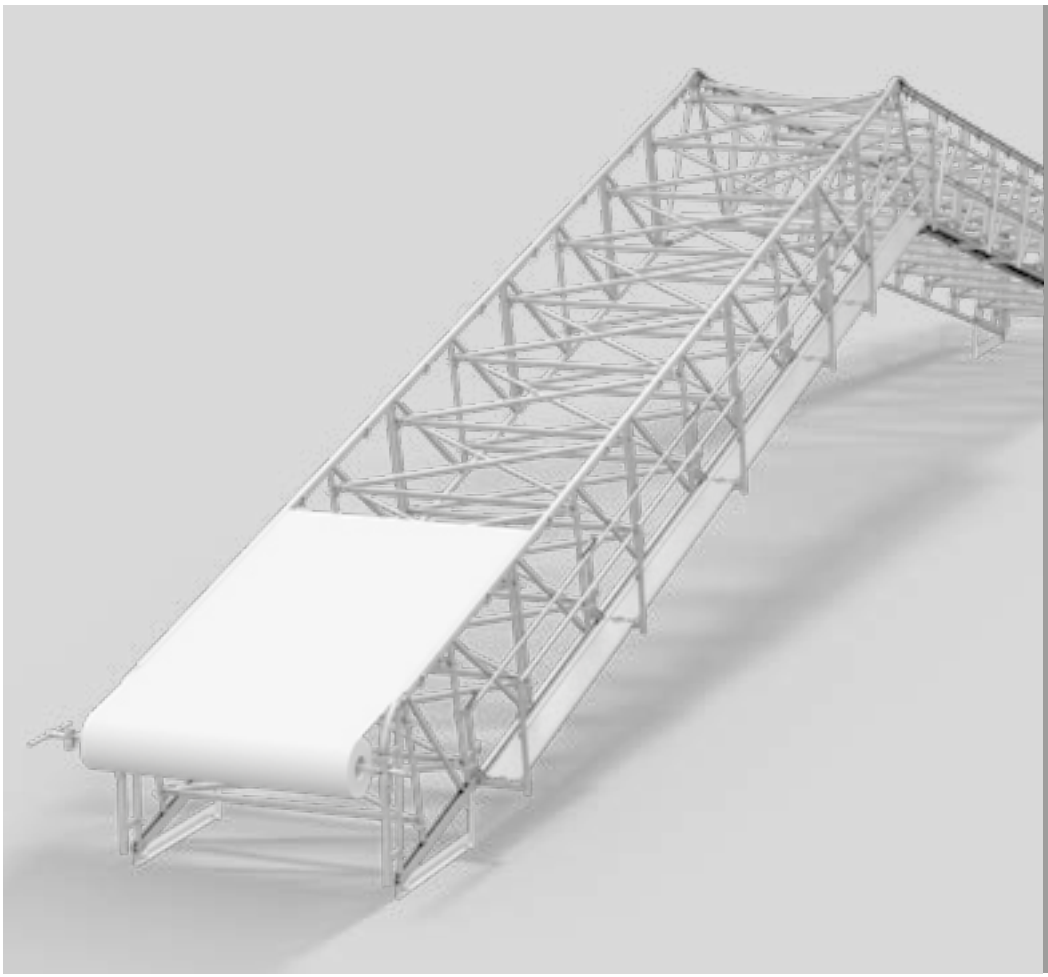
PERI

PERI UP Flex

Weather Protection Roof LGS 150

Instructions for Assembly and Use – Standard Configuration – Version 2.0





Contents

Overview
- Main components 4
- List of components 5
- Legend 6

Introduction
- Target groups 7
- Intended use 8
- Cleaning and maintenance instructions 9
- Disposal 9
- Identification marking of the Tension Belt PTB 12 9
- Additional technical documentation 10
- Instructions for Use 10
- Notes for all spans 11

Safety instructions
- Cross-system 12
- System-specific 14
- Tension Belt PTB 12 14
- Support 14
- Storage and transport 14
- Identification marking 15
- Laws and regulations 15
- Inspection, handover and use 16

Assembly
- A1 Girder package 18
  - Eave elements 18
  - Standard elements 21
  - With tension system 22
  - Connecting the standard elements 23
  - Bracing the standard elements 23
  - Other standard elements 24
  - Ridge element and ridge bar 25
  - Continuing to build the girder package 27
- A2 Access 28
  - Console brackets 28
  - Installing the steel deck 29
  - Guardrail posts 30
- A3 Keder tracks 31
- A4 Support roller 32
  - Support rollers 32
- A5 Ridge 33
  - Attaching the girder package 33
  - Ridge bracket 34
  - Ridge bar 35
  - Connecting the ridge bracket and ridge bar 36
  - Installing access to the ridge 37
  - Ridge rail 38
- A6 Keder tarpaulin 39
  - Reel connector 39
  - Drawing in the keder tarpaulin 39
- A7 Support 41
- A8 Tension system 42
  - General 42
  - Tie rods on both sides 43
  - Tension system set 43
  - Tension system connector 44
- A9 Ledger 45
  - Fitting the ledger 45
- A10 Mobile girder package 46
  - Rail support 46
  - Rail 47
  - Stopper 48
  - Carriage 48
  - Mounting on the carriage 49
- A11 Fixed girder package 50
  - Bearer 50
  - Mounting on the bearer 51
- A12 Disassembly 52
- A13 Design variants 53
  - Lean-to roof 53

Planning
- B1 Static design 54
  - Span 27.0 m 54
  - Span 35.7 m 55
  - Span 41.5 m 56
  - Weight 57
  - Crane attachment points 57
- B2 Support forces 58

Program overview
- PERI UP Flex Stair 75 60

Main components

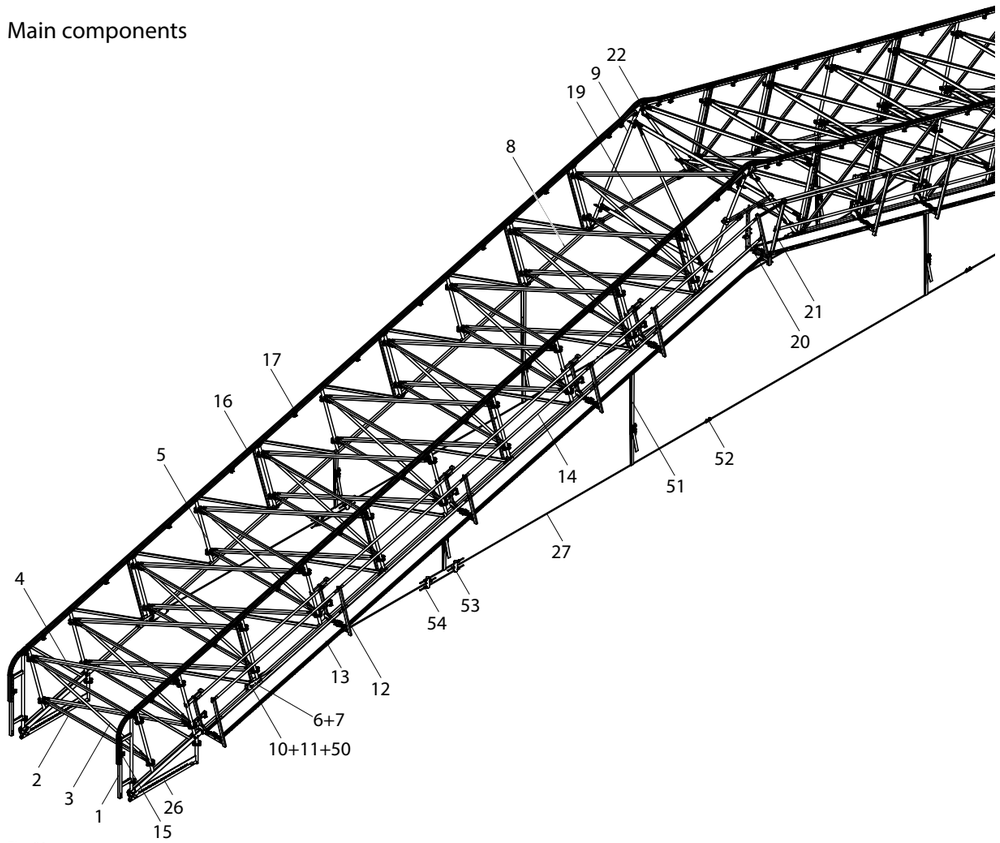


Fig. 01

1	LGS Eave Element URB 300/150	13	Steel Deck EDS	25	LGS Handle (without Fig.)
2	Horizontal Ledger UH-2	14	Guardrail Post EPG	26	LGS Support URS
3	Ledger Brace UBL-2	15	LGS Eave Rail URK	27	Tie Rod DW15
4	H-Brace UBH Flex	16	LGS Keder Track URK	50	Suspension Tie Connector URU
5	LGS Standard Element URB 300/150	17	LGS Keder Connector URK	51	Tension belt
6	Bolt Ø 16 x 70	18	Support Roller UEW (without fig.)	52	Tie Rod Extension URU
7	Cotter pin 4/1	19	Ridge Bar HD UR	53	Anchor Tie Yoke URU
8	LGS Intermediate Element URB 150/150	20	LGS Ridge Bracket URH	54	Hex. Nut DW 15 AF 30/50
9	LGS Ridge Element URR 150	21	LGS Ridge Guardrail URH		
10	Bolt Ø 24 x 70	22	LGS Ridge Rail URK		
11	Cotter pin 5/1	23	LGS Reel Connector URG (without Fig.)		
12	LGS Console Bracket URH	24	LGS Tarpaulin Reel URG 250 (without Fig.)		

List of components

Pos. no.	Component name	Art. no.
1	LGS Eave Element URB 300/150	126483
2	Horizontal Ledger UH-2 250	132025
3a	Ledger Brace UBL-2 250/100	132812
3b	Ledger Brace UBL250-2/150	132814
4a	H-Brace UBH Flex 250/100	114819
4b	H-Brace UBH Flex 250/150	124101
5	LGS Standard Element URB 300/150	104768
6	Bolt Ø 16 x 70	106031
7	Cotter pin 4/1	018060
8	LGS Intermediate Element URB 150/150	104792
9	LGS Ridge Element URR 150	104769
10	Bolt Ø 24 x 70	127468
11	Cotter pin 5/1	022230
12	LGS Console Bracket URH	126490
13a	Steel Deck EDS 33 x 300	129272
13b	Steel Deck EDS 33 x 150	130445
13c	Steel Deck EDS 33 x 250	130438
14a	Guardrail Post EPG 300	130201
14b	Guardrail Post EPG 150	130195
14c	Guardrail Post EPG 250	130199
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
20	LGS Ridge Bracket URH	126489
21	LGS Ridge Guardrail URH	126466
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
26a	LGS Support URS 15°	104771
26b	LGS Support URS 0°	105399
27a	Tie Rod DW 15, L = 6 m	030160
27b	Tie Rod DW 15, special length L ~ 4 m	030030
27c	Tie Rod DW 15, L = 1 m	030480
28	Ledger URL 150/14	105386
29	Bolt ISO 4014-M10x100	710242

Pos. no.	Component name	Art. no.
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	105398
45	LGS End Element URB 150	105334
50	LGS Suspension Tie Connector URU	128823
51	Tension Belt PTB 12	118349
52	Tension System Connector URU	129435
53	Anchor Tie Yoke URU	128817
54	Hex. Nut DW 15 AF 30/50	030070
55	LGS Crank URG	126487

Tab. 01

Legend

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 can be found at the beginning of the section or before instructions for action and are highlighted as follows:

Danger
This sign indicates an extremely hazardous situation which could result in death or serious, irreversible injury if the safety instructions are not followed.

Warning
This sign indicates a hazardous situation which could result in death or serious, irreversible injury if the safety instructions are not followed.

Caution
This sign indicates a hazardous situation which could result in minor or moderate injury if the safety instructions are not followed.

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 the text in brackets, for example (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 equipment that may not have been shown in these detailed illustrations must nevertheless be available.

Terminology
Components are not always named in full so that they are easier to read. All components deemed valid according to the program overview may be used.
Exceptions are specified.

Example:
- Horizontal ledger
corresponds to:
- Horizontal Ledger UH Plus
- Horizontal Ledger UH-2.

Target groups

Entrepreneur
These Instructions for Assembly and Use are designed for contractors who either
- assemble, modify and dismantle PERI systems, 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 system operations,
- prepares and updates the plan for assembly, modification and dismantling,
- prepares and updates the plan for use of the system by the 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
PERI systems 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 system in an understandable form and language.
- Description of the measures for safely assembling, modifying or dismantling the system.
- 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 system, 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.

Intended use

Product description
PERI products have been designed to be used exclusively in industrial and commercial sectors by suitably trained personnel only.

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 impermeability. This must be established using project-specific additional measures.

Technical data
- Wind loads q according to DIN EN 1991-1-4 / NA:2010-12
  - q_1 = 0.35 kN/m²
  - q_2 = 0.56 kN/m²
  - q_3 = 0.77 kN/m²
  - Speed pressure reduced by a factor of 0.7 for temporary conditions of up to 24 months without safeguards.
- 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 kN/m²
  - SL2a = 0.25 kN/m²
  - SL2b = 0.60 kN/m²

Standard configuration
- Width B of the girder package from 1.50 m to 3.00 m in 25 cm steps
- Span L_{sp}
  - up to 41.50 m
  - is the distance from centre support to centre support.
- The spans are based on a weather protection construction enclosed on all sides (roof and supporting structure) with max. 10 % openings per wall.
- 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.

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.

Cleaning and maintenance instructions

Clean the scaffolding components after each use to maintain the value and operational readiness of the PERI products over the long term.

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

The following instructions 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.

Disposal

Dispose of in accordance with the relevant national regulations.

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.

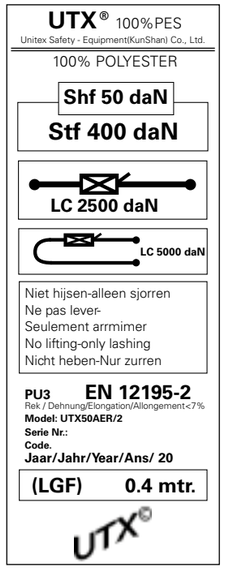


Fig. 02a

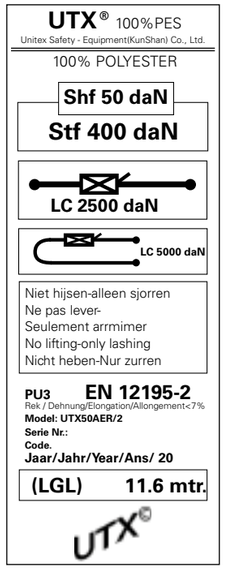


Fig. 02b

Additional technical documentation

- Instructions for Assembly and Use
  - PERI UP Scaffolding Kit core components
  - PERI UP Flex Stair 75
  - PERI UP Flex Stair 100 and 125
  - 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 Scaffolding System
  - Approval Z-8.1-970 PERI UP Easy 100 Scaffolding System
- User information – pallets and stacking devices
- PERI UP – Design Tables

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 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.

Notes for all spans

Warning
Do not climb on the roof if at all possible.
Risk of falling.
⇒ Give preference to access via walkways. If this is not possible or the access point needs to be exited, then wear personal protective equipment against falling from a height (PPE).

Attachment points for PPE
(Fig. 03)

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.

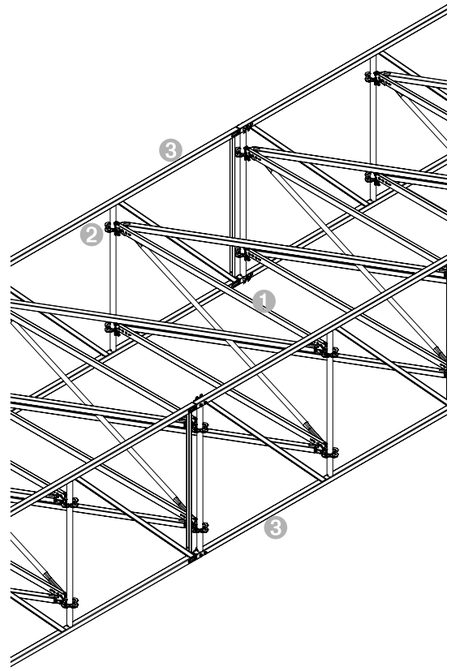


Fig. 03

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

* Eave, standard, intermediate element

Horizontal ledger

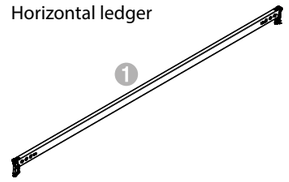


Fig. 03a

Eave element

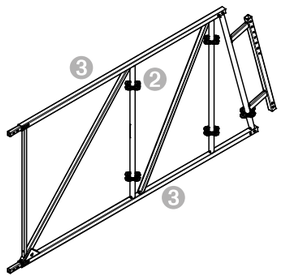


Fig. 03b

Standard element

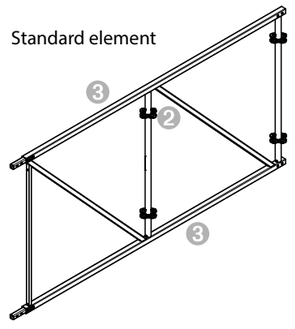


Fig. 03c

Intermediate element

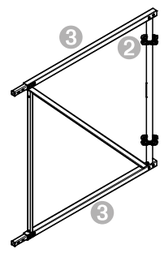


Fig. 03d

Cross-system

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

General
The contractor must guarantee 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, the Instructions for Assembly and Use are not a substitute for a risk assessment!

Observe 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.
- Scaffolding tubes: galvanised steel tubing with minimum dimensions of Ø 48.3 x 3.2 mm according to EN 12811-1:2003 4.2.1.2.
- Scaffolding 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 scaffolding 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 scaffolding 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 scaffolding 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 scaffolding 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 guarantee safe assembly, modification and dismantling of the scaffolding system.

The contractor must ensure that the personal protective equipment required for the assembly, modification or dismantling of the scaffolding 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 to be used to prevent falling 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. cordon off and clearly mark danger zones.
- guarantee 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 scaffolding systems to be used, is responsible for ensuring that the equipment is in good condition.

If the scaffolding 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 scaffolds are 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 scaffold 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 with a jarring blow 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 %.

Support

The load-bearing capacity of the supports must be verified on site for the respective weights of the system. The respective weights can be found in the section on support reactions.

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

The assembly of the supports must be carried out from a safe workplace.

Storage and transport

Store and transport components in such a way that no unintentional change in their position is possible. Detach lifting accessories and gear 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 in such a way that unintentional falling over, falling apart, sliding, falling down or rolling is avoided.
- no one is allowed to remain under the suspended load.

Always guide pre-assembled scaffolding 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 and must also be slip-resistant.

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

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

Identification marking

When carrying out the work the following signs must be observed:
If certain parts of the scaffold 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.

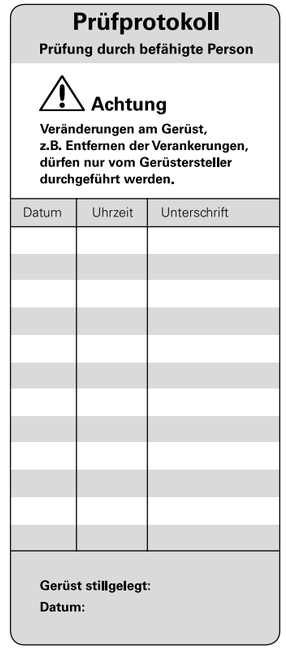


Sign 1



Sign 2

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



Sign 2, rear side

Laws and regulations

When assembling, modifying, dismantling and using the scaffolds 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:

- German 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 scaffold 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 scaffold 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 scaffolding 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.

Inspection based on

Risk assessment
Instructions for Assembly and Use
Plan for assembly, modification and dismantling

Components used	Stability	Working and operational safety
Condition, e.g. obviously undamaged	Load-bearing capacity of the substrate and attachment points	Identification marking of widths and load classes
Identification markings, e.g. tubes, scaffold couplers, system components	Anchoring, inspection, dimensions	Lateral protection
Dimensions, e.g. planking, tube wall thickness	Supporting system	Stairs
	Spacing of standards, suspensions, console brackets, kicker braces	Corner execution
	Anchoring pattern, bracing and reinforcement	Completeness and support of the decking
	Eccentricities, spindle lengths, inclinations, tolerances	Spacing between the building and edge of decking
		Decking configuration depending on the fall height
		Protection panel in roof edge protection scaffold
		Distance to overhead lines/lightning protection

Source: based on TRBS 2121 Part 1

PERI UP Flex Weather Protection Roof LGS 150
Instructions for Assembly and Use – Standard Configuration

Eave elements

- Width "B" is variable
  - in 25-cm increments,
  - from 1.50 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 "$H_{squared\ timber}$" ≥ 16 cm.

(Fig. A1.01)

Components

1	LGS Eave Element URB 300/150	2x
2	Horizontal Ledger UH-2 250	4x
3a	Ledger Brace UBL-2 250/100	2x
4a	H-Brace UBH Flex 250/100	2x

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.

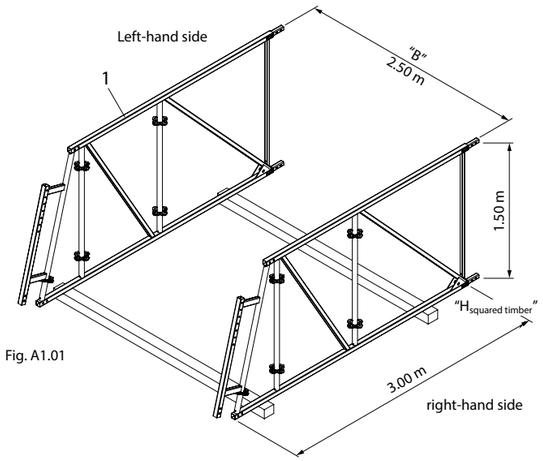


Fig. A1.01

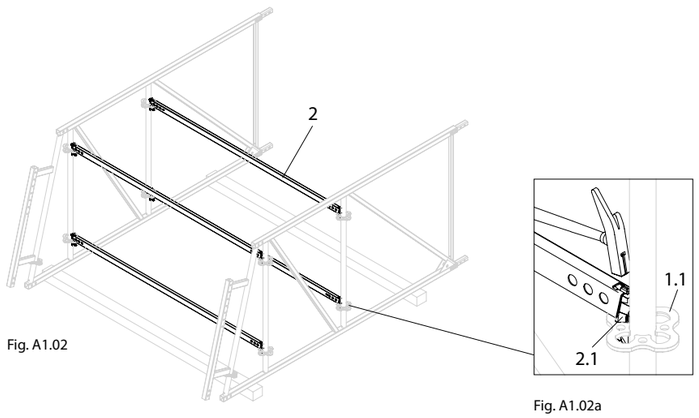


Fig. A1.02

Fig. A1.02a

4. Install ledger brace (3a):
   - Tilt the mounting finger (3.2) into the hole of the lower horizontal ledger. (Fig. A1.03c + d)
   - Insert gravity pin (3.1) through the hole of the upper horizontal ledger, and then turn sideways. (Fig. A1.03a + b)
     → The ledger brace is now secured.

(Fig. A1.03)

Are all gravity pins (4.1) transversely positioned and on both sides of the hole? (Fig. A1.03b)

- 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.

Gravity pin – above

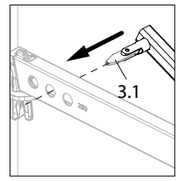


Fig. A1.03a

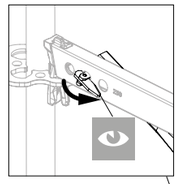


Fig. A1.03b

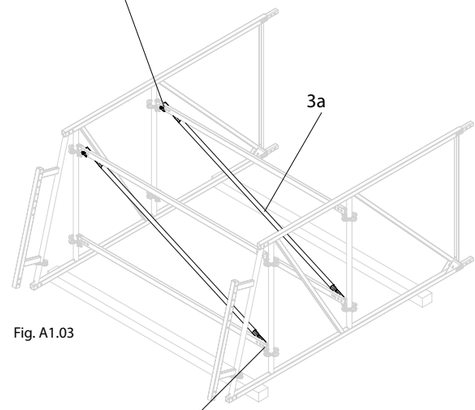


Fig. A1.03

Mounting finger – below

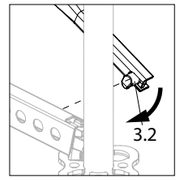


Fig. A1.03c

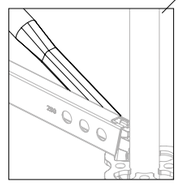


Fig. A1.03d

Bracing the eave element
Installing H-braces (4a):

- Install first side:
  Attach hook without slider (4.1) to the rosette and push down. (Fig. A1.04a + b)
- Fit second side diagonal to the first side:
  – Attach hook with slider (4.2) to the rosette. (Fig. A1.04c)
  – Push the slider towards the rosette until the bolt (4.3) falls into the longitudinal groove. (Fig. A1.04d)
  → Slider is secured.

(Fig. A1.04)

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.
- Fitting decks, for example as installation aids, is only possible if the H-braces are installed from below.

Installing the first side
Shown without horizontal ledger.

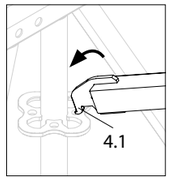


Fig. A1.04a

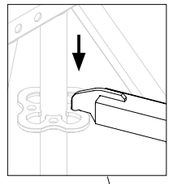


Fig. A1.04b

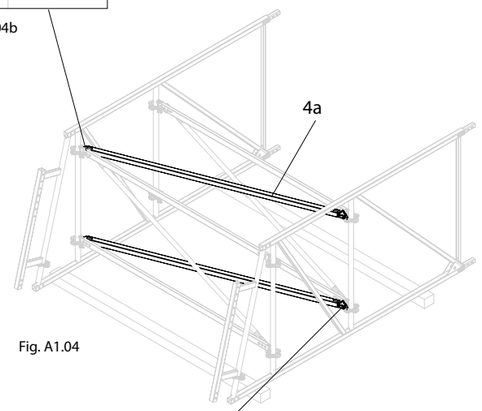


Fig. A1.04

Installing the second side

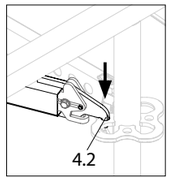


Fig. A1.04c

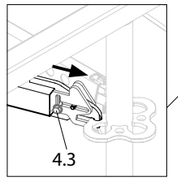


Fig. A1.04d

Slider must be pushed back in order to attach the hook.
→ Securing mechanism is released. (Fig. A1.04c)

Standard elements

There are two variants:
– without tension system,
– with tension system,
see from page 22 onwards.

Without tension system
Components

5	LGS Standard Element URB 300/150	2x
6	Bolt Ø 16 x 70	8x
7	Cotter pin 4/1	8x

Assembly

1. Slide the tube of the standard element (5) into the pin of the eave element. (Fig. A1.05)
2. Insert bolts (6) – from the outside to the inside – through the holes of the rectangular tube and secure with cotter pins (7) – 2x per tube pin connection. (Fig. A1.05a)

Are all the bolts and cotter pins securely in position – right and left sides? (Fig. A1.05a)

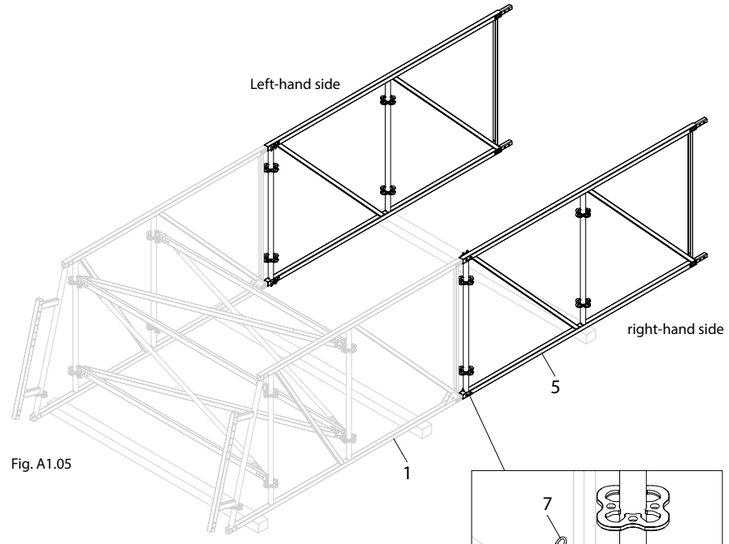


Fig. A1.05

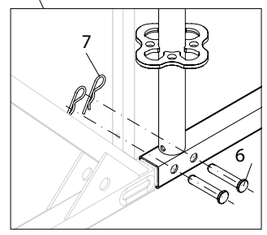


Fig. A1.05a

Fig. A1.05b

With tension system

Tension system installed
- on the eave element – shown below.
- between two standard elements (not shown).

Pay heed to the position of the holes.

Components

5	LGS Standard Element URB 300/150	2x
6	Bolt Ø 16 x 70	8x
7	Cotter pin 4/1	8x
10	Bolt Ø 24 x 70	2x
11	Cotter pin 5/1	2x
50	Suspension Tie Connector URU	2x

Installation on eave element
1. Slide the tube of the standard element (5) into the pin of the eave element (1). (Fig. A1.06)
2. Push the suspension tie connector (50) over the rectangular tube. (Fig. A1.06a)
3. Secure bolts (10) and cotter pins (11) – from the outside to the inside. (Fig. A1.06a)
   → 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. A1.06a)

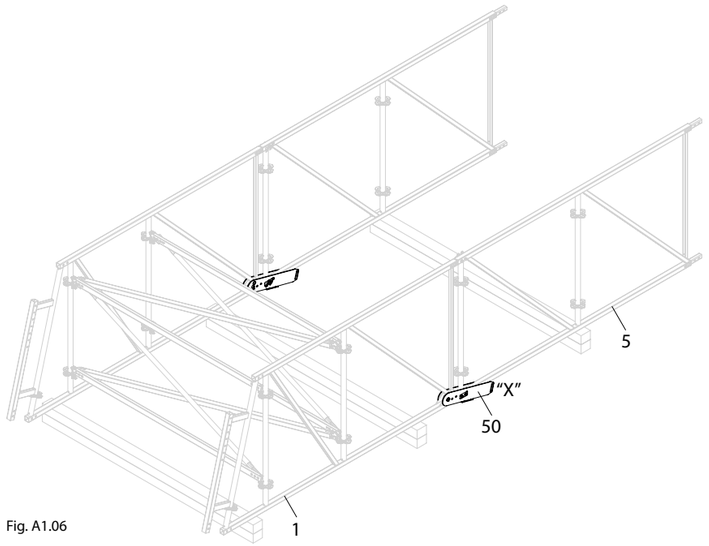


Fig. A1.06

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

Alternative
Installation on standard 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. A1.06b)

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 Section "A8 Tension system" from page 42.

Detail "X"
Connecting an eave element and standard element

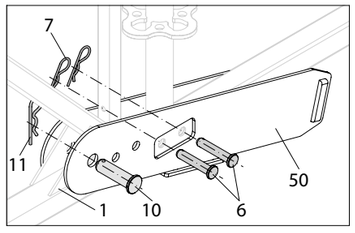


Fig. A1.06a

Alternative
Connecting two standard elements

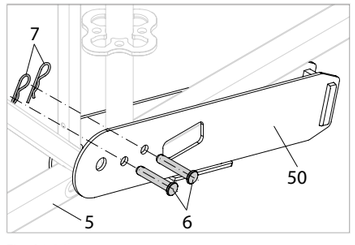


Fig. A1.06b

Connecting the standard elements

The subsequent assembly process is shown without a tension system.

Components

2	Horizontal Ledger UH-2 250	4x

Assembly
1. Attach horizontal ledgers (2) to the rosette on both sides (1.1) using the ledger heads and wedges (2.1). (Fig. A1.02a)
2. Securely fix all wedges using a hammer. (Fig. A1.02a)
   → Horizontal ledgers are now secured.

(Fig. A1.07)

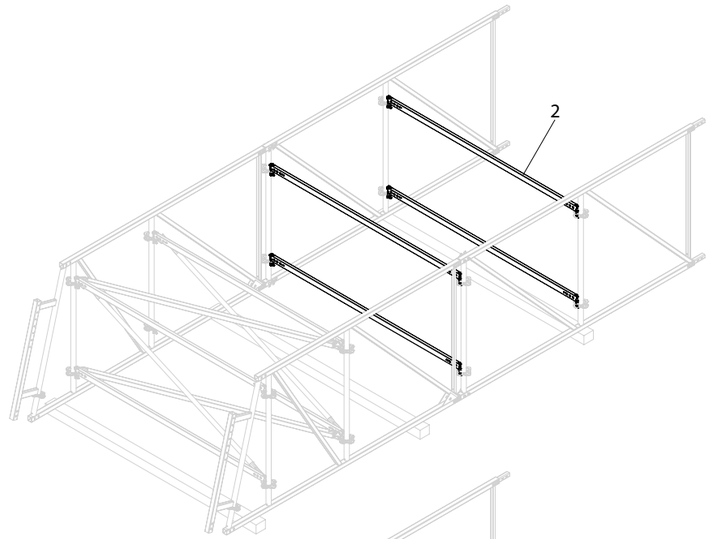


Fig. A1.07

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

Bracing the standard elements

Components

3a	Ledger Brace UBL-2 250/100	2x
4b	H-Brace UBH Flex 250/150	4x

Assembly
1. Install ledger brace (3a). (Fig. A1.08)

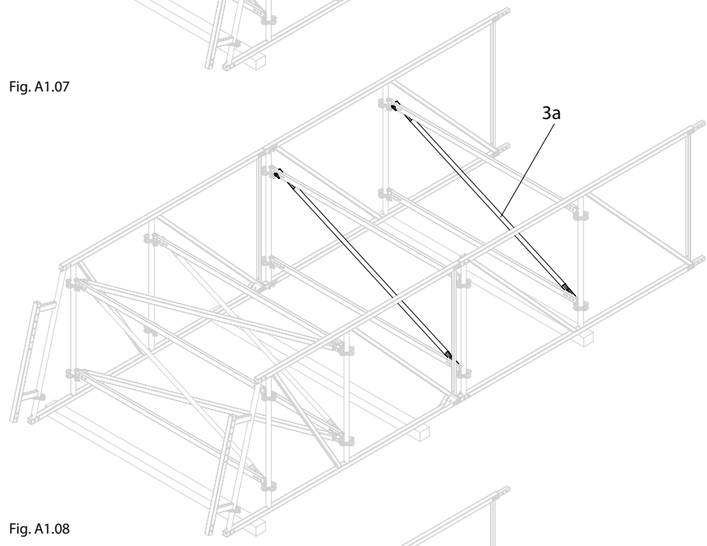


Fig. A1.08

2. Install H-braces (4b). (Fig. A1.09)
   → Standard elements are now braced.

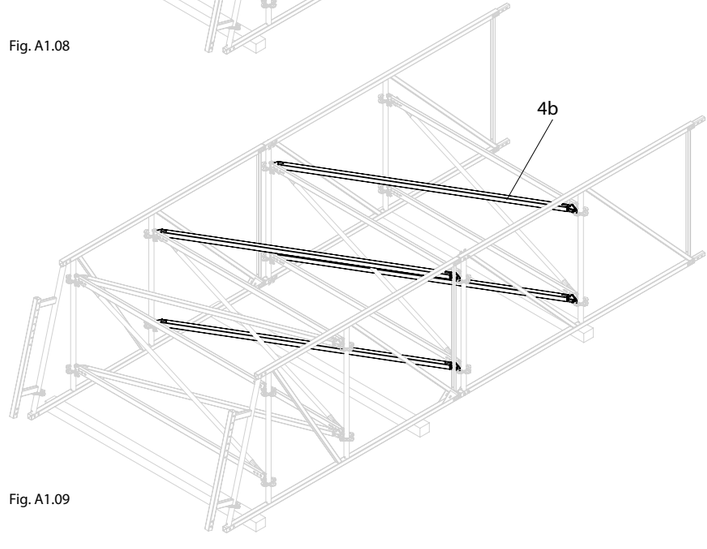


Fig. A1.09

Other standard elements

Components

2	Horizontal Ledger UH-2 250	10x
3a	Ledger Brace UBL-2 250/100	5x
4b	H-Brace UBH Flex 250/150	10x
5	LGS Standard Element URB 300/150	4x
6	Bolt Ø 16 x 70	24x
7	Cotter pin 4/1	24x
8	LGS Intermediate Element URB 150/150	2x

Assembly
1. Fit the other standard elements (5) – until the required length is reached, see Section "Standard elements" from page 21.
2. If necessary, fit intermediate elements (8) to compensate. (Fig. A1.10)

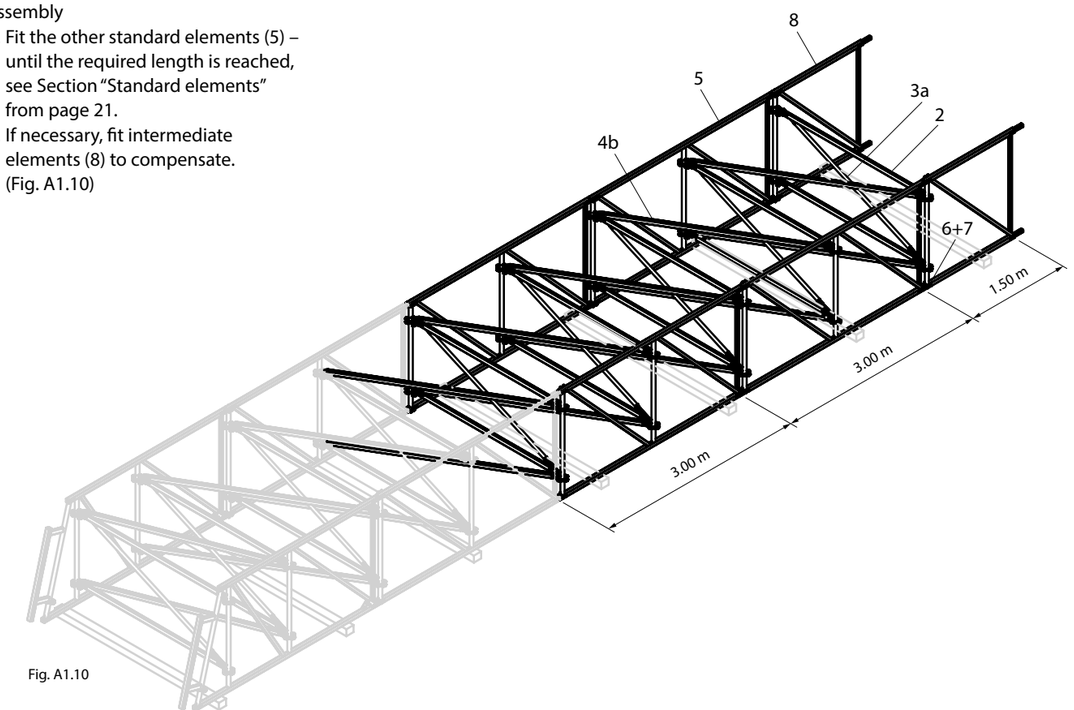


Fig. A1.10

Ridge element and ridge bar

Two ridge elements (9) and the ridge bar (19) together form the ridge, see Section "Ridge bar" from page 35.

Components

2	Horizontal Ledger UH-2 250	4x
3a	Ledger Brace UBL-2 250/100	1x
3b	Ledger Brace UBL-2 250/150	1x
4a	H-Brace UBH Flex 250/100	2x
4b	H-Brace UBH Flex 250/150	1x
6	Bolt Ø 16 x 70	8x
7	Cotter pin 4/1	8x
9	LGS Ridge Element URR 150	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. A1.11)

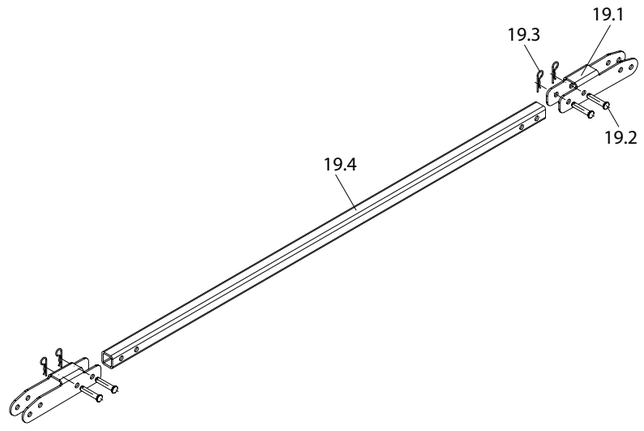


Fig. A1.11

Assembly
1. Fit the tube of the ridge element (9) onto the pin of the last element (standard or intermediate element). (Fig. A1.12)
2. Slip the bracket (19.1) over the ridge element. (Fig. A1.12a)
3. Fix the bolts (6) and cotter pins (7) – 2x. (Fig. A1.12a)
   → Secured connection.
4. Fit the bracket of the ridge bar on the left side, see steps 1 – 3.
5. Attach horizontal ledgers (2).
6. Securely fix all wedges using a hammer. (Fig. A1.13)
   → Horizontal ledgers are now secured.

The Ridge Bar UR 150° (Art. No. 104891) can be installed as an alternative to the Ridge Bar HD UR 150° (19), however, not in the gable area.

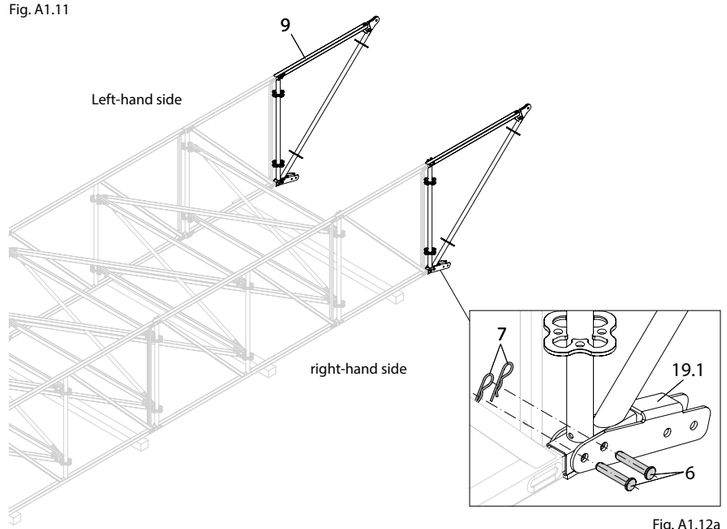


Fig. A1.12

Fig. A1.12a

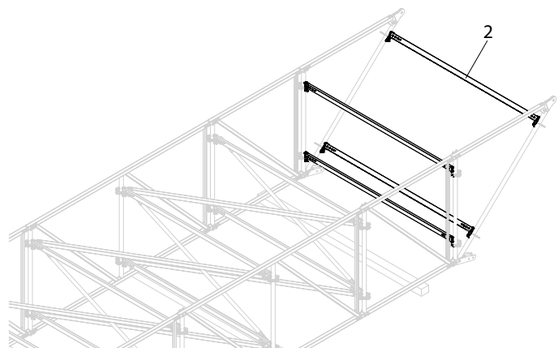


Fig. A1.13

7. Install ledger braces (3a + 3b). (Fig. A1.14)

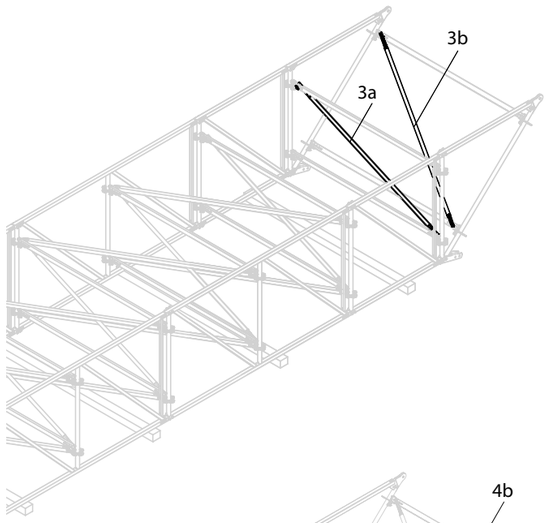


Fig. A1.14

8. Install H-brace (4a) – 2x. (Fig. A1.15)
9. Install H-brace (4b) – 1x. (Fig. A1.15)

→ First girder unit is now ready.

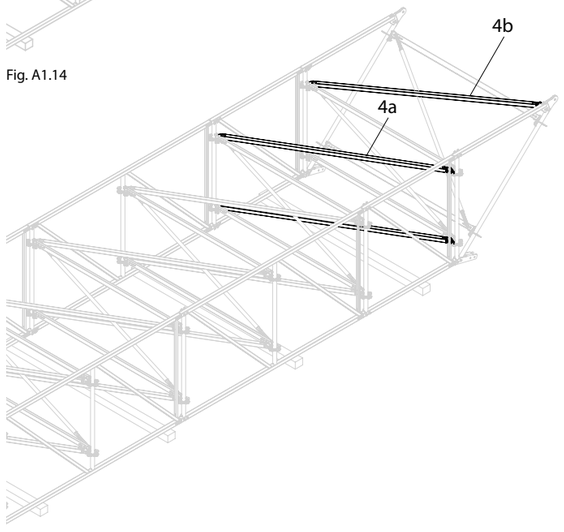


Fig. A1.15

The 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)

Continuing to build the girder package

Components for second girder unit

1	LGS Eave Element URB 300/150	2x
2	Horizontal Ledger UH-2 250	22x
3a	Ledger Brace UBL-2 250/100	10x
3b	Ledger Brace UBL-2 250/150	1x
4a	H-Brace UBH Flex 250/100	2x
4b	H-Brace UBH Flex 250/150	15x
5	LGS Standard Element URB 300/150	6x
6	Bolt Ø 16 x 70	40x
7	Cotter pin 4/1	40x
8	LGS Intermediate Element URB 150/150	2x
9	LGS Ridge Element URR 150	2x
10	Bolt Ø 24 x 70	2x
11	Cotter pin 5/1	2x

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. A1.16a)
2. Secure bolts (10) and cotter pins (11) – from the outside to the inside – in the holes of the head plates. → Secured connection.

(Fig. A1.16b)

Fitting the second girder unit

1. Fit the ridge elements (9), see Section "Ridge element and ridge bar" from page 25.
2. Install intermediate elements (8) and standard elements (5), see Section "Other standard elements" from page 24.
3. Fit the eave elements (1), see Section "Eave elements" from page 18.

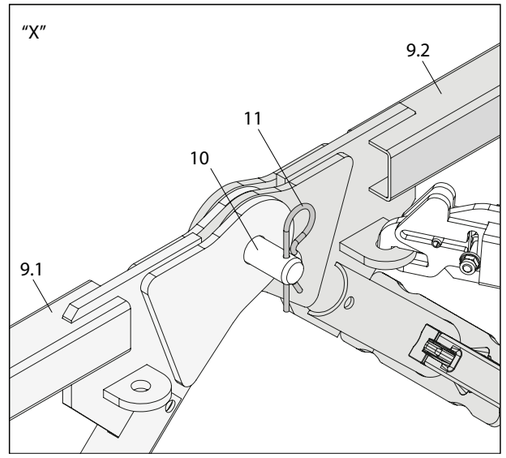


Fig. A1.16a

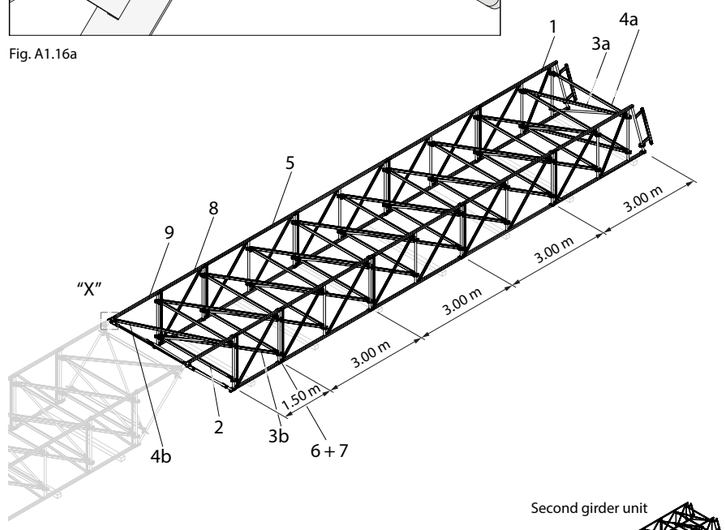


Fig. A1.16b

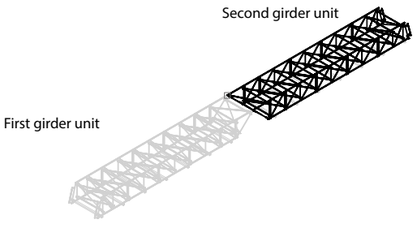


Fig. A1.16c

Are the areas of the rectangular tubes (9.1 + 9.2) aligned? (Fig. A1.16a)

Together, the first girder unit and second girder unit form one girder package., see Fig. A1.16c.

Console brackets

Perm. weight on the console bracket or access point: 100 kg.

Access is not compulsory if another secure access point, e.g. mobile scaffold, is available.
In this case, skip Section A2 Access.

- Console brackets are used to accommodate:
  - Steel Decks EDS 33.
  - Guardrail Posts EPG.
- Do not install any console brackets in the area of the suspension tie connector.
- The access point is exclusively an assembly aid for the roof and is not intended for use during working operations.

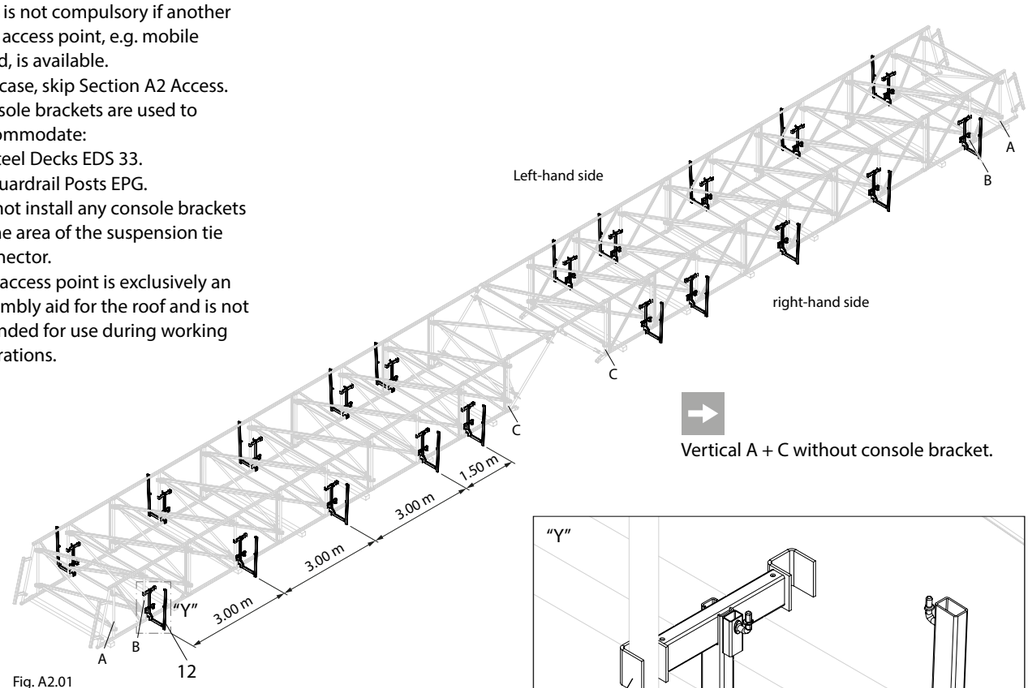


Fig. A2.01

Vertical A + C without console bracket.

Components

12	LGS Console Bracket URH	20x

Fitting a console bracket
1. Hook the lug (12.1) of the console bracket onto the vertical at B.
2. Attach the ledger head and wedge (12.2) of the ridge guardrail to the rosette on one side and simultaneously position the lug (12.3) of the console bracket on the rectangular tube of the element.
3. Secure the wedge with a hammer.
   → The ridge guardrail is now secured.

(Fig. A2.01 + A2.01a)

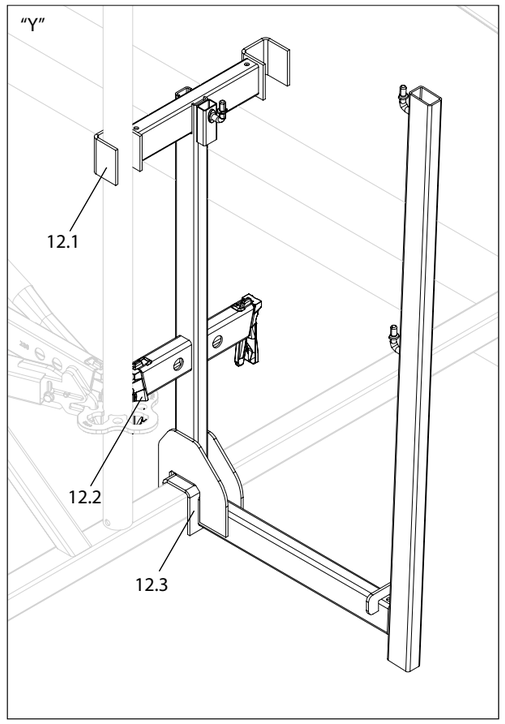


Fig. A2.01a

Fitting additional console brackets
Fit console brackets on the first and second girder units and on the right and left of the girder package.
The distance between the console brackets is 3.00 m, or 1.50 m if intermediate elements are required.
(Fig. A2.01)

Installing the steel deck

Components

13a	Steel Deck EDS 33 x 300	12x
13b	Steel Deck EDS 33 x 150	4x

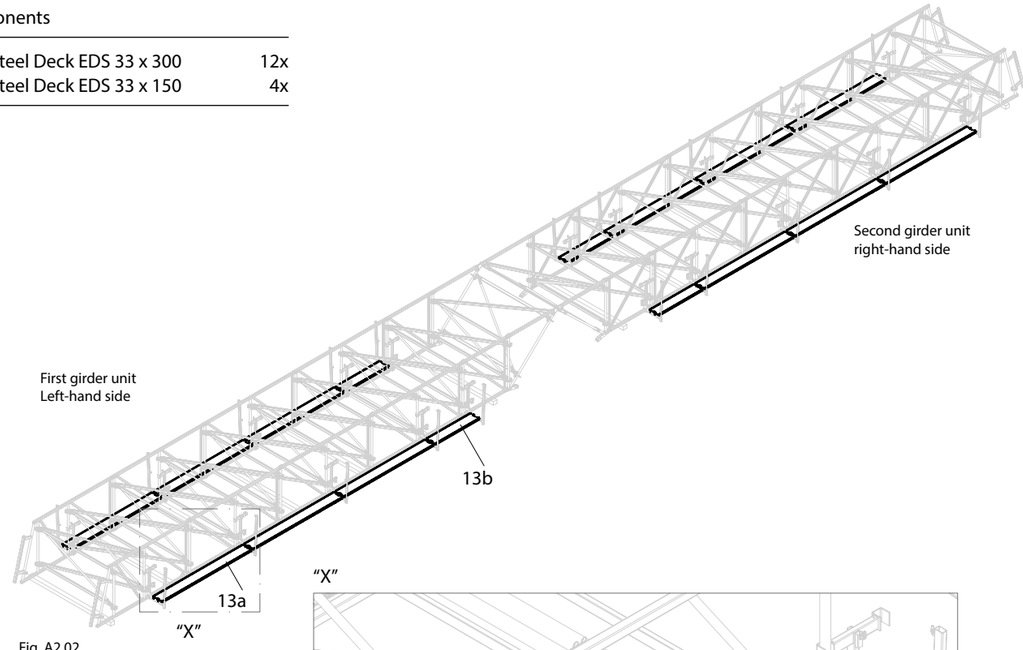


Fig. A2.02

Fitting the deck on the console brackets
1. Place both hooks (13.1) of one side of the deck over the support tube (12.4) of the console bracket.
2. Allow the other side of the deck to fall on the support tube of the next console bracket.

→ On both sides, the clips (13.1) snap into place under the support tube and secure the deck.

(Fig. A2.02 + A2.02a)

Are the clips (13.2) flush with the deck surfaces?

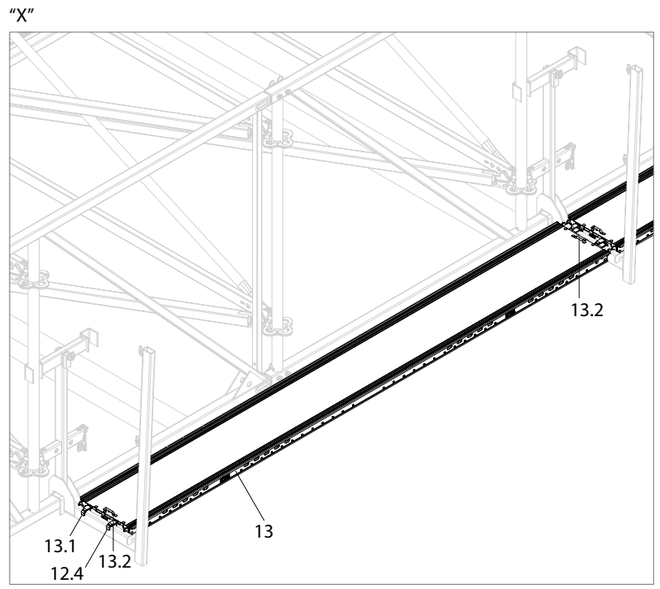


Fig. A2.02a

Fitting additional decks
Fit steel decks on the right and left side of the girder package.
– Standard element:
  Steel Deck EDS 33 x 300 (13a).
– Intermediate element:
  Steel Deck EDS 33 x 150 (13b).
(Fig. A2.02)

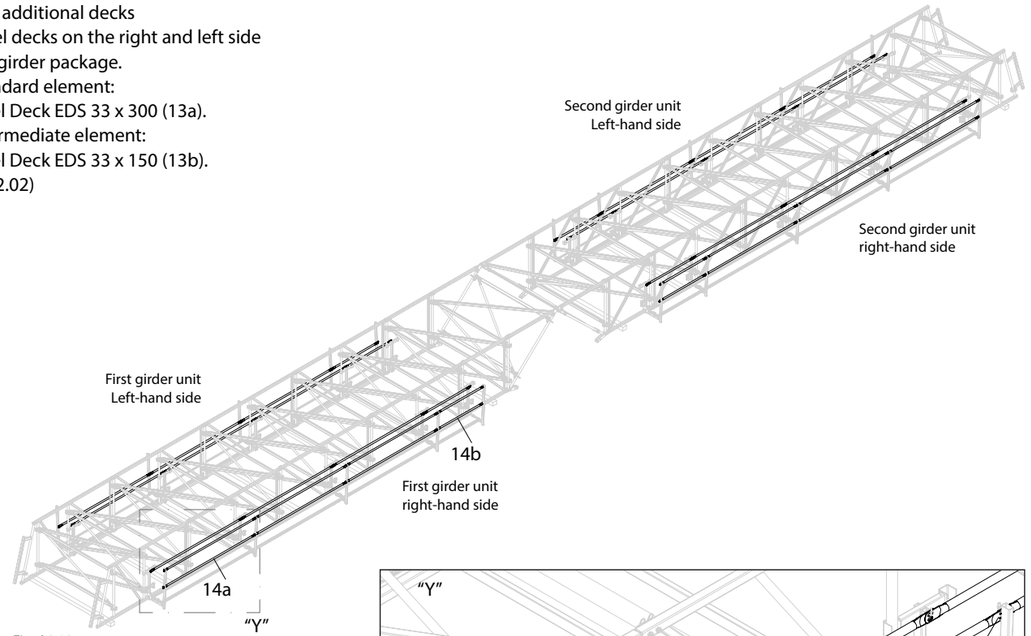


Fig. A2.03

Guardrail posts

Components

14a	Guardrail Post EPG 300	36x
14b	Guardrail Post EPG 150	12x

Assembly
Turn the connecting pieces (14.1) of the guardrail post horizontally and position them on the guardrail hooks.
(Fig. A2.03b)
1. Align the slot (14.2) with the guardrail hook (12.1) and insert. (Fig. A2.03c)
2. Release the guardrail post.
   → The guardrail post drops into a vertical position and is secured. (Fig. A2.03d)

(Fig. A2.03)

Have the guardrail posts been installed at A + B + C? (Fig. A2.03a)

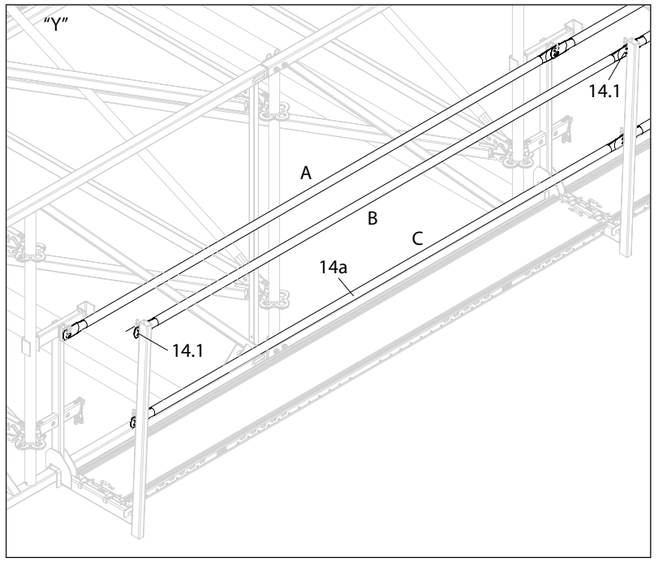


Fig. A2.03a

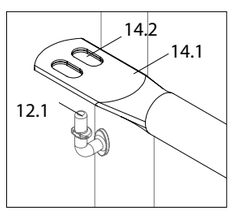


Fig. A2.03b

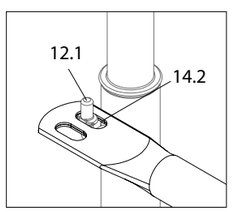
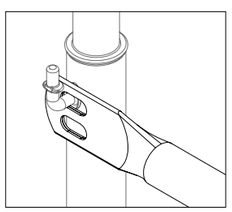


Fig. A2.03c



A2.03d

Keder tracks

Components

15	LGS Eave Rail URK	4x
16a	LGS Keder Track URK 600	8x
16b	LGS Keder Track URK 150	4x
17	LGS Keder Connector URK	44x

- Fit the keder connections a maximum of 1.50 m apart.
- Valid up to wind load q = 0.77 kN/m².

Assembly
1. Position the eave rail (15) on the keder tube and topmost outer tube of the eave element (1). (Fig. A3.01)
2. Adjust the reference dimension 50 cm.
   → Eave rail projection on the rectangular tube of the eave element. (Fig. A3.01a)
3. Place keder track (16a/16b) in the connection on the eave rail, and secure at the joint using the keder connector. (Fig. A3.02 + A3.03)
4. Fix the keder connector (17) to the eave rail – 2x at bottom. (Fig. A3.02a)
5. Adjust the reference dimension 60 cm.
   → Spacing of the final keder track at the end of the rectangular tube of the ridge element; (Fig. A3.03) reference dimension 60 cm is placeholder for ridge rail.

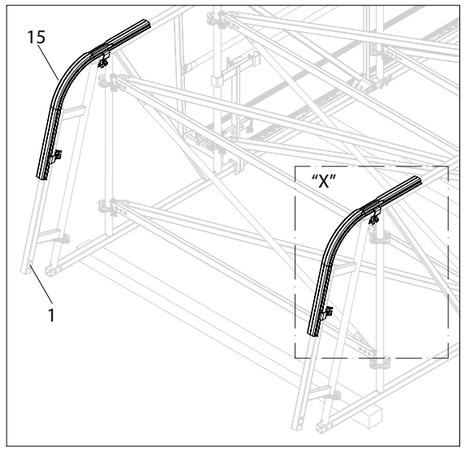


Fig. A3.01

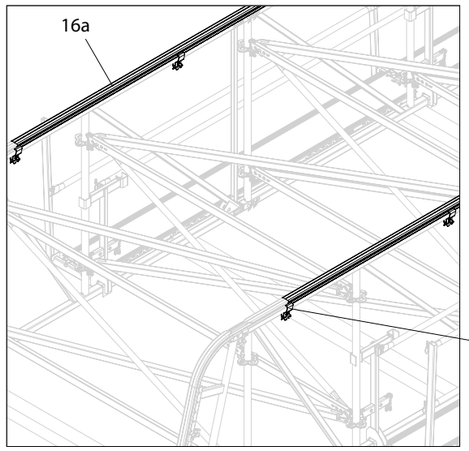


Fig. A3.02

Fig. A3.02a

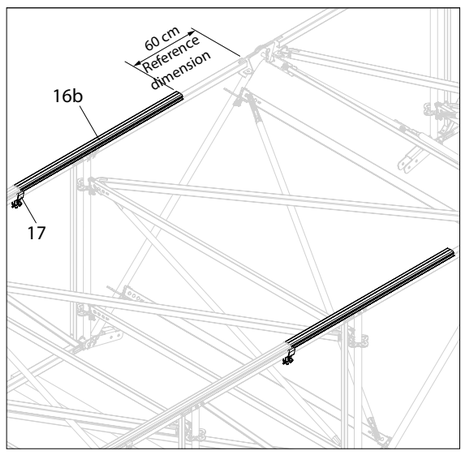


Fig. A3.03

"X"

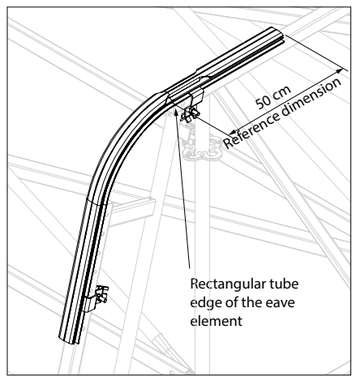


Fig. A3.01a

Support rollers

The 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 Ø16 x 70	4x
7	Cotter pin 4/1	4x
18	Support Roller UEW unstopped	4x

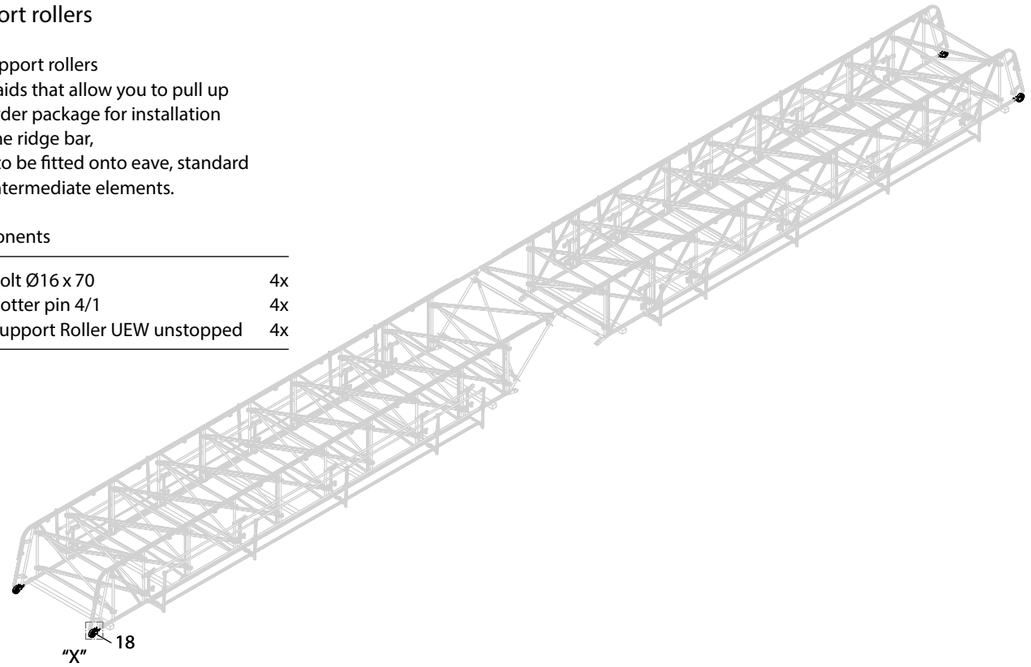


Fig. A4.01

Fitting a support roller
1. Insert support roller (18) into the rectangular tube of the eave element (1.1).
2. Insert a bolt (6) – from the outside to the inside – through the outer hole of the rectangular tube and secure with a cotter pin (7).

(Fig. A4.01a)

Attach two ropes to the girder package. The keder tarpaulin can now be drawn in. Draw in the keder tarpaulin, see Section "Drawing in the keder tarpaulin" from page 39.

"X"

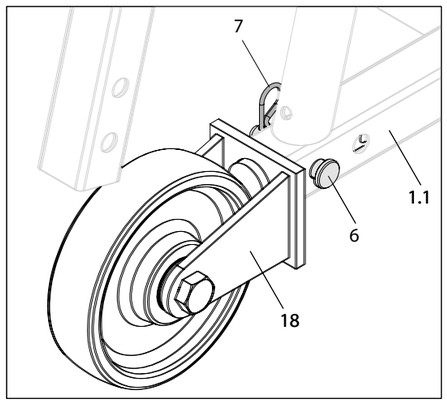


Fig. A4.01a

Attaching the girder package

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. A5.01 + A5.01a)

Wrap the textile lifting gear around the vertical above the top rosette.
(Fig. A5.01b)

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

- Crane attachment points, see from page 57 onwards.
- Weights, see from page 57 onwards.

The PERI UP Flex Scaffolding 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.

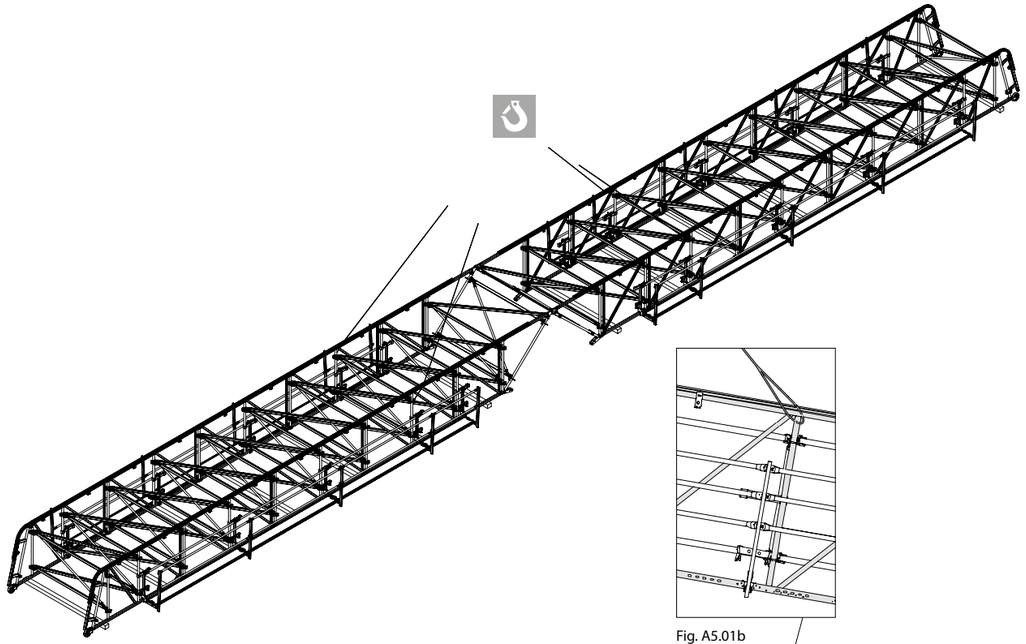


Fig. A5.01

Fig. A5.01b

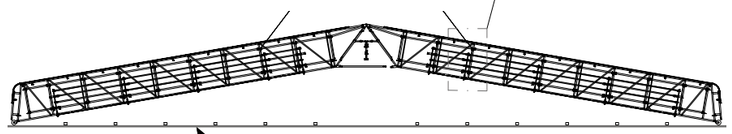


Fig. A5.01a

Ridge bracket

The ridge bracket
- is only required if the means of access is installed, see Section "A2 Access" from page 28.
- closes the catwalk,
- acts as a holder for the ridge guardrail.

Components

20	LGS Ridge Bracket URH	2x

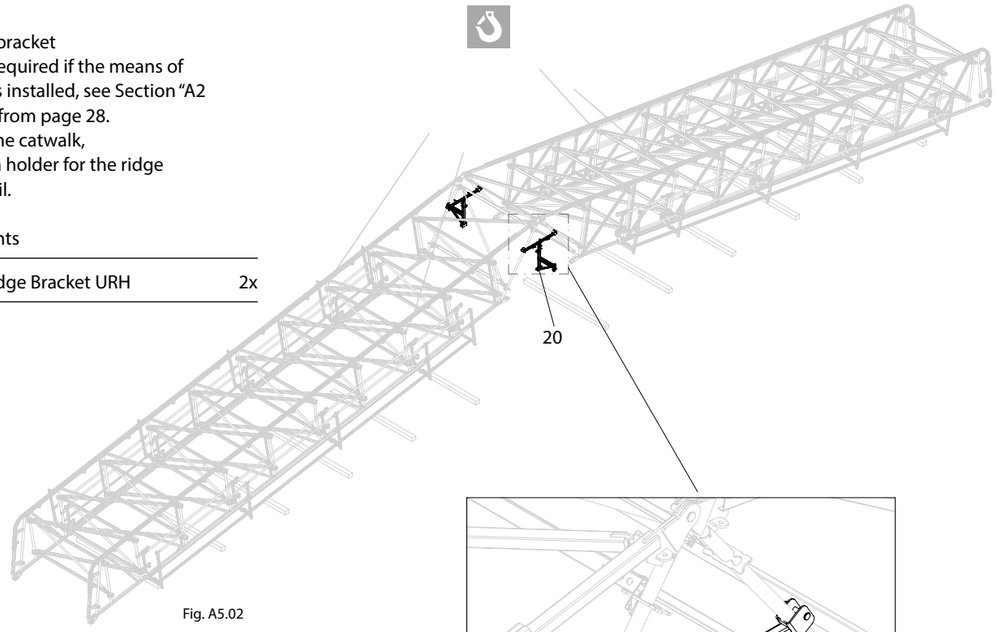


Fig. A5.02

Preparation
1. Remove cotter pins (7) and bolts (6.1) from the brackets (20a) of the ridge bracket.
2. Lift the girder package with the crane so it is close to the end position.

The length of the ridge bar can be used as a measurement reference when lifting.

Fitting a ridge bracket
1. Place one bracket (20.1) over the diagonal tube of the right-hand ridge element (9.1).
2. Insert a bolt (6) through the hole of the bracket and secure with a cotter pin (7).
3. Repeat steps 1 + 2 on the other diagonal tube.
(Fig. A5.02a + Fig. A5.02)

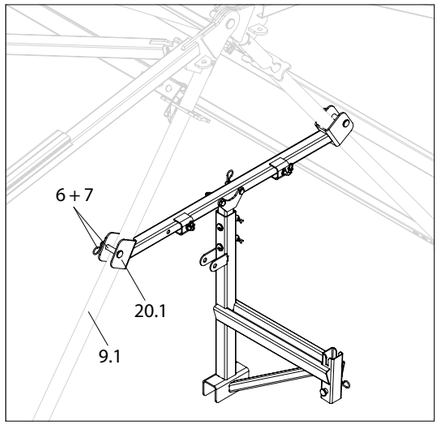


Fig. A5.02a

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 securing the bracket, see Section "Ridge element and ridge bar" on page 25.

Assembly
1. Push the rectangular tube (19.4) on one side between the brackets (19.1) of the ridge bar. (Fig. A5.03a)
2. Insert bolts through the holes and secure with cotter pins – 2x.
3. Repeat steps 1 + 2 on the other side.
4. 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).
5. Insert bolts through the holes and secure with cotter pins – 2x.

(Fig. A5.03 + A5.03a)

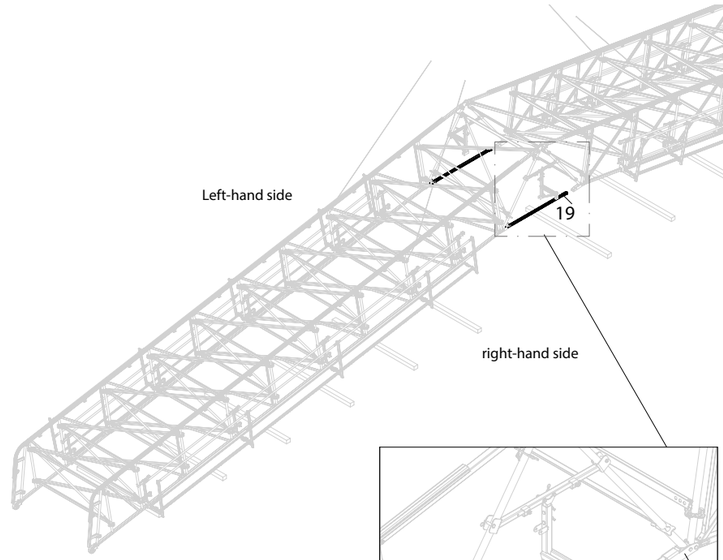


Fig. A5.03

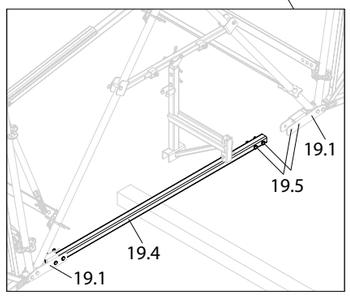


Fig. A5.03a

Connecting the ridge bracket and ridge bar

This section is only required if access has been mounted, see Sections "Access" on page 28 and "Ridge bracket" on page 34.

Assembly
1. Pull cotter pins (19.3) and bolts (19.2) out of the ridge bracket – 2x.
   → The outer tube with guide plate (20.3) slides downwards onto the horizontal rectangular tube of the ridge bar.
2. Connect tubes with bolts and cotter pins – 2x.
   → Secured connection.

→ The ridge bracket is fully installed. (Fig. A5.04 + A5.04a + A5.04b)

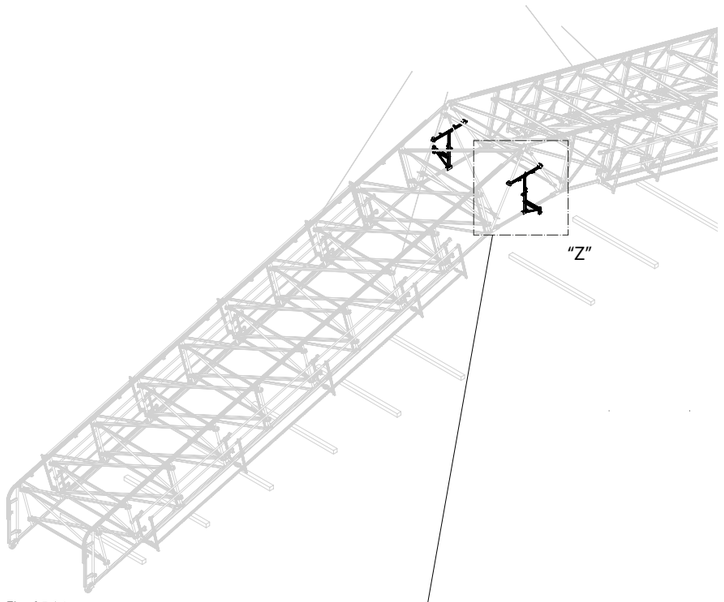


Fig. A5.04

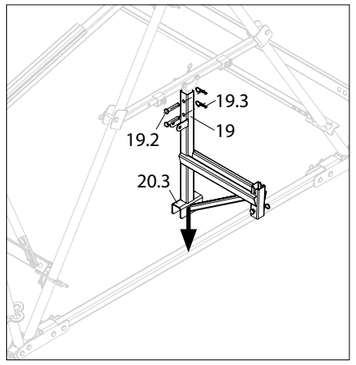


Fig. A5.04a

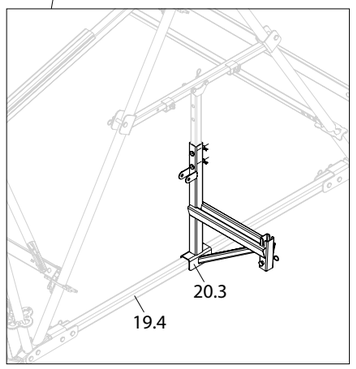


Fig. A5.04b

Installing access to the ridge

This section is only required if access has been mounted, see also Sections "Access" on page 28, "Ridge bracket" on page 34 and "Connecting the ridge bracket and ridge bar" on page 36.

Components

13c	Steel Deck EDS 33 x 250	4x
14c	Guardrail Post EPG 250	12x
21	LGS Ridge Guardrail URH	2x

Preparation
Remove cotter pins (20.6) and bolts (20.5) from the rectangular tube of the ridge bracket. (A5.06a)

Assembly
1. Fit steel decks (13c), see Section "Installing the steel deck" on page 29. (Fig. A5.05)

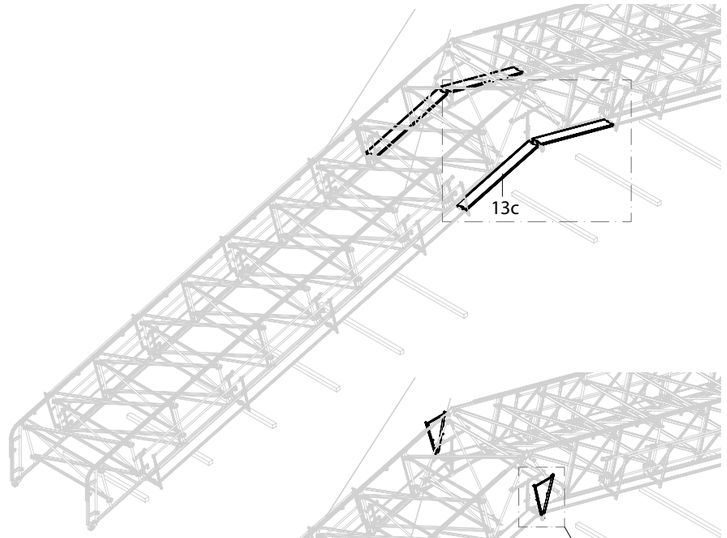


Fig. A5.05

2. Insert the ridge guardrail (21) into the connection (20.4) of the ridge bracket. (Fig. A5.06 + A5.06a)
3. Fix the bolts (20.5) and cotter pins (20.6). (A5.06a)
   → The ridge guardrail is secured.

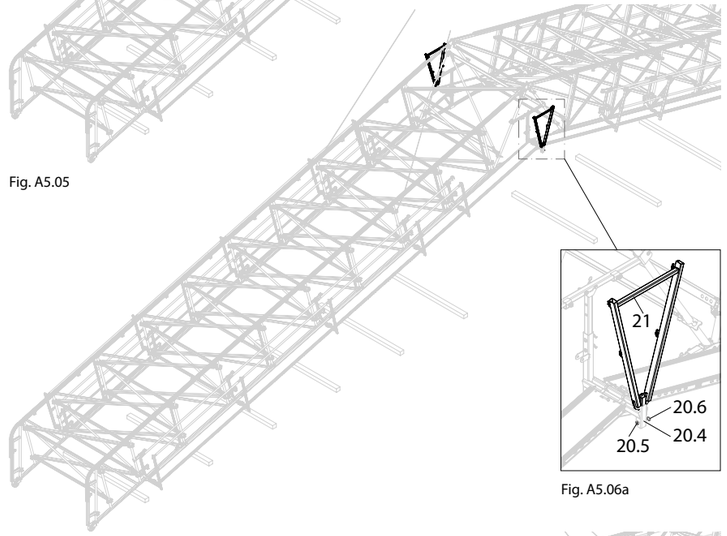


Fig. A5.06a

Fig. A5.06

4. Fit guardrail posts (14c), see Section A2.3. (Fig. A5.07)

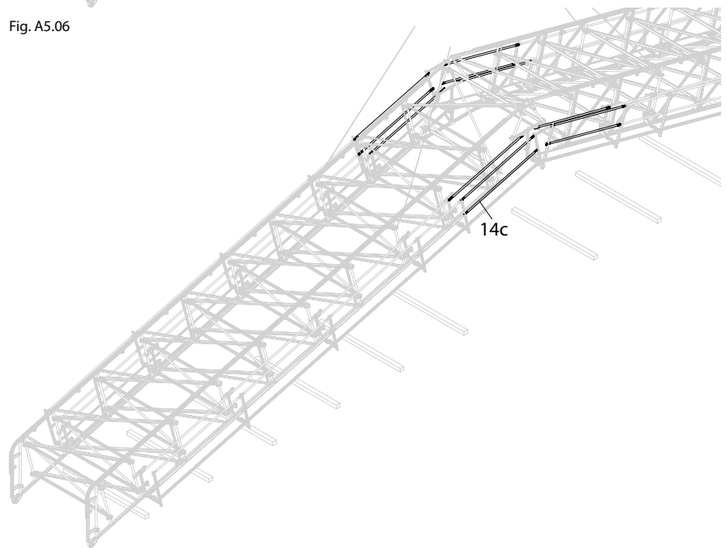


Fig. A5.07

Ridge rail

Components

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

Assembly
1. Place the ridge rail (22) on the outer tube of the ridge element.
2. Secure the keder connector (17) at the joint of the ridge rail and keder track – 2x. (Fig. A5.08a)

(Fig. A5.08)

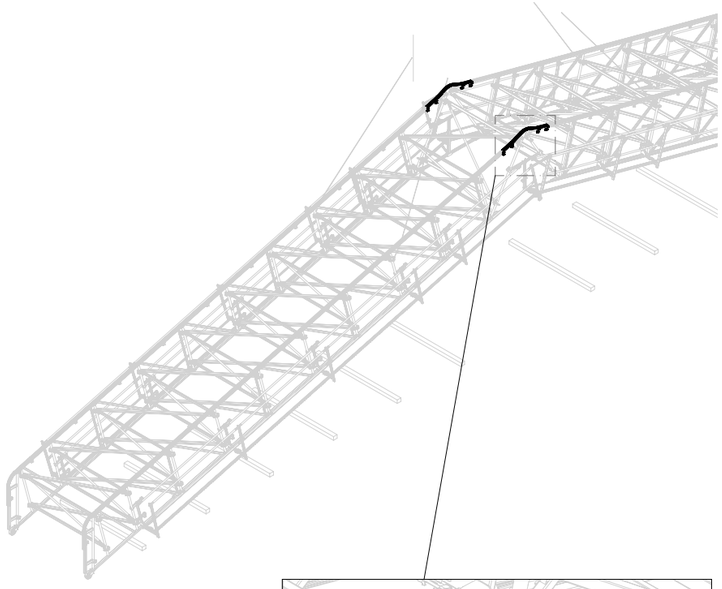


Fig. A5.08

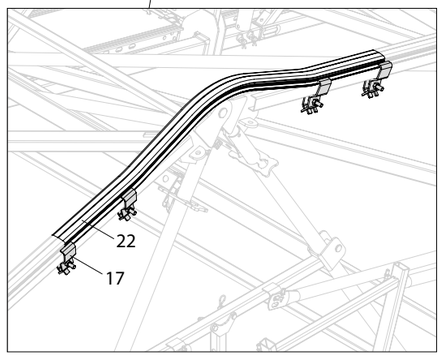


Fig. A5.08a

Fig. A1.03c Fig. A1.03d

Reel connector

Components

23	LGS Reel Connector URG	2x

Preparation
Remove nuts from the bolts of the reel connector (23).

Assembly
Fix the reel connector (23) to the eave rail with nuts and bolts – 2x.
(Fig. A6.01 + A6.01a)

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

Drawing in the keder tarpaulin

Components

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

Preparation
1. Remove the cotter pin (23.2) and bolt (23.1) from the reel connector (23). (Fig. A6.01a)
2. Fit the handles (25) onto the tarpaulin reel (24).

Assembly
1. Place the tarpaulin reel with the handles on both sides in the bearing plates (23.3) of the reel connector. (Fig. A6.01a + Fig. A6.02)
2. Fix the bolts (23.1) and cotter pins (23.2).
   → The tarpaulin reel is secured.
3. Feed the keder cord into the groove of the eave rails (15a). (Fig. A6.02)

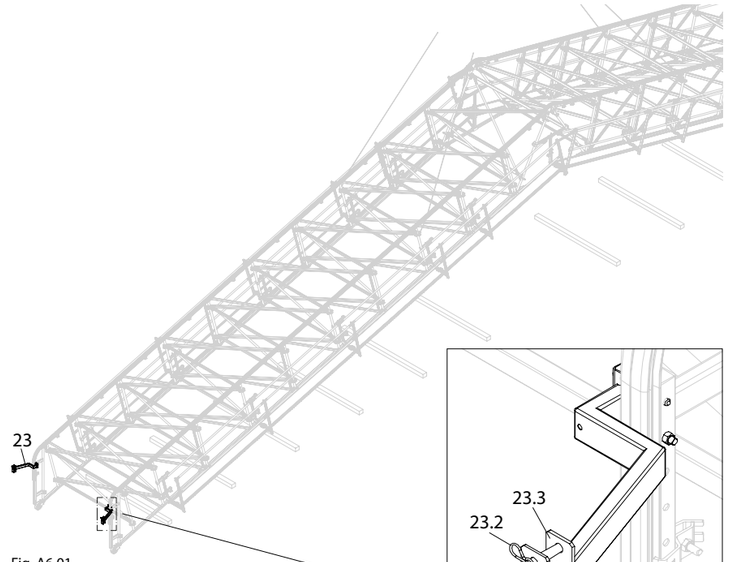


Fig. A6.01

Fig. A6.01a

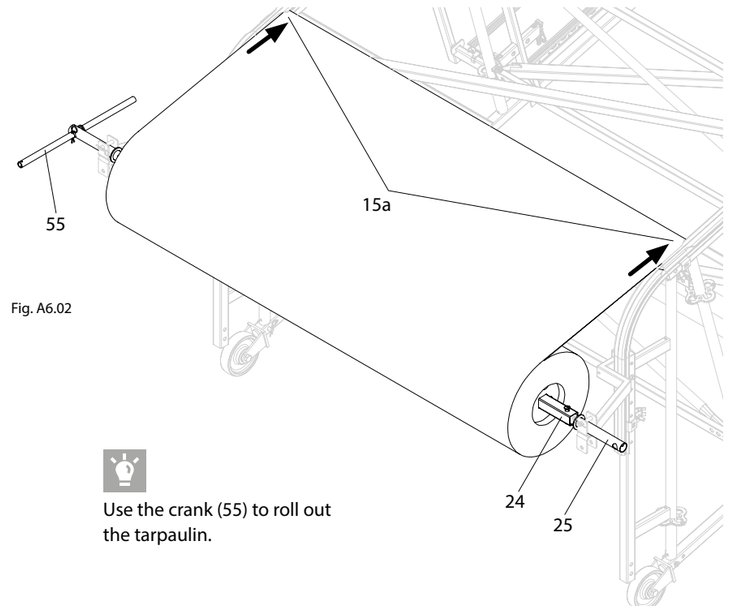


Fig. A6.02

Use the crank (55) to roll out the tarpaulin.

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

(Fig. A6.04)

Place the tube on the keder tracks and connect it to the keder tarpaulin at the D-ring. Fasten the 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. A6.03)

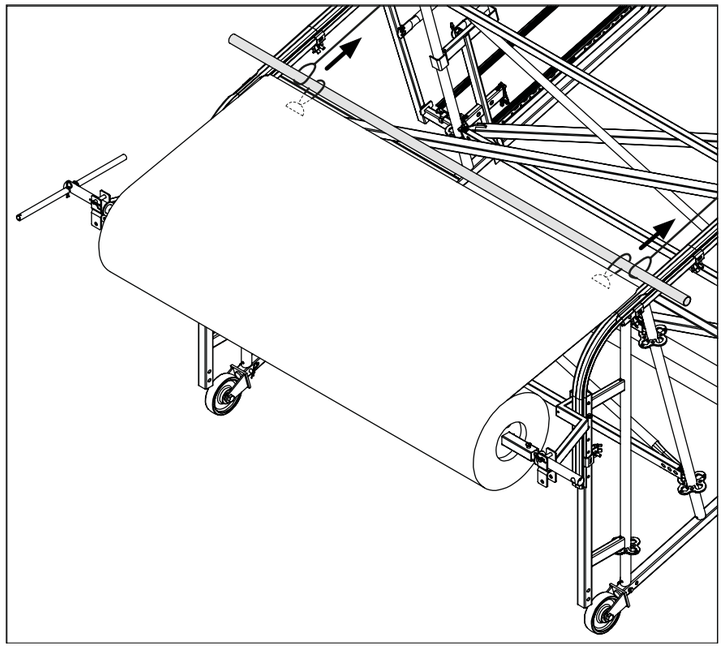


Fig. A6.03

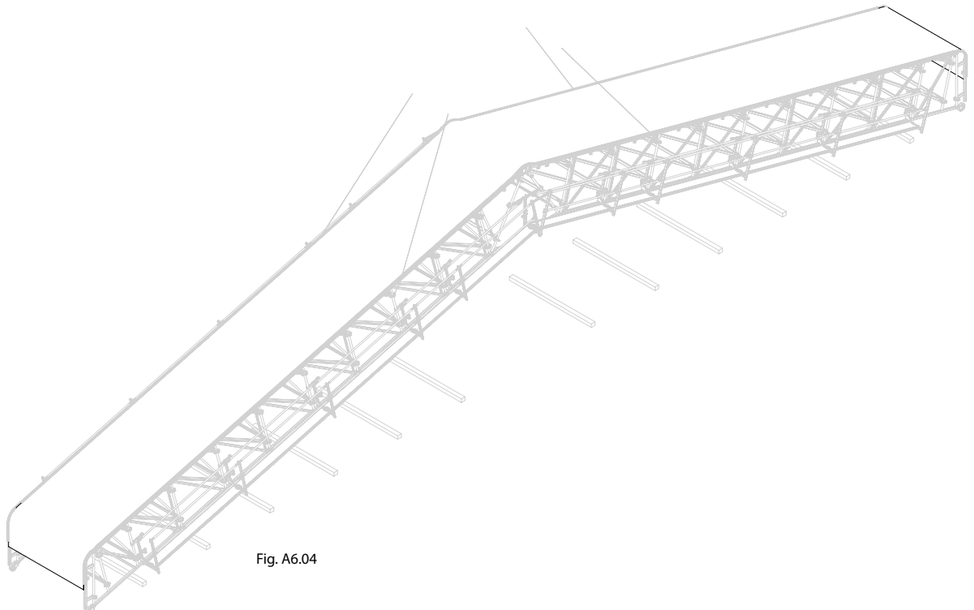


Fig. A6.04

Support

The support is designed for roofs with a 15° angle of inclination. (Fig. A7.01)

Components

6	Bolt Ø 16 x 70	12x
7	Cotter pin 4/1	12x
26a	LGS Support URS 15°	4x

Preparation
1. Raise the girder package with the crane.
2. Dismantle the support rollers – 4x.

Assembly
Attach the support (26a) to the eave element with bolts (6) and secure with cotter pins (7):
– 2x below on the side of the vertical through the holes of the support and eave element,
– 1x above the rectangular tube of the eave element.

(Fig. A7.01a)

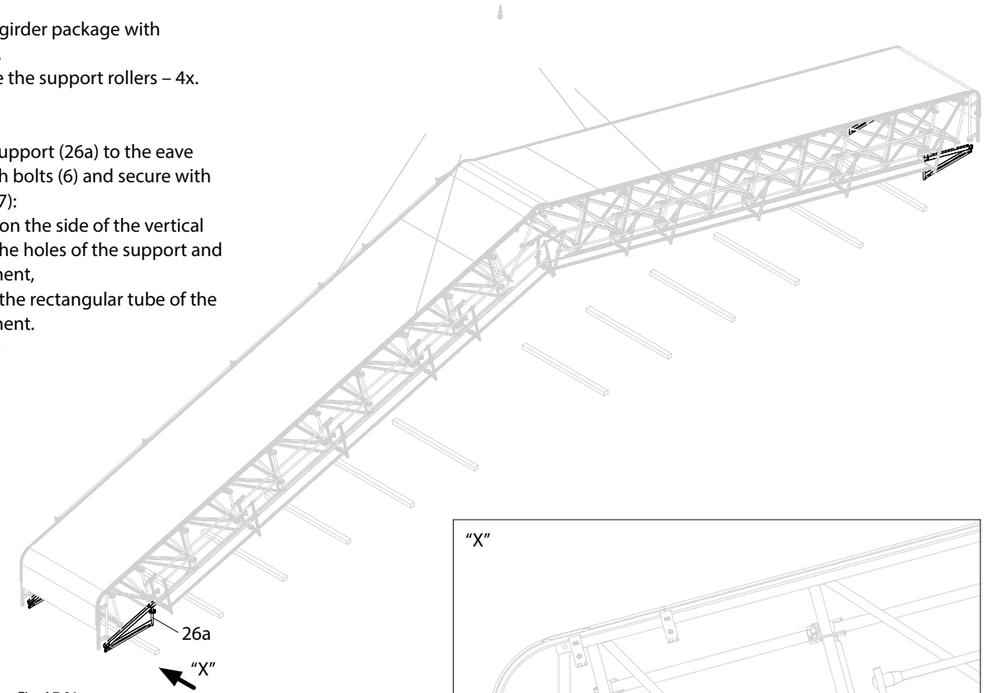


Fig. A7.01

Fig. A7.01a

General

Larger spans are possible though the use of the tension system. (Fig. A8.01a)

Girder package must be placed on the ground for installing the tension system, and must not be suspended on the crane. (Fig. A8.01a)

Variants for installing the suspension tie connector
- on the eave element, (Fig. A8.01a)
- on the 1st standard element. (Fig. A8.01b)

Preparation
Suspension Tie Connector URU for the tension system is pre-installed on the,
- eave element,
- standard element,

see Section “With tension system” from page 22.

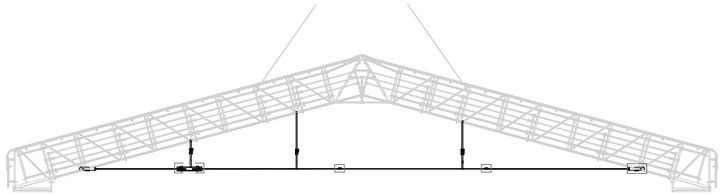


Fig. A8.01a

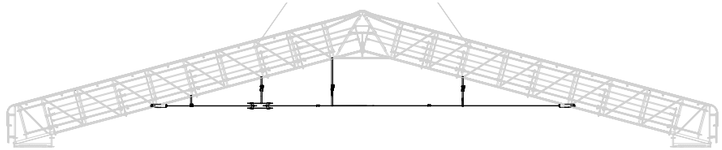


Fig. A8.01b

Full tension system fitted (Fig. A8.02)

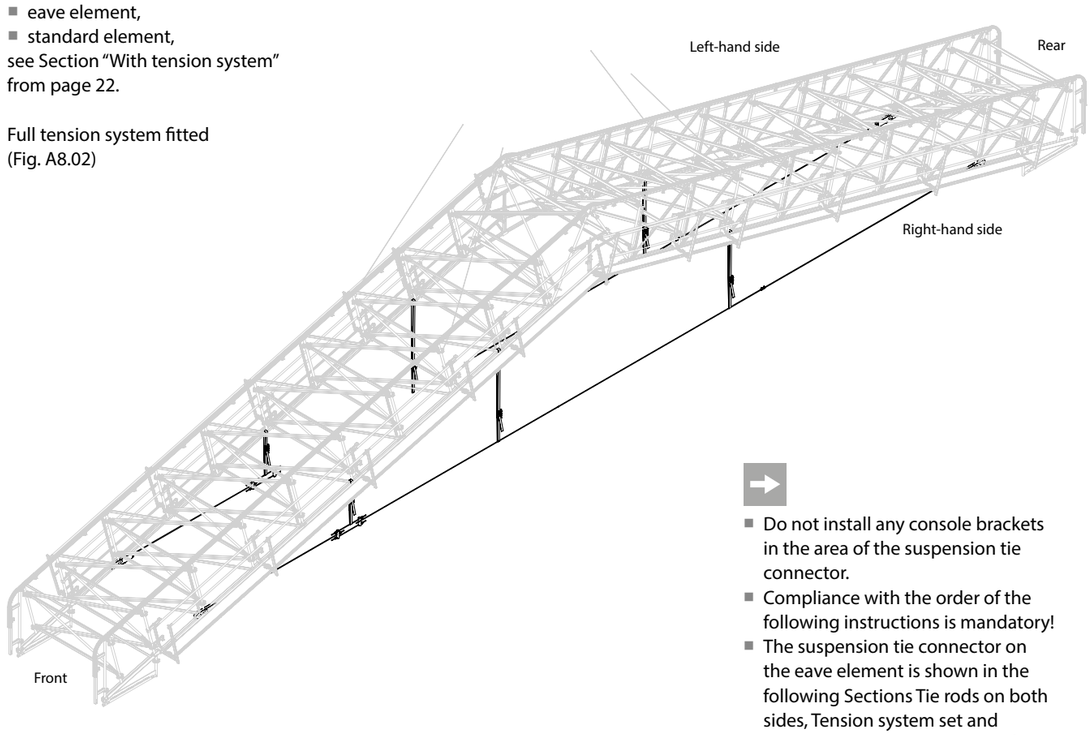


Fig. A8.02

- Do not install any console brackets in the area of the suspension tie connector.
- Compliance with the order of the following instructions is mandatory!
- The suspension tie connector on the eave element is shown in the following Sections Tie rods on both sides, Tension system set and Tension system connector see from page 43 onwards.

Tie rods on both sides

Components

27a	Tie Rod DW 15, L = 6 m	4x
27b	Tie Rod DW 15, L ~ 4 m	4x
51	Tension belt	6x

Assembly
1. Rear: Screw Tie Rod DW 15 (27a) into the hole of the suspension tie connector (50) – 2x at the rear. Make sure there is a projection of >100 mm! (Fig. A8.03 + A8.03a)
2. Front: Screw Tie Rod DW 15 (27b) into the hole of the suspension tie connector (50) – 2x at the front. Make sure there is a projection of >100 mm! (Fig. A8.03)

Tension system set

Components

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

Assembly
3. Push two tie rods (27c) through the outer holes of both anchor tie yokes.
4. Screw hex. nut (54) onto each of the projecting ends of the tie rods (27c) – 4x. Make sure there is a projection of >100 mm!
5. Push the middle hole of the anchor tie yoke (53) over the end of the tie rod (27b).
6. Loosely screw hex. nut (54) onto the tie rod (27b). Make sure there is a projection of >100 mm!
7. Fix the tension belt (51) to one of the short tie rods.

(Fig. 8.03b)

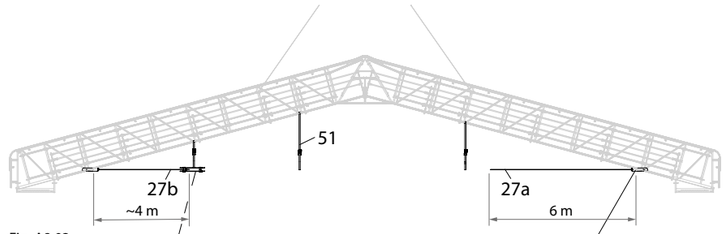


Fig. A8.03

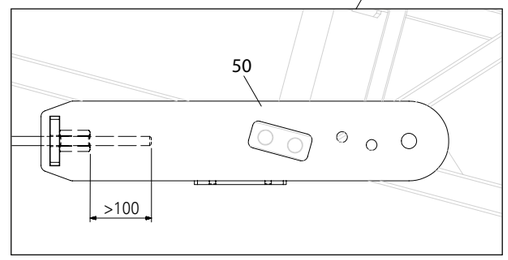


Fig. A8.03a – Suspension tie connector on the eave element

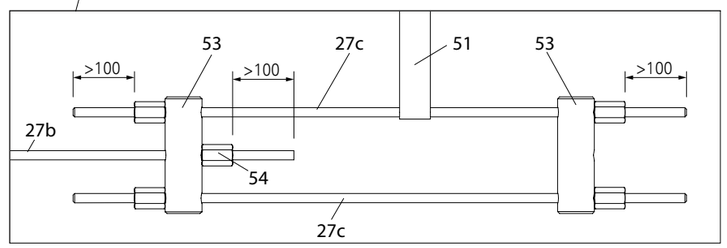


Fig. A8.03b

Tension system connector

Components

27a	Tie Rod DW 15, L = 6 m	4x
52	Tension System Connector URU	4x

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. Unscrew the hex. nut (52.1) until the flat side of the tie rod is visible. (Fig. A8.04b)
3. Hand-tighten* the bolt (52.2) on the screwed-in tie rod.
4. Screw an additional tie rod (27a) into the other end of the hex. nut of the tension system connector as far as it will go. (Fig. A8.04a)
   → Tie rods are coupled.
5. Unscrew the tie rod until the flat side is visible at the hole of the tension system connector. (Fig. A8.04a + b)
6. Hand-tighten* the second hex. bolt (52.2). (Fig. A8.04a + b)
   → Coupled tie rods are secured.
7. Install additional tie rods with a tension system connector (52) according to the span, as described in steps 1 to 6. (Fig. A8.04 + A8.04b)

Closing the tension connector set
1. Push the middle hole of the anchor tie yoke (53) over the end of the tie rod (27b).
2. Loosely screw hex. nut (54) onto the tie rod (27b). Make sure there is a projection of >100 mm!
3. Tighten the middle hex. nut (54) until the reference dimension of the respective span is reached – 2x. Reference dimension, see Section “B1 Static design” from page 55.

(Fig. A8.04c)

* hand-tightened = approx. 20 – 30 Nm

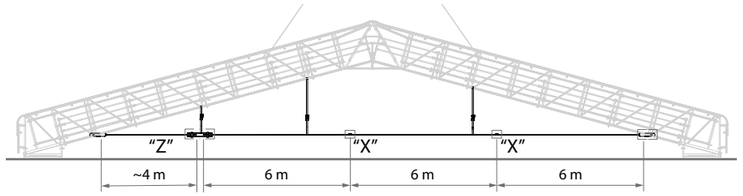


Fig. A8.04

“X”

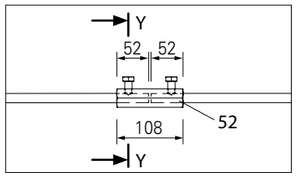


Fig. A8.04a

“Y – Y”

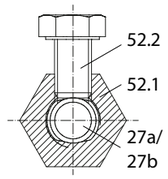


Fig. A8.04b

“Z”

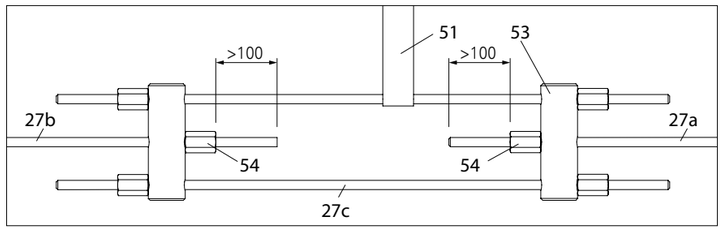


Fig. A8.04c

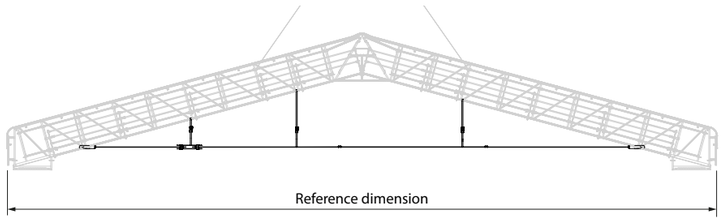


Fig. A8.05

- Check the protruding tie rod (27a / 27b) – dimension of 100 mm – in the suspension tie connector.
- Check tightness of bolts M12 x 20 of the tension system connector. (Fig. A8.04a + b)
- Check the protruding tie rod (27a / 27b / 27c) – dimension of 100 mm, 6x – in the tension system set. (Fig. A8.04c)
- Check reference dimension and adjust if necessary. (Fig. A8.05)

Fitting the ledger

- The supporting structure is not the subject of these Instructions for Assembly and Use.
- The ledger length “X” is available in four sizes
  - URL 67/14
  - URL 75/14
  - URL 100/14
  - URL 150/14 – shown here

Components

28	Ledger URL 150/14	3x
29	Bolt ISO 4014-M10x100	6x
30	Nut ISO 7040-M10-8	6x

Assembly
1. Fit the ledger (28) onto the pins of the standards – 3x. Ensure that the row of holes is at the top. (Fig. A9.01 + A9.01a)
2. Fit the bolt (29) and nut (30) onto the ledