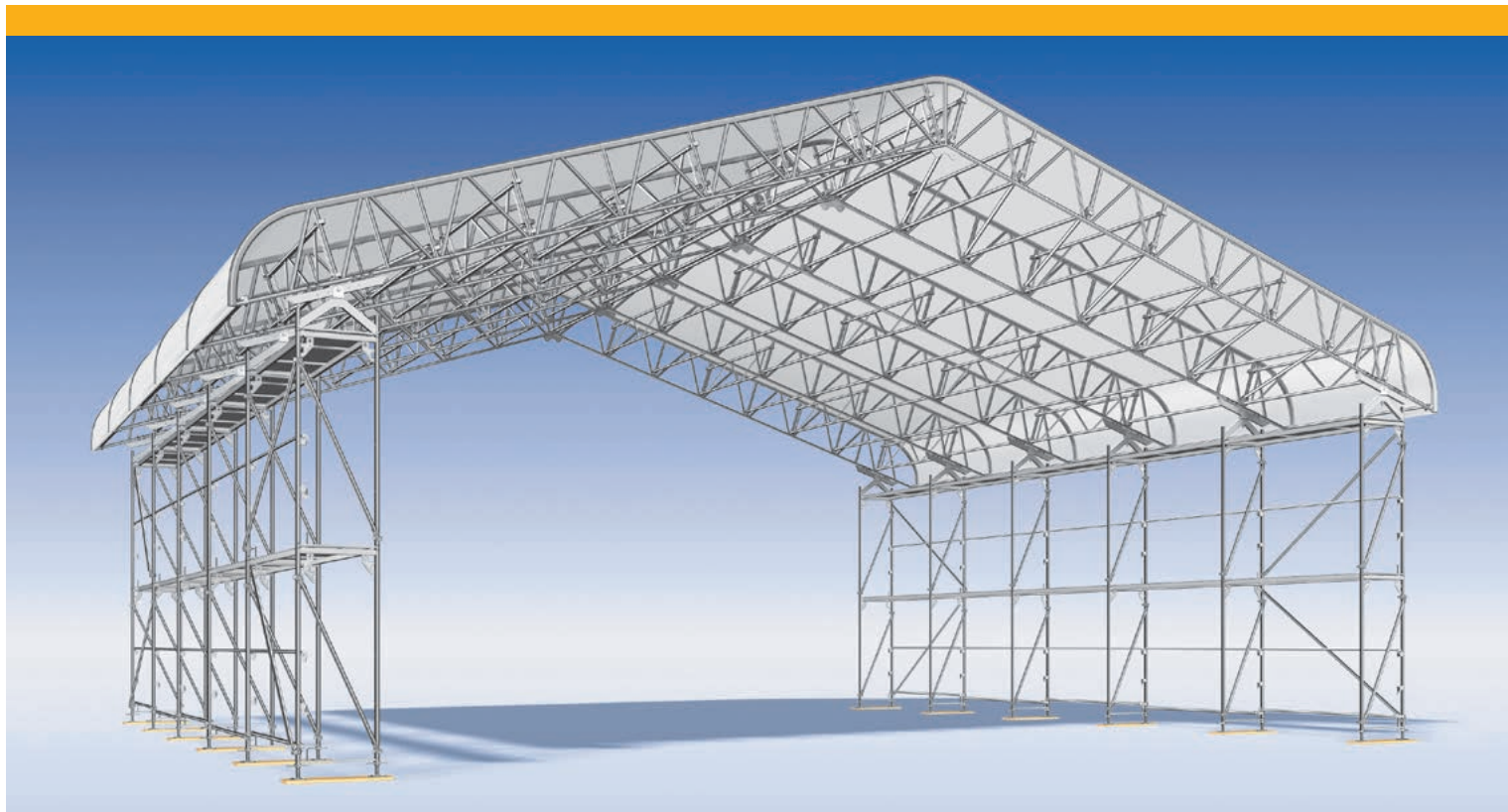
PSA connecting line Y-version 3

Belt fall arrester with two coated-core ropes, dia. 12 mm. Aluminium one-hand snap hook and two tube hooks FS 90 (conforming to EN 354 / EN 355).



Pos.	Description	Weight approx. [kg]	PU [pcs.]	Ref. No.
1	PSA safety harness AX 60 C with extension 0.50 m conforming to EN 361	1.8		5969.160 
2	Travelling arrester system ASK 1 Polyamide, dia. 12 mm	2.7		5969.200 
3	PSA connecting line Y-version with snap hook FS 90 (conforming to EN 354 / EN 355)	1.6		5969.600 

LAYHER KEDER ROOF XL



Notice: Potentially necessary stabilizing measurement are not illustrated.

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, rainproof covering under which condensation may form and drip uncontrolled, depending on the weather.

THE BENEFITS FOR YOU

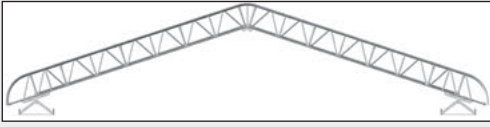
- ▶ Span up to 30 m and inclinations of 18° are possible.
- ▶ High snow loads (up to 1.0 kN/m²) on intermediate spans.
- ▶ Adaptation to all conditions thanks to roof widths and different designs as double-pitch, mono-pitch and polygonal barrel roof.
- ▶ Economical use thanks to flexible, well-thought-out and durable components, lightweight aluminium components and time-saving assembly (e.g. faster and easier fitting of Keder tarpaulins).
- ▶ Material and load bearing-capacity 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.

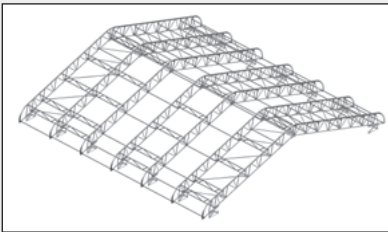
It has a standard roof angle of 18°.



Stiffening variants

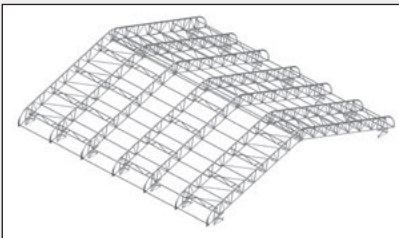
The Keder Roof XL permits, thanks to differing configurations of the stiffening components, three different stiffening variants for use depending on the span, snow load or wind load requirements.

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.



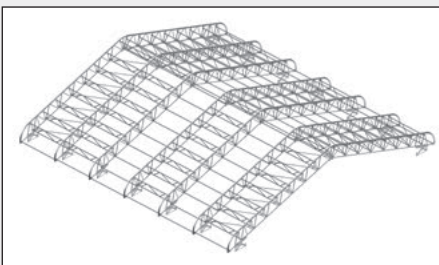
Type "Light"

