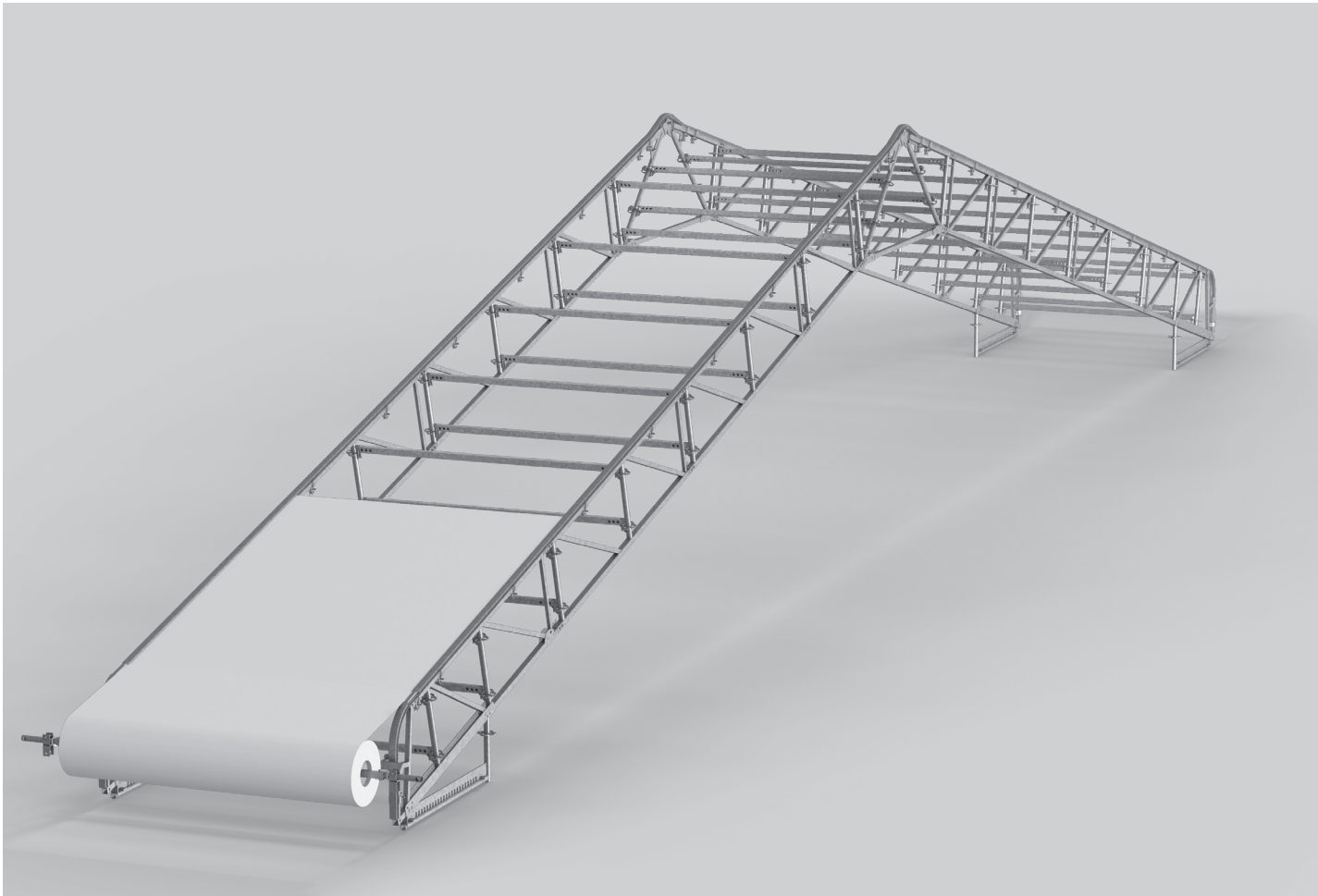


PERI UP Flex

Weather Protection Roof LGS 75

Instructions for Assembly and Use – Standard Configuration – Version 2.0



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Program overview

Main components

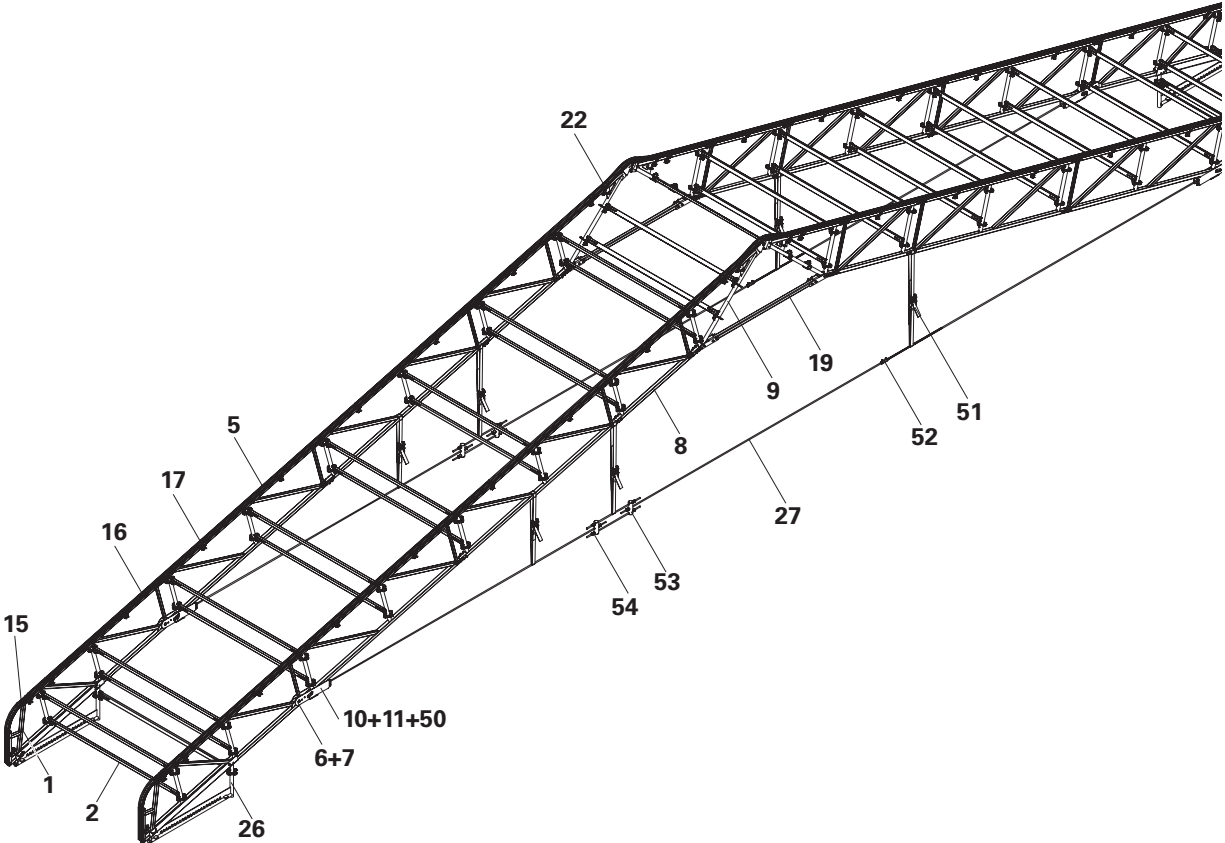


Fig. 01

1	LGS Eave Element URB 300/75	19	Ridge Bar HD UR
2	Horizontal Ledger UH-2	22	LGS Ridge Rail URK
5	LGS Standard Element URB 300/75	26	LGS Support URS
6	Bolt Ø 16	27	Tie Rod DW15
7	Cotter Pin 4/1	50	Suspension Tie Connector URU
8	LGS Intermediate Element URB 150/75	51	Tension belt
9	LGS Ridge Element URR 75	52	Tie Rod Extension URU
10	Bolt Ø 24	53	Anchor Tie Yoke URU
11	Cotter Pin 5/1	54	Hex. Nut DW 15 SW 30/50
15	LGS Eave Rail URK		
16	LGS KederTrack URK		
17	LGS Keder Connector URK		

List of components

Pos. no.	Component name	Art. no.
1	LGS Eave Element URB 300/75	135793
2	Horizontal Ledger UH-2 250	132025
3	Horizontal Ledger UHV-2 250	137030
4a	H-Brace UBH Flex 250/100	114819
4b	H-Brace UBH Flex 250/150	124101
5	LGS Standard Element URB 300/75	135766
6	Bolt Ø 16 x 70	106031
7	Cotter pin 4/1	018060
8	LGS Intermediate Element URB 150/75	135773
9	LGS Ridge Element URR 75	135782
10.1	Bolt Ø 24 x 70	127468
10.2	Bolt Ø 24 x 105	106191
11	Cotter pin 5/1	022230
15	LGS Eave Rail URK	126491
16a	LGS Keder Track URK 600	126071
16b	LGS Keder Track URK 300	127500
16c	LGS Keder Track URK 150	127501
17	LGS Keder Connector URK	125166
18	Support Roller UEW unstopped	104854
19	Ridge Bar HD UR 150°	128334
22	LGS Ridge Rail URK 150	126051
23	LGS Reel Connector URG	126486
24	LGS Tarpaulin Reel URG 250	126484
25	LGS Handle URG	126488
26	LGS Support URS 15°	104771
27a	Tie Rod DW 15, L = 6 m	030160
27b	Tie Rod DW 15, special length L = 5 m	030030
27c	Tie Rod DW 15, L = 1 m	030480
28	Ledger URL 150/14	105386
29	Bolt ISO 4014-M10x100	710242
30	Nut ISO 7040-M10	780356
31	Rail Support URF	104853
32	Aluminium Rail URT 250	104796
33	Rail End Piece URD	104852
34	Stopper URA-2	118022
35	Carriage URW	104777
36	LGS Bearer URS 75	135801
37	Anchor chain	065073
38	Turnbuckle	065074

Pos. no.	Component name	Art. no.
39	Ledger UHA-2 half with pin	130684
40	Locking pin Ø48/57	111053
50	LGS Suspension Tie Connector URU	128823
51	Tension Belt PTB 12	118349
52	Tie Rod Extension URU	129435
53	Anchor Tie Yoke URU	128817
54	Hex. Nut DW 15 AF 30/50	030070
55	LGS Crank URG	126487

Tab. 01

Key

Pictogram | Definition



Danger / Warning / Caution



Note



To be complied with



Load-bearing point



Visual inspection



Tip



Incorrect use



Safety helmet



Safety shoes



Safety gloves



Safety goggles



Personal protective equipment to prevent falling from a height (PPE)

Arrows



Arrow representing an action



Arrow representing a reaction of an action*



Arrow representing forces

* If not identical to the action arrow.

Safety instruction categories

The safety instructions alert site personnel to the risks involved and provide information on how to avoid these risks. Safety instructions are featured at the beginning of the section or ahead of the instructions, and are highlighted as follows:



Danger

This sign indicates an extremely hazardous situation which, if not avoided, will result in death or serious, irreversible injury.



Warning

This sign indicates a hazardous situation which, if not avoided, could result in death or serious, irreversible injury.



Caution

This sign indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.



Note

This sign indicates situations in which failure to observe the information can result in material damage.

Format of the safety instructions



Signal word

Type and source of hazard!
Consequences of non-compliance.
⇒ Preventative measures.

Dimensions

Dimensions are usually given in cm. Other measurement units, e.g. m, are shown in the illustrations.

Conventions

- Instructions are numbered with:
1., 2., 3.
- The result of an instruction is shown by: →
- Position numbers are clearly provided for the individual components and are given
 - in the drawing, e.g. 1,
 - in brackets in the text, e.g. (1).
- Multiple position numbers, i.e. alternative components, are represented with a slash: e.g. 1/2.

Notes on illustrations

The illustration on the front cover of these instructions is understood to be a system representation only. The assembly steps presented in these Instructions for Assembly and Use are shown in the form of examples with only one component size. They are valid for all component sizes contained in the standard configuration.

To facilitate understanding, detailed illustrations are sometimes incomplete. The safety installations which have possibly not been shown in these detailed illustrations must nevertheless be available.

Span

Span is the dimension from the centre of one support to the centre of the other support.

The exact position of the support is specified in the project drawing.

Target groups

Scaffolding contractors/contractors

These assembly instructions are intended for contractors who either

- assemble, modify and dismantle the scaffolding, or
- use them, e.g. for concreting, or
- allow them to be used for other operations, e.g. carpentry or electrical work.

Safety and Health Protection Coordinator*

- is appointed by the client,
- must identify potential hazards during the planning phase,
- determines measures that provide protection against risks,
- creates a safety and health protection plan,
- coordinates the protective measures for the contractor and site personnel so that they do not endanger each other,
- monitors compliance with the protective measures.

Competent person

- is appointed by the scaffolding contractor,
- must be on site for all scaffolding work,
- prepares and updates the plan for assembly, modification and dismantling,
- prepares and updates the plan for use of the scaffold by the scaffold user,
- supervises the assembly, modification and dismantling work (supervisor).

Competent persons qualified to carry out inspections

Due to the specialist knowledge gained from professional training, work experience and recent professional activity, the competent person qualified to carry out inspections has a reliable understanding of safety-related issues and can carry out inspections correctly. Depending on the complexity of the inspection to be undertaken, e.g. scope of testing, type of testing or the use of certain measuring devices, a range of specialist knowledge is necessary.

Qualified personnel

Scaffolds may only be assembled, modified or dismantled by personnel who are suitably qualified to do so. Qualified personnel must have completed a course of training** in the work to be performed, covering the following points at least:

- Explanation of the plan for the assembly, modification or dismantling of the scaffolding in an understandable form and language.
- Description of the measures for safely assembling, modifying or dismantling the scaffolding.
- Naming of the preventive measures to be taken to avoid the risk of persons and objects falling.

- Designation of the safety precautions in the event of changing weather conditions that could adversely affect the safety of the scaffolding, as well as the personnel concerned.
- Details regarding permissible loads.
- Description of all other risks and dangers associated with assembly, modification or dismantling operations.



- **In other countries, ensure that the relevant national guidelines and regulations in the respective current version are complied with!**
- **If no country-specific regulations are available, it is recommended to proceed according to German guidelines and regulations.**

* Valid in Germany: Regulations for Occupational Health and Safety on Construction Sites 30 (RAB 30).

** Instructions are given by the contractor themselves or a competent person selected by them.

Additional documentation

- Instructions for Assembly and Use
 - PERI UP Flex Weather Protection Roof LGS
 - PERI UP Flex Core Components
 - PERI UP Reinforcement Scaffolds 75 and 100
 - PERI UP Flex Staircase 75
 - PERI UP Flex Stair 100 and 125 with Deck UDG
 - PERI UP Easy Facade Scaffold 67 and 100
- Approvals
 - Approval Z-8.22-863 PERI UP Flex Module System
 - Approval Z-8.1-957 PERI UP Easy Scaffold System
- User information – pallets and stacking devices
- PERI UP – Design Tables
- PERI program overview – scaffolding
- Brochure – PERI UP Flex Weather Protection Roof LGS

Intended use

Product description

PERI products have been designed for exclusive use in the industrial and commercial sectors only by suitably trained personnel.

These Instructions for Assembly and Use are based on the Approval Z-8.22-863 for the PERI UP Flex Modular System.

These Instructions for Assembly and Use describe the standard configuration for a Weather Protection Roof as a temporary construction, e.g. enclosure construction, corresponding to the provisions of DIN EN 16508 and DIN EN 12811.

Features

The Weather Protection Roof is based on the PERI UP Flex Modular System with supplementary components.

Leak-tightness

Keder tracks are mounted on the roof construction and keder sheeting is inserted into them. This means that the enclosure is water-repellent and, to a large extent, water-tight. There is no entitlement to complete tightness; this must be achieved by additional project-specific measures.

Technical data

- Span L_{spw} to 27.20 m
- Width B of the girder package from 1.00 m to 3.00 m in 25-cm steps
- Wind loads q according to DIN EN 1991-1-4
 - $q_1 = 0.35 \text{ kN/m}^2$
 - $q_2 = 0.56 \text{ kN/m}^2$
 - $q_3 = 0.77 \text{ kN/m}^2$
- Snow loads s are calculated according to DIN EN 1991-1-3 with snow/minimum load classes according to DIN EN 16508
 - $SL1 = 0.10 \text{ kN/m}^2$
 - $SL2a = 0.25 \text{ kN/m}^2$
 - $SL2b = 0.60 \text{ kN/m}^2$

Standard configuration

- Width B of the girder package from 1.00 m to 3.00 m in 25-cm steps
- Span L_{spw}
 - up to 20.30 m
 - is the distance from centre support to centre support.
- Roof construction closed on all sides
- Tension system fixed to the eave element.
- Mobile or fixed girder package
- Assembly
 - with bolts and cotter pins
 - alternatively with bolts and nuts – not shown.
- Instead of the Horizontal Ledger UH-2 250, the Horizontal Ledger UH 250 Plus can also be used as an alternative.

The load-bearing substructure is not part of the scope of these Instructions for Assembly and Use.

- Refer to the project-specific details in the project drawings.
- The load-bearing substructures shown are indicated and incomplete.
- The stability of the overall construction consisting of weather protection roof and load-bearing substructure must be verified separately for each project – also for assembly conditions.

Instructions for Use

Use in a way not intended, deviating from the intended use according to the Instructions for Assembly and Use, represents an application with a potential safety risk, e.g. risk of falling.

Deviations from the standard configuration must be verified for the application by means of separate strength and stability calculations (Industrial Safety Regulation Appendix 1, No. 3.2.1) and explicitly reflected in the assembly instructions.

Only PERI original components may be used. The use of other products and spare parts is not allowed. Changes to PERI components are not permitted.

The system described in these Instructions for Assembly and Use may contain patent-protected components.

Cleaning and maintenance instructions

Clean the scaffold components after each use to maintain the value and usability of the PERI products over the long term.

Some repair work may also be inevitable due to the tough working conditions.

The following points should help to keep cleaning and maintenance costs as low as possible.



The contractor must ensure that the personal protective equipment required for cleaning, maintenance and repair work, e.g.

- safety helmet,
 - safety shoes,
 - safety gloves,
 - safety goggles,
- is available and used as intended.

Never use steel brushes or hard metal scrapers to clean powder-coated or galvanised components.

Mechanical components, e.g. spindles, must be cleaned of dirt or concrete residue before and after use, and then greased with a suitable lubricant.

Provide suitable support for the components during cleaning so that no unintentional change in their position is possible.

Do not clean components suspended on crane lifting gear.

Components with wood parts are to be stored in well-ventilated and dry conditions.

Any repairs to PERI products are to be carried out by PERI qualified personnel only.

Tension Belts PTB 12

Ensure that tension belts are stored tidily and in dry conditions.

Clean the tension belts with cold water without detergent and air dry.

Moving parts of the ratchet are to be lightly oiled on a regular basis.

Identification marking of the Tension Belt PTB 12

Belt label

(Fig. 02a + Fig. 02b)



Warning

If the belt label is missing or illegible, do not use Tension Belt PTB 12! The belt may tear, causing parts to fall down.

⇒ Use a flawless tension belt.

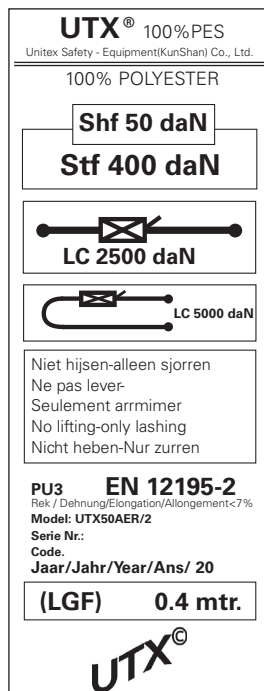


Fig. 02a

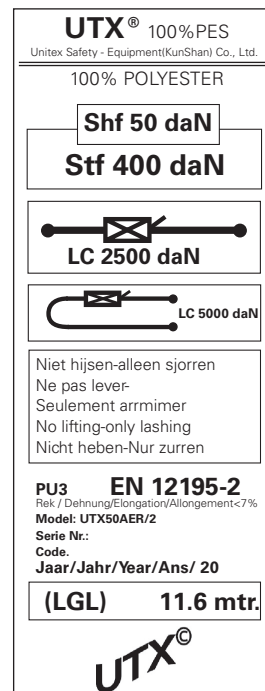


Fig. 02b

Cross-system



Safety instructions apply to all service life phases of the system.

General

The contractor must ensure that the Instructions for Assembly and Use supplied by PERI are available at all times and understood by the site personnel.

These Instructions for Assembly and Use can be used as the basis for creating a risk assessment. The risk assessment is compiled by the contractor. However, these Instructions for Assembly and Use do not replace the risk assessment!

Refer to and comply with the safety instructions and permissible loads.

For the application and inspection of PERI products, the current safety regulations and guidelines valid in the respective countries must be observed.

Materials and working areas are to be inspected before each use and assembly, for:

- damage,
- stability and
- functional correctness.

Damaged components must be exchanged immediately on site and may no longer be used.

Safety components are to be removed only when they are no longer required.

When on slab formwork, scaffolds and working platforms:

- do not jump,
- do not run,
- do not drop anything from or onto it.

Components provided by the contractor must comply with the characteristics stipulated in these Instructions for Assembly and Use and all applicable laws and standards.

Unless otherwise indicated, the following applies in particular:

- timber components: strength class C24 for solid wood according to EN 338.
- scaffold tubes: galvanised steel tubing with minimum dimensions Ø 48.3 x 3.2 mm according to EN 12811-1:2003 4.2.1.2.
- scaffold tube couplings according to EN 74-1 and EN 74-2.

Deviations from the standard configuration are only permitted after a further risk assessment has been carried out by the contractor.

Appropriate measures for working and operational safety, as well as stability, are defined on the basis of this risk assessment.

Corresponding proof of stability can be provided by PERI on request, if the risk assessment and resulting measures to be implemented are made available.

Before and after exceptional occurrences that may have an adverse effect on the safety of the scaffold system, the contractor must immediately

- produce another risk assessment and make use of its results to take suitable steps to guarantee the stability of the scaffold system,
- arrange for an extraordinary inspection to be carried out by a competent person qualified to do so. The aim of this inspection is to identify and rectify any damage in good time in order to guarantee safe use of the scaffold system.

Exceptional events could be:

- accidents,
- long periods of non-use,
- natural events, e.g. heavy rainfall, icing, heavy snowfall, storms or earthquakes.

Assembly, modification and dismantling work

Assembly, modification or dismantling of scaffold systems may only be carried out by qualified persons under the supervision of a competent person. The qualified personnel must have received appropriate training for the work to be carried out with regard to specific risks and dangers.

On the basis of the risk assessment and the Instructions for Assembly and Use, the contractor must create installation instructions to ensure safe assembly, modification and dismantling of the scaffold system.



The contractor must ensure that the personal protective equipment required for the assembly, modification or dismantling of the scaffold system, e.g.

- safety helmet,
 - safety shoes,
 - safety gloves,
 - safety goggles,
- is available and used as intended.



If personal protective equipment against falling from a height (PPE) is required or specified in local regulations, the contractor must determine appropriate attachment points on the basis of the risk assessment.

The PPE against falling to be used is determined by the contractor.

The contractor must

- provide safe working areas for site personnel, which are to be reached through the provision of safe access ways. Danger zones must be cordoned off and clearly marked.
- ensure stability during all stages of construction, in particular during assembly, modification and dismantling operations.
- ensure and demonstrate that all loads that occur are safely transferred.

Use

Every contractor who uses or allows the scaffold systems to be used, is responsible for ensuring that the equipment is in good condition.

If the scaffold system is used successively or at the same time by several contractors, the health and safety coordinator must point out any possible mutual hazards and all work must be then coordinated.

When scaffolding is used in publicly accessible areas,

- measures to prevent unauthorised use, e.g. enclosure of access areas, must be taken.
- measures to prevent injuries caused by impacts with protruding components, e.g. assembly of protective components, must be taken.

Always keep the contact surfaces of the scaffolding free of dirt, objects, snow and ice.

Close off the scaffolding in extreme weather conditions.

System-specific

Tighten couplings with screw closures using 50 Nm. This corresponds to a force of 20 kg using a lever arm length of 25 cm.

Secure the wedges using a 500 g hammer.

Tension Belt PTB 12

- is to be checked during use and, if necessary, re-tensioned.
- is not to be used on sharp edges or cracked surfaces without protection. Use edge protection,
- protect against heat and chemical influences,
- avoid twisting and keep free of knots,
- do not use for pulling or lifting loads.

Do not set down any loads on the tension belt.

Ensure that the ratchet is not positioned on an edge when belt is tensioned.

At least 1.5 winds of the belt on the ratchet, maximum 3 winds.

Do not load belt hooks on the tips.

Discard state of Tension Belt PTB 12

Tension belts are to be replaced if:

- the belt label is illegible or missing,
- the belt has cuts, holes or abrasion marks,
- the tension belt shows signs of deformations,
- the hooks or ratchet are twisted or badly corroded,
- the hook aperture is open by more than 10 %.

Anchoring

For the support forces, see Section B2.

The enclosure of the scaffolding or mounting of additional surfaces exposed to the wind changes the stability and must be rechecked. If necessary, take additional measures.

Ties must be installed progressively with the erection of the scaffolding.

Transfer the anchoring forces into sufficiently load-bearing anchorage via wall ties and fixing materials (e.g. the building).

The anchoring and its components must be inspected by a competent person chosen by the scaffold contractor.

Inspecting the anchoring

Load tests must be carried out at the place of use.

Load tests are to be carried out using suitable test equipment.

The test load must be 1.2 times higher than the required anchoring force F .

The scope of testing must, however, include a minimum of 5 load tests for all dowels used for concrete anchoring bases (at least 10 %) and for other building materials (at least 30 %).

Storage and transportation

Store and transport components in such a way that no unintentional change in their position is possible. Detach lifting accessories and slings from the lowered components only if they are in a stable position and no unintentional change is possible.

Do not drop the components.

Use PERI lifting accessories and slings and only those load-bearing points provided on the component.

During the relocation procedure

- ensure that components are picked up and set down so that unintentional falling over, falling apart, sliding, falling down or rolling is avoided.
- no persons are allowed to remain under the suspended load.

Always guide pre-assembled scaffold bays, scaffolding units or scaffolding sections with ropes when moving them by crane.

The access areas on the construction site must be free of obstacles and tripping hazards, as well as being slip-resistant.

For transportation, the base must have sufficient load-bearing capacity.

Use original PERI storage and transport systems, e.g. pallet cages, pallets or stacking devices.

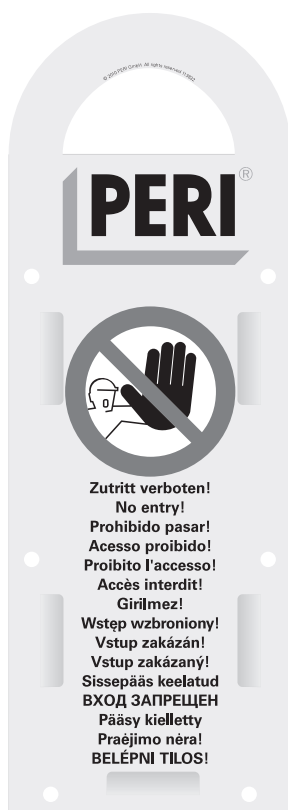
Identification marking

When carrying out the work the following signs must be observed:

If certain parts of the scaffolding are not ready for use – especially during assembly, modification and dismantling – a “No Entry” warning sign restricting access must be clearly displayed (see Sign 1).

In addition, the area must be adequately closed off in order to prevent access.

After assembly has been completed, all scaffold entry points must clearly display the designated sign. (Sign 2) The signs do not replace the inspection record! (Sign 2, rear side)



Sign 1

Montageprotokoll

auszufüllen vom Aufsichtführenden

Aufstellort _____

Position _____

Auftraggeber _____

Gerüstersteller _____

Datum _____

Unterschrift _____

**Arbeitsgerüst nach EN 12811,
für Lastklasse**

kN/m^2

1-2: Wartungsarb. 1,50 kN/m²

3: Male-/ Putzarb. 2,00 kN/m²

4-6: Maurerarb. $\geq 2,80 \text{ kN/m}^2$

Breitenklasse W

W06 $0,6 \leq w \leq 0,9 \text{ m}$

W09 $0,9 \leq w \leq 1,2 \text{ m}$

W12-W24 $w \geq 1,2 \text{ m}$

Abnahmeprotokoll

auszufüllen vom Prüfer

Name _____

Unterschrift _____

Datum, Uhrzeit _____

Besonderheiten _____

Sign 2

[illegible]

Sign 2, rear side

Laws and regulations

When assembling, modifying, dismantling and using the scaffolding in Germany, accident prevention regulations and guidelines of the employer's liability insurance associations, as well as national health and safety regulations, must be followed, especially:

- Product Safety Act (ProdSG)
- Directive 2009/104/EC
- Operating Safety Regulation (BetrSichV)
- Statutory Accident Insurance (DGUV) Information 201-011
- BGV A1 (Trade Association Regulations)
- TRBS 2121 (Technical Regulations for Operational Safety)
- TRBS 1203 (Technical Regulations for Operational Safety)
- Regulations for Occupational Health and Safety on Construction Sites 30 (RAB 30)

The latest version in each case is applicable.



In other countries, ensure that the relevant national guidelines and regulations in the respective current version are complied with!

Inspection, handover and use

The erected scaffolding must be inspected by the scaffolding contractor in order to determine that assembly has been carried out correctly. If the contractor is convinced that the scaffolding has been correctly erected, it can then be handed over to the user. It is advisable to carry out the handover with the user and, for example, to document this in a written report.

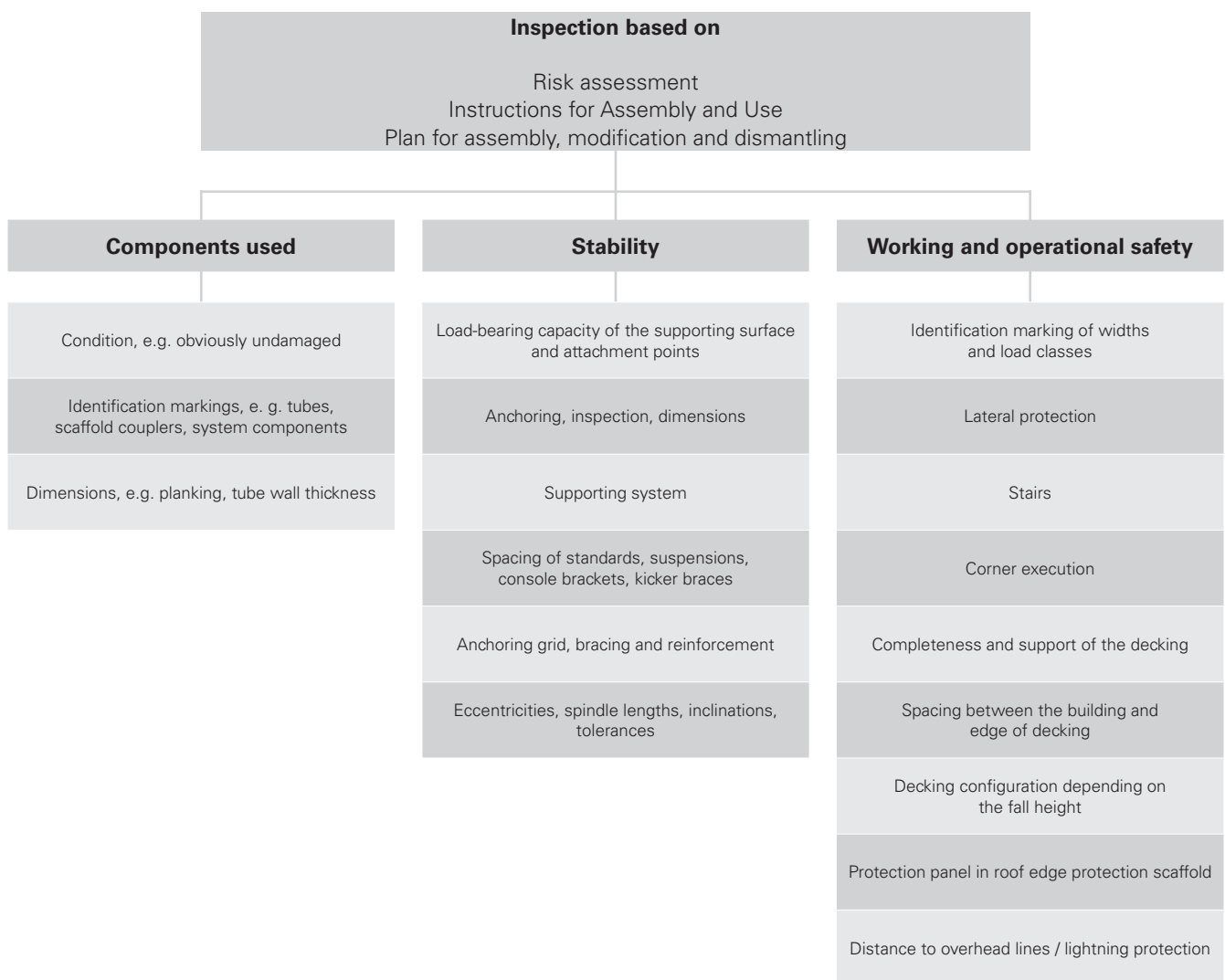


During the handover, the scaffold contractor must advise the user of any possible risks involved with non-intended use and his obligation to provide adequate prevention against risk and danger!

- Put up safety and warning signs at the scaffold access point.
- Handover of a usage plan.



The contractor who uses scaffolding, must ensure that the scaffolding is in good condition and not arbitrarily altered in any way. In this respect, the qualified specialists must be instructed that if changes have obviously been made during use, these must be reported to the respective qualified and competent person.



Source: based on TRBS 2121 Part 1

Notes for all spans



Warning

Do not climb on the roof if at all possible.

Risk of falling.

⇒ Wear personal protective equipment to prevent falling from a height (PPE).

Attachment points for PPE

(Fig. B1.01)



The use of PPE to prevent falling from a height is regulated in the project-related risk assessment that has been prepared by the contractor.

- ① Horizontal ledger
- ② Rosette on element*
- ③ Top or bottom chord*

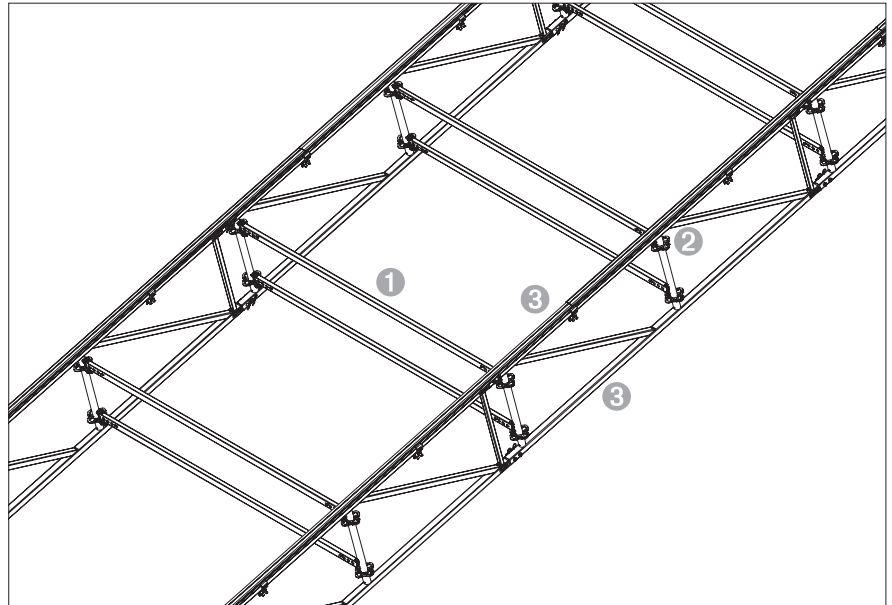


Fig. 03

* Intermediate, standard, eave element

Fitting the eave elements



- Width "B" is variable
 - in 25-cm increments,
 - from 1.00 m to 3.00 m,
 - 2.50 m is shown here.
- If a tension system is required, use squared timber as a means of support with height " $H_{\text{squared timber}} \geq 16 \text{ cm}$ ". (Fig. A1.01)

Components

1	LGS Eave Element URB 300/75	2x
2	Horizontal Ledger UH-2 250	4x

Connecting the eave elements

1. Place eave element (1) on two crosswise positioned squared timbers.
 - Squared timbers are used as support during assembly. (Fig. A1.01)
2. Attach horizontal ledgers (2) to the rosette on both sides (1.1) using the ledger heads and wedges (2.1). (Fig. A1.02)
3. Securely fix all wedges using a hammer. (Fig. A1.02a)
 - Horizontal ledgers are now secured.



- Instead of beginning with eave elements, a girder package with standard elements can also be used.
- Install intermediate elements in front of the ridge element for length compensation.

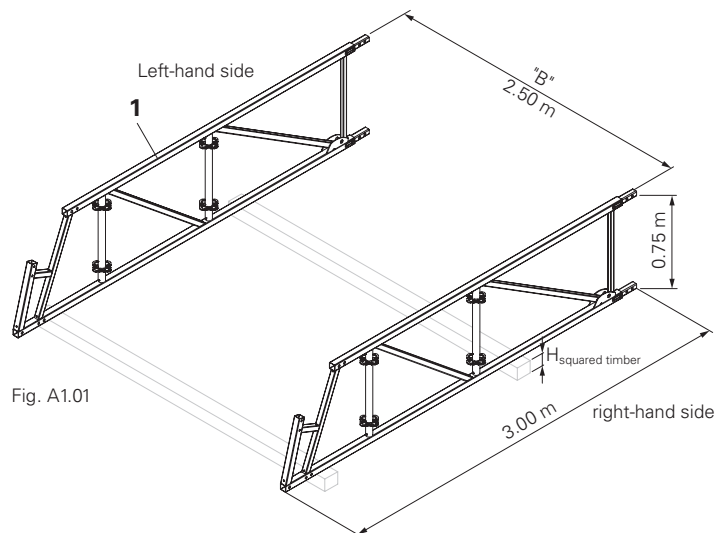


Fig. A1.01

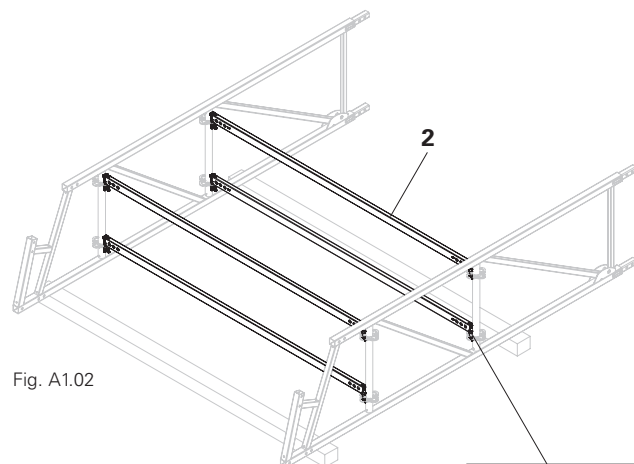


Fig. A1.02

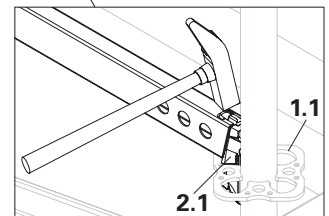


Fig. A1.02a

Fitting the standard elements



There are two variants:

- without tension system,
- with tension system.

Without tension system

Components

2	Horizontal Ledger UH-2 250	4x
5	LGS Standard Element URB 300/75	2x
6	Bolt Ø 16 x 70	8x
7	Cotter pin 4/1	8x

Assembly

1. Push the tubes of the standard element (**5**) onto the pins of the eave elements. (Fig. A1.03)
2. Insert Bolts (**6**) – from the outside to the inside – through the holes of the bottom chord and secure with cotter pins (**7**) – 2x. (Fig. A1.03a)
3. Attach horizontal ledgers (**2**) to the rosette on both sides (**1.1**) using the ledger heads and wedges (**2.1**). (Fig. A1.04)
4. Securely fix all wedges using a hammer. (Fig. A1.02a)
→ Horizontal ledgers are now secured.

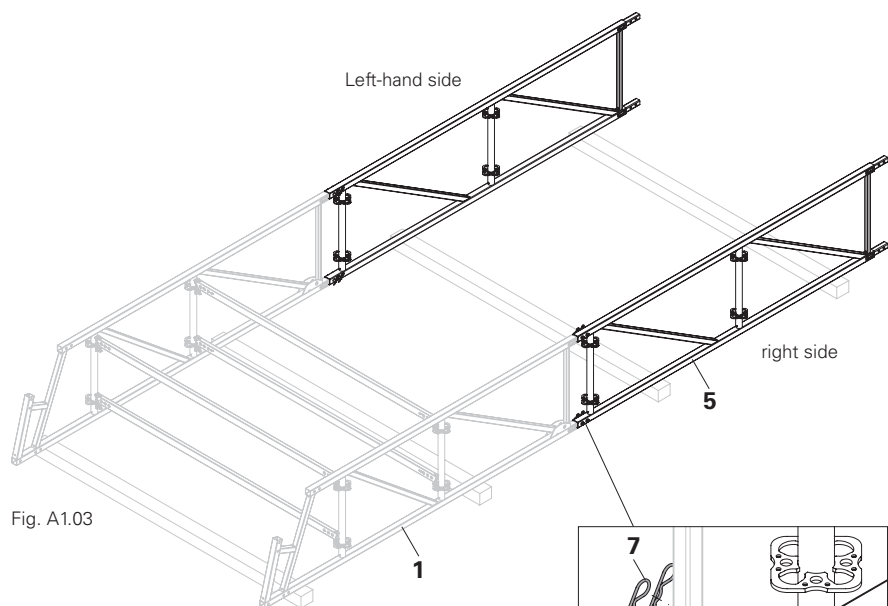


Fig. A1.03

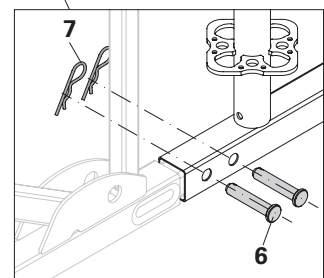


Fig. A1.03a

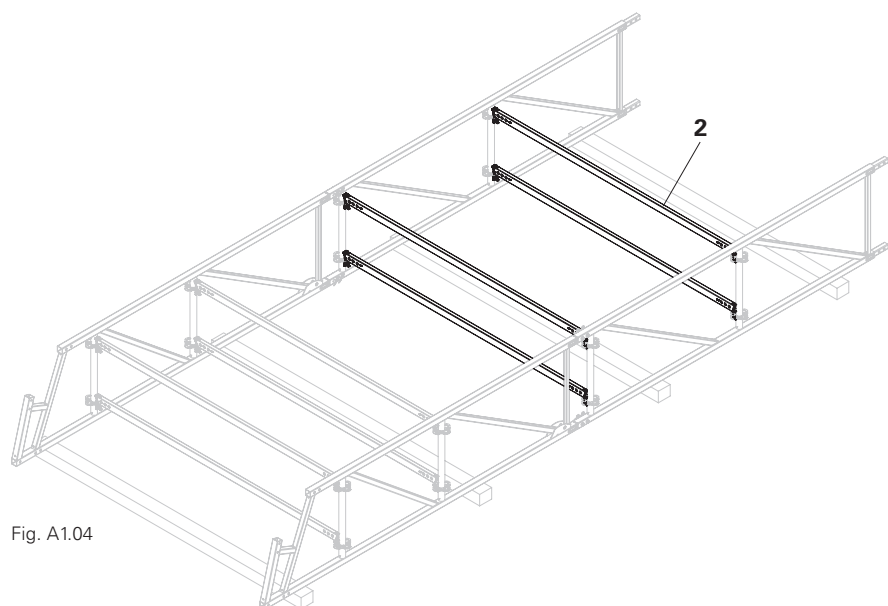


Fig. A1.04

With tension system

Installed on

- eave element.
- Standard element – but only installed as an eave element.

Components

2	Horizontal Ledger UH 250 Plus	4x
5	LGS Standard Element	
	URB 300/75	2x
6	Bolt Ø 16 x 70	8x
7	Cotter pin 4/1	8x
10b	Bolt Ø 24 x 105	2x
11	Cotter Pin 5/1	2x
50	LGS Tension System	
	Connection URU	2x

Installation on eave element

1. Push the tube of the standard element (**5**) onto the pin of the eaves element (**1**). (Fig. A1.05)
2. Slip the suspension tie connector (**50**) over the bottom chord. (Fig. A1.06a)
3. Only required for eave to standard element connection:
Fit the bolt (**10b**) and cotter pin (**11**) – from the outside inwards. (Fig. A1.05a)
→ Fixing to the eave element.
4. Insert Bolts (**6**) – from the outside to the inside – through the holes of the bottom chord and secure with cotter pins (**7**) – 2x. (Fig. A1.05a)

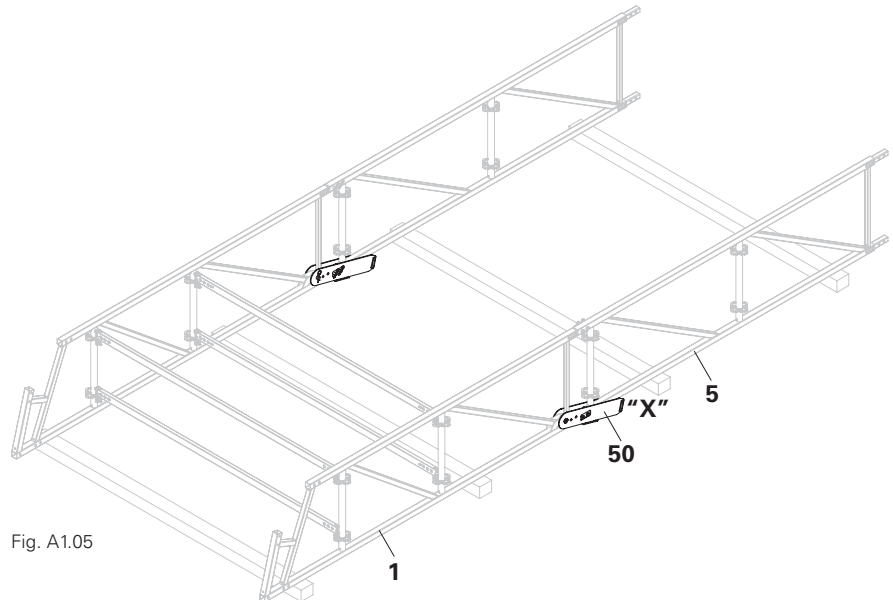


Fig. A1.05

Detail "X"

Connecting an eave element and standard element

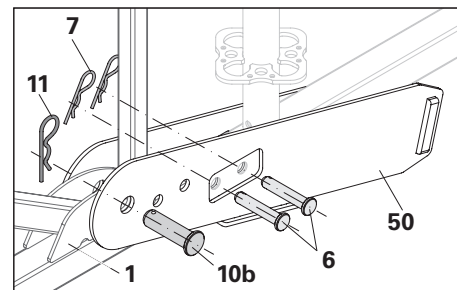


Fig. A1.05a

Alternative

Installation on standard element



Pay heed to the position of the holes when installing the standard element on the eave element.

1. Fit two standard elements (**5**) together. Ensure that the holes are congruent.
2. Slide the suspension tie connector (**50**) over the standard elements (**5**) and connect them with bolts (**6**) and cotter pins (**7**) – 2x. (Fig. A1.05b)

Alternative

Connecting two standard elements

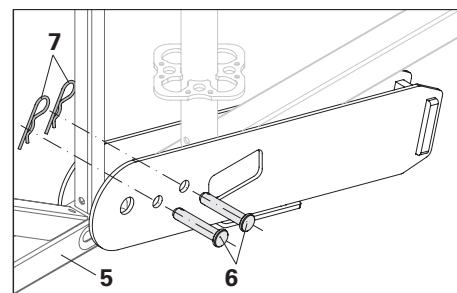


Fig. A1.05b

3. Attach horizontal ledgers (2) to the rosette on both sides (1.1) using the ledger heads and wedges (2.1). (Fig. A1.02a)
 4. Securely fix all wedges using a hammer. (Fig. A1.02a)
→ Horizontal ledgers are now secured.
- (Fig. A1.06 – without tension system)



Are all the bolts and cotter pins securely in position – right and left sides?



Fit the other components of the tension system later on, see chapter “Tie rods on both sides”, page 34 onwards.

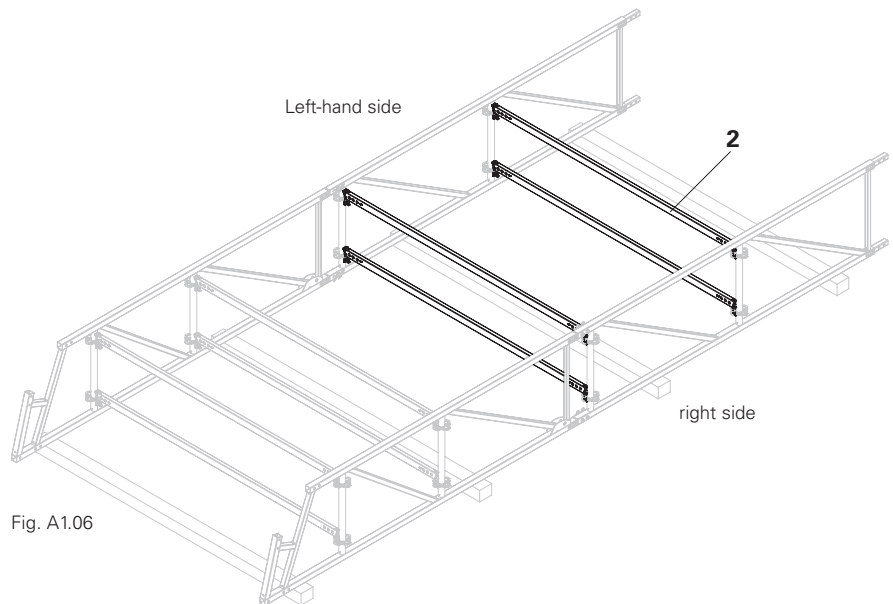


Fig. A1.06

Fitting other standard and intermediate elements



The subsequent assembly process is shown without a tension system.

Components

2	Horizontal Ledger UH-2 250	6x
5	LGS Standard Element URB 300/75	2x
6	Bolt Ø 16 x 70	16x
7	Cotter pin 4/1	16x
8	LGS Intermediate Element URB 150/75	2x

Assembly without tension system

1. Mount further standard (5) and intermediate elements (8) – until the required length is reached, see chapter “Fitting the standard elements”, page 17 onwards.
If necessary, mount intermediate elements (8) to compensate.
 2. Attach horizontal ledgers (2) to the rosette on both sides (1.1) using the ledger heads and wedges (2.1). (Fig. A1.02a)
 3. Securely fix all wedges using a hammer. (Fig. A1.02a)
→ Horizontal ledgers are now secured.
- (Fig. A1.07)

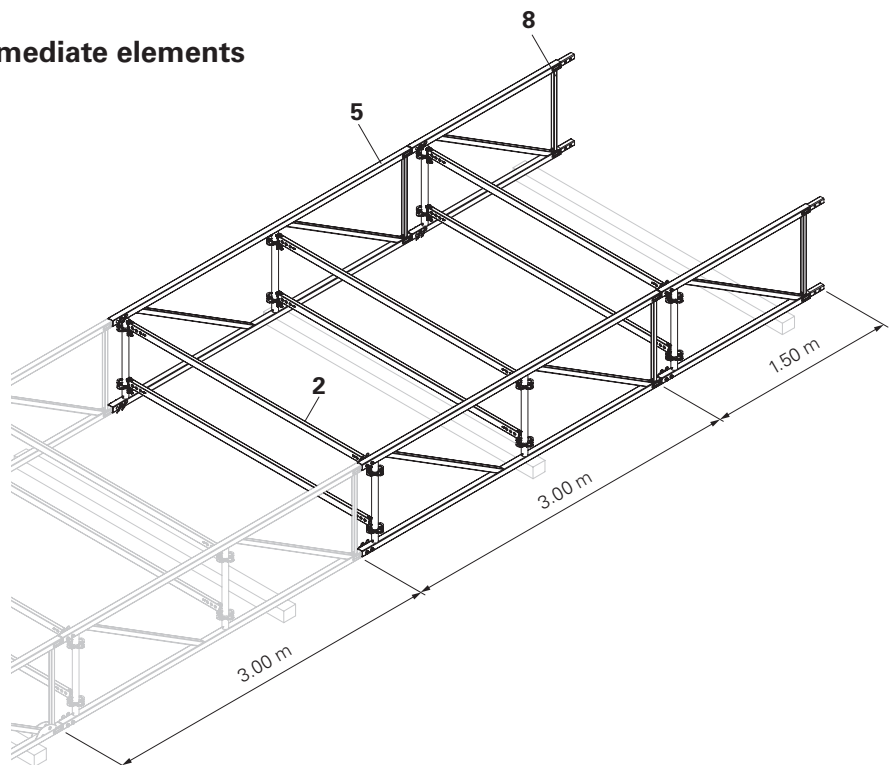


Fig. A1.07

Fitting the ridge element and ridge bar

Two ridge elements (9) and the ridge bar (19) together form the ridge, see chapter "Fitting the ridge bar", page 28 onwards.

Components

2	Horizontal Ledger UH-2 250	4x
6	Bolt Ø 16 x 70	12x
7	Cotter pin 4/1	12x
9	LGS Ridge Element URR 75	2x
19	Ridge Bar HD UR 150°	2x

Preparation

1. Remove the cotter pin (19.3) and bolt (19.2) from the rectangular tube (19.4).
 2. Set the rectangular tube (19.4), bolt (19.2) and cotter pin (19.3) to one side.
- (Fig. A1.08)

Assembly

1. Fit the tube of the ridge element (9) onto the pin of the last element (standard or intermediate element).
 2. Slip the bracket (19.1) over the ridge element. (Fig. A1.09a)
 3. Fix the bolts (6) and cotter pins (7) – 4x. (Fig. A1.09a)
→ Secured connection.
 4. Fit the bracket of the ridge bar on the left side, see steps 1 – 3.
 5. Attach horizontal ledgers (2).
- (Fig. A1.10)
6. Securely fix all wedges using a hammer. (Fig. A1.10)
→ Horizontal ledgers are now secured.



Rectangular tube (19.4) can remain in an articulated position on one side, i.e. mounted to the bracket (19.1) using a bolt. (not shown)

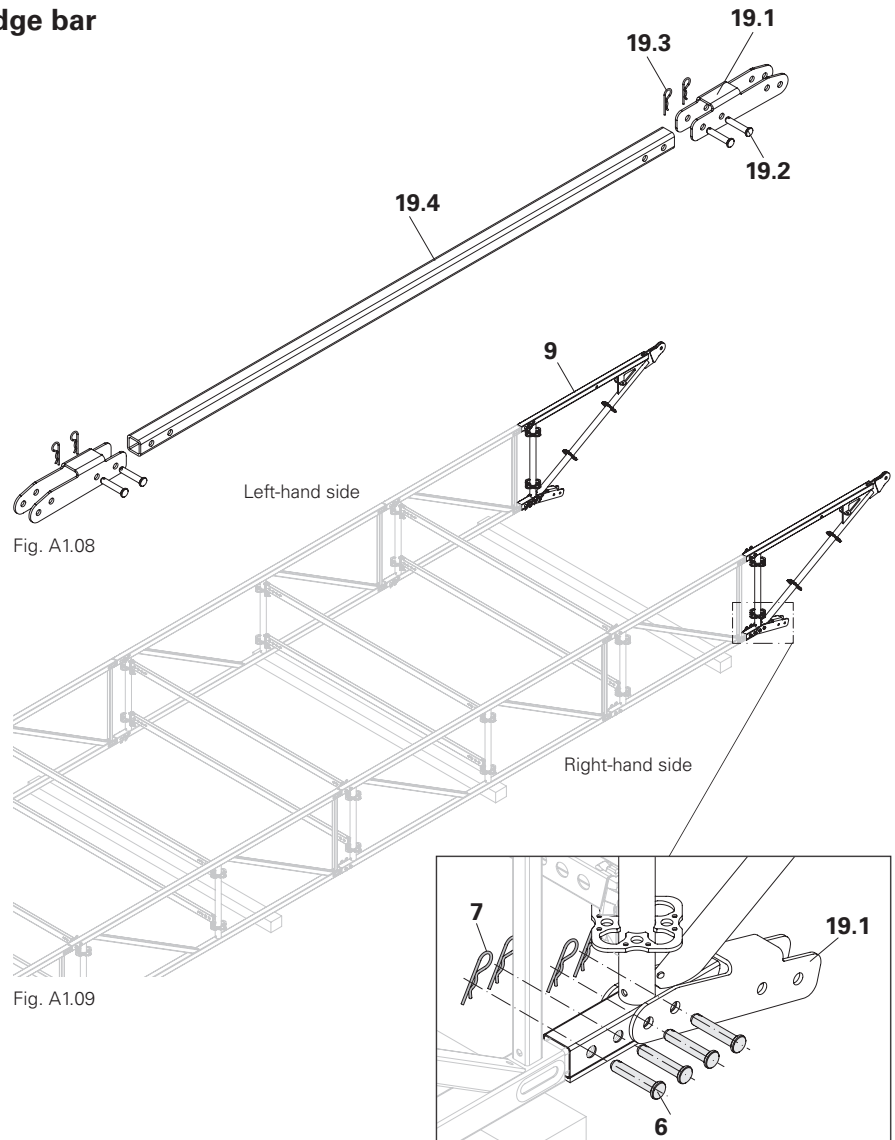
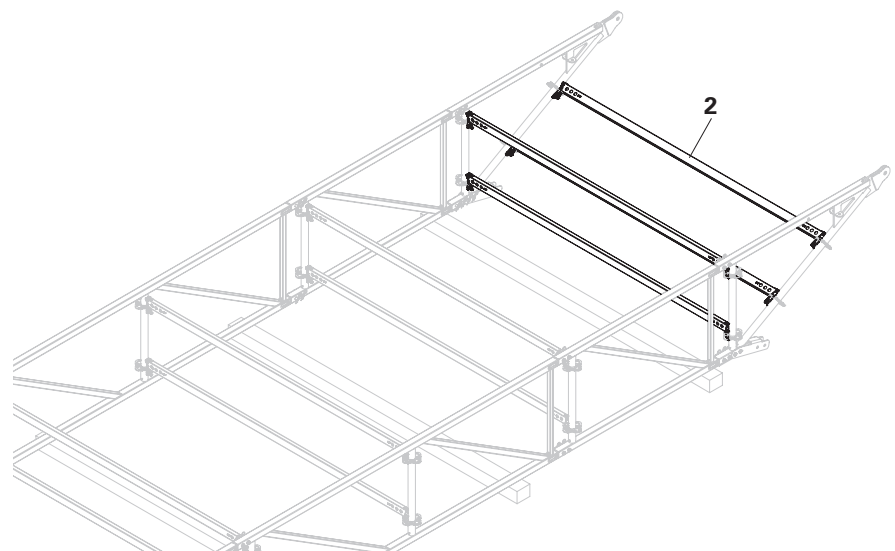
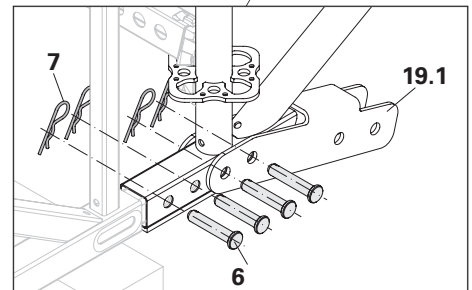


Fig. A1.09



Installing H-braces



Attention!

Important distinction

- Girder package on the gable:
 - UBH (**4a** / **4b**) necessary, therefore install, see "Span up to 15.50 m", page 48 onwards and see "Span up to 25.17 m", page 50 onwards.
- Girder package after the gable field, e.g. in the centre:
 - UBH (**4a** / **4b**) not required, so do not install it.

Components

4a	H-Brace UBH Flex 250/100	2x
4b	H-Brace UBH Flex 250/150	12x

Installing H-braces (**4a** / **4b**):

- Install first side:
 - Attach hook without slider (**4.1**) to the rosette and push down. (Fig. A1.11a + A1.11b)
- Fit second side diagonal to the first side:
 - Attach hook with slider (**4.2**) to the rosette. (Fig. A1.11c)
 - Push the slider towards the rosette until the bolt (**4.3**) falls into the longitudinal groove. (Fig. A1.11d)
 - Slider is secured.

→ First girder unit is now ready. (Fig. A1.11)



Have all sliders been secured, i.e., is each bolt (**4.3**) in the longitudinal groove?



H-Braces UBH Flex can be mounted from above or below.

Installing the first side

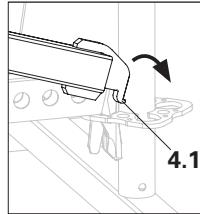


Fig. A1.11a

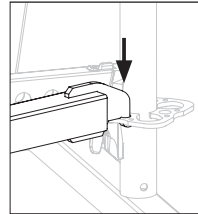


Fig. A1.11b

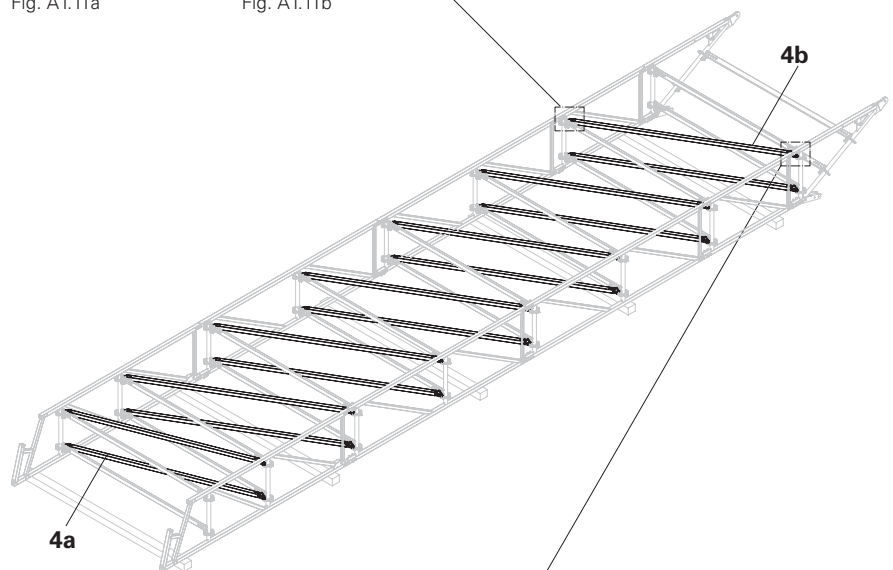


Fig. A1.11

Installing the second side

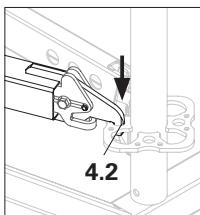


Fig. A1.11c

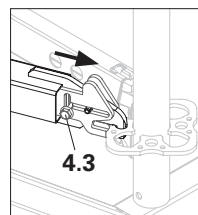


Fig. A1.11d



Slider must be pushed back in order to attach the hook.
→ Securing mechanism is released. (Fig. A1.11c)

Continuing to build the girder package

Components for second girder unit

1	LGS Eave Element URB 300/75	2x
2	Horizontal Ledger UH-2 250	18x
5	LGS Standard Element URB 300/75	4x
6	Bolt Ø 16 x 70	36x
7	Cotter pin 4/1	36x
8	LGS Intermediate Element URB 150/150	2x
9	LGS Ridge Element URR 150	2x
10a	Bolt Ø 24 x 70	2x
11	Cotter pin 5/1	2x

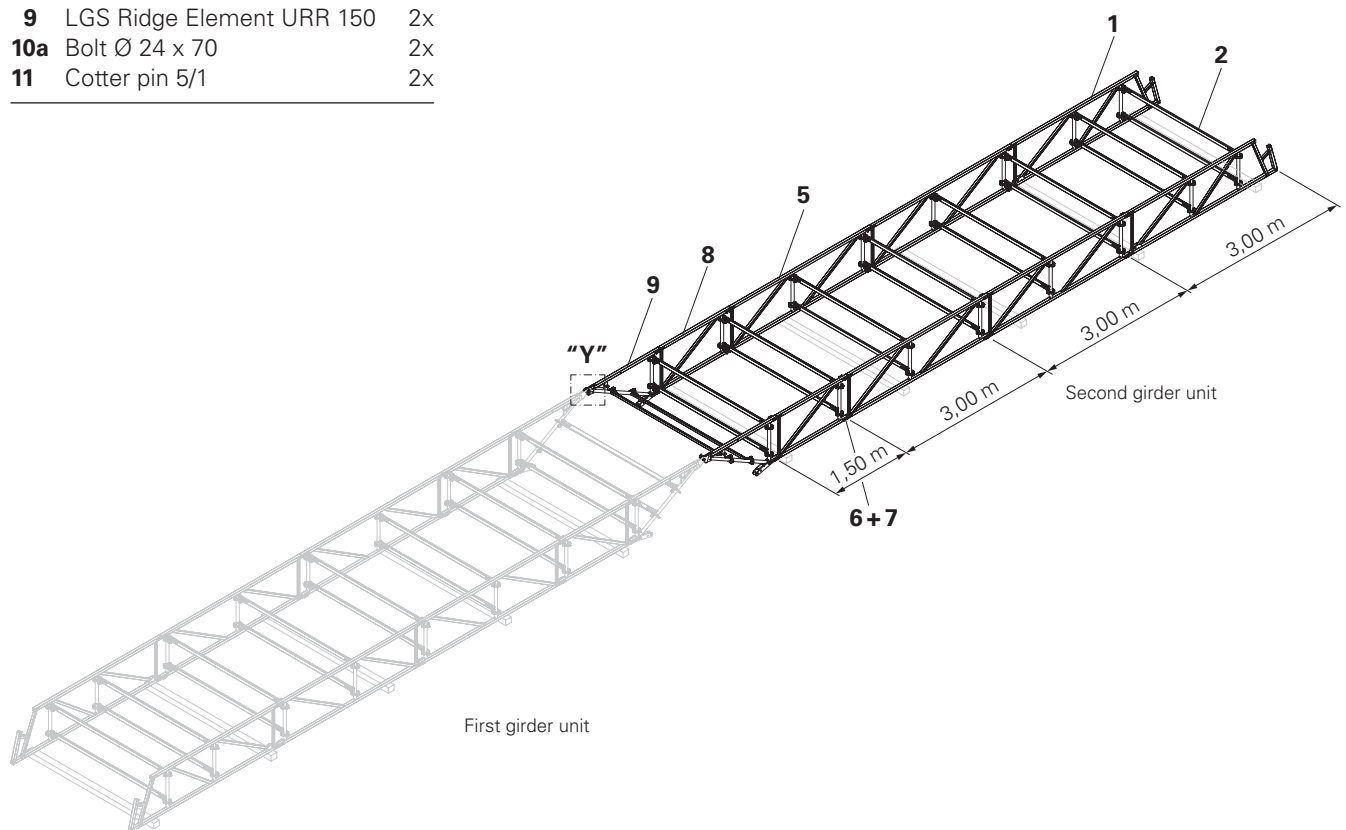


Fig. A1.13



Together, the first girder unit and second girder unit form one girder package.

Fitting the second girder unit

1. Fit the ridge element (9), see "Fitting the ridge element and ridge bar", page 20 onwards.
2. Fit other standard (5) or intermediate elements (8), see "Fitting the standard elements", page 17 onwards
3. Fit the eave element (1), see "Fitting the eave elements", page 16 onwards.
4. Only for gable girder packages:
Fit H Diagonal Rod (4a + 4b).

Connecting the first and second girder units

1. Join the brackets of the ridge elements together.
Ensure that the tube (9.1) of the first girder unit is aligned with the tube (9.2) of the second girder unit.
(Fig. A1.13a)
2. Secure bolts (10a) and cotter pins (11) – from the outside to the inside – in the holes of the head plates.
→ Secured connection.

(Fig. A1.13a)

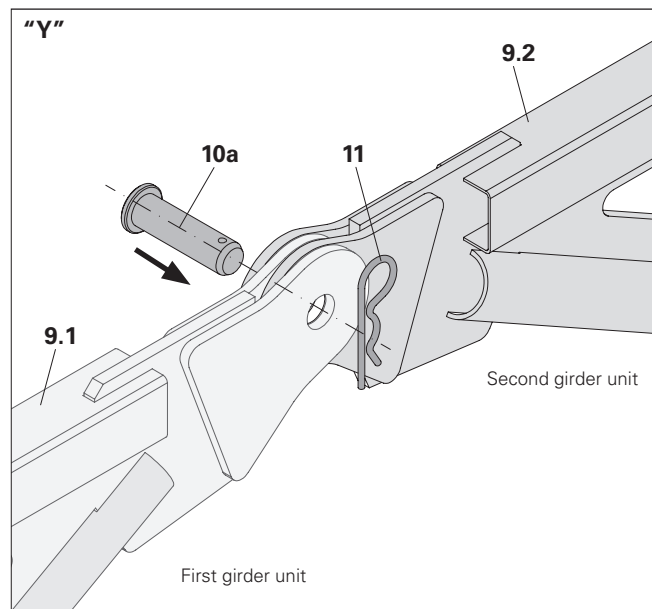


Fig. A1.13a



Are the areas of the rectangular tubes (9.1 + 9.2) aligned?

Fitting the keder track

Components

15	LGS Eave Rail URK	4x
16a	LGS Keder Track URK 600	4x
16b	LGS Keder Track URK 300	4x
16c	LGS Keder Track URK 150	4x
17	LGS Keder Connector URK	36x



- Fix Keder connections at a distance of ≤ 1.50 m.
- Valid up to wind load $q = 0.77$ kN/m².

Assembly

1. Position the eave rail (**15**) on the keder tube and top chord of an eave element (**1**). (Fig. A2.01)
2. Adjust the reference dimension 50 cm.
→ Eave rail projection on the top chord of the eave element. (Fig. A2.01a)
3. Fix the keder connector (**17**) to the eave rail. (Fig. A2.01a)

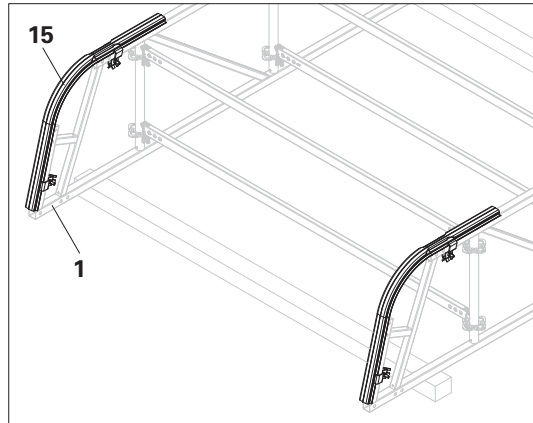


Fig. A2.01

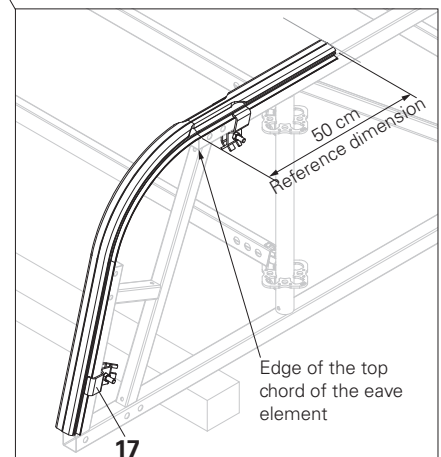


Fig. A2.01a

4. Next, position other keder tracks (**16a / 16b / 16c**) on the eave rail and fix them in place at the joint with a keder connector (**17**) at spacings of ≤ 1.5 m. (Fig. A2.02 + A2.02a)

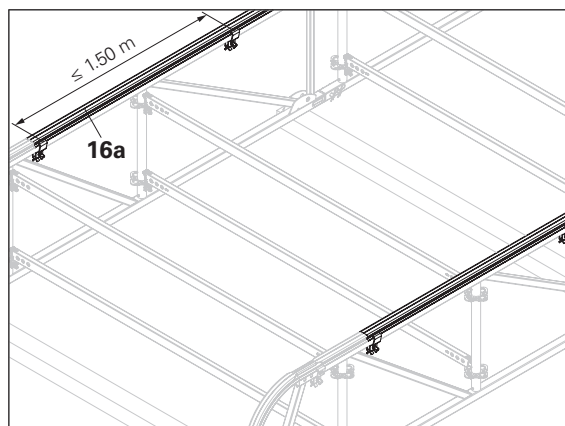


Fig. A2.02

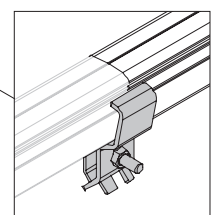


Fig. A2.02a

5. Check the reference dimension of 60 cm. (Fig. A2.03a)
 - Spacing of the last keder track from the end of the top chord to the ridge element.
 - The reference dimension of 60 cm is the placeholder for the ridge rail. (Fig. A2.03)

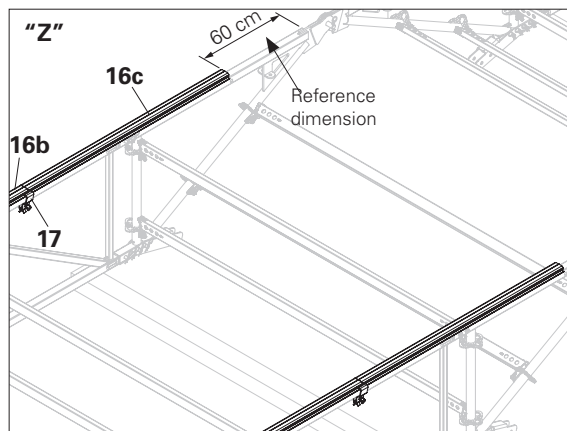


Fig. A3.03a

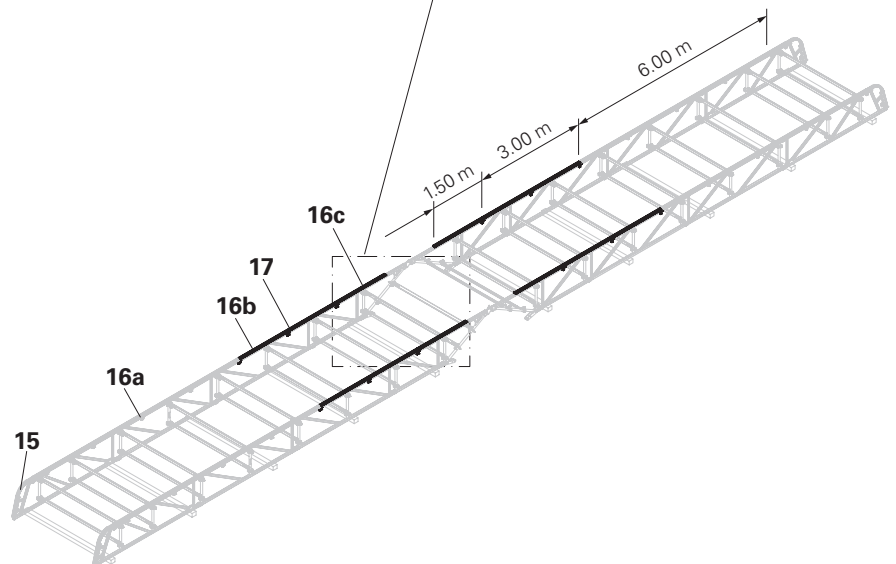


Fig. A3.03

Fitting the support roller

Support rollers

- are aids that allow you to pull up a girder package for installation of the ridge bar,
- are to be fitted onto eave, standard or intermediate elements.

Components

6	Bolt Ø 16 x 70	4x
7	Cotter pin 4/1	4x
18	Support Roller UEW unstopped	4x

Fitting a support roller

1. Insert the support roller (**18**) into the bottom chord of the eave element (**1a**).
2. Insert a bolt (**6**) – from the outside to the inside – through the outer hole of the bottom chord and secure with a cotter pin (**7**).

(Fig. A3.01 + A3.01a)

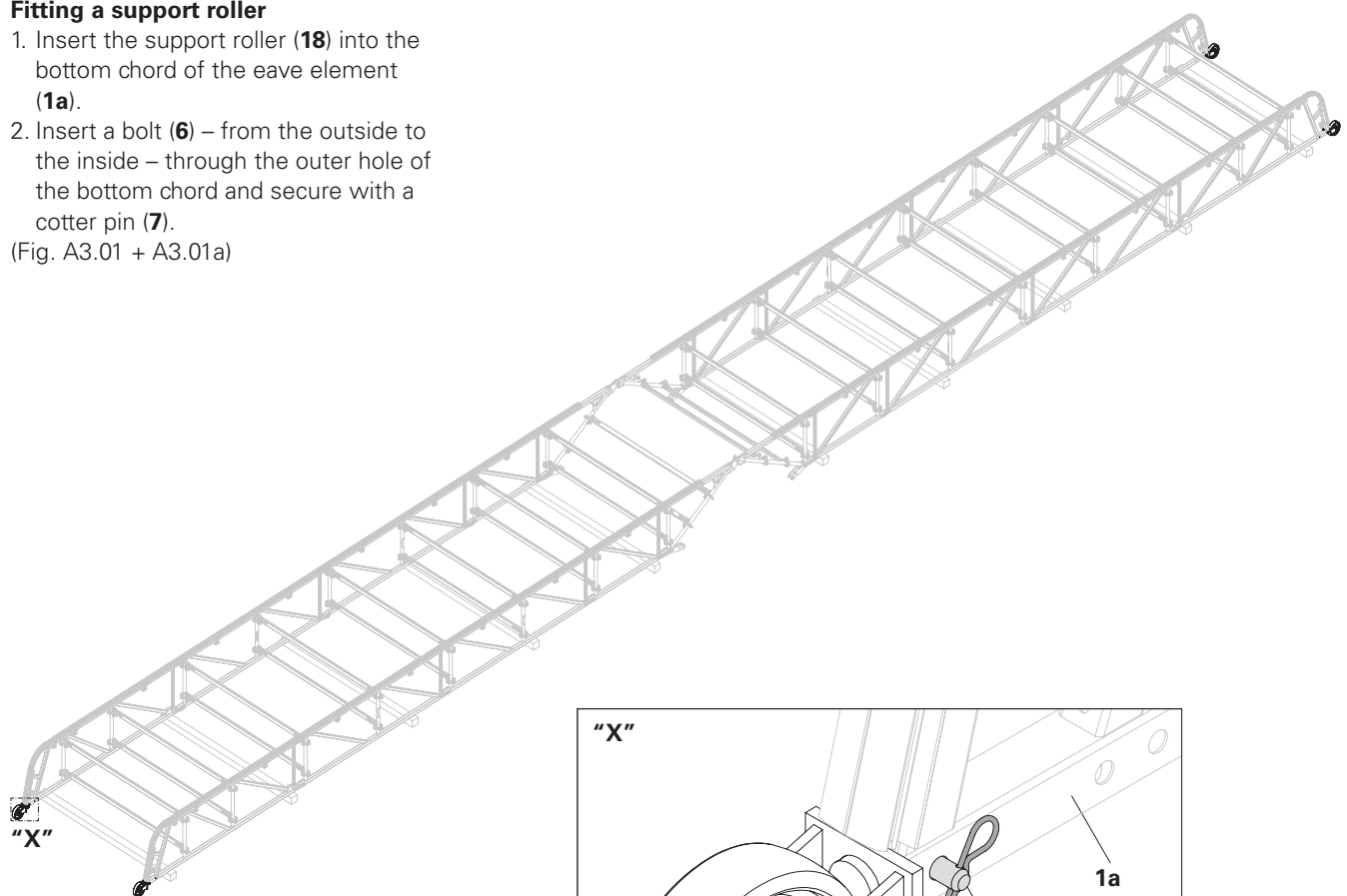


Fig. A3.01



Attach two ropes to the girder package. The keder tarpaulin can now be pulled in, see chapter "Drawing in the keder tarpaulin", page 30 onwards.

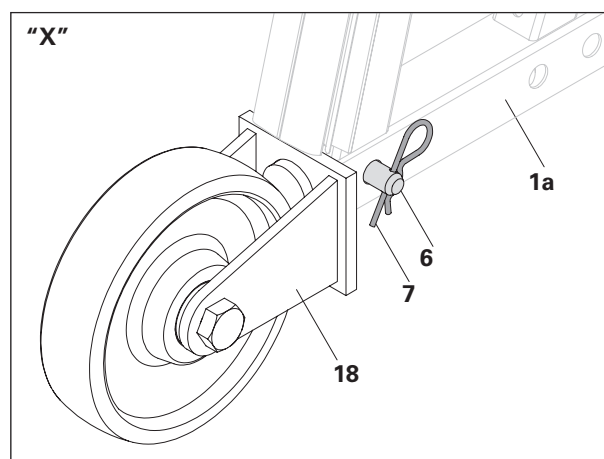


Fig. A3.01a

Attaching the girder package to the crane



Warning

People or the girder packages could fall down.

Risk of injury and falling when lifting or moving the girder package.

- ⇒ When lifting, no persons are allowed to remain on the girder package.
- ⇒ Standing under suspended loads is prohibited.



Note

Do not wrap the chains of a 4-sling lifting gear unit directly around the girder package.

When under load, the chain damages the components of the girder package.

- ⇒ When moving with the crane, use textile lifting gear, e.g. round slings.

Complete girder package

(Fig. A4.01 + A4.01a)



The PERI UP Flex Scaffold System is well-suited to hoisting applications involving relocation by crane.

However, the relocation of the load-bearing substructure is not part of the scope of these Instructions for Assembly and Use.

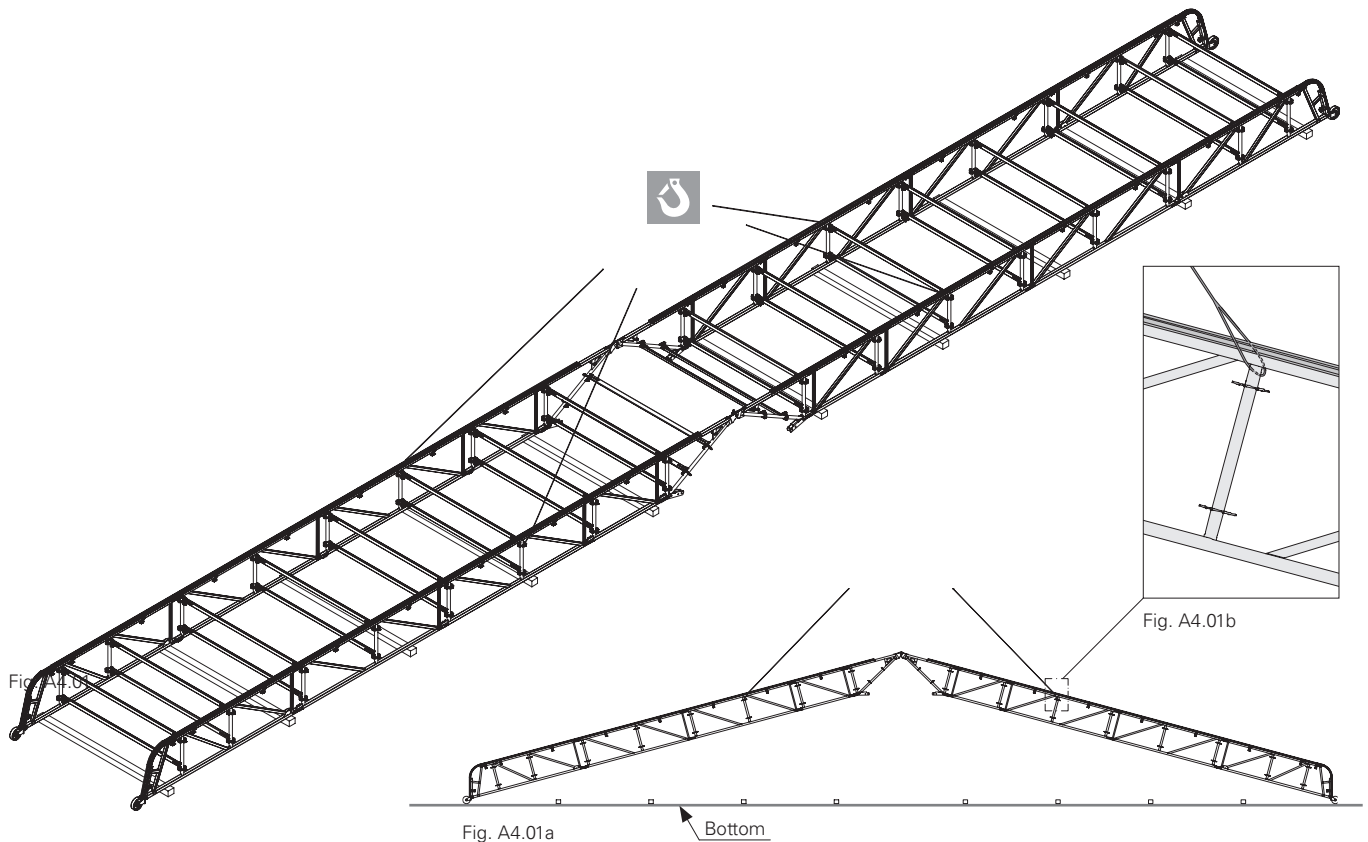
Before using the crane for relocation purposes, always ensure that:

- all wedges have been securely fixed in place using a hammer,
- all locks against lifting are engaged, no one is standing under the suspended load; to this end, guide the scaffolding with ropes.

Wrap the textile lifting gear around the leg above the top rosette – (Fig. A4.01b)

Attach the 4-sling lifting gear of the crane to textile lifting gear.

- Crane attachment points, see “Crane attachment points”, page 51 onwards.
- Weights, see chapter “Weight”, page 51 onwards.



Fitting the ridge bar



- The ridge bar determines the angle of the girder package.
- Fix the rectangular tube (19.4) of the ridge bar (9) to the brackets (19.1). For the bracket fixing process, see "With tension system", page 18 onwards.

Assembly

1. Push the rectangular tube (19.4) on one side between the brackets (19.1) of the ridge bar. (Fig. A4.02a)
2. Insert bolts through the holes and secure with cotter pins – 2x. Repeat steps 1 + 2 on the other side. (Fig. A4.02a)
3. Lift the girder package with the crane until the holes at the free end of the rectangular tube are level with the holes in the brackets of the ridge bar (19.5). (Fig. A4.02b)
4. Insert bolts through the holes and secure with cotter pins – 2x. (Fig. A4.02 + A4.02c)

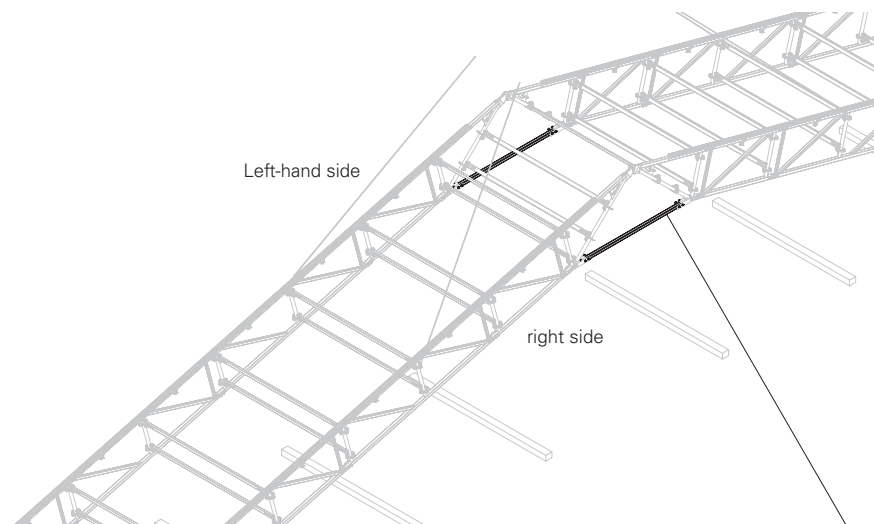


Fig. A4.02

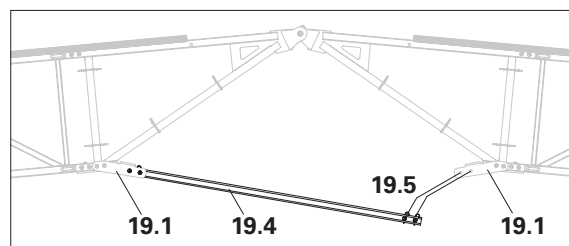


Fig. A4.02a

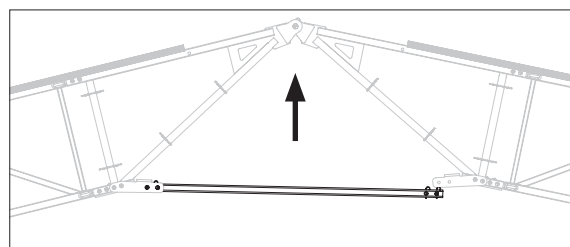


Fig. A4.02b

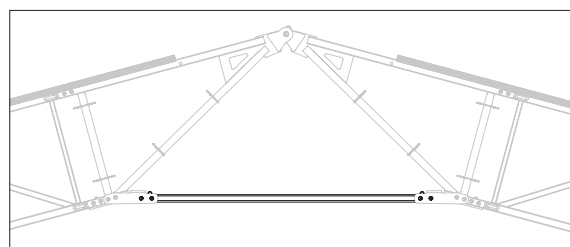


Fig. A4.02c

Fitting the ridge rail

Components

17	LGS Keder Connection URK	8x
22	LGS Ridge Rail URK 150	2x

Assembly

1. Place ridge rail (**22**) on the top chord of the ridge element.
 2. Secure the keder connector (**17**) at the joint of the ridge rail and keder rail – 2x.
 3. Fit another keder connector.
- (Fig. A4.03 + A4.03a)

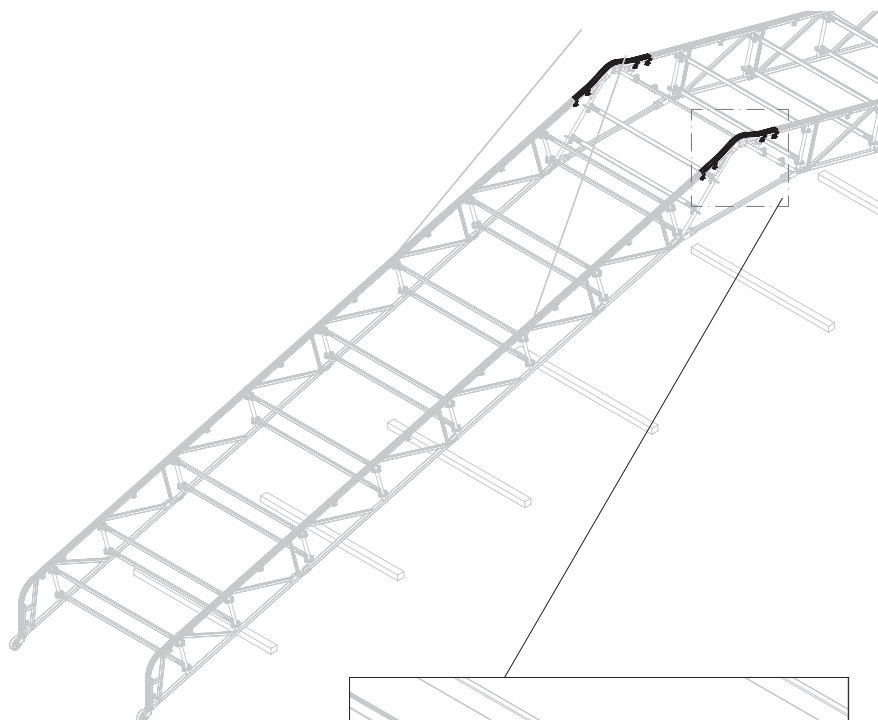


Fig. A4.03

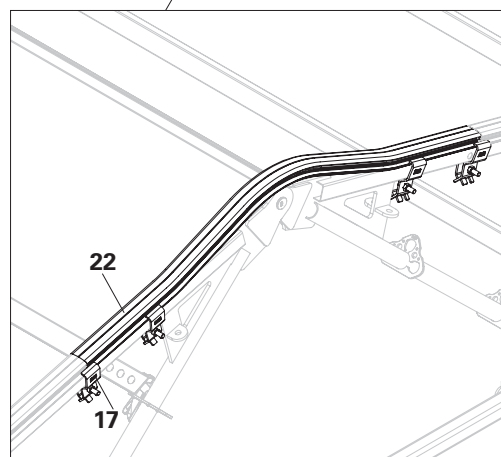


Fig. A4.03a

Fitting the reel connector

Components

23	LGS Reel Connector URG	2x
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Preparation

1. Remove the nut (**23.4**) from the bolt (**23.3**) of the reel connector (**23**).

Assembly

1. Fix the reel connector (**23**) to the eave rail with bolts (**23.3**) and nuts (**23.4**) – 2x.

(Fig. A5.01 + A5.01a)



Fix the reel connector to the top holes. As a result, the tarpaulin can be pulled linearly into the guide.

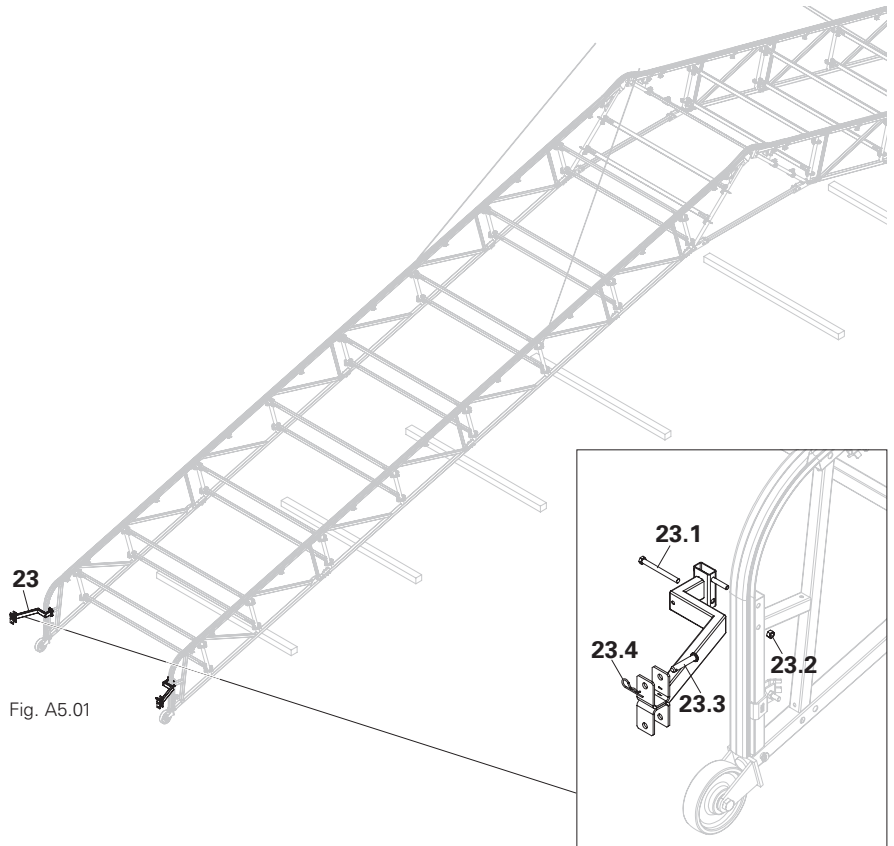


Fig. A5.01

Fig. A5.01a

Drawing in the keder tarpaulin

Components

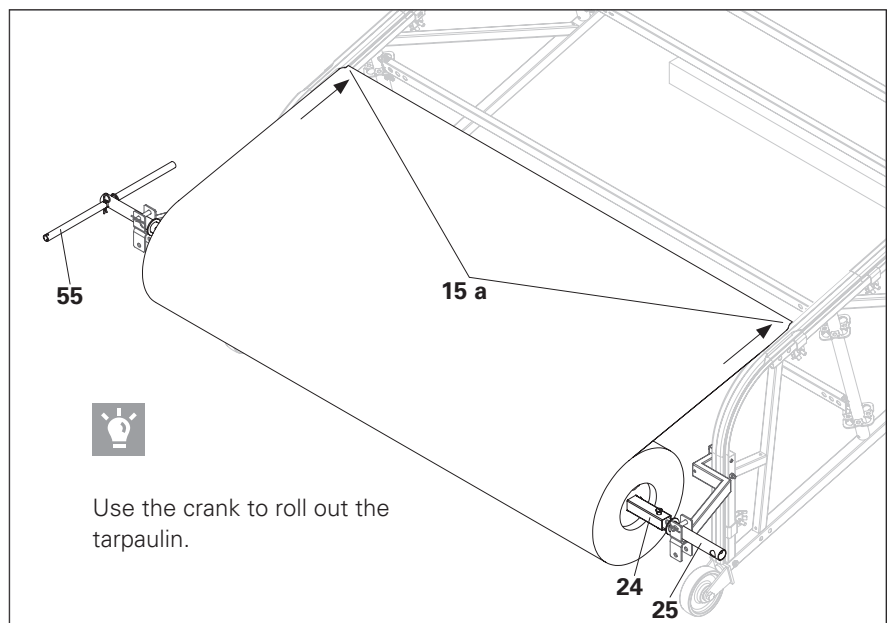
24	LGS Tarpaulin Reel URG 250	1x
25	LGS Handle URG	2x
55	LGS Crank URG	1x

Preparation

1. Remove the cotter pin (**23.4**) and bolt (**23.3**) from the reel connector (**23**). (Fig. A5.01a)
2. Fit the handle (**25**) onto the tarpaulin reel (**24**).

Assembly

1. Place the tarpaulin reel with the handles on both sides in the bearing plates of the reel connector. (Fig. A5.01a + Fig. A5.02)
2. Fix the bolts (**23.3**) and cotter pins (**23.4**).
→ The tarpaulin reel is secured.
3. Feed the keder cord into the groove of the eave rails (**15a**). (Fig. A5.02)



Use the crank to roll out the tarpaulin.

Fig. A5.02

4. Attach the rope.
 5. Pull the keder tarpaulin smoothly and evenly over the girder package and allow the tarpaulin to hang loosely.
 6. Detach the rope.
 7. Feed the ends of the keder tarpaulin on the eave element into the groove of the eave rail.
 8. Pull the tarpaulin downwards.
 9. Unwind the last piece of the keder tarpaulin from the roller.
 10. Remove the handle and tarpaulin reel.
 11. Feed the keder cord into the groove.
 12. Pull the tarpaulin downwards.
- (Fig. A5.04)

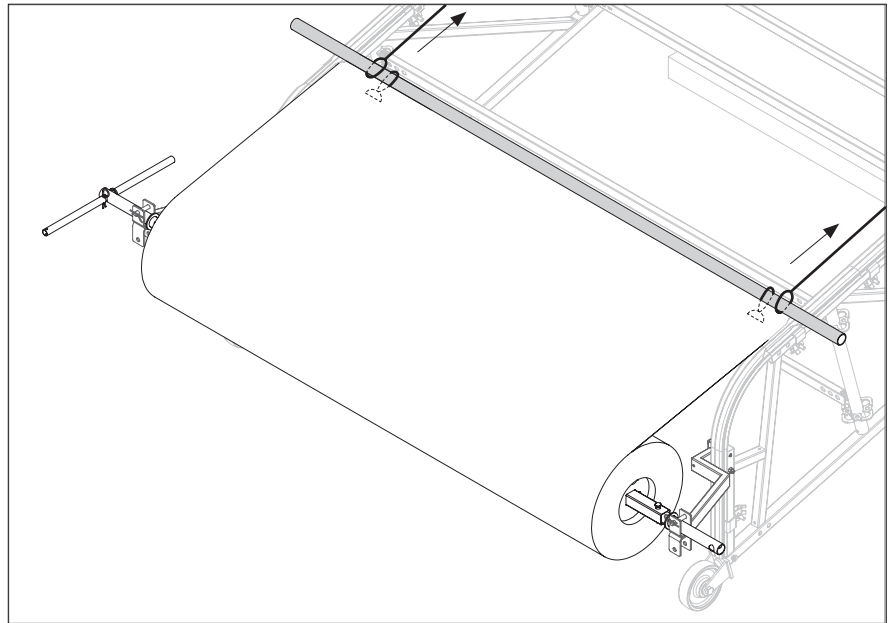


Fig. A5.03



- Place the tube on the keder rails and connect to the keder tarpaulin.
- Attach ropes to the tube. This allows the keder tarpaulin to be pulled easily over the girder package.
- Keep the keder tarpaulin tensioned on the roller, thus allowing the tarpaulin to be pulled straight.

(Fig. A5.03)

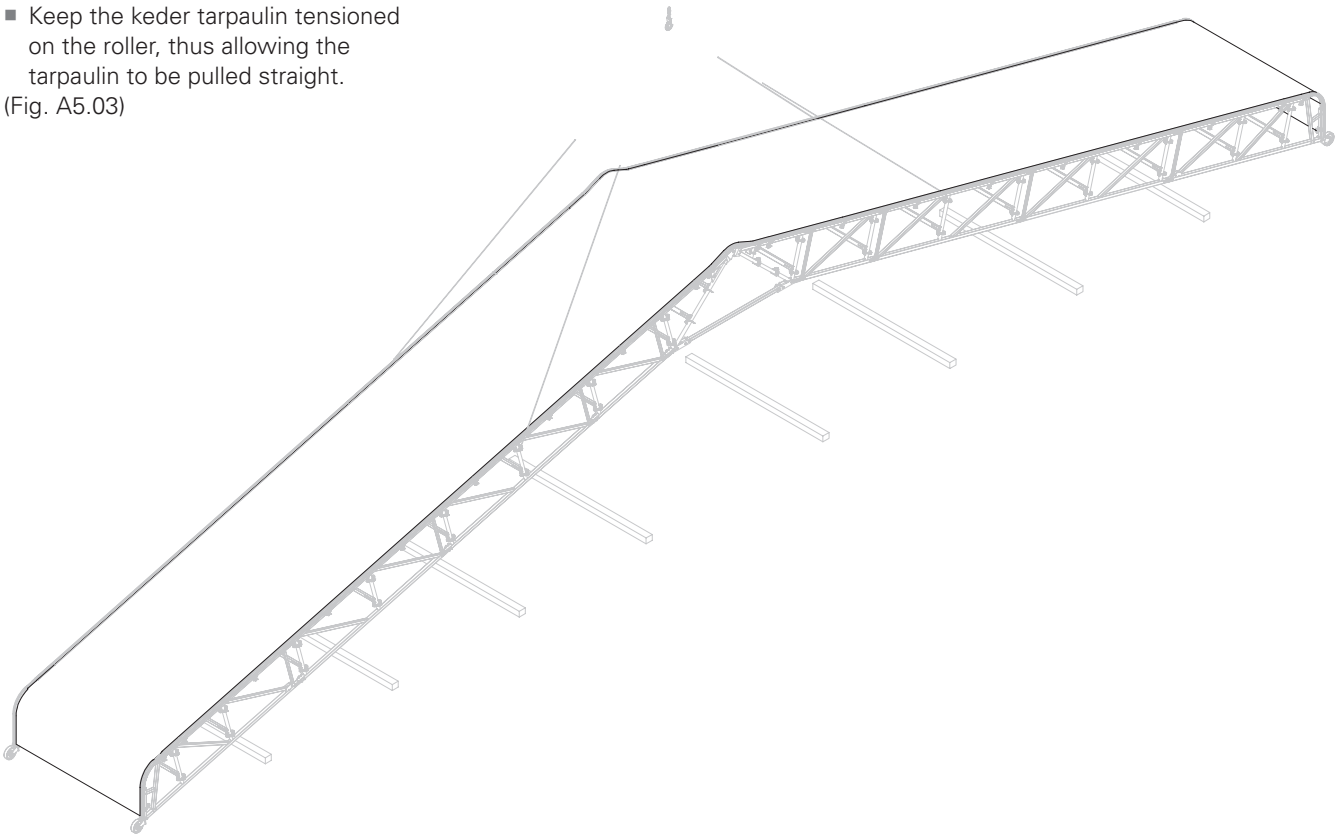


Fig. A5.04

Fitting the support

The support is designed for roofs with a 15° angle of inclination. (Fig. A6.01)

Components

2	Horizontal Ledger UH-2 250	2x
6	Bolt Ø 16 x 70	12x
7	Cotter pin 4/1	12x
26	LGS Support URS 15°	4x

Preparation

1. Continue to raise the girder package with the crane.
2. Dismantle the support rollers – 4x.

Fitting a support

1. Attach the support (**26**) to the eave element with bolts (**6**) and secure with cotter pins (**7**):
 - 2x below on the side of the leg through the holes of the support and eave element,
 - 1x above the bottom chord of the eave element.
2. Install the horizontal ledger (**2**) - 2x. (Fig. A6.01a)

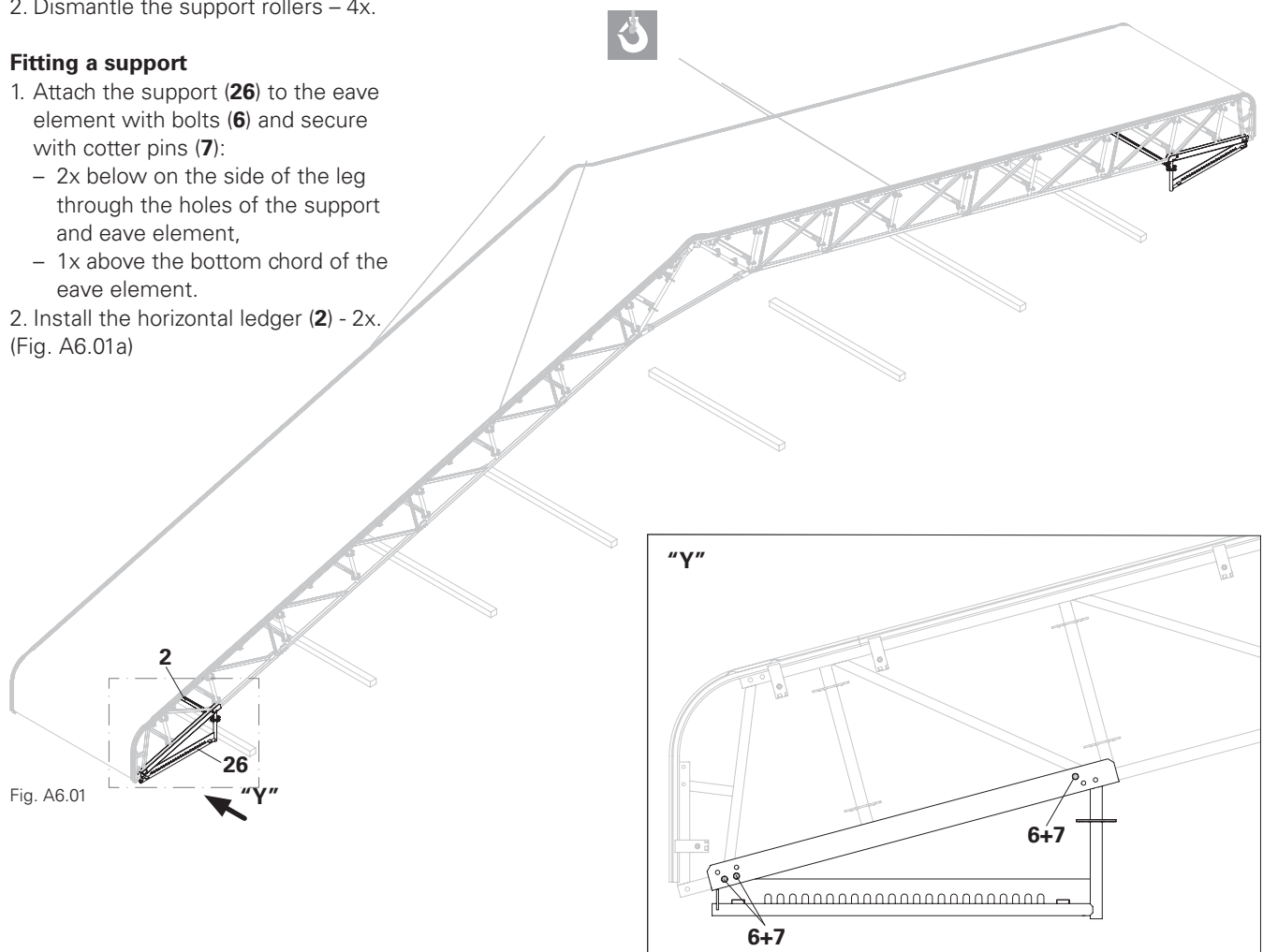


Fig. A6.01

Fig. A6.01a

Preparation

Larger spans are possible through the use of the tension system.



- Girder package must be placed on the ground for installing the tension system, and must not be suspended on the crane. (Fig. A7.01a)
- Suspension tie connector on standard element as eave element, .

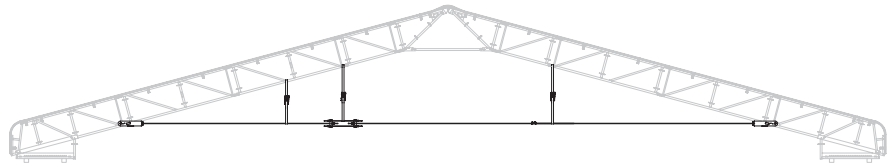


Fig. A7.01a

Preparation

Suspension Tie Connector URU is pre-assembled on eave element, see "With tension system", page 18 onwards.

Complete tension system fitted

(Fig. A7.02)

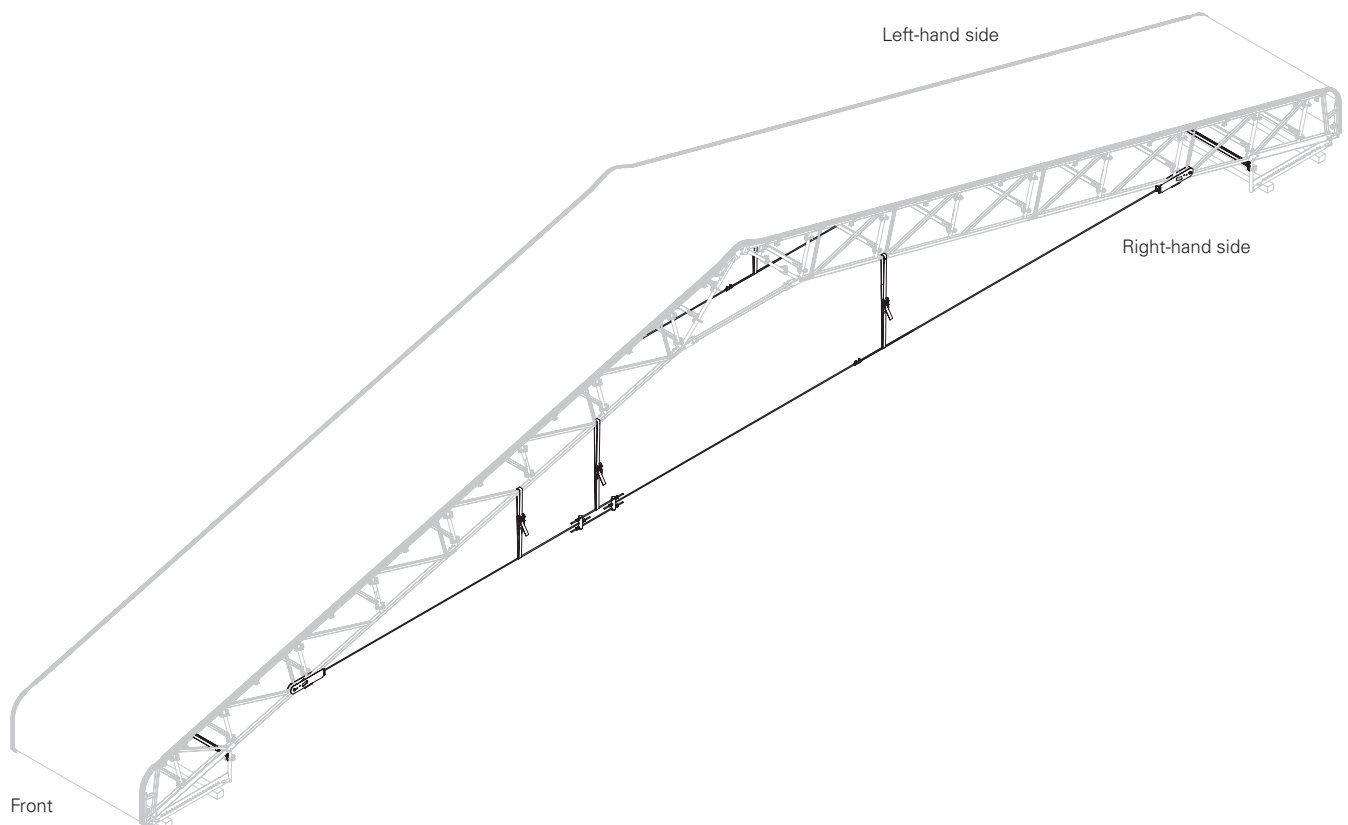


Fig. A7.02

Tie rods on both sides

Components

27a	Tie Rod DW 15, L = 6 m	4x
51	Tension Belt PTB 12	6x

Assembly

1. Screw Tie Rod DW 15 (**27a**) into the hole of the tension system connection (**50**) – 2x, front and rear. Make sure there is a projection >100 mm! (Fig. A7.03a)
2. Wrap tension belts (**51**) around the bottom chord of the standard elements.

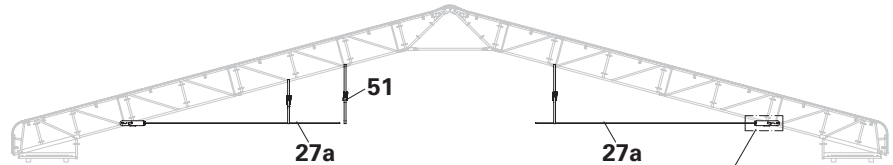


Fig. A7.03

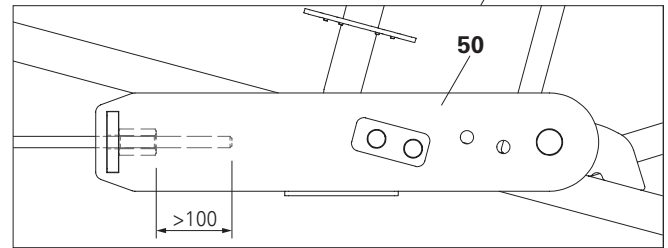


Fig. A7.04

Fig. A7.03a – Suspension tie connector on the eave element

Tie rod extensions

Components

27b	Tie Rod DW 15, L = 5 m	2x
52	Tension System Connector URU	2x

Preparation

1. Open the locking screw (**52b**).

Assembly

1. Turn tie rod extension (**52**) with hex. nut (**52.1**) on the free end of a tie rod as far as possible.
2. Screw the hex. nut (**52.1**) back until the flat side of the tie rod (**27a/27b**) is perpendicular to the bolt (**52.2**).
3. Hand-tighten* the bolt (**52.2**) on the screwed-in tie rod.
4. Screw-in an additional tie rod (**27a / 27b**) into the other end of the hex. nut of the tie rod extension as far as possible. (Fig. A7.04a) → Tie rods are coupled.
5. Screw the hex. nut back until the flat side of the tie rod is perpendicular to the bolt. (Fig. A7.04b + c)
6. Hand-tighten* the second hex. bolt (**52.2**). (Fig. A7.04b + c) → Coupled tie rods are secured.
7. Fix tension belt (**51**) to the freely suspended tie rod.

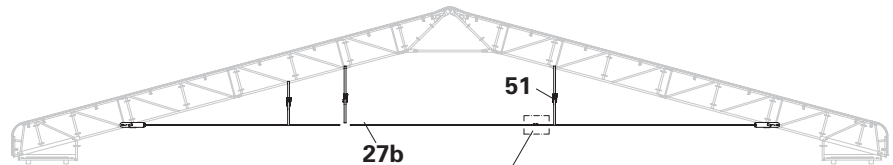


Fig. A7.04a

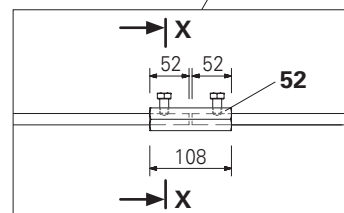


Fig. A7.04b

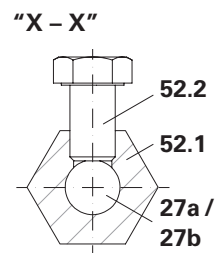


Fig. A7.04c

* hand-tightened = approx. 20 – 30 Nm

Tension system connector



Girder package must be placed on the ground when tensioning the tension system, and must not be suspended on the crane.

Components

27c	Tie Rod DW 15, L = 1 m	4x
53	Anchor Tie Yoke URU	4x
54	Hex. Nut DW 15 SW 30/50	12x

Assembly

1. Push the middle hole of the anchor tie yoke (**53**) over the end of the tie rod (**27a/ 27b**).
2. Loosely screw hex. nut (**54**) onto the tie rod (**27a/27b**).
Allow projection > 100 mm!
3. Repeat steps 2 + 3 on the other tie rod.
4. Push two tie rods (**27c**) through the outer holes of both anchor tie yokes.
5. Screw hex. nut (**54**) onto each of the projecting ends of the tie rods (**27c**) – 4x. Allow projection > 100 mm!
(Fig. 7.05 a)
6. Fix the tension belt (**51**) to one of the short tie rods.
7. Tighten middle hex. nut (**54**) until the reference dimension of the respective span is reached – 2x.
For reference dimensions for various spans, see page 48 to page 50.
(Fig. A7.05)



- Check the projecting tie rod (**27a**) – dimension > 100 mm – in the suspension tie connector.
(Fig. A7.03a)
- Check tightness of bolts M12 x 20 of the tie rod extensions.
(Fig. A7.04b +c)
- Check projecting tie rod (**27b**) – dimension > 100 mm, 6x – in the tension system connector.
(Fig. A7.05a)
- Check reference dimension and adjust if necessary. (Fig. A7.06)

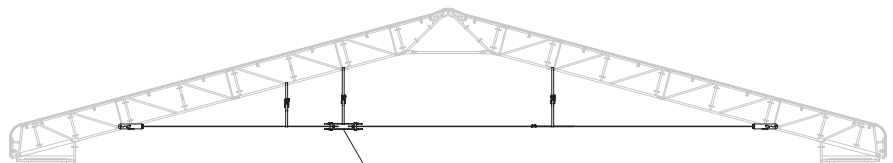


Fig. A7.05

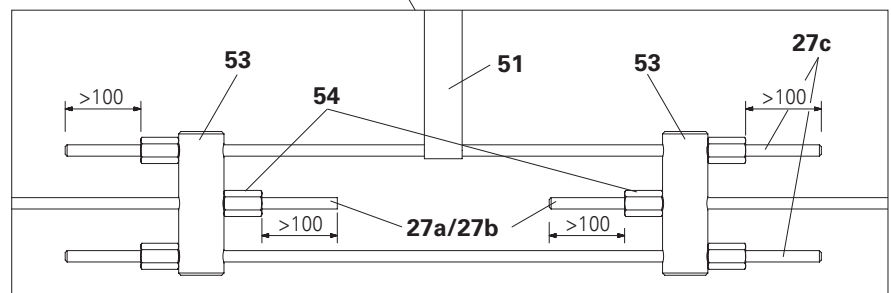


Fig. A7.05a

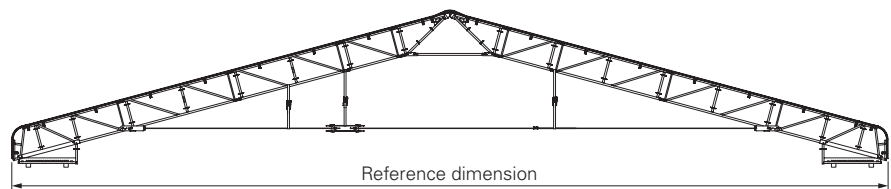


Fig. A7.06

Fitting ledgers



■ Attention!

Important distinction

The pattern of the weather protection roof

- either marries up with the load-bearing substructure, variant 1. (Fig. A8.01)
- does not marry up with the load-bearing substructure, variant 2. (Fig. A8.02)
- The load-bearing substructure
 - starts with the lower edge of the ledger (28).
 - is not the subject of these Instructions for Assembly and Use.
- The length "X" of the ledger is possible in four sizes
 - URL 67/14
 - URL 75/14
 - URL 100/14
 - URL 150/14 – shown here

Variant 1

Components

28 Ledger URL 150/14	3x
29 Bolt ISO 4014-M10x100	6x
30 Nut ISO 7042 4032-M10	6x

Assembly

1. Fit the ledger (28) onto the ends of the standard – 3x. Ensure that the row of holes is at the top. (Fig. A8.01 + A8.01a)
2. Fit the bolt (29) and nut (30) onto the ledger and leg – per ledger – 2x. (Fig. A8.01b)



Is the row of holes at the top?



In the further structure, a distinction is made between two variants:

- Moveable unit – with carriage, see chapter "A9 Mobile girder package", page 43 onwards.
- Fixed unit – with bearer, see chapter "A10 Fixed girder package", page 44 onwards.

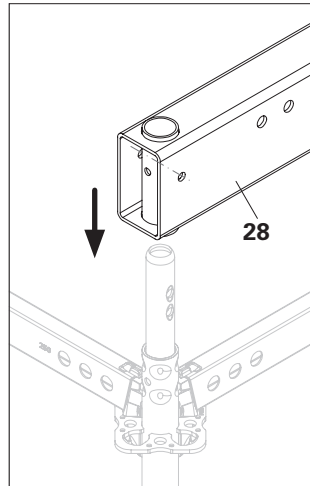


Fig. A8.01a

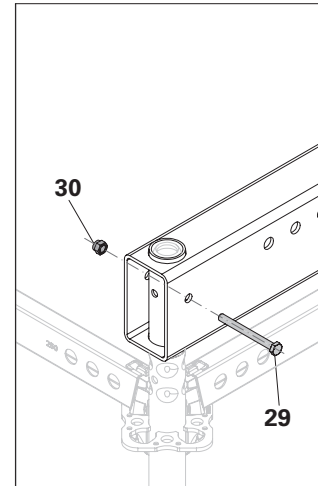


Fig. A8.01b

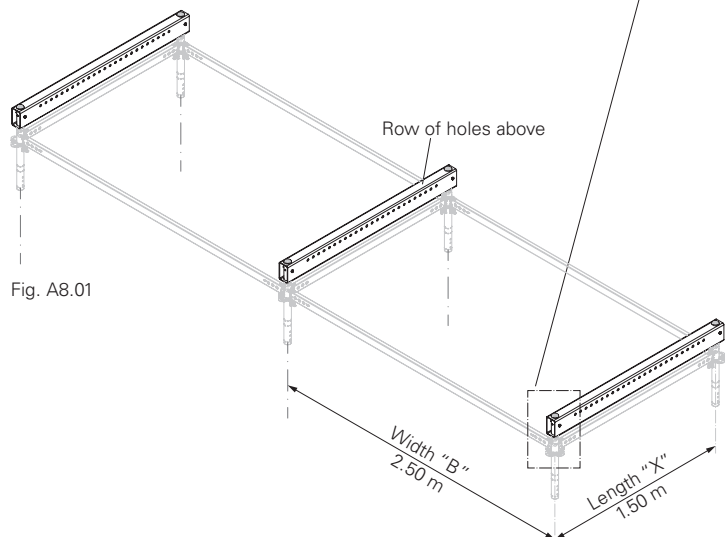


Fig. A8.01



When setting up the load-bearing substructure, pay attention to how the standards are aligned.

Variant 2 Components

3 Horizontal Ledgers UHV 250 Plus	*2x
28 Ledger URL 150/14	1x
39 Ledger-to-Ledger Coupler UHA-2 Half with Pin	*2x
40 Locking Pin Ø48/57	*2x

* 2x each ledger

Assembly

1. Fit the Horizontal Ledger UHV (**3**) onto the load-bearing substructure.
2. Fit the ledger-to-ledger coupler (**39**) onto the horizontal ledger (**3**) in 25-cm increments. (Fig. A8.02a)
3. Place the ledger (**28**) on the ledger-to-ledger coupler (**39**).
4. Secure the ledger (**28**) and the ledger-to-ledger coupler (**39**) with the locking pin (**40**). (Fig. A8.02b)



As an alternative to the UHA-2 Half with Pin, the UH-2 Pin can also be used.

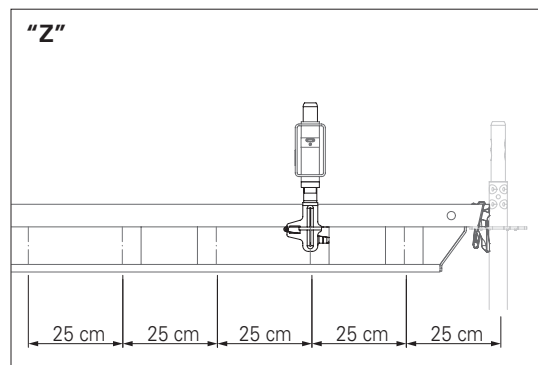


Fig. A8.02a

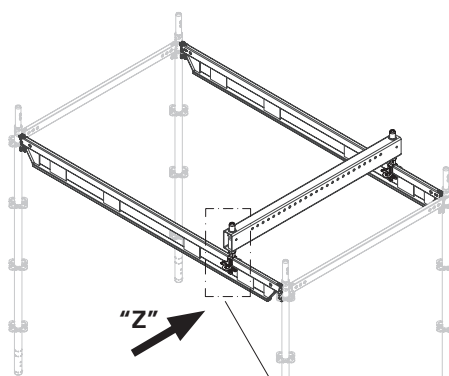


Fig. A8.02

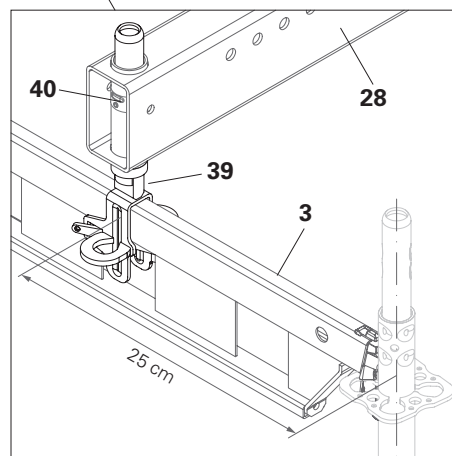


Fig. A8.02b

Support points for ledger on UHV

- The following tables show the distance from the standard to the UHA-2 Half Ledger-to-
ledger Coupler with Pin. The load is
 - conservatively set once on a UHV Ledger (P_{z1} 100%), see Fig. B8.04.
 - in the middle of the Ledger URL (P_{z1} 50%), see Fig. B8.05.
- For reasons of clarity, the distance a is given for all UHV Ledger lengths together. For a closer look, a larger distance a may be possible for the respective UHV Ledgers with shorter ledger lengths, see the PERI UP Table Book. (Fig. A8.03)



Fig. A8.03

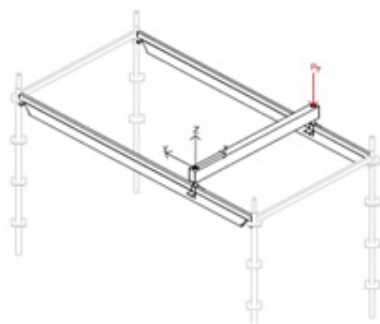


Fig. A8.04

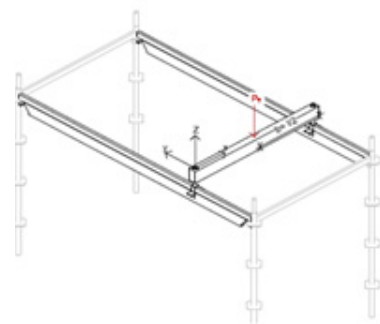


Fig. A8.05

Span 15.50 m Single girder package

With tension system				
q [kN/m ²]	B [m]	s [kN/m ²]	for all UHV	
			P_z 100% [cm]	P_z 50% [cm]
0.35	3.00	0.10	50	centre
0.56	3.00	0.10	25	50
0.77	2.50	0.10	25	50
0.35	3.00	0.25	50	75
0.56	3.00	0.25	25	50
0.77	2.50	0.25	25	50
0.35	1.50	0.60	50	centre
0.56	1.50	0.60	25	75
0.77	1.50	0.60	25	50

Tab. 02

Without tension system				
q [kN/m ²]	B [m]	s [kN/m ²]	for all UHV	
			P_z 100% [cm]	P_z 50% [cm]
0.35	3.00	0.10	50	centre
0.56	3.00	0.10	25	50
0.77	2.50	0.10	25	50
0.35	2.50	0.25	50	centre
0.56	2.50	0.25	25	50
0.77	2.50	0.25	25	50

Tab. 03

Span 20.30 m

Girder package single or double

With tension system					
Girder package	q [kN/m ²]	B [m]	s [kN/m ²]	for all UHV	
				P _Z 100% [cm]	PZ 50% [cm]
Single	0.35	3.00	0.10	50	75
Single	0.56	2.00	0.10	25	50
Double	0.77	1.00	0.10	25	75
Single	0.35	2.50	0.25	25	50
Single	0.56	2.00	0.25	25	50
Double	0.77	1.00	0.25	25	50
Single	0.35	1.00	0.60	25	75
Double	0.56	1.00	0.60	25	75
Double	0.77	1.00	0.60	25	50

Tab. 04

Without tension system					
Girder package	q [kN/m ²]	B [m]	s [kN/m ²]	for all UHV	
				P _Z 100% [cm]	PZ 50% [cm]
Single	0.35	2.50	0.10	50	75
Single	0.56	1.50	0.10	25	75
Double	0.77	1.00	0.10	25	75

Tab. 05

Span 25.17 m

Girder package single or double



Span 25.17 m only possible with tension system.

With tension system					
Girder package	q [kN/m ²]	B [m]	s [kN/m ²]	for all UHV	
				P _Z 100% [cm]	PZ 50% [cm]
Single	0.35	1.50	0.10	50	100
	0.56	–	–	–	–
	0.77	–	–	–	–
Double	0.35	1.00	0.25	50	centre
	0.56	–	–	–	–
	0.77	–	–	–	–

Tab. 06

Fitting the rail support

Connects the rail with the ledger.

Components

6b	Bolt Ø 16 x 150	3x
7	Cotter pin 4/1	3x
31	Rail Support URF	3x

Fitting a rail support

1. Place the rail support (**31**) on the ledger (**28**).
2. Secure the rail support on the ledger by means of bolts (**6b**) and cotter pins (**7**).

→ Secured connection

(Fig. A9.01 + A9.01a)



The exact position of the rail support (**31**) with the hole to be used is project-related and provided in the project drawing.

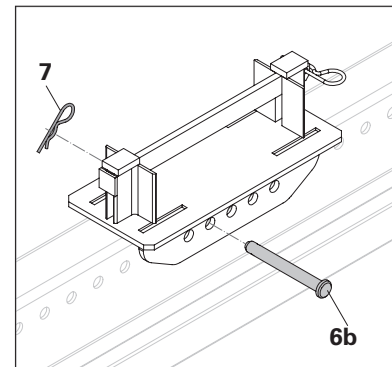


Fig. A9.01a

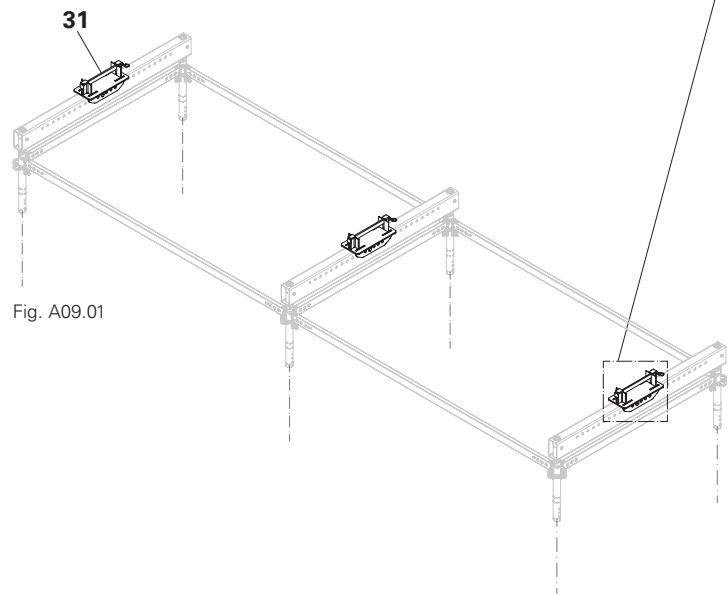


Fig. A09.01

Fitting the rail

The girder packages are moved on the rail.



The length "B" of the Rail URT has four different sizes:

- URT 150
- URT 200
- URL 250 – shown here
- URT 300

Components

32	Aluminium Rail URT 250	2x
33	Rail End Piece URD	1x

Preparation

1. Remove cotter pin (**31.1**) from the holder (**31.2**).
2. Pull out the holder (**31.2**).

"X" – view rotated

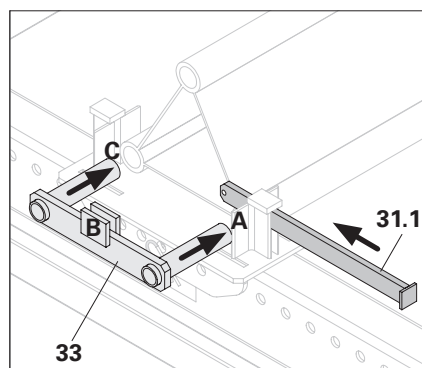


Fig. A9.02a

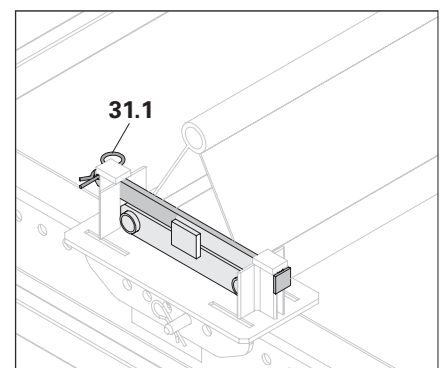
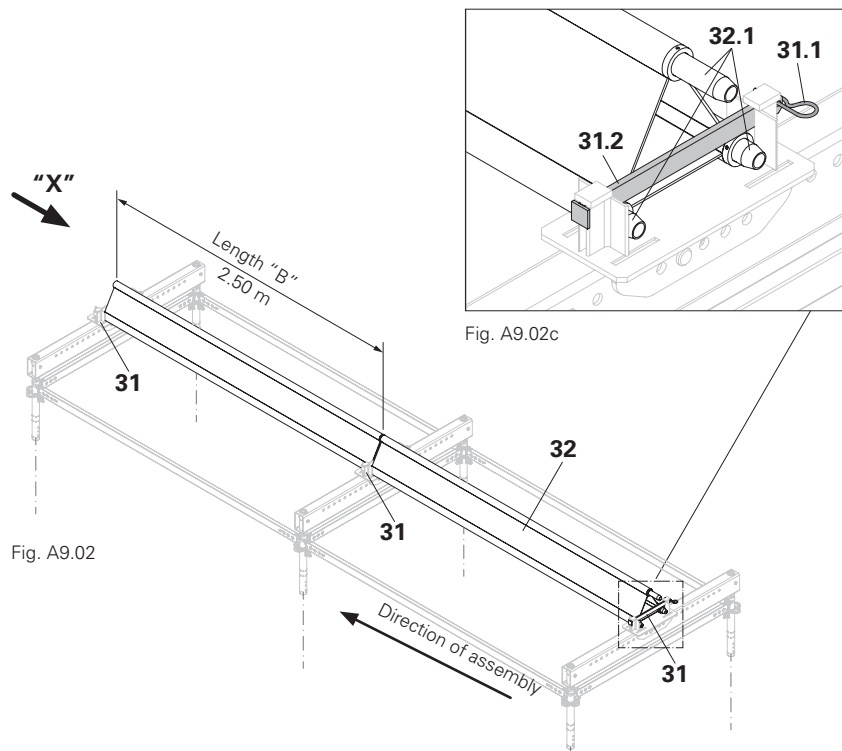


Fig. A9.02b

Assembly

1. Place one aluminium rail (**32**) between two rail supports (**31**). (Fig. 9.02)
2. Push one holder (**31.2**) through the guide of the rail support above the lower profile tubes (**32.1**). (Fig. 9.02c)
3. Insert a cotter pin (**31.1**) into the hole of the holder. (Fig. 9.02c)
→ The aluminium rail is securely locked.
4. Insert additional aluminium rails with pins (**32.1**) into the profile tubes of the first aluminium rails. (Fig. A9.02)
5. Repeat steps 2 + 3.
6. On the last aluminium rail, push the two pins of the rail end piece (**33**) into the two lower holes of the profile tube. (Fig. A9.02a)
7. Firstly, push the holder (**31.2**) through the guide of the rail support – at A – then between the brackets of the end piece – at B – and again through the guide of the rail support – at C. (Fig. A9.02a)
8. Insert a cotter pin (**31.1**) into the hole of the holder. (Fig. A9.02b)
→ The holder is secured.



Fitting stoppers

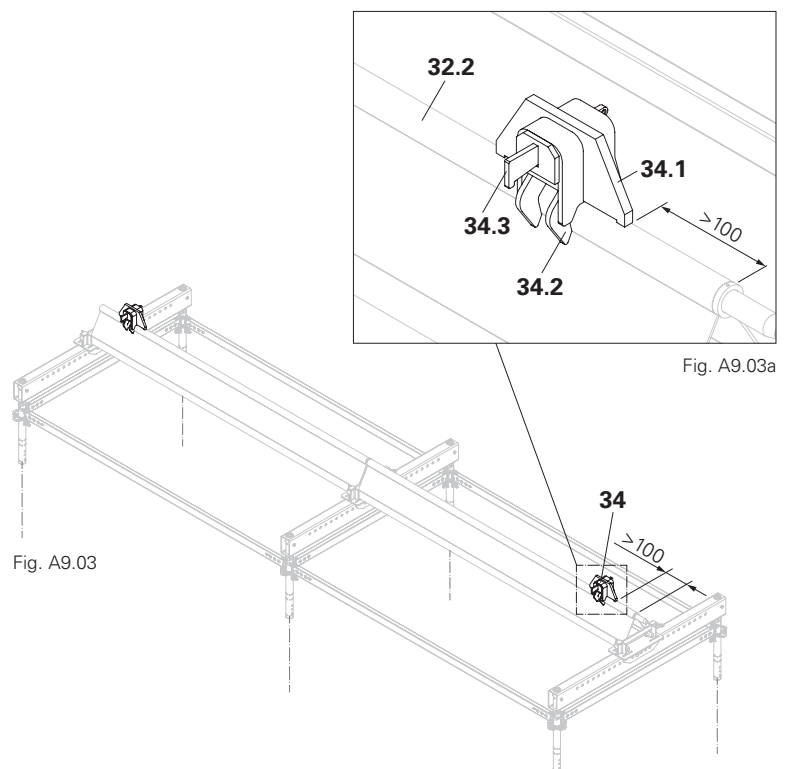
Stoppers limit the distance moved and are mounted at the open ends of the aluminium rail.

Components

34 Stopper URA-2 2x

Assembly

1. Place the stopper (**34**) with contour plate (**34.1**) and clamping piece (**34.2**) on the upper tube (**32.2**) of the aluminium rail. Take into consideration dimension > 100 mm. (Fig. A9.03a)
2. Secure the wedge (**34.3**) with a hammer.
→ The stopper is securely locked in position. (Fig. A9.03)



Fitting the carriage

The carriage

- connects the support with the rail,
- can be moved in a longitudinal direction.

Components

35 Carriage URW 4x

Preparation

1. Release bolts M12 x 30 (**35.1**) – per block 2x – and remove blocks (**35.2**).
2. Remove cotter pin (**35.4**) and bolt (**35.3**).
3. Remove lift lock (**35.6**).
4. Set all components to one side.

Assembly

1. Place the carriage (**35**) with the rollers (**35.5**) on the tube (**32.2**) of the aluminium rail (**32.2**).
2. Fit the lift lock (**35.6**).
→ Carriage is secured against lifting.
(Fig. A9.04 + A9.04a)

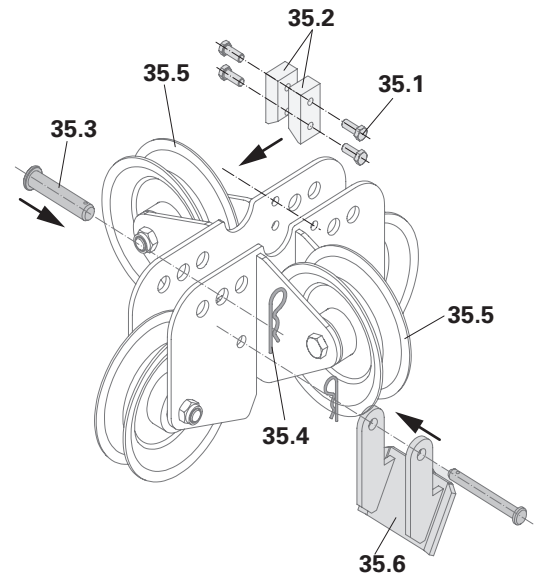


Fig. A9.04a



Is the lift lock (**35.6**) lying on the side surfaces of the rail?

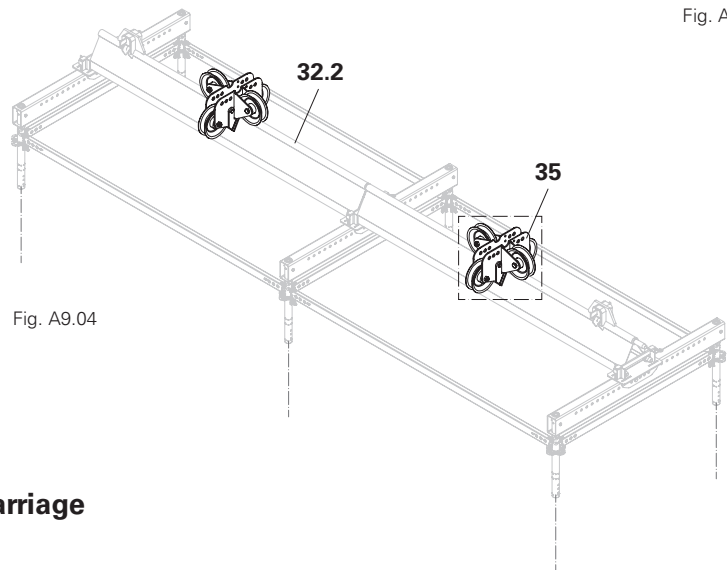


Fig. A9.04

Positioning the girder package on the carriage



Warning

People or the girder packages could fall down.

Risk of injury and falling when lifting or moving the girder package.

- ⇒ When lifting, no persons are allowed to remain on the girder package.
- ⇒ Standing under suspended loads is prohibited.



Warning

Girder package may roll away and crush body parts.

This can result in serious injuries.

⇒ When in the parking position, secure the girder package with additional means together with stoppers to prevent movement.



- The exact position of the support recesses (26) with the hole to be used on the carriage (35) is project-related and is provided in the project drawing.
- Take into consideration the fixed and floating bearings.

Fitting a girder package

1. Lift the girder package with the crane and place it on the carriage.
2. Secure blocks with 2 bolts M12 x 30 (35.1) respectively – 2x. (Fig. A9.05a)
3. Insert bolts through the designated recess of the carriage (35) and hole of the support (26), and secure with cotter pins. (Fig. A9.05a)
 - Fixed bearing. (Fig. A9.05b)
4. Install second side, as described in steps 1 + 2. Do not fix bolts and cotter pins.
 - Floating bearing (Fig. A9.05c)
5. Secure the girder package to prevent it from rolling away unintentionally. (Fig. A9.05)

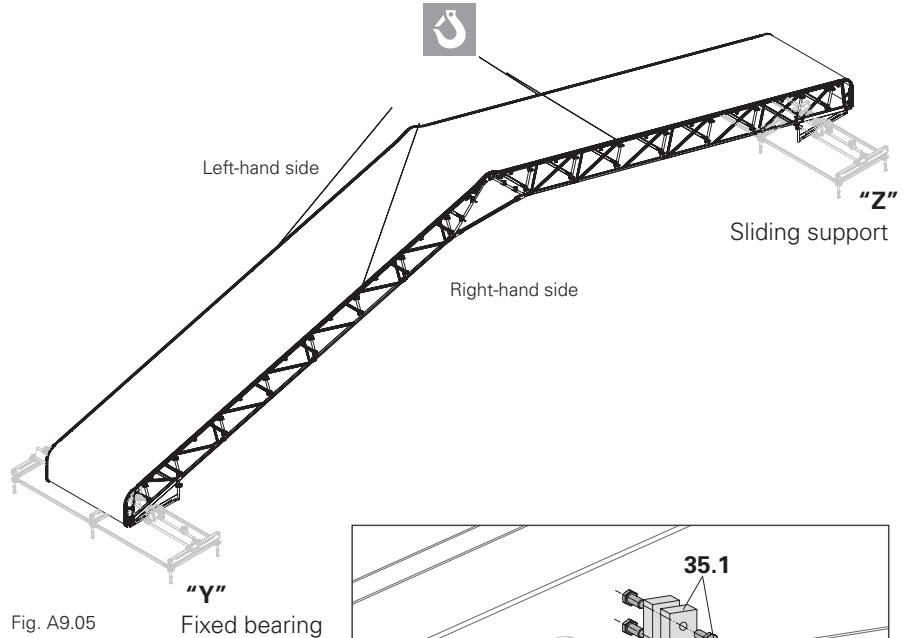


Fig. A9.05

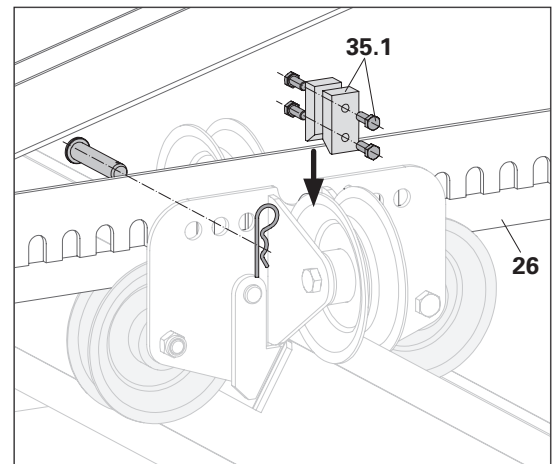


Fig. A9.05a – Bolts and cotter pins only on fixed bearing



Are the right and left sides of the girder package bolted in the same recess?



Guide the girder package with ropes when transporting it by crane

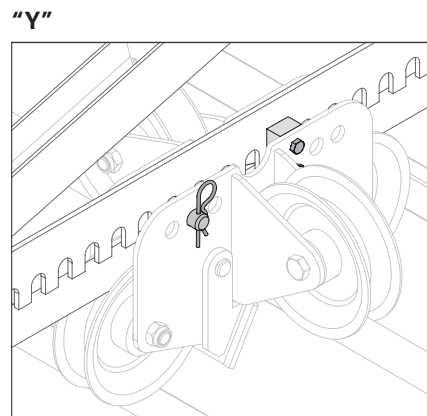


Fig. 10.05b

Fixed bearing – bolted to the support

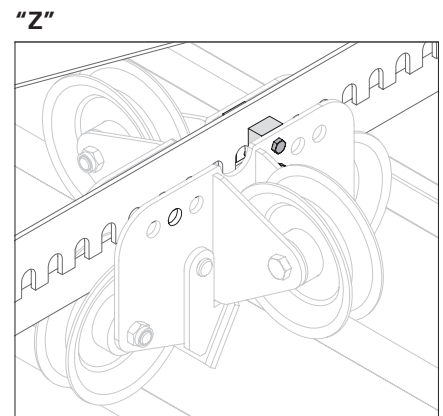


Fig. A10.05c

Floating bearing – not bolted to the support

Fitting the bearer



- The exact position of the bearer (36) in the ledger (28) with the hole to be used is project-related and provided in the project drawing.
- Hole positions of the bearer are not mirrored. Therefore, always install the bearers in the same way.
- Use a maximum of 4 chains per bearer, i.e. one chain per bracket. For the number of chain pairs, see "Transfer of horizontal force", page 54 onwards.

Preparation

1. Release cotter pins (36.2) and bolts (36.1) on the bearer (36) – 2x per bearer. (Fig. A10.01)



Attention!

Important distinction

The pattern of the weather protection roof

- either marries up with the load-bearing substructure and is variant 1, see Fig. A10.02
- does not marry up with the load-bearing substructure and is variant 2, see Fig. A10.03

Variant 1

Components

36	LGS Bearer URS 75	3x
37	Anchor chain L=2.5 M/3.0 kN	4x*
38	Turnbuckle M12/3.0 kN	4x*

* Number of chains according to Section B2.2

Assembly

1. Place the bearer (36) on the ledger (28).
2. Fit one bolt (36.1) and one cotter pin (36.2) into both A + B – 2x. (Fig. A10.02a)

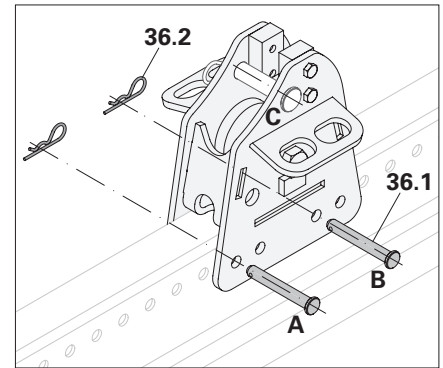


Fig. A10.01

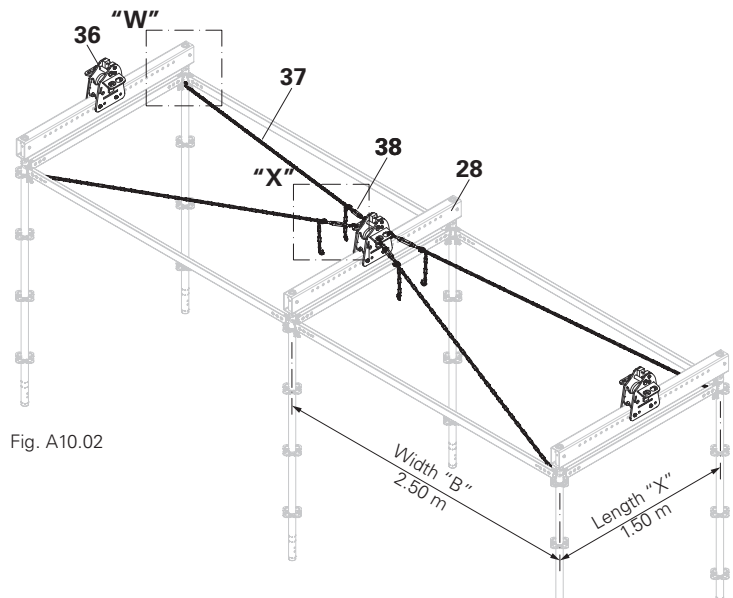


Fig. A10.02

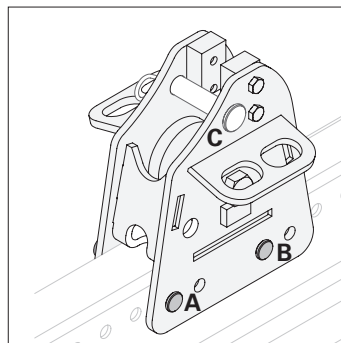


Fig. A10.02a Fixed bearing – with bolt C

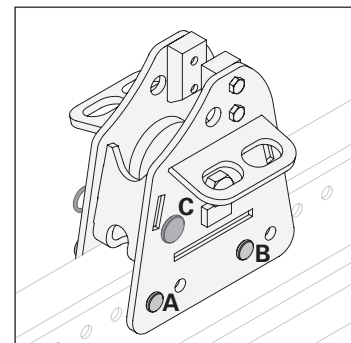


Fig. A10.02b Floating bearing – bolt C parked

3. Attach the anchor chain (**37**) to the leg. (Fig. A10.02c)
4. Attach a turnbuckle (**38**) to a hole in the bracket on the bearer. (Fig. A10.02d)
5. Attach a turnbuckle (**38**) to the anchor chain (**37**). (Fig. A10.02d)
6. Tension the anchor chain with the turnbuckle.
- The bearer with bracing has been fitted. (Fig. A10.02)
7. For fitting additional chains, see steps 3 to 6.

"W"

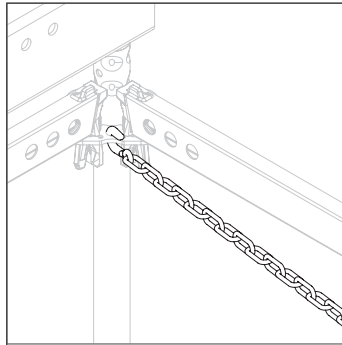


Fig. A10.02c

"X"

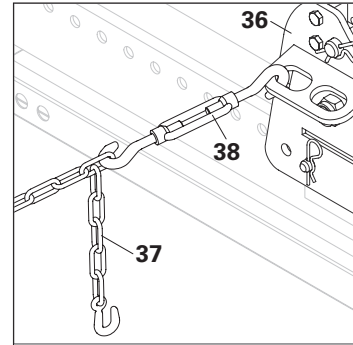


Fig. A10.02d



Have the bearers

- been installed in the same way?
- been bolted in the same hole?

Variant 2

(Fig. A10.03)



- Mount the bearer (**36**) in a 25-cm grid.
- Components and assembly are the same as Variant 1, see Fig. A10.3.

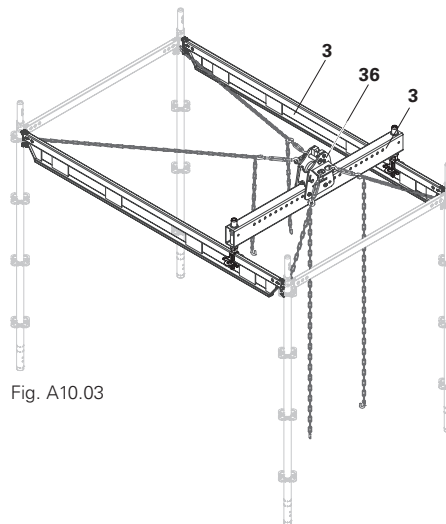


Fig. A10.03

Positioning the girder package on the bearer



Warning

People or the girder packages could fall down.

Risk of injury and falling when lifting or moving the girder package.

- ⇒ When lifting, no persons are allowed to remain on the girder package!
- ⇒ Standing under suspended loads is prohibited!

Preparation

1. Remove the blocks (**36.1**). (Fig. A10.03a)

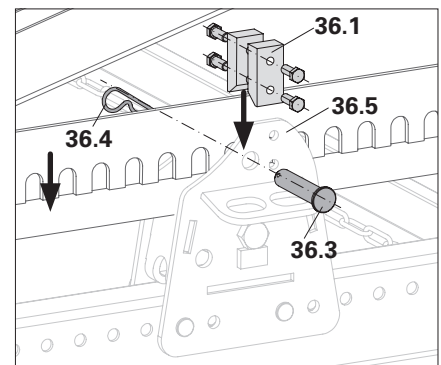


Fig. A10.03a

Assembly

1. Lift the girder package with the crane and position it between the brackets of the bearer (36.5).
2. Secure blocks (36.1) with 2 bolts M12 x 30 respectively – 2x. (Fig. A10.03b + A10.03c)
3. Fixed bearing: Fit a bolt (36.3) and cotter pin (36.4) into the upper hole of the bearer.
→ The bearer and girder package are now securely connected. (Fig. A10.03b)
4. Floating bearing: Fit a bolt (36.3c) and cotter pin (36.4) into the lower hole of the bearer.
→ The bolt and cotter pin are parked. (Fig. A10.03c)



Are the right and left sides of the girder package bolted in the same recess?

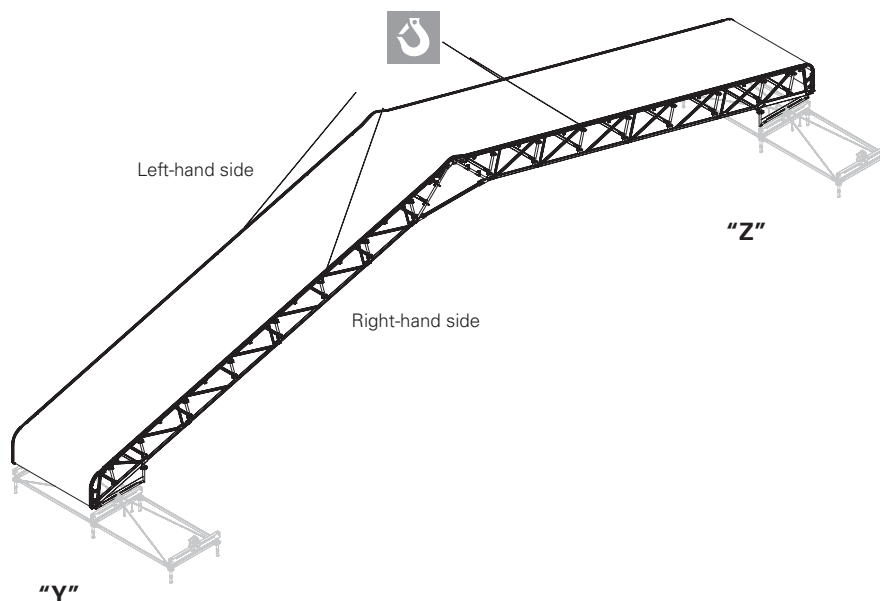


Fig. A10.03

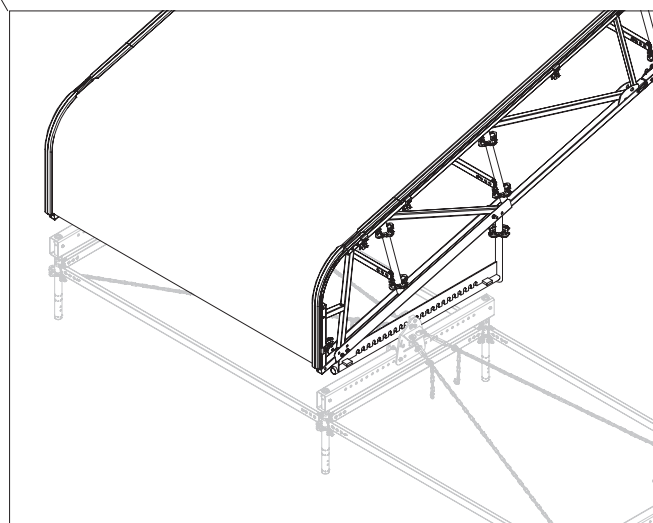


Fig. A10.03a

"Y" – Fixed bearing

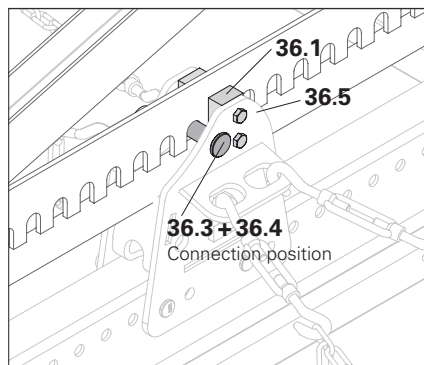


Fig. A10.03b

"Z" – Floating bearing

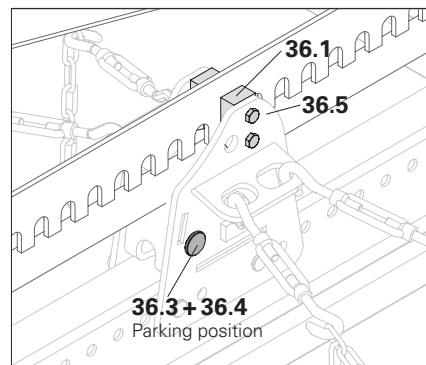


Fig. A10.03c

Dismantling the weather protection roof



Dismantle the LGS Weather Protection Roof in the reverse order as shown in the assembly procedure.

Disassembly

1. Release the bearer (fixed girder package) or carriage (mobile girder package), and lift girder package above the ground.
 2. Dismantle supports 15°.
 3. Fitting the support rollers.
 4. Place girder package on ground.
 5. Dismantle keder tarpaulin with roller and crank.
 6. Dismantle girder package.
 7. Dismantle ledgers.
 8. Dismantle bearer.
- (Fig. A11.01)

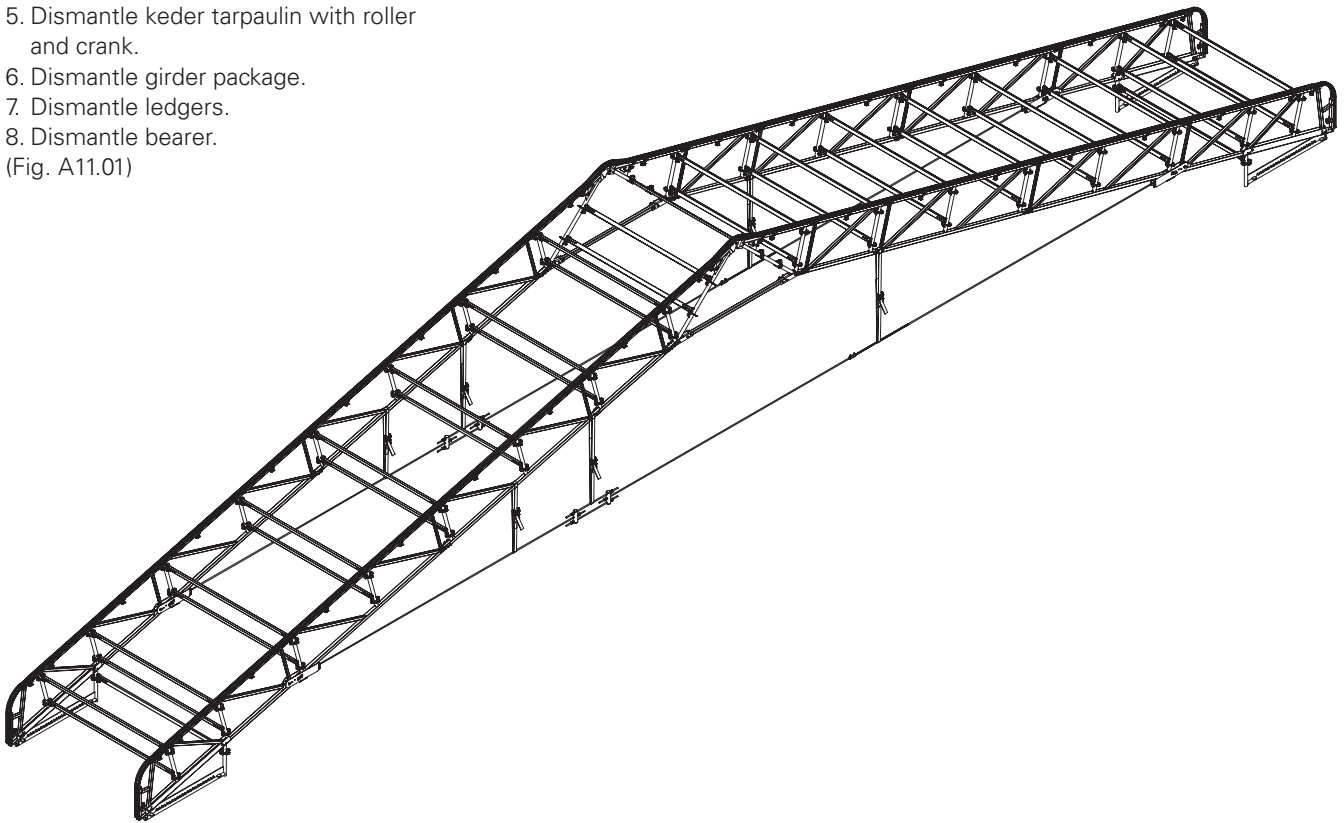


Fig. A11.01 – without keder tarpaulin

Span up to 15.50 m



- Attention, see chapter "Safety instructions", page 14 onwards.
- Ledgers on the support are mounted end-to-end.

Girder package permissible

- with tension system (Fig. B1.02a),
- without tension system (Fig. B1.02b).

With tension system

Connect tension system to the eave element.

(Fig. B1.02a)

Intermediate bays

The individual girder packages are connected with horizontal ledgers. (Fig. B1.03)



The numbers in Fig. B1.02a + B1.02b refer to the suspension points of the connecting components of the intermediate bays in Fig. B1.03.

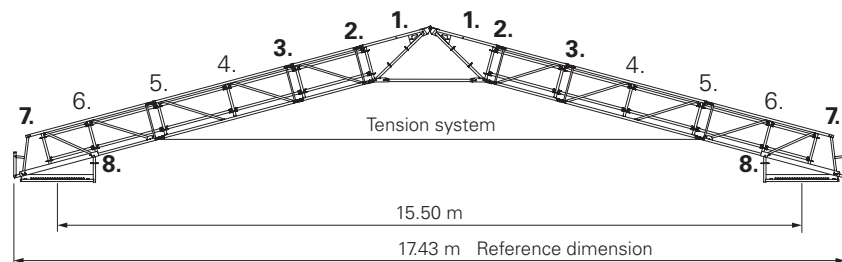


Fig. B1.02a

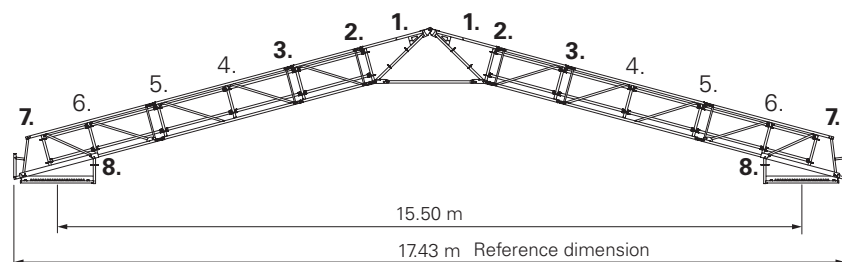


Fig. B1.02b

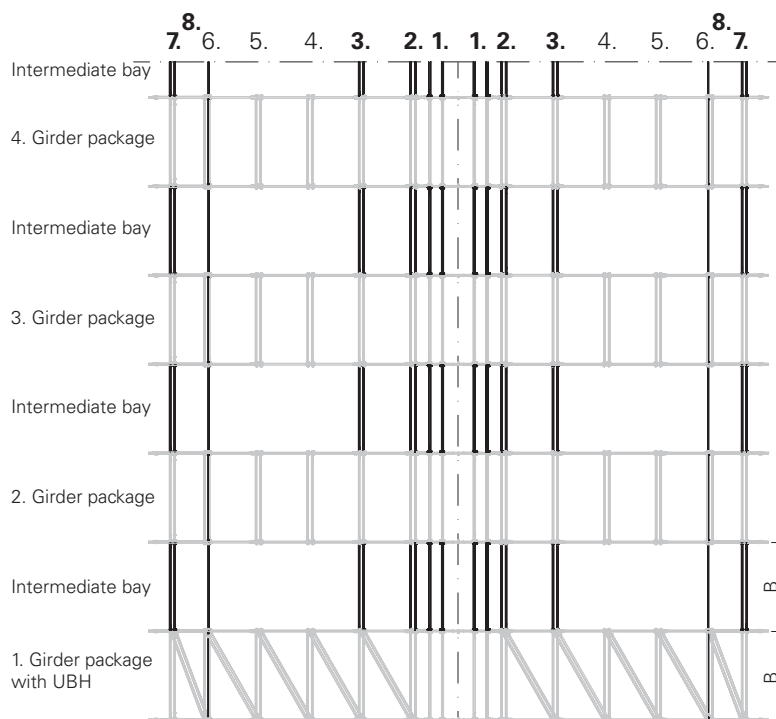


Fig. B1.03

Snow load s [kN/m ²]		0.10			0.25			0.60		
Wind load q [kN/m ²]		0.35	0.56	0.77	0.35	0.56	0.77	0.35	0.56	0.77
with tension system	max. width B [m]	3.00	3.00	2.50	3.00	3.00	2.50	1.50	1.50	1.50
	Edge area	Single	Single	Single	Single	Single	Single	Single	Single	Single
without tension system	max. width B [m]	3.00	3.00	2.50	2.50	2.50	2.50			
	Edge area	Single	Single	Single	Single	Single	Single			

Tab. 02

Span up to 20.30 m



- Attention, see chapter "Safety instructions," page 14 onwards.
- Ledgers on the support are mounted end-to-end.

Girder package permissible

- with tension system (Fig. B1.04a),
- without tension system (Fig. B1.04b).

With tension system

Connect tension system to the eave element. (Fig. B1.04a)

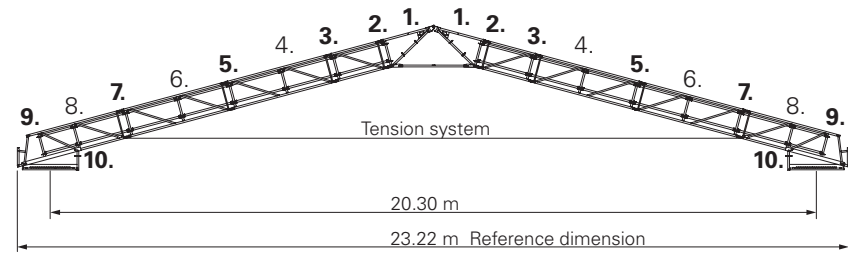


Fig. B1.04a

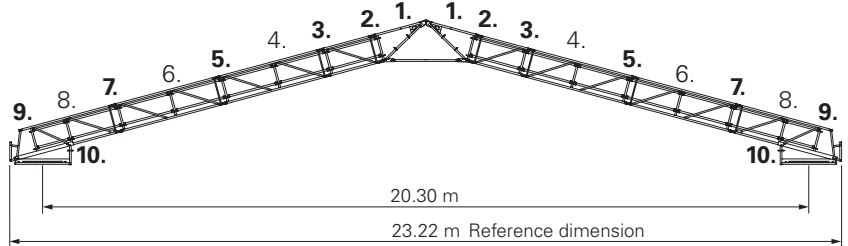


Fig. B1.04b

Intermediate bays

- Connect the individual girder packages with
 - horizontal ledgers and
 - H-braces.
- In the process, differentiate in the edge area between
 - 1. girder package, single (Fig. B1.05a)
 - double girder package (Fig. B1.05b)
 - with UBH



The numbers in Fig. B1.04a + B1.04b refer to the suspension points of the connecting components of the intermediate bays in Fig. B1.05a + B1.05b

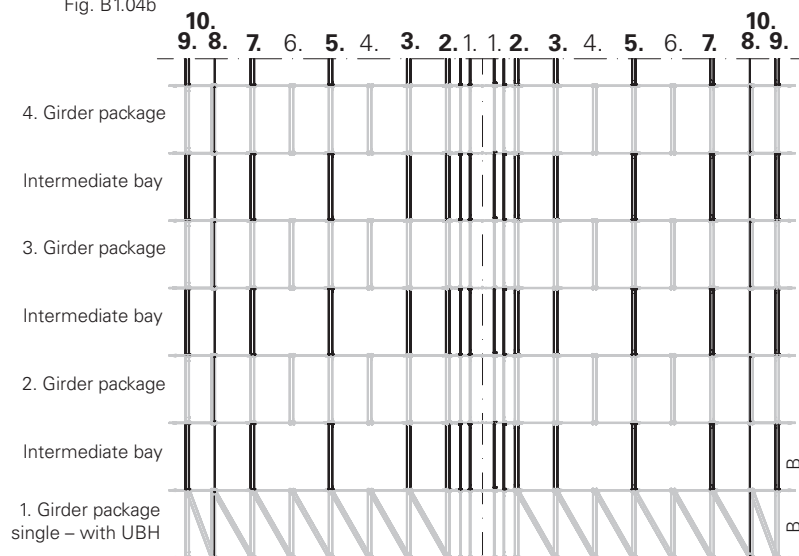


Fig. B1.05a

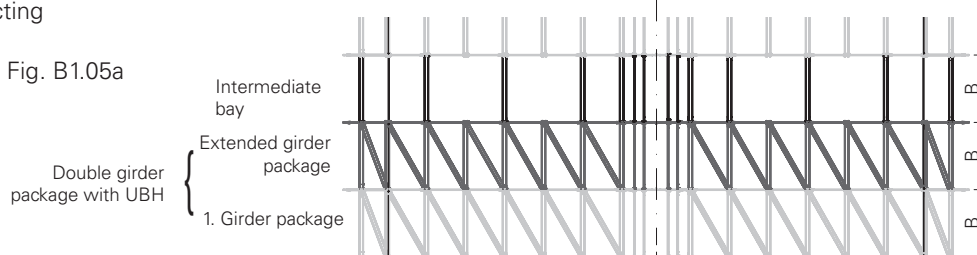


Fig. B1.05b

Snow load s [kN/m ²]		0.10			0.25			0.60		
Wind load q [kN/m ²]		0.35	0.56	0.77	0.35	0.56	0.77	0.35	0.56	0.77
with tension system	max. width B [m]	3.00	2.00	1.00	2.50	2.00	1.00	1.00	1.00	1.00
	Edge area	Single	Single	Double	Single	Single	Double	Single	Double	Double
without tension system	max. width B [m]	2.50	1.50	1.00						
	Edge area	Single	Single	Double						

Tab. 03

Span up to 25.17 m



- Attention, see chapter "Safety instructions", page 14 onwards.
- Ledgers on the support are mounted end-to-end.

Girder package permissible

- with tension system (Fig. B1.06a),
- without tension system (Fig. B1.06b).

With tension system

Connect tension system to the eave element.

(Fig. B1.06a)

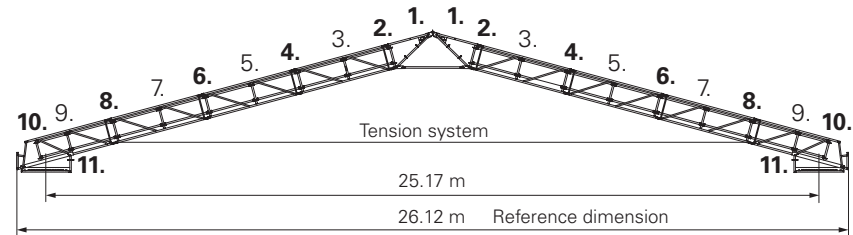


Fig. B1.06a

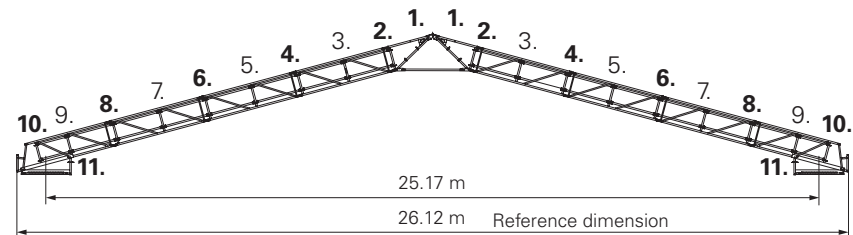


Fig. B1.06b

Intermediate bays

- Connect the individual girder packages with
 - horizontal ledgers and
 - H-braces.
- In the process, differentiate in the edge area between
 - 1. girder package, single (Fig. B1.07a)
 - double girder package (Fig. B1.07b)



The numbers in Fig. B1.06a + B1.06b refer to the suspension points of the connecting components of the intermediate bays in Fig. B1.07a + B1.07b.

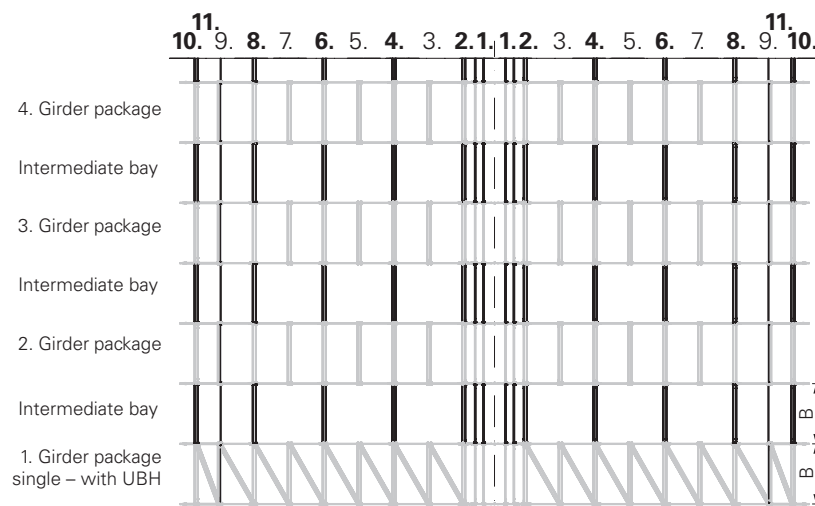


Fig. B1.07a

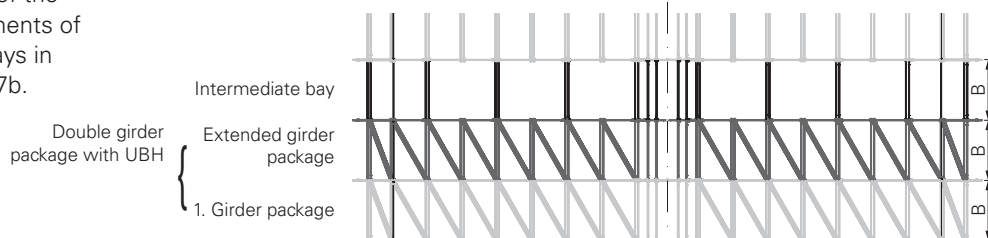


Fig. B1.07b

Snow load s [kN/m ²]		0.10	0.25
Wind load q [kN/m ²]		0.35	0.35
with tension system	max. width B [m]	1.50	1.00
	Edge area	Single	Double

Tab. 04

Weight



- The weight is dependent on the
 - width B of the girder package.
 - Span L_{sp} .
 - Configuration of the girder package in the edge area
 - Weights include tarpaulin, tarpaulin 650 g/m².

Weight											
Girder package		Single					Double (edge area)				
Width B [m]		1.00	1.50	2.00	2.50	3.00	1.00	1.50	2.00	2.50	3.00
Span [m]	15.6	1,000 kg	1,040 kg	1,110 kg	1,180 kg	1,260 kg	1,640 kg	1,710 kg	1,850 kg	2,000 kg	2,150 kg
	18.5	1,130 kg	1,170 kg	1,250 kg	1,340 kg	1,430 kg	1,850 kg	1,930 kg	2,100 kg	2,270 kg	2,450 kg
	21.4	1,260 kg	1,310 kg	1,410 kg	1,510 kg	1,610 kg	2,080 kg	2,170 kg	2,360 kg	2,560 kg	2,760 kg
	24.3	1,390 kg	1,450 kg	1,550 kg	1,660 kg	1,770 kg	2,290 kg	2,400 kg	2,610 kg	2,830 kg	3,050 kg
	27.2	1,530 kg	1,590 kg	1,710 kg	1,830 kg	1,950 kg	2,510 kg	2,640 kg	2,870 kg	3,110 kg	3,360 kg

Tab. 05

Crane attachment points

Span 15.50 m

(Fig. B1.08)

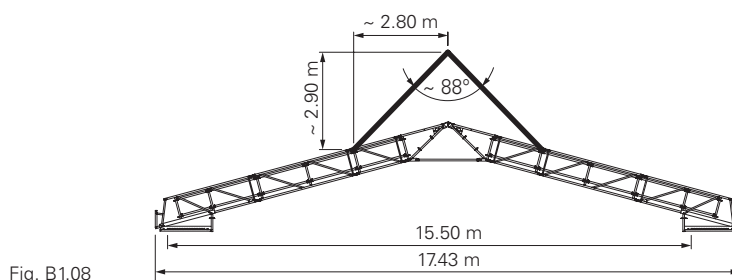


Fig. B1.08

Span 20.30 m

(Fig. B1.09)

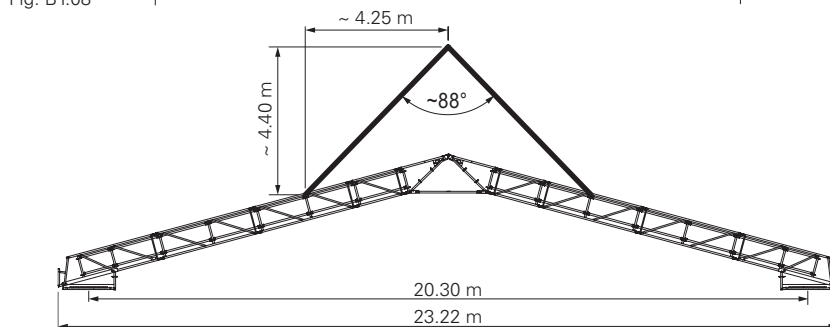


Fig. B1.09

Span 25.17 m

(Fig. B1.10)

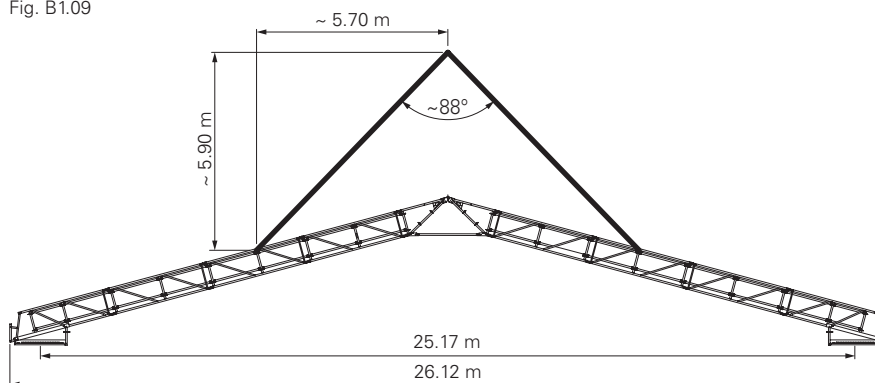


Fig. B1.10

Support forces



- The support forces are dependent on
 - L_{sp} = span [m]
 - q = wind load [kN/m²]
 - s = snow load [kN/m²]
 - B = width [m]
 - L = total length of the roof [m]
 - n = total number of supports
 - Factors are unit-dependent
- Calculate the supporting structure in each case.
- Verification required for the load transfer from roof and scaffolding to the ground.

Diagram of girder package
(Fig. B2.01a + B2.01b)

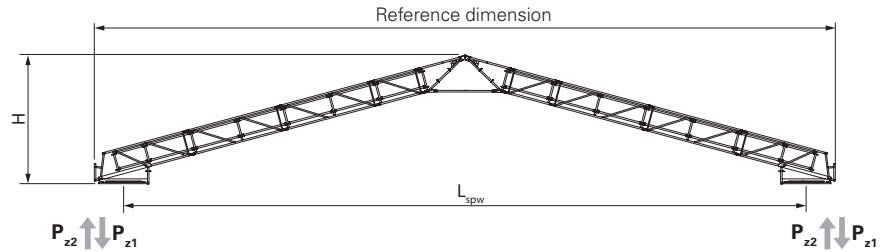


Fig. B2.01a

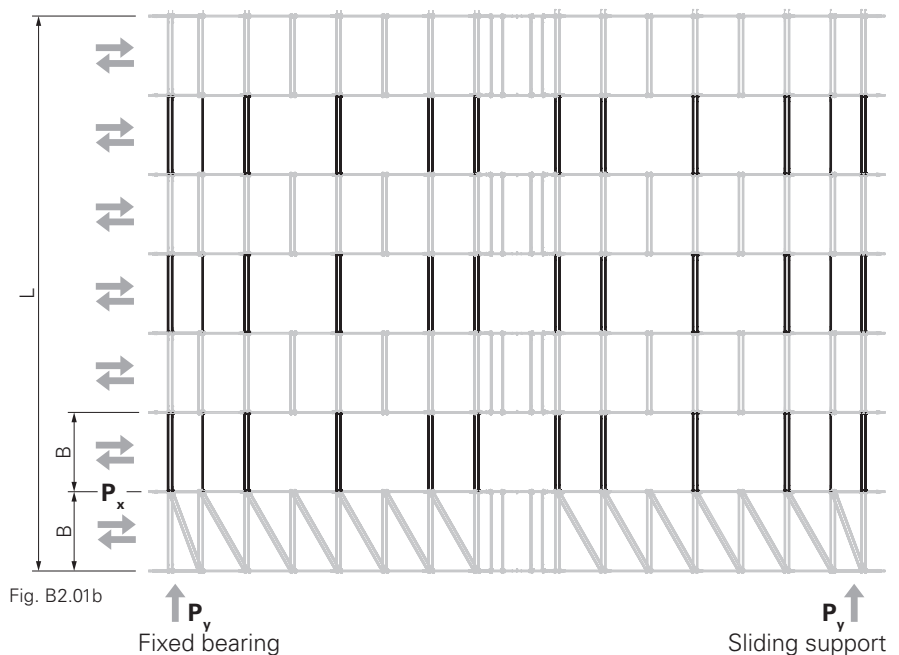


Fig. B2.01b

Span 15.50 m

Single girder package
(Tab. 06)

15.50 m – Single girder package			
Horizontal force [kN]	in direction of girder	P_x	$1.84 * q * B$
	in direction of gable	P_y	$1741 * q / n$
Vertical force [kN]	downwards	P_{z1}	$2.03 + 0.47 * B + 7.12 * s * B + 12.26 * q/B$
	upwards	P_{z2}	$-1.50 - 0.35 * B + 5.16 * q * B + 12.26 * q/B$

Tab. 06

Span 20.30 m

Single girder package (Tab. 07)

20.30 m – Single girder package			
Horizontal force [kN]	in direction of girder	P_x	$2.31 * q * B$
	in direction of gable	P_y	$23.46 * q / n$
Vertical force [kN]	downwards	P_{z1}	$2.49 + 0.63 * B + 9.52 * s * B + 20.53 * q/B$
	upwards	P_{z2}	$-1.84 - 0.47 * B + 6.32 * q * B + 20.53 * q/B$

Tab. 07

Double girder package (Tab. 08)

20.30 m – Double girder package			
Horizontal force [kN]	in direction of girder	P_x	$2.31 * q * B$
	in direction of gable	P_y	$23.46 * q / n$
Vertical force [kN]	downwards	P_{z1}	$2.73 + 0.85 * B + 9.52 * s * B + 10.26 * q/B$
	upwards	P_{z2}	$-2.03 - 0.63 * B + 6.32 * q * B + 10.26 * q/B$

Tab. 08

Span 25.17 m

Single girder package (Tab. 09)

25.17 m – Single girder package			
Horizontal force [kN]	in direction of girder	P_x	$2.43 * q * B$
	in direction of gable	P_y	$26.48 * q / n$
Vertical force [kN]	downwards	P_{z1}	$2.69 + 0.69 * B + 10.72 * s * B + 25.38 * q/B$
	upwards	P_{z2}	$-1.99 - 0.51 * B + 6.47 * q * B + 25.38 * q/B$

Tab. 09

Double girder package (Tab. 10)

25.17 m – Double girder package			
Horizontal force [kN]	in direction of girder	P_x	$2.43 * q * B$
	in direction of gable	P_y	$26.48 * q / n$
Vertical force [kN]	downwards	P_{z1}	$2.98 + 0.95 * B + 10.72 * s * B + 12.69 * q/B$
	upwards	P_{z2}	$-2.21 - 0.71 * B + 6.47 * q * B + 12.69 * q/B$

Tab. 10

Transfer of horizontal force



- Transfer of horizontal force P_y in eave direction of the roof.
- Load-bearing capacity of the chain (37): 3 kN.
- Number of chain pairs n_c .
 - is for each load direction,
 - $n_c = P_y / \text{perm. } H_c$
 - round up to whole chain pairs.
- Always brace in both directions. Use a maximum of 4 chains per bearer, i.e. one chain per bracket.
- P_y acts in both directions.
 - Determine n_c for both directions.
 - If the bracing differs, calculate chain pairs for both directions.

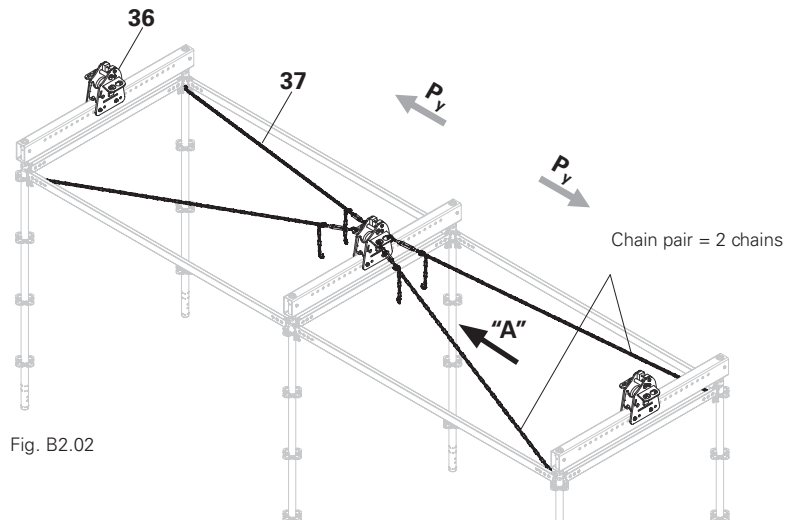


Fig. B2.02

Distinction

Pattern of the weather protection roof or bearer (36) with bracing

- marries up with the load-bearing substructure, see Fig. B2.02.
- does not marry up with the load-bearing substructure, see Fig. B2.03.

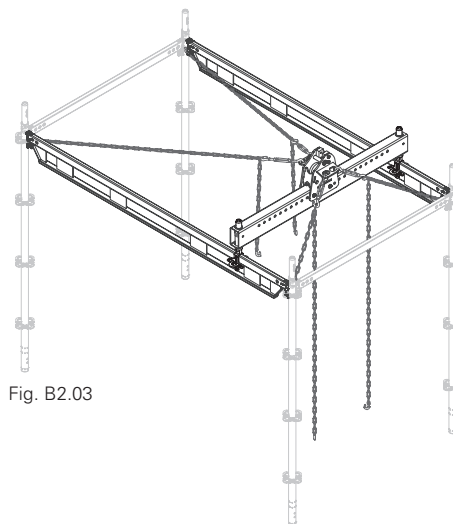


Fig. B2.03

Angle α^*	Transferable horizontal force perm. H_c per chain pair
0°	6.00
15°	5.80
30°	5.20
45°	4.24
60°	3.00
75°	1.56
90°	0.00

* If the angles differ, the larger angle shall take precedence.

Tab. 11

Detail of matching bracing angles α

(Fig. B2.02a)

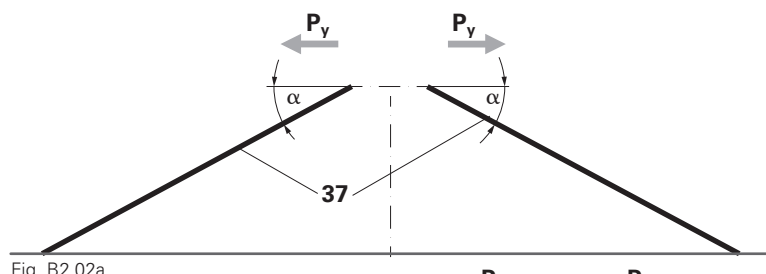


Fig. B2.02a

Detail of different bracing angles α_1 and α_2

(Fig. B2.03a)

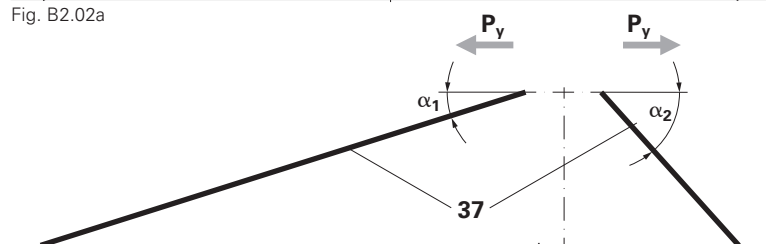


Fig. B2.03a

Article no. Weight kg

135,766 31.700

LGS Standard Element URB 300/75

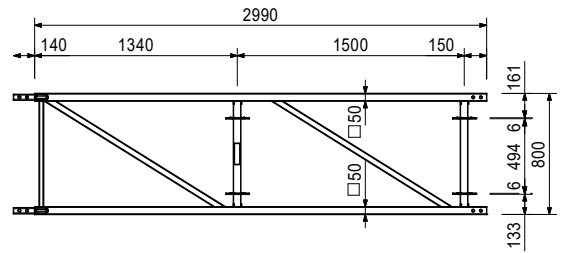
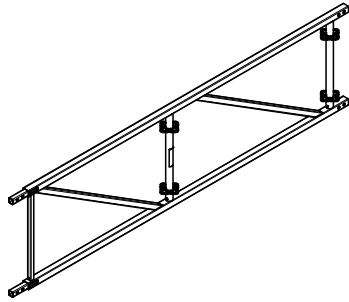
Standard element for the LGS Lattice Girder System.

Note

Alternative accessories:

070890 nut ISO 7040 M 16-8, galv.

721729 bolt ISO 4014 M16 x 90-8.8, galv.



Accessories

106,031 0.142
018060 0.014

Bolt Ø 16 x 70, coated
Cotter Pin 4/1, galv.

135,793 35.100

LGS Eave Element URB 300/75

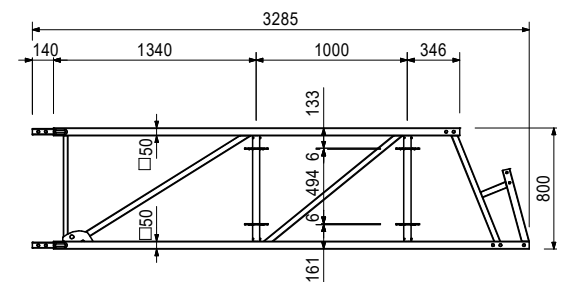
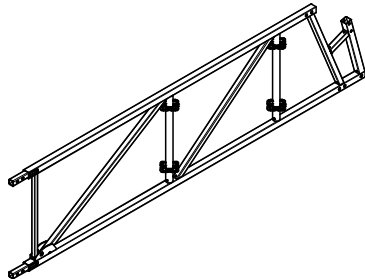
Eave element for the LGS Lattice Girder System.

Note

Alternative accessories:

070890 Nut ISO 7040 M 16-8, galv.

721729 Bolt ISO 4014 M16 x 90-8.8, galv.



Accessories

106,031 0.142
018060 0.014

Bolt Ø 16 x 70, coated
Cotter Pin 4/1, galv.

135773 17.100

LGS Intermediate Element URB 150/75

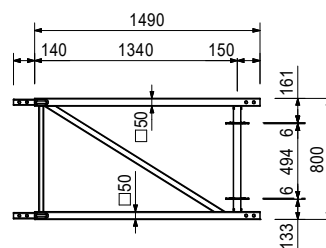
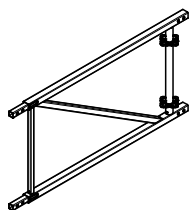
Filler element for the LGS Lattice Girder System.

Note

Alternative accessories:

070890 Nut ISO 7040 M 16-8, galv.

721729 Bolt ISO 4014 M16 x 90-8.8, galv.



Accessories

106,031 0.142
018060 0.014

Bolt Ø 16 x 70, coated
Cotter Pin 4/1, galv.

Article no. Weight kg

135,782 19.300

LGS Ridge Element URR 75

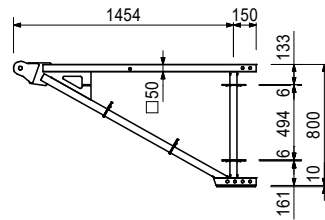
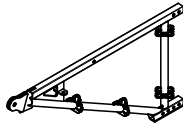
Two LGS Ridge Elements together with the Ridge Bar UR form the ridge.

Note

Alternative accessories:

105032 Nut ISO 7040 M24-8, galv.

026220 Bolt ISO 4014 M24 x 80-10.9, galv.



Accessories

127,468 0.325
022230 0.033

Pin Ø 24 x 70, galv.

Cotter Pin 5/1, galv.

128334 21.700

Ridge Bar HD UR 150°

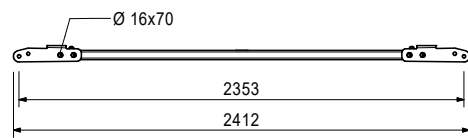
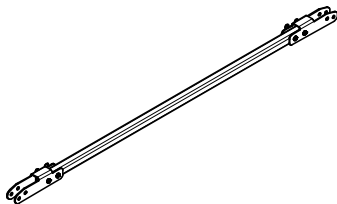
Connects two LGS Ridge Elements to a ridge angle of 150°.

Note

Alternative accessories:

070890 Nut ISO 7040 M16-8, galv.

721729 Bolt ISO 4014 M16 x 90-8.8, galv.



Accessories

106,031 0.142
018060 0.014

Bolt Ø 16 x 70, coated

Cotter Pin 4/1, galv.

104,854 5.220

Support Roller UEW unstopped

Attachment to standard, eave and intermediate element when raising a girder in order to install the ridge bar.

Note

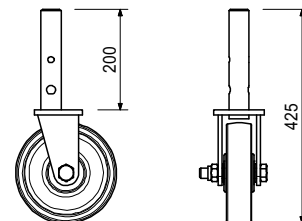
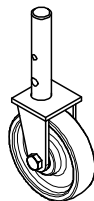
Alternative accessories:

070890 Nut ISO 7040 M16-8, galv.

721729 Bolt ISO 4014 M16 x 90-8.8, galv.

Technical data

Permissible load up to 12 kN.



Accessories

106,031 0.142
018060 0.014

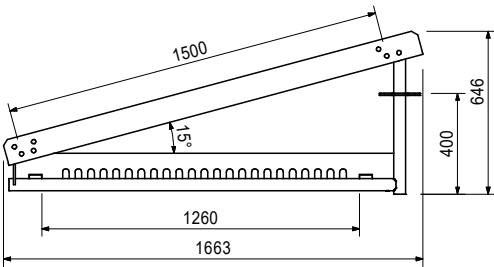
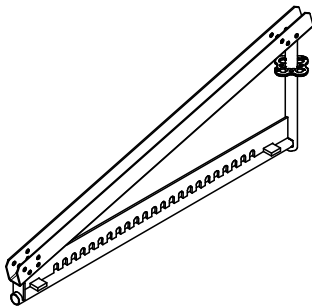
Bolt Ø 16 x 70, coated

Cotter Pin 4/1, galv.

Article no.	Weight kg
104,771	33.400

LGS Support URS 15°
For roofs with 15° angle of inclination.

Note
Alternative accessories:
070890 Nut ISO 7040 M16-8, galv.
721729 Bolt ISO 4014 M16 x 90-8.8, galv.



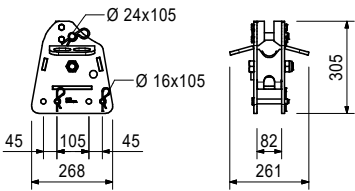
106,031	0.142
018060	0.014

Accessories
Bolt Ø 16 x 70, coated
Cotter Pin 4/1, galv.

135801	19.100
--------	--------

LGS Bearer URS 75
Connects the LGS Support to the Ledger URL.

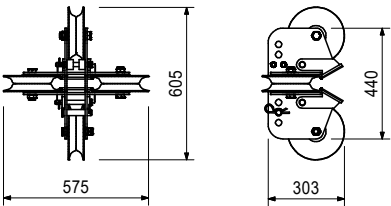
Complete with
1 pc. 106191 bolt Ø 24 x 105, coated
3 pc. 106194 bolt Ø 16 x 105, coated
1 pc. 022230 Cotter Pin 5/1, galv.
3 pc. 018060 Cotter Pin 4/1, galv.



104777	42.800
--------	--------

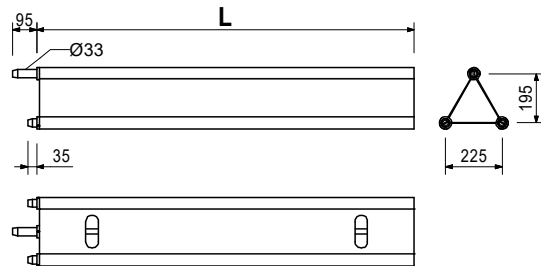
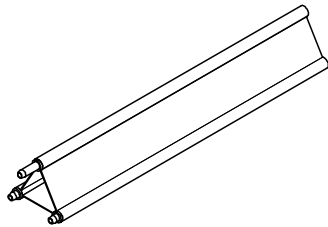
Carriage URW
Connects the support to the rail URT.
Allows movement in the longitudinal direction and horizontal sliding in the direction of the girder.

Complete with
1 pc. 106191 bolt Ø 24 x 105, coated
1 pc. 022230 Cotter Pin 5/1, galv.

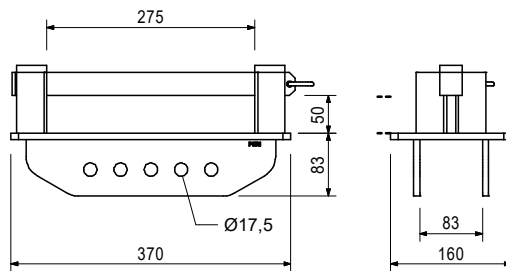
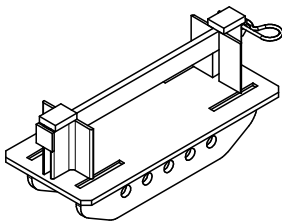


Article no. Weight kg

		Aluminium Rails URT	L
104790	20.600	Aluminium Rail URT 150	1,500
104791	27.300	Aluminium Rail URT 200	2,000
104796	33.900	Aluminium Rail URT 250	2,500
104797	40.500	Aluminium Rail URT 300	3,000
		For moving LGS units. Mounted to the Rail Support URF.	

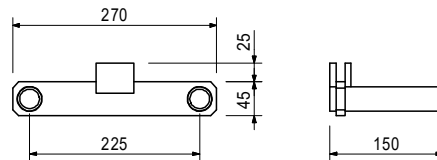
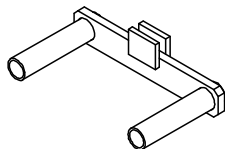


104853	8.190	Rail Support URF Connects the Rail URT to the Ledger URL.	Note Alternative accessories: 070890 Nut ISO 7040 M16-8, galv. 105402 Bolt ISO 4014 M16 x 120-8.8, galv.
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		Accessories
715357	0.238	Pin Ø 16 x 150, galv.
022230	0.033	Cotter Pin 5/1, galv.

104852	1.870	Rail End Piece URD To secure the Aluminium Rail URT. Assembly at the last Rail Support URF.
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Article no. Weight kg

132553	12.600
131869	13.900
115018	17.700
105386	25.600

Ledger URL

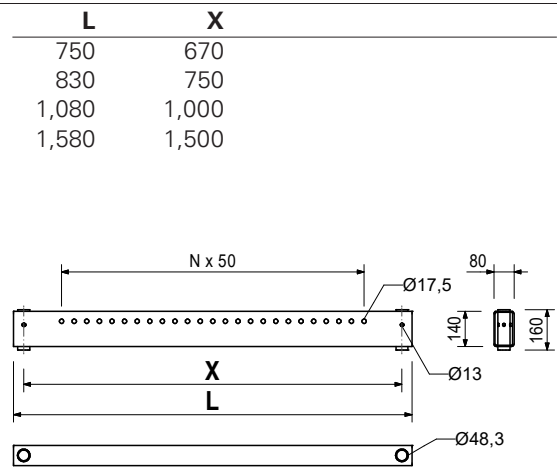
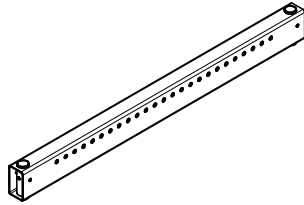
Ledger URL 67/14

Ledger URL 75/14

Ledger URL 100/14

Ledger URL 150/14

Connects the LGS Unit to the PERI UP substructure.



Accessories

780356	0.011
710242	0.063

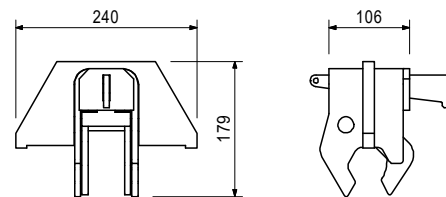
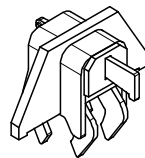
Nut ISO 7040 M10-8, galv.

Bolt ISO 4014 M10 x 100-8.8, galv.

118022	5.130
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Stopper URA-2

Limit stop for the Carriage URW on the Aluminium Rail URT.



414613	1.420
414595	2.070
414629	2.730
414632	4.460
414638	5.430
414641	4.720
417032	5.380
414645	6.040
416356	6.700
414648	7.360
414651	8.680

Horizontal Ledger UH Plus

Horizontal Ledger UH 25 Plus

Horizontal Ledger UH 50 Plus

Horizontal Ledger UH 75 Plus

Horizontal Ledger UH 100 Plus

Horizontal Ledger UH 125 Plus

Horizontal Ledger UH 150 Plus

Horizontal Ledger UH 175 Plus

Horizontal Ledger UH 200 Plus

Horizontal Ledger UH 225 Plus

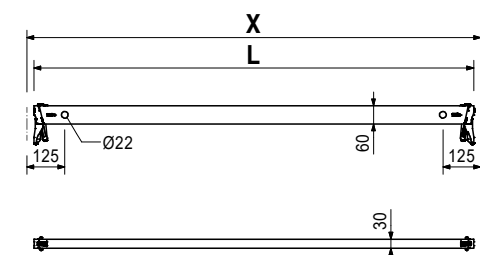
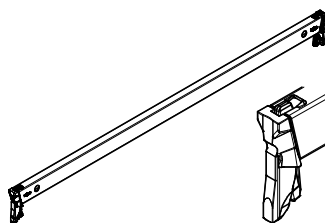
Horizontal Ledger UH 250 Plus

Horizontal Ledger UH 300 Plus

L	X
204	250
454	500
704	750
954	1,000
1,204	1,250
1,454	1,500
1,704	1,750
1,954	2,000
2,204	2,250
2,454	2,500
2,954	3,000

Note

With length marking for easier identification.



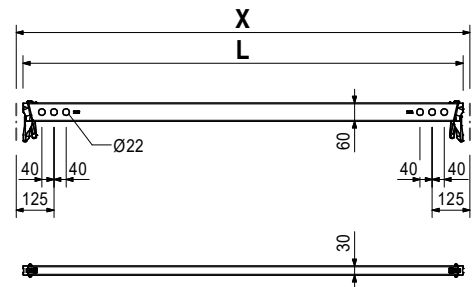
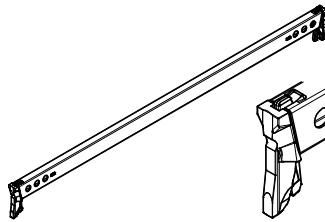
Article no. Weight kg

		Horizontal Ledger UH-2
131,995	1.410	Horizontal Ledger UH-2 25
133900	1.590	Horizontal Ledger UH-2 33
131998	2.030	Horizontal Ledger UH-2 50
133903	2.480	Horizontal Ledger UH-2 67
132213	2.690	Horizontal Ledger UH-2 75
132004	3.740	Horizontal Ledger UH-2 100
132007	4.510	Horizontal Ledger UH-2 125
132010	4.680	Horizontal Ledger UH-2 150
132013	5.340	Horizontal Ledger UH-2 175
132016	6.000	Horizontal Ledger UH-2 200
132019	6.660	Horizontal Ledger UH-2 225
132025	7.320	Horizontal Ledger UH-2 250
132022	8.650	Horizontal Ledger UH-2 300

L	X
204	250
284	330
454	500
624	670
704	750
954	1,000
1,204	1,250
1,454	1,500
1,704	1,750
1,954	2,000
2,204	2,250
2,454	2,500
2,954	3,000

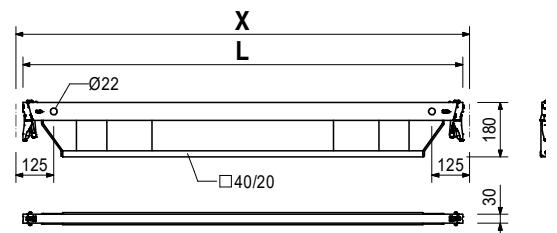
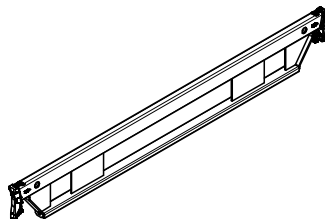
Note

With length marking for easier identification.



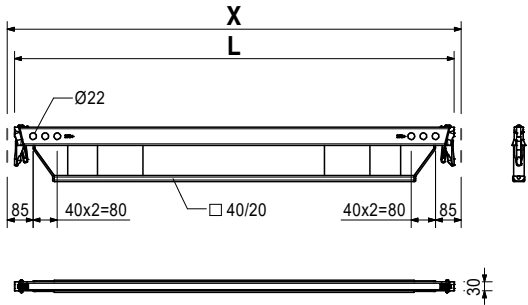
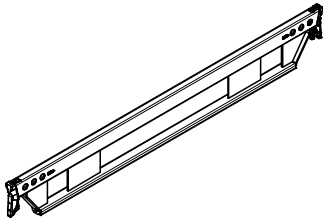
		Horizontal Ledger UHV Plus
414681	10.900	Horizontal Ledger UHV 150 Plus
414687	14.700	Horizontal Ledger UHV 200 Plus
414691	17.900	Horizontal Ledger UHV 250 Plus
414695	21.600	Horizontal Ledger UHV 300 Plus

L	X
1,454	1,500
1,954	2,000
2,454	2,500
2,954	3,000

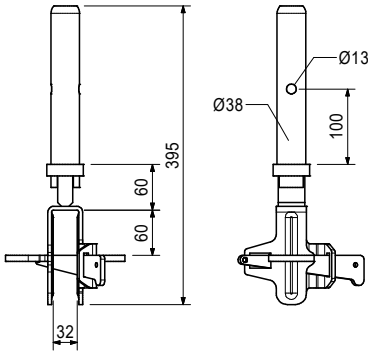
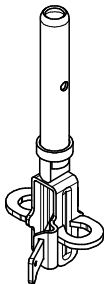


Article no. Weight kg

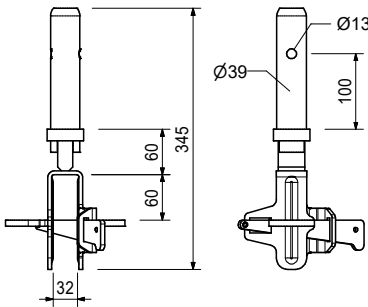
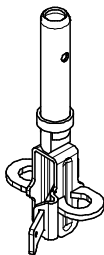
			L	X
137020	9.410	Horizontal Ledger UHV-2	1,454	1,500
137025	12.700	Horizontal Ledger UHV-2 150	1,954	2,000
137030	15.200	Horizontal Ledger UHV-2 200	2,454	2,500
137035	18.500	Horizontal Ledger UHV-2 250	2,954	3,000
		Horizontal Ledger UHV-2 300		
For high loads, e.g. in the case of material storage.				



130684 2.020 Ledger-To-Ledger Coupler UHA-2 half with pin

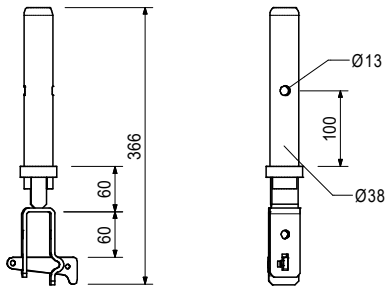
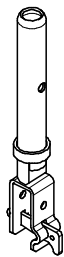


410792 1.900 Ledger-to-Ledger UHA Half with Pin



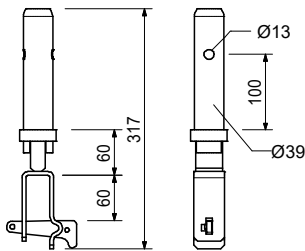
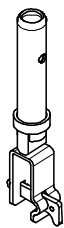
Article no.	Weight kg
130681	1.360

UH Spigot-2



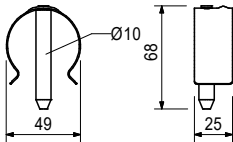
409764	1.250
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UH Spigot



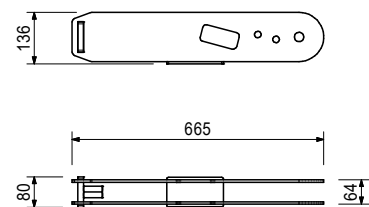
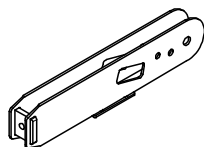
111053	0.059
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Locking pin Ø 48/57
As tension-proof connection of standards with a diameter of 48 up to 57 mm.



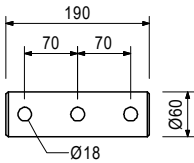
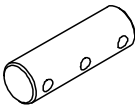
128823	8.750
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Suspension Tie Connector URU
Connection to Eave Element or Standard Element URB 300/150.



Article no.	Weight kg
128817	3.850

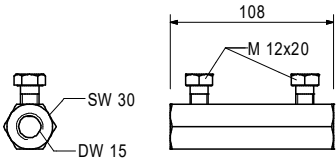
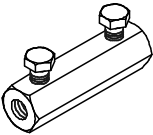
Anchor Tie Yoke URU
For closing and tensioning the tension system.



129435	0.444
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Tie Rod Extension URU
For coupling and securing Tie Rod DW 15.

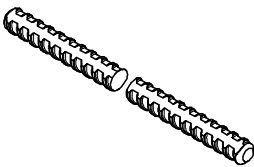
Technical data
Permissible tension force 90 kN.



		Tie Rod DW 15
030030	1.440	Tie Rod DW 15, special length
030050	0.000	Cutting Costs DW 15, B 15
030005	0.720	Tie Rod DW 15, L = 0.50 m
030010	1.230	Tie Rod DW 15, L = 0.85 m
030480	1.440	Tie Rod DW 15, L = 1.00 m
030490	1.730	Tie Rod DW 15, L = 1.20 m
030170	2.160	Tie Rod DW 15, L = 1.50 m
030020	2.450	Tie Rod DW 15, L = 1.70 m
030180	2.880	Tie Rod DW 15, L = 2.00 m
030710	3.600	Tie Rod DW 15, L = 2.50 m
030720	4.320	Tie Rod DW 15, L = 3.00 m
030730	5.040	Tie Rod DW 15, L = 3.50 m
030160	8.640	Tie Rod DW 15, L = 6.00 m

Note
Non-weldable! Observe the permissions!

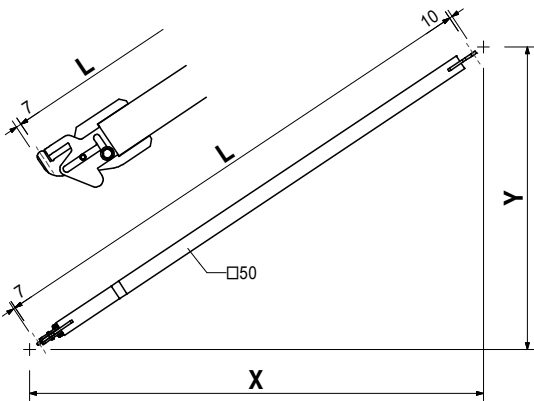
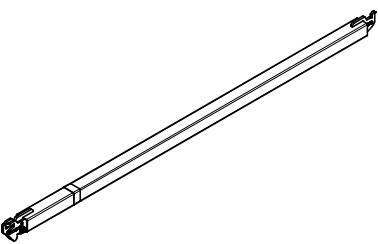
Technical data
Permissible tension force 90 kN.



Article no. Weight kg

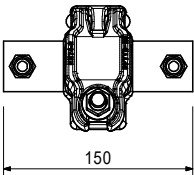
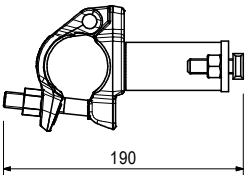
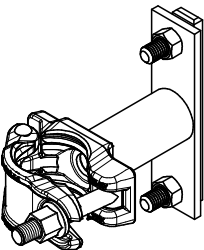
			L	X	Y
114818	4.590	Horizontal Braces UBH Flex			
114821	5.730	Horizontal Brace UBH Flex 100/100	1,335	1,000	1,000
114912	6.660	Horizontal Brace UBH Flex 150/100	1,725	1,500	1,000
114820	7.010	Horizontal Brace UBH Flex 150/150	2,042	1,500	1,500
124097	7.780	Horizontal Brace UBH Flex 200/100	2,161	2,000	1,000
114819	8.360	Horizontal Brace UBH Flex 200/150	2,422	2,000	1,500
124101	9.000	Horizontal Brace UBH Flex 250/100	2,620	2,500	1,000
114892	9.740	Horizontal Brace UBH Flex 250/150	2,838	2,500	1,500
124105	10.300	Horizontal Brace UBH Flex 300/100	3,092	3,000	1,000
		Horizontal Brace UBH Flex 300/150	3,279	3,000	1,500

For horizontal bracing of towers.
Can also be used underneath UDG Decks.



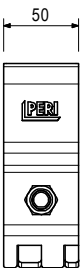
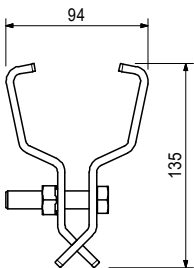
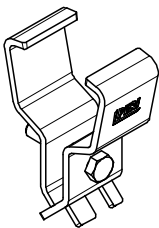
126009 1.630

LGS Keder Connector URV
For fixing Keder Tracks URK to scaffold components with tube Ø 48.3 mm.



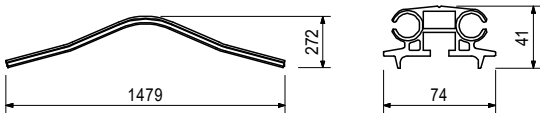
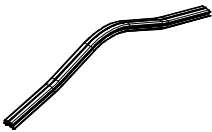
125166 0.674

LGS Keder Connector URK
For fixing Keder Tracks URK to LGS elements.



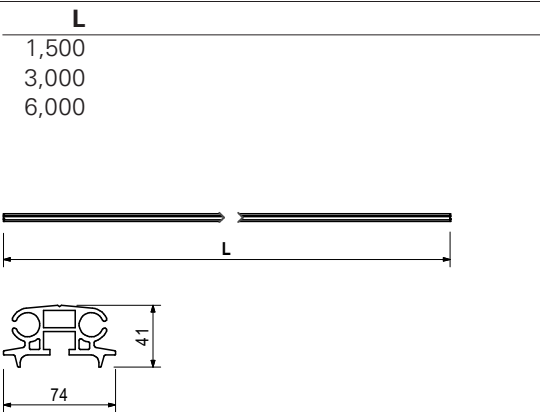
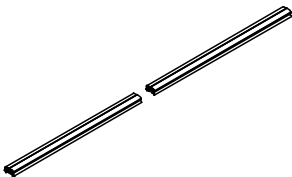
Article no.	Weight kg
126,051	3.640

LGS Ridge Rail URK 150
As a keder tarpaulin transition over the LGS Ridge Element URR.



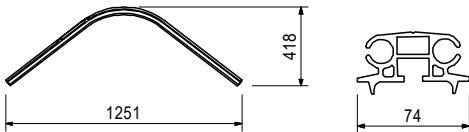
127501	3.530
127500	7.050
126071	14.100

LGS Keder Tracks URK
LGS Keder Track URK 150
LGS Keder Track URK 300
LGS Keder Track URK 600
Track for drawing keder tarpaulins into scaffold constructions.



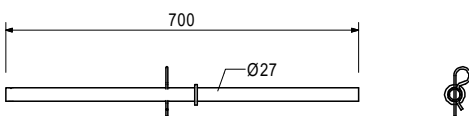
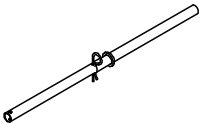
126491	3.370
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LGS Eave Rail URK
As a keder tarpaulin transition over the LGS Eave Element URB.



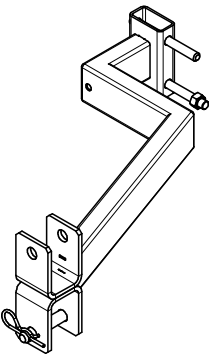
126487	1.150
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LGS Crank URG
For winding the keder tarpaulins onto the Tarpaulin Reel URG.

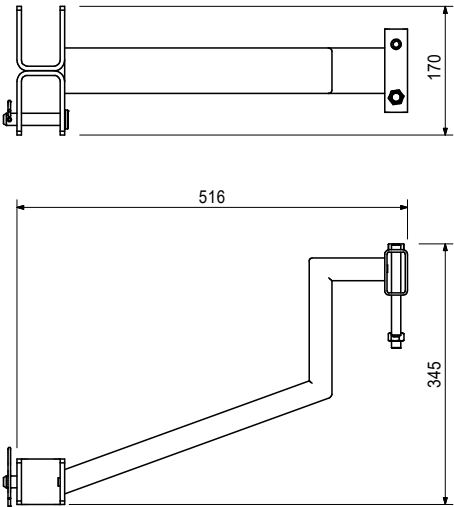


Article no.	Weight kg
126486	3.550

LGS Reel Connector URG
For attaching the Tarpaulin Reel URG onto the Eave Element URB in order to assemble the keder tarpaulins.

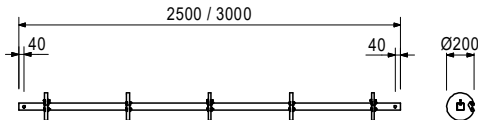
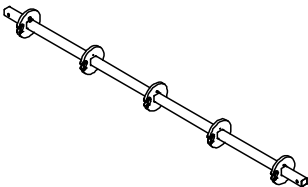


Complete with
1 pc. 126924 bolt ISO 4014 M12 x 130-8.8, galv.
1 pc. 710330 Nut ISO 4032 M12-8, galv.
1 pc. 106031 bolt Ø 16 x 70, coated
1 pc. 018060 Cotter Pin 4/1, galv.



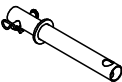
126484	10.500
126485	11.900

LGS Tarpaulin Reel URG
LGS Tarpaulin Reel URG 250
LGS Tarpaulin Reel URG 300
For transport and assembly / disassembly of keder tarpaulins.

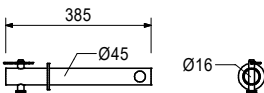


126488	1.240
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LGS Handle URG
Extension for the Tarpaulin Reel URG.

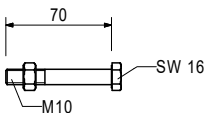


Complete with
1 pc. 106031 bolt Ø 16 x 70, coated
1 pc. 018060 Cotter Pin 4/1, galv.



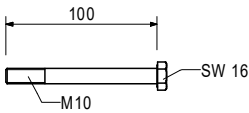
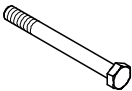
100719	0.060
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Bolt ISO 4014 M10 x 70-8.8
As a tension-resistant connection of standards for suspended scaffolds or formwork girders.



Article no.	Weight kg
710242	0.063

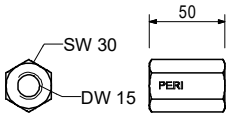
Bolt ISO 4014 M10 x 100-8.8, galv.



030,070	0.222
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Hex. Nut DW 15 AF 30/50, galv.
For anchoring with Tie Rod DW 15 and B 15.

Technical data
Permissible load 90 kN.



780356	0.011
070890	0.030
105032	0.070

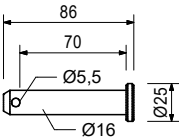
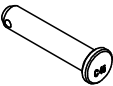
Nut ISO 7040-8, galv.
Nut ISO 7040 M10-8, galv.
Nut ISO 7040 M16-8, galv.
Nut ISO 7040 M24-8, galv.
Self-locking.

Note
Width across flats AF 16.



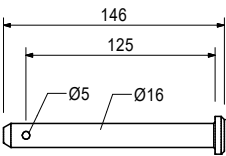
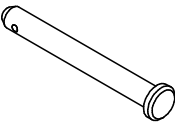
106031	0.142
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Bolt Ø 16 x 70, coated



136880	0.238
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Bolt Ø 16 x 150, coated

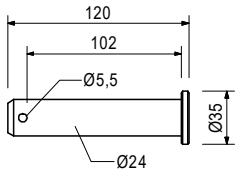
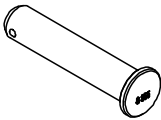


018060	0.014
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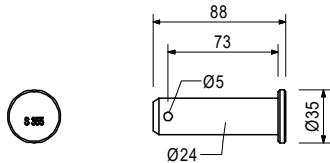
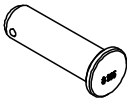
Cotter pin 4/1, galv.



Article no.	Weight kg	
106191	0.438	Bolt Ø 24 x 105, coated



127468	0.325	Pin Ø 24 x 70, galv.
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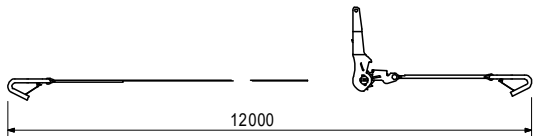
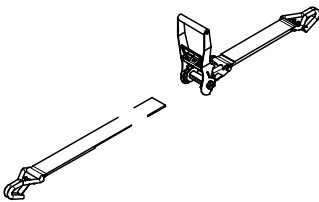
022,230	0.033	Cotter pin 5/1, galv.
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118349	3.530	Tension Belt PTB 12 Two-piece.
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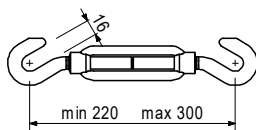
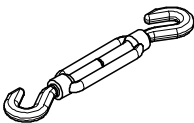
Note
Observe the notes on the belt label!

Technical data
Total length 12 m, max. span 8 m.
Permissible tensile force 2.5 t.



065074	0.450	Turnbuckle 3.0 kN, M12
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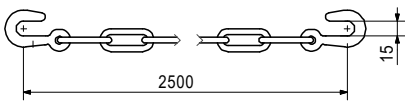
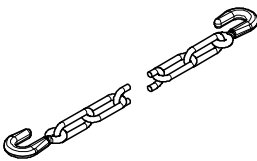
Technical data
Permissible tension force 3.0 kN.



Article no.	Weight kg
065073	1.370

Anchor chain 3.0 kN, l = 2.5 m

Technical data
Permissible tension force 3.0 kN.



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