Vertical stiffener: 2.00 m
Bottom chord stiffener: 2.00 m



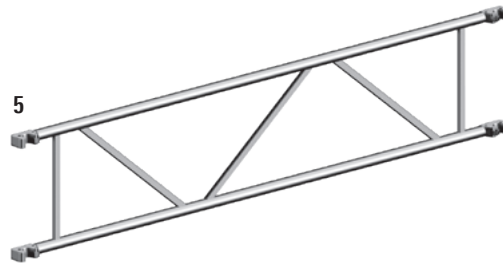
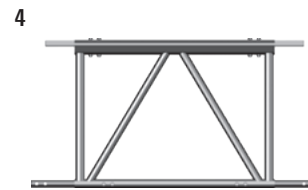
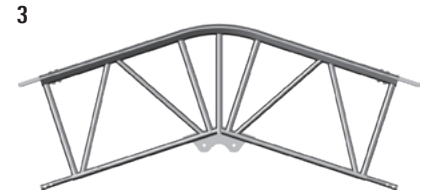
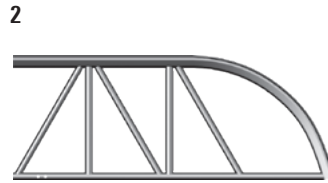
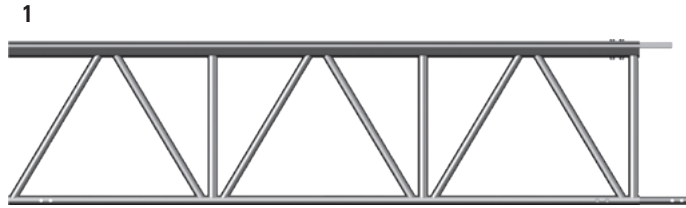
Type "Standard"

Vertical stiffener: 2.00 m
Bottom chord stiffener: 1.00 m



Type "Heavy"

Vertical stiffener: 1.00 m
Bottom chord stiffener: 1.00 m

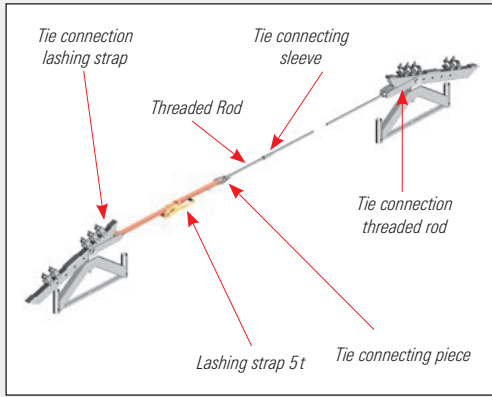


Pos.	Description	Dimensions L/H x W [m]	Weight approx. [kg]	PU [pcs.]	Ref. No.
1	Keder Roof XL lattice beam Aluminium	2.00 x 0.78	17.3	25	5975.200 🏠
		3.00 x 0.78	24.4	25	5975.300 🏠
2	Keder Roof XL eaves section	2.00 x 0.78	14.3	25	5975.100 🏠
3	Keder Roof XL ridge section 18°-Version 20°-Version	2.54 x 0.78	24.5	20	5975.110 🏠
		2.54 x 0.78	24.5	20	5975.120 🏠
4	Keder Roof XL mono-pitch lattice beam	1.06 x 0.78	14.5	25	5975.106 🏠
5	Keder Roof XL stiffener	2.57 x 0.55	10.0	50	5940.257 🏠
6	Keder Roof XL ledger	2.57	4.2	50	5972.257 🏠
7	Keder Roof XL horizontal diagonal brace	2.57 x 1.00	4.2	50	5939.100 🏠
		2.57 x 2.00	5.0	50	5939.200 🏠
8	Keder Roof XL support	0.73	19.1	20	5975.073 🏠
		1.09	22.4	20	5975.109 🏠
9	Keder rail seal		0.5	50 🏠	5971.005 🏠
10a	Bolt, 12 x 95 mm and		2.5	25 🏠	5976.092 🏠
10b	Safety clip, 2.8 mm		0.5	50 🏠	4905.002
11	Hinged pin, dia. 12 mm, with pan head		2.0	20 🏠	4905.668
12	Special bolt, M12 x 60 with nut alternative for Pos. 10		4.0	50 🏠	4905.062
	Special bolt, M12 x 90 with nut alternative for Pos. 10		2.8	25 🏠	5975.092 🏠

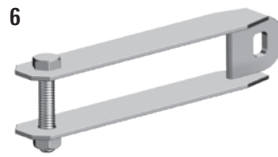
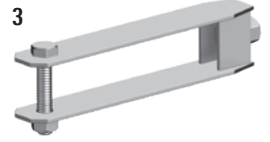
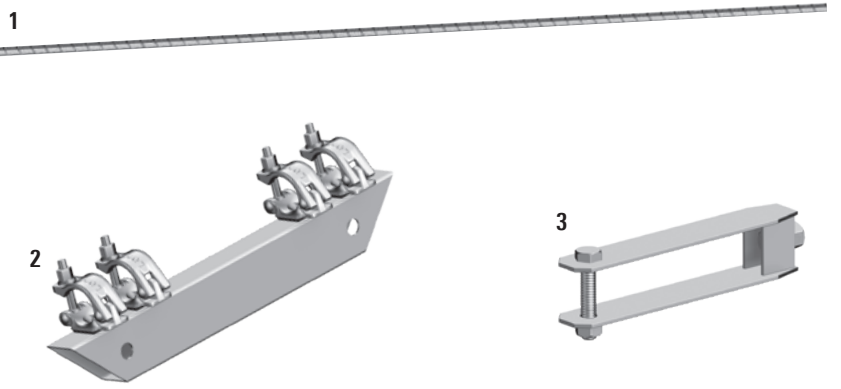
WS = wrench size PU = packaging unit 🏠 = available ex works 🕒 = delivery time on request 🏠 = only available in this packaging unit

System Components

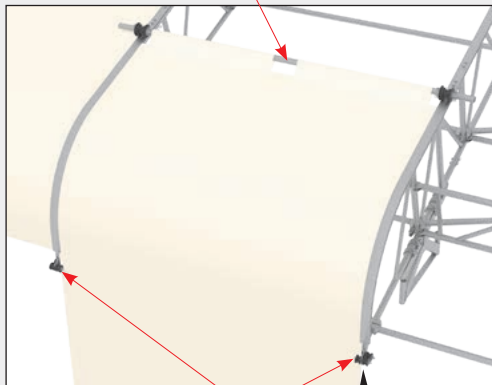
Tie fastening to roof support*:



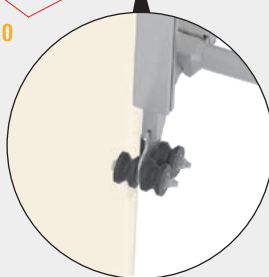
* statically recommended

















Set for tarpaulin pulling 9



Keder tarpaulin feeder 10



Pos.	Description	Dimensions L/H x W [m]	Weight approx. [kg]	PU [pcs.]	Ref. No.
1	Keder Roof XL threaded tie	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		6.1	50	5975.000 
3	Keder Roof XL tie connection threaded rod		2.2	100	5975.020 
4	Keder Roof XL tie connecting piece		0.8	250	5975.030 
5	Keder Roof XL tie connecting sleeve WS 30 x 90		0.4	100	5976.000 
6	Keder Roof XL tie connection lashing strap		2.0	100	5975.010 
7	Keder Roof XL lashing strap 5 t , 5.00 m with ratchet and ABS function for stepwise release	5.00	2.8	100	5976.600 
8	Keder Roof XL polyester lashing strap , 6.00 m with clamp lock for setting the tie	6.00	0.2	10	5976.610 
9	Set for tarpaulin pulling consisting of 2 castors, 1 aluminium tube 3.00 m and 4 securing pins	3.00	5.8		5971.400 
	Castor for tarpaulin pulling , for 48.3 mm tube		0.4		5971.401 
10	Keder tarpaulin feeder		1.5	200	5971.410 

WS = wrench size PU = packaging unit  = available ex works  = delivery time on request  = only available in this packaging unit

Roof Tarpaulins

Tarpaulins

Flammability acc. to ISO 3795

< 100 mm/min

Cream-coloured PVC tarpaulins with a weight of 630 g/m².

Material:

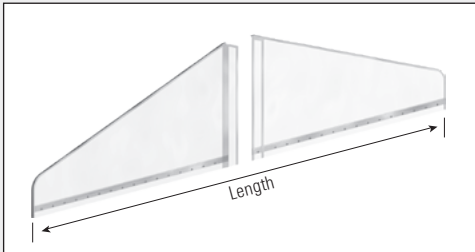
PVC-coated polyester fabric,
heat and UV-resistant.

Tarpaulins

Flammability acc. to DIN 4102 B1,

low-inflammability

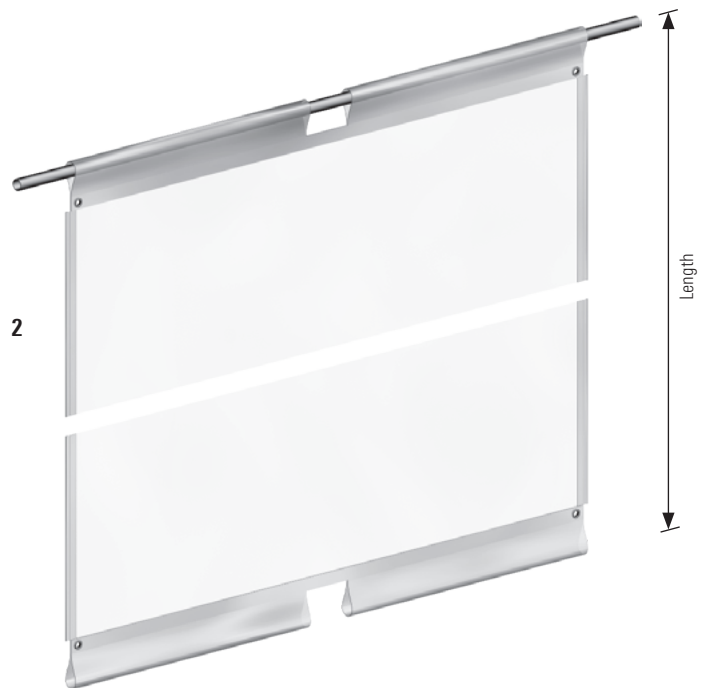
PVC tarpaulins with a weight of 650 g/m². In the case of public events, the building inspection authorities usually demand low-inflammability tarpaulins.



Other tarpaulins on request



2



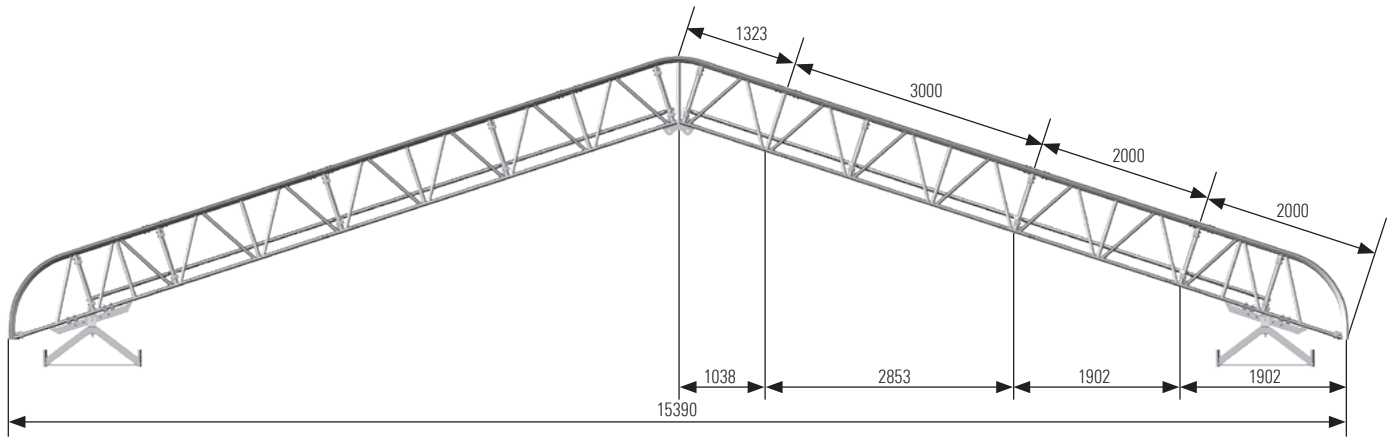
3



Pos.	Description	Dimensions L/H x W [m]	Weight approx. [kg]	PU [pcs.]	Ref. No.	
1	Keder Roof XL gable tarpaulin , flame-retarding Flammability acc. to ISO 3795 < 100 mm / min 2-piece	9.60	13.8	2	5972.381 ☺	
		11.50	17.9	2	5972.382 ☺	
		13.40	22.1	2	5972.383 ☺	
		15.30	27.4	2	5972.384 ☺	
		17.20	33.1	2	5972.385 ☺	
		19.10	39.4	2	5972.386 ☺	
		21.00	44.7	1	5972.387 ☺	
		22.90	51.7	2	5972.388 ☺	
		24.80	59.5	5	5972.389 ☺	
		26.80	68.2	2	5972.390 ☺	
		4-piece	28.70	76.7	2	5972.391 ☺
			30.60	85.8	5	5972.392 ☺
			32.50	95.5	5	5972.393 ☺
			Keder Roof XL gable tarpaulin , low-inflammability Flammability acc. to DIN 4102 B1, 2-piece			
	2-piece	9.60	13.8	2	5973.381 ☺	
		11.50	17.9	5	5973.382 ☺	
		13.40	22.1	2	5973.383 ☺	
		15.30	27.4	2	5973.384 ☺	
		17.20	33.1	2	5973.385 ☺	
		19.10	39.4	2	5973.386 ☺	
		21.00	44.7	2	5973.387 ☺	
		22.90	51.7	2	5973.388 ☺	
		24.80	59.5	2	5973.389 ☺	
		26.80	68.2	2	5973.390 ☺	
		4-piece	28.70	76.7	6	5973.391 ☺
			30.60	85.7	2	5973.392 ☺
			32.50	95.5	2	5973.393 ☺
			Keder Roof, roof tarpaulin , flame-retarding Flammability acc. to ISO 3795 < 100 mm / min Design width 2.57 m			
2	2-piece	11.00 x 2.57	23.5	5	5972.306 ☺	
		14.00 x 2.57	28.2	4	5972.307 ☺	
		17.00 x 2.57	35.5	5	5972.308 ☺	
		20.00 x 2.57	40.7	5	5972.309 ☺	
		22.50 x 2.57	46.3	5	5972.370 ☺	
		24.50 x 2.57	50.4	5	5972.371 ☺	
		26.50 x 2.57	54.5	16	5972.372 ☺	
		28.50 x 2.57	58.5	5	5972.373 ☺	
		30.50 x 2.57	62.7	16	5972.374 ☺	
		32.50 x 2.57	66.8	16	5972.375 ☺	
		34.50 x 2.57	70.9	5	5972.376 ☺	
		36.50 x 2.57	75.0	5	5972.377 ☺	
		38.50 x 2.57	79.2	5	5972.378 ☺	
		Design width 2.07 m	11.00 x 2.07	18.4	4	5972.360 ☺
	14.00 x 2.07		23.5	4	5972.361 ☺	
	17.00 x 2.07		28.5	5	5972.362 ☺	
	20.00 x 2.07		33.5	4	5972.363 ☺	
	Keder Roof, roof tarpaulin , low-inflammability Flammability acc. to DIN 4102 B1, Design width 2.57 m	11.00 x 2.57	24.0	2	5973.306 ☺	
		14.00 x 2.57	28.8	1	5973.307 ☺	
		17.00 x 2.57	36.3	5	5973.308 ☺	
		20.00 x 2.57	41.6	2	5973.309 ☺	
		22.50 x 2.57	46.8	5	5973.370 ☺	
		24.50 x 2.57	51.0	16	5973.371 ☺	
		26.50 x 2.57	55.2	16	5973.372 ☺	
		28.50 x 2.57	59.3	16	5973.373 ☺	
		30.50 x 2.57	63.5	16	5973.374 ☺	
		32.50 x 2.57	67.7	16	5973.375 ☺	
		34.50 x 2.57	73.9	16	5973.376 ☺	
36.50 x 2.57		76.0	16	5973.377 ☺		
38.50 x 2.57		80.1	16	5973.378 ☺		
Design width 2.07 m		11.00 x 2.07	18.8	2	5973.360 ☺	
	14.00 x 2.07	24.0	5	5973.361 ☺		
	17.00 x 2.07	29.2	1	5973.362 ☺		
	20.00 x 2.07	34.4	5	5973.363 ☺		
	Tarpaulin clip					
	3			2.0	50	5971.142 ☺

WS = wrench size PU = packaging unit ☺ = available ex works ☺ = delivery time on request ☺ = only available in this packaging unit

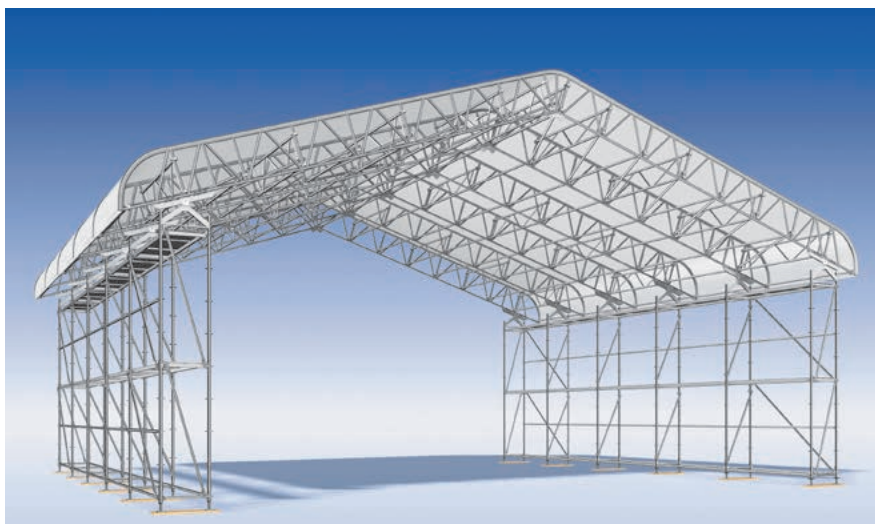
Keder Roof XL as double-pitch roof – Type Standard



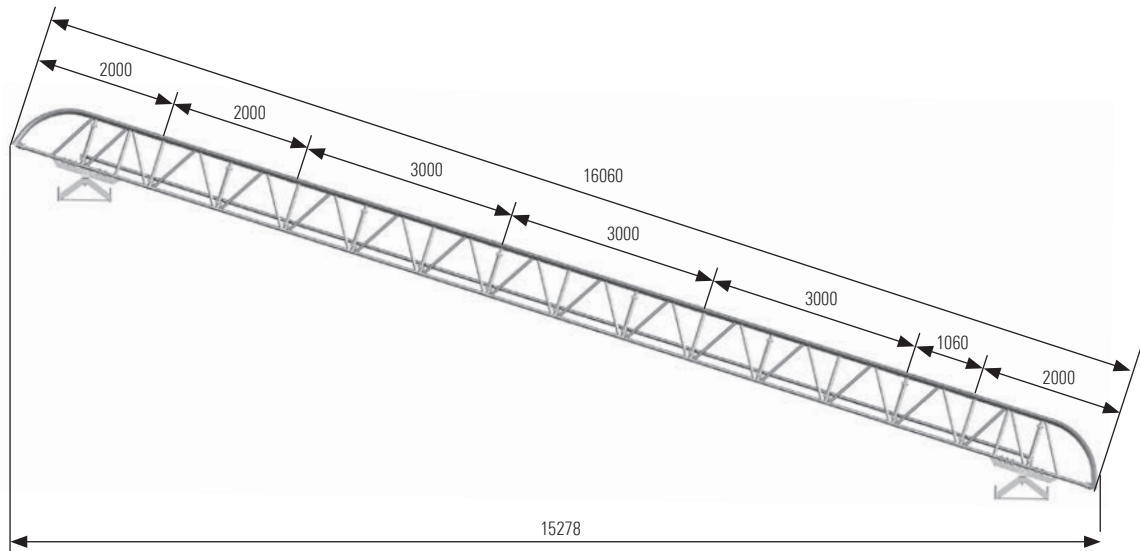
Material example

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 dia. 12 x 95 mm (72 pcs. needed)	3	25	5976.092

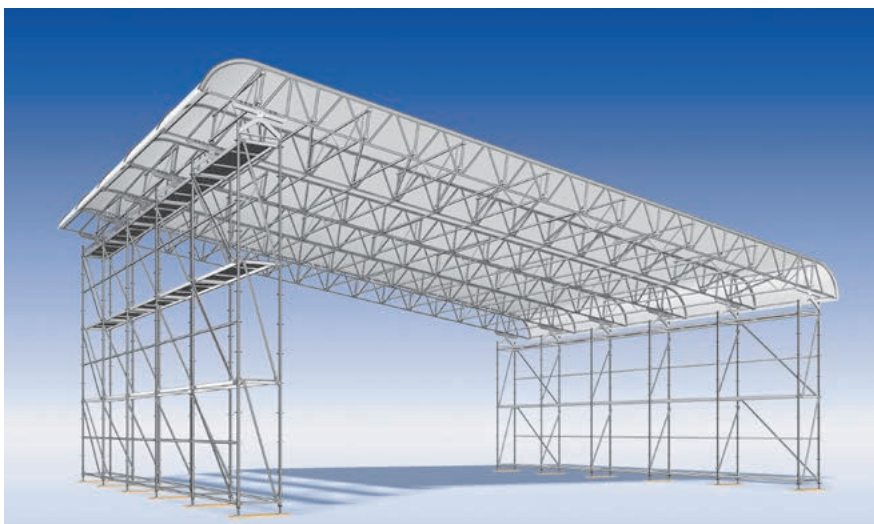


Notice: Potentially necessary stabilizing measurement are not illustrated.



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 dia. 12 x 95 mm (72 pcs. needed)	3	25	5976.092



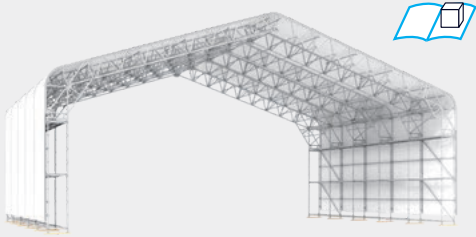
Notice: Potentially necessary stabilizing measurement are not illustrated.

WS = wrench size PU = packaging unit = available ex works = delivery time on request = only available in this packaging unit

Keder halls

Keder halls

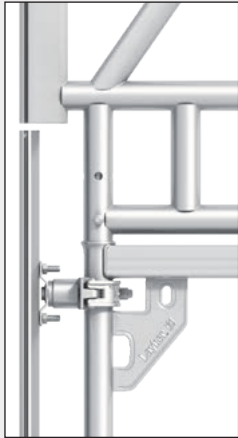
The Bending-Resistant Corner is available as a special roof support, to create visually attractive and closed halls with wide spans using the Keder Roof XL. It can be mounted both on support scaffolding made from Allround parts and on SpeedyScaf.



The Bending-Resistant Corner can be connected quickly and easily by setting it down onto the spigots. The roof tarpaulins are joined to the wall covering using rotatable keder rail holders and keder rails 2000 from the Layher accessories range.



Transition from Keder Roof XL to Allround support scaffolding



Transition from Keder Roof XL to SpeedyScaf support scaffolding

The support scaffolding can also be used as fully fledged work scaffolding, and the attachment of brackets or inward-facing projections presents no problem when parts from the Layher construction kit are used.

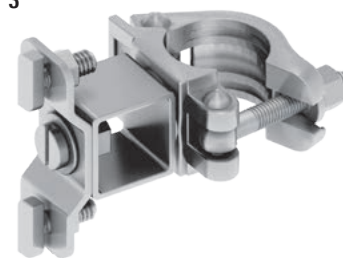
1



2



3



4



Pos.	Description	Dimensions L/H x W [m]	Weight approx. [kg]	PU [pcs.]	Ref. No.
1	Bending-resistant corner XL		34.7	10	5975.160 🕒
2	Keder rail holder, rotatable, with wedge head, incl. 2 groove bolts, for Allround Scaffolding	0.10	0.9	25	5573.000 🏠
3	Keder rail holder, rotatable, with half-coupler, incl. 2 groove bolts, for SpeedyScaf System		1.0	25	5573.006 🏠
4	Aluminium keder rail 2000	1.30	2.0	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 🏠

WS = wrench size PU = packaging unit 🏠 = available ex works 🕒 = delivery time on request 🏠 = only available in this packaging unit

MOBILE ROOFS

THE ECONOMICAL EXPANSION OF LAYHER ROOF SYSTEMS



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.
- ▶ Flexible bay length – independent from the substructure.



System Components

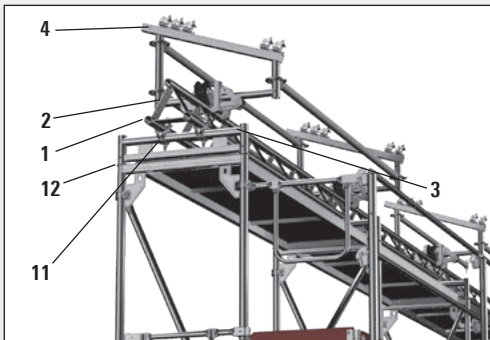
Mobile Roofs

Layher weather protection roofs can easily be made mobile with a few additional parts.

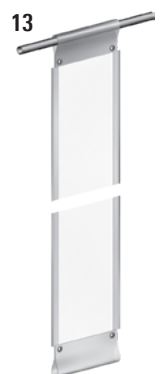
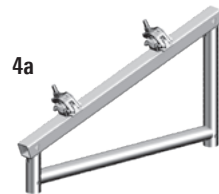
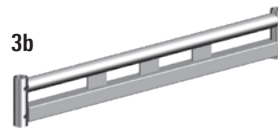
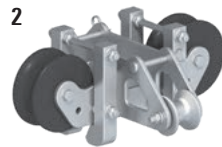
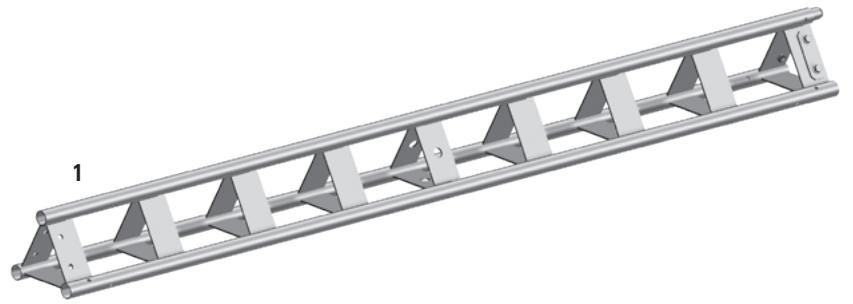
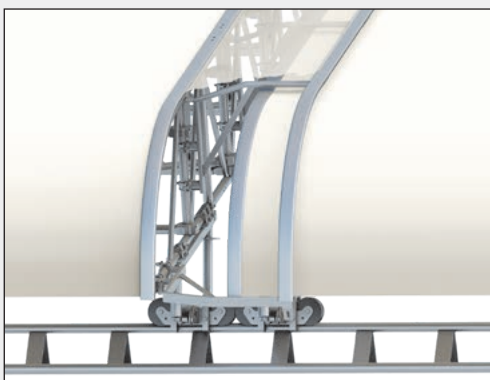
This can then be moved section by section to keep pace with construction progress, so it's no longer essential to provide a roof over the entire surface, or alternatively to dismantle and rebuild a roof for each stage of building work. The mobile roofs fit onto all scaffolding systems and are also flexible and economical to use. The **rails 1** don't need to be laid exactly parallel, since the **trolley 2** 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 5** can be used, when the roof binders are mobile. If separate segments of the roof must be put together, there will be a gap in the roof. By using the **overlap bracket T18 5** combined with **aluminium keder rails 2000 14** and **roof tarpaulins 0.69 m wide 13**, these gaps can be closed. For the eaves, the **overlap eaves bracket T18 6** and the **overlap keder bow 2000 7** is used.

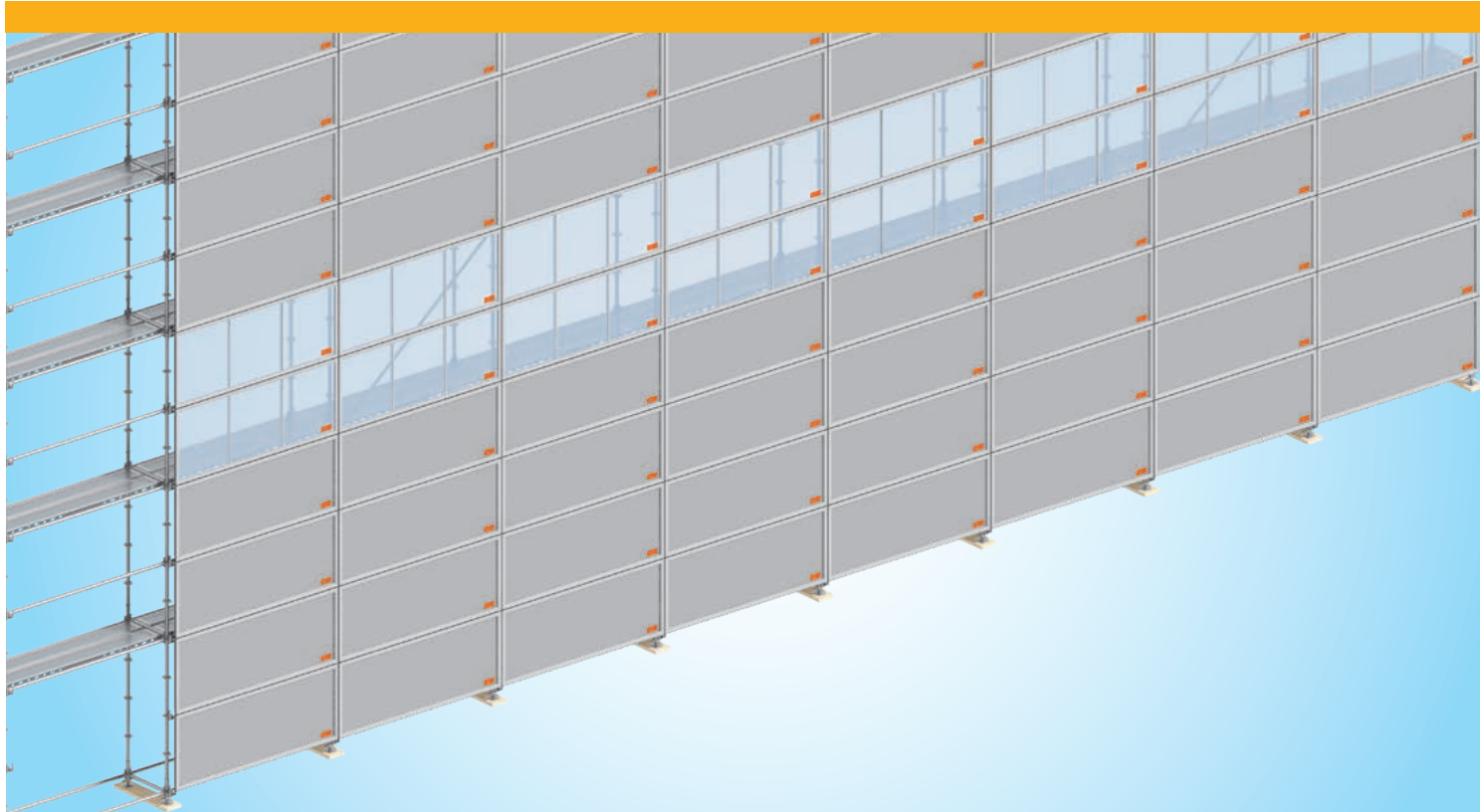


Pos.	Description	Dimensions L/H x W [m]	Weight approx. [kg]	PU [pcs.]	Ref. No.
1	Rail T19 , 3.00 m	3.00 x 0.30	58.0	21	5938.041 📦
2	Trolley T17 Castors of Polyamide, permanent lift-off preventer	0.40 x 0.45	16.2	50	5938.040 📦
3a	Adapter for rail T12 0.73 m	0.73 x 0.17	5.5	100	5938.027 📦
3b	Adapter for rail T12 1.09 m	1.09 x 0.17	11.5	100	5938.028 📦
4a	Roof support , 20° rigid, 0.73 m (for Keder Roof)	0.51 x 0.80	12.4	20	5938.022 📦
4b	Roof support , 18° rigid, 0.73 m (for Keder Roof XL) with Allround rosettes	0.51 x 0.80	15.5	20	5938.073 📦
5	Overlap bracket T18		5.5	10	5938.044 📦
6	Overlap bracket eaves T18		5.4	10	5938.043 📦
7	Overlap Keder bow 2000		2.3	50	5938.042 📦
8	Lattice beam connector T16 , dia. 38 mm	0.54	2.4	350	4925.000
9	Connector for trolley for roof support 5938.022	2.63 x 0.13	11.1	50	5938.019 📦
10a	Bolt , dia. 12 x 65 mm and Safety clip , 2.8 mm		3.5	50 📦	4905.067
			0.5	50 📦	4905.002
10b	Hinged pin 8a or 8b for connecting the rails 5941.300 with lattice beam spigots 4922.000 and for securing of 5938.019		2.0	20 📦	4905.668
11	Double coupler with coarse thread Class BB, EN 74-1 RA BB C3 M, quality-monitored, for use in the classes B and BB on steel and aluminium tube acc. to approval Z-8.331-947	WS 19	1.3	25	4777.019
		WS 22	1.3	25	4777.022
12	Locking pin , red, dia. 11 mm for securing of 5938.027, 8638.028		0.2	100	4000.001
13	Keder Roof tarpaulin , 0.69 m wide				on request
14	Aluminium keder rail 2000	1.30	2.0	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 📦
15	Captive bolt for keder rail M12 x 40 , with nut		4.3	50 📦	4206.004 📦

WS = wrench size PU = packaging unit 📦 = available ex works 🕒 = delivery time on request 📦 = only available in this packaging unit

LAYHER PROTECT SYSTEM

THE LOW-COST, LABOUR-SAVING ENCLOSURE FOR ENVIRONMENT, NOISE AND WEATHER PROTECTION



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 $R_w' = 26$ 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.



Layher Protect System:

A system which meets all environmental and safety requirements and prevents all risks. The individual components of the Protect System can only be supplied ex works from Eibensbach.

Metric bay lengths can be ordered subject to delivery times.

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 and Layher SpeedyScaf.

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 $R_w'=26$ 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.

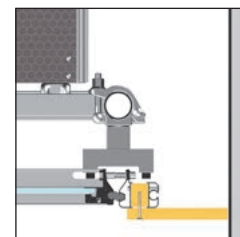
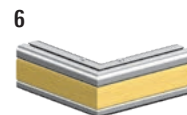
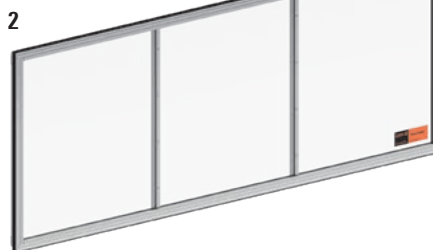
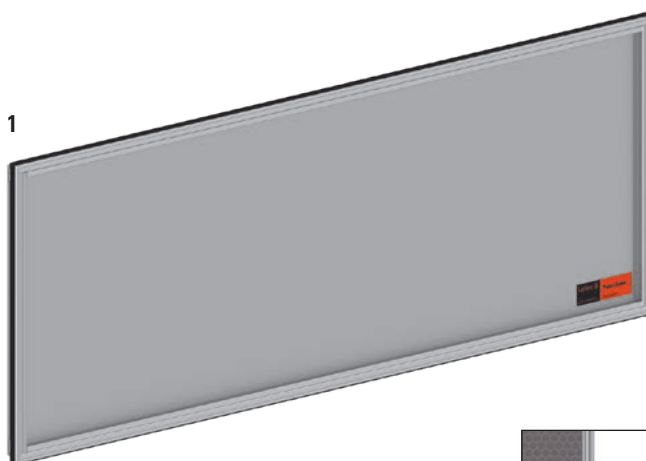
Connection rails 3 close the enclosure at the ground or building. These are clamped to the cassettes and make it possible to pull a Keder tarpaulin into the built-in Keder groove. Alternatively, a sheet or board can be adapted for use with the wooden strip intended for this purpose. Connection rails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

Internal and external corners are formed using **corner cassettes 4**, while the corresponding **connection rails 3**, 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.

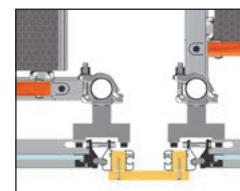
Corner elements with other angles upon request.

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



Wall connection



Equalizing bay connection

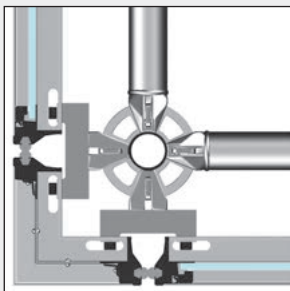
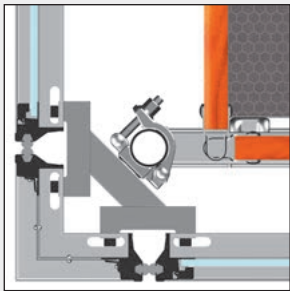
Pos.	Description	Dimensions L/H x W [m]	Weight approx. [kg]	PU [pcs.]	Ref. No.
1	Wall cassette				
	0.73 m long	0.73 x 1.00	7.7	15	5980.073 🏠
	1.09 m long	1.09 x 1.00	10.5	15	5980.109 🏠
	1.57 m long	1.57 x 1.00	14.3	15	5980.157 🏠
	2.07 m long	2.07 x 1.00	18.2	15	5980.207 🏠
	2.57 m long	2.57 x 1.00	22.2	15	5980.257 🏠
	3.07 m long	3.07 x 1.00	27.2	15	5980.308 🏠
	Wall cassette, metric				
	0.50 m long	0.50 x 1.00	6.0	15	5980.050 🕒
	1.00 m long	1.00 x 1.00	10.0	15	5980.100 🕒
	1.50 m long	1.50 x 1.00	14.0	15	5980.150 🕒
	2.00 m long	2.00 x 1.00	18.0	15	5980.200 🕒
	2.50 m long	2.50 x 1.00	22.0	15	5980.250 🕒
	3.00 m long	3.00 x 1.00	27.0	15	5980.301 🕒
2	Light cassette				
	0.73 m long	0.73 x 1.00	5.2	15	5981.073 🕒
	1.09 m long	1.09 x 1.00	7.1	15	5981.109 🕒
	1.57 m long	1.57 x 1.00	9.5	15	5984.157 🕒
	2.07 m long	2.07 x 1.00	11.5	15	5984.207 🏠
	2.57 m long	2.57 x 1.00	14.2	15	5984.257 🏠
	3.07 m long	3.07 x 1.00	16.2	15	5984.307 🏠
	Light cassette, metric				
	0.50 m long	0.50 x 1.00	4.0	15	5981.050 🕒
	1.00 m long	1.00 x 1.00	6.0	15	5981.100 🕒
	1.50 m long	1.50 x 1.00	8.6	15	5984.150 🕒
	2.00 m long	2.00 x 1.00	10.6	15	5984.200 🕒
	2.50 m long	2.50 x 1.00	13.0	15	5984.250 🕒
	3.00 m long	3.00 x 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 🏠
	Connection rail, metric				
	0.50 m long	0.50	1.2	30	5983.050 🕒
	1.00 m long	1.00	1.9	30	5983.100 🕒
	1.50 m long	1.50	2.6	30	5983.150 🕒
	2.00 m long	2.00	3.6	30	5983.200 🕒
	2.50 m long	2.50	4.5	50	5983.250 🕒
	3.00 m long	3.00	5.4	30	5983.300 🕒
4	Corner cassette 90°	0.16 x 1.00	6.2	50	5985.010 🏠
5	Allround inner corner cassette 90°, 1.00 m	0.39 x 1.00	10.2	20	5985.040 🏠
6	Connection rail 90°	0.17 x 0.17	0.6	20	5985.011 🏠
	Connection rail 90°, internal	0.39 x 0.39	1.8	40	5985.041 🕒

System Components

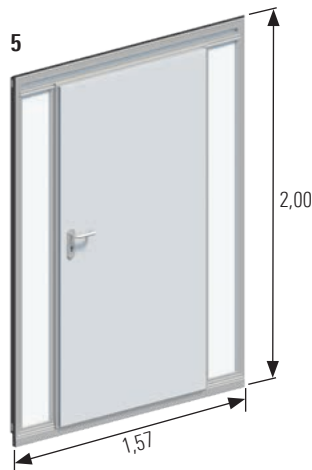
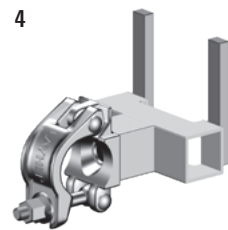
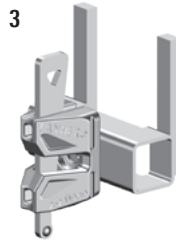
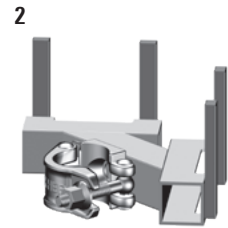
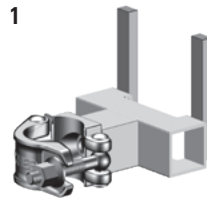
The cassettes are secured to the scaffolding using special **holders 1–4**, which are installed at a standard height of 1.00 m. Once the lower row of cassettes has been installed and aligned, all the other cassettes are mounted and secured simply using holders. The subsequent removal and installation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

For access to the cladded scaffolding, the **light door elements 5 and 6** are available. Both doors are for axis dimensions 1.57 m and thanks to the gap 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).

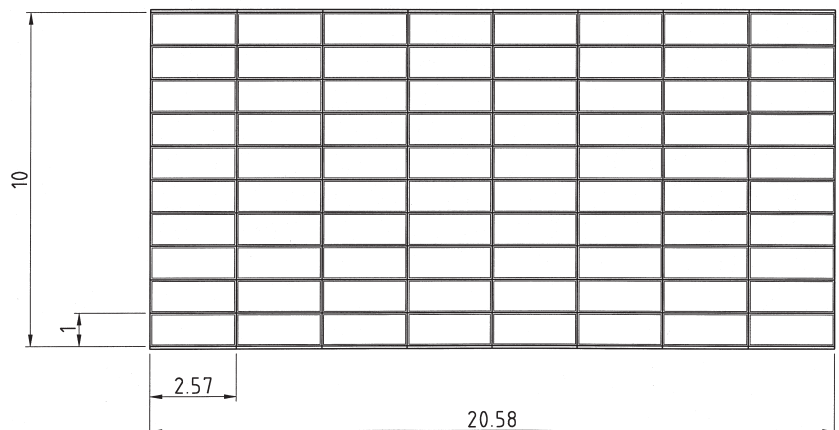


The components of the Protect system are only available ex works. Metric bay lengths are possible with delivery time upon request.



Material example

This material example is based on a facade scaffolding of Allround Scaffolding: Width $8 \times 2.57 \text{ m} = 20.56 \text{ m}$, height 10.00 m, result a face of **205.60 m²**; at the lower edge of the cassettes, connection rails were fitted.



Pos.	Description	Dimensions L/H x W [m]	Weight approx. [kg]	PU [pcs.]	Ref. No.
1	SpeedyScaf holder for wall cassette T9	WS 19	1.6	250	5986.011 
2	SpeedyScaf corner holder for wall cassette T9	WS 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	WS 19	1.6	300	5986.041 
5	Light door element for site access Hinged DIN right height clearance 0.94 m width clearance 1.84 m	1.57 x 2.00	45.5	1	5985.156 
6	Light door element for escape ways Hinged DIN right with anti-panic handle height clearance 1.19 m width clearance 2.09 m	1.57 x 3.00	68.6	1	5985.157 
7	Gap ledger for Protect light door element	1.57	12.7	50	5985.158 
8	Real glass cassettes ESG safety glass – without illustration	0.73 – 3.07 x 1.00			on request
9	Wall cassettes with enhanced sound insulation in accordance with ZTV-Lsw 88:1988 or DB guidelines 800.2001 (section 2) – without illustration	0.73 – 3.07 x 1.00			on request

Following material is needed	Quantity	Ref. No.
Wall cassette 2.57 x 1.00 m	80	5980.257
Allround holder	99	5986.031
Connection rail 2.57 m	8	5983.257

WS = wrench size PU = packaging unit  = available ex works  = delivery time on request  = only available in this packaging unit

Stichwortverzeichnis

A		F		Keder Roof XL ledger	29
Access hatch	18	Fall protection	20	Keder Roof XL Mono-pitch lattice beam	29
Adapter for rail T12		FW System chord	11	Keder Roof XL polyester lashing strap	31
0.73 m	41	FW System chord support	11	Keder Roof XL ridge section	29
1.09 m	41	FW System diagonal rod	11	Keder Roof XL stiffener	29
Allround FW chord	10	FW System end fitting	11	Keder Roof XL support	29
Allround FW diagonal rod	10	with turnbuckle	11	Keder Roof XL threaded tie	31
Allround FW post	10	FW System keder rail holder	11	Keder Roof XL tie attachment	31
Allround FW System	10	FW System post	11	Keder Roof XL tie connecting piece	31
lock nut	11	FW System ridge diagonal brace	11	Keder Roof XL tie connecting sleeve	
Allround holder for wall cassette T9	47	FW System ridge ledger with rosettes	11	WS 30 x 90	31
Allround inner corner cassette 90°	45	FW System ridge post	11	Keder Roof XL tie connection lashing strap	31
Aluminium keder rail		FW System support adapter	11	Keder Roof XL tie connection threaded rod	31
2000	37, 41	FW System support beam	11	Keder tarpaulin feeder	31
3000	11	FW System tie connector	11		
Attachment device	22	FW System trolley	11		
B		G		L	
Base support for walkway	20, 21	Gap ledger	47	Lattice beam connector	16, 17
Beam stiffener	14, 15	Groove bolt for keder rail M12 x 40	11	Lattice beam connector T16	41
Bending-resistant corner XL	37	Guardrail support	20, 21	LayPLAN	6
Bolt	11			Ledger holder for half-coupling T9	47
12 x 65 mm	41			Light cassette	18, 19, 44, 45, 46
12 x 95 mm	29			metric	45
14 x 77 mm	14, 15, 16, 17			Light door element for escape ways	47
14 x 107 mm	14, 15	H		Light door element for site access	47
30 x 50 mm	14, 15	Hinged attachment	11	Light door elements	46
30 x 64 mm	16, 17	Hinged pin	29, 41	Locking pin	41
M14 x 65	16, 17	Holder	46	Logistics	20
M14 x 80	14, 15				
C		I		M	
Captive bolt for keder rail	41	Intermediate element	22, 23	Material example	34, 46
Carrying capacity of 2 t	20	Intermediate fastener	22, 23	Mobile Roofs	38, 40
Carrying handle	16, 17			Modular skeleton box	20, 21
Cassette element	44	J			
Cassette roof	12	Joint plate for keder rail	11		
Castor for tarpaulin pulling	31			O	
Clamping plate	16, 17	K		Overlap bracket	40, 41
Connecting piece	20	Keder halls	36	Overlap bracket eaves	41
Connecting piece for cassette supports	21	Keder rail holder		Overlap eaves bracket	40
Connection rail	44, 45	for Allround Scaffolding	37	Overlap keder bow	40, 41
metric	45	for Speedyscaf System	37	Overview Allround FW System Roof	8
Connection rail 90°	45	Keder rails 3000	10	Overview Cassette Roof	12
internal	45	Keder rail seal	29	Overview Keder Roof XL	26
Connector for trolley	41	Keder Roof gable tarpaulin		Overview Mobile Roofs	38
Corner cassette	44	flame-retarding	33	Overview Protect System	42
Corner cassette 90°	45	low-inflammability	33		
		Keder Roof, roof tarpaulin		P	
		flame-retarding	33	Protect-System	42
		low-inflammability	33	PSA connecting line Y-version	24, 25
D		Keder roof tarpaulin	11, 41	PSA safety harness AX 60 C	24, 25
Double coupler with coarse thread	41	Keder Roof XL as double-pitch roof			
		Type Standard	34		
		Keder Roof XL as mono-pitch roof		R	
E		Type Standard	35	Rail	40, 41
End fastener	23	Keder Roof XL eaves section	29	Real glass cassettes	47
End pieces of the ties	16	Keder Roof XL horizontal diagonal brace	29	Ridge cassette	18, 19
End post for mono-pitch roofs	15	Keder Roof XL lashing strap	31	Ridge fastener	22, 23
		Keder Roof XL lattice beam	29	Ridge support	14, 15

Roof beam	14, 15
Roof cassette	18, 19
Roof cassettes with corrugated sheet	18
Roof cassette with access hatch	19
Roof guard	20, 21
Roof support	17
18° rigid, 0.73 m (for Keder roof XL)	41
20° rigid, 0.73 m (for Keder roof)	41
Roof supports as connecting elements for the supporting structure	16
Roof tarpaulins	32, 40
Rope safety gear	22
Rope safety gear system 20 m	22, 23
Rope safety gear system 40 m	22, 23
Rope up protection	24

S

Safety clip	16
2.80 mm	14, 15, 16, 17, 29, 41
4 mm	11, 14, 15, 17
Safety when walking on the roof	20
Set for tarpaulin pulling	31
Software for scaffolding construction	6
Special bolt	
M12 x 60 with nut	29
M12 x 90 with nut	29
SpeedyScaf corner holder	
for wall cassette T9	47
SpeedyScaf holder	
for wall cassette T9	47
Standard connection	20, 21
Swivelling roof support	17
System Components	
Allround FW System Roof	10
Cassette Roof	14, 16
Keder Roof XL	28, 30
Mobile Roofs	40
Protect System	44, 46

T

Tarpaulin	
acc. to DIN 4102 B1	32
acc. to ISO 3795	32
Tarpaulin clip	33
Tie	16, 17
Tie element	16
Tie, end piece	17
Tie thread rod	11
Travelling arrester system ASK 1	24, 25
Trolley	40, 41
Truss elements	14
Tubular pallet	20
Tubular pallet 265	21
Tubular stiffener	14, 15
Turnbuckle	10
Type "Heavy"	28
Type "Light"	28
Type "Standard"	28

W

Wall cassette	44, 45
metric	45
with enhanced sound insulation	47
Wedge	16, 17



Layher is your dependable partner with more than 75 years of experience. "Made by Layher" always means "Made in Germany" too – and that goes for the entire product range. Superb quality – and all from one source.

Proximity to the customer is a central factor behind Layher's success – geographically speaking too. Wherever our customers need us, we will be there – with our advice, assistance and solutions.

-  **SpeedyScaf**
-  **Allround Scaffolding**
-  **System-free Accessories**
-  **Protective Systems**
-  **Shoring**
-  **Event Systems**
-  **Rolling Towers**
-  **Ladders**
-  **Software**



Headquarters in Eibensbach



Plant 2 in Gueglingen

Layher 

More Possibilities. The Scaffolding System.

Wilhelm Layher GmbH & Co KG
Scaffolding Grandstands Ladders

Ochsenbacher Strasse 56
74363 Gueglingen-Eibensbach
Germany

Post Box 40
74361 Gueglingen-Eibensbach
Germany

Telephone +49 (0) 71 35 70-0
Telefax +49 (0) 71 35 70-2 65
E-mail export@layher.com
www.layher.com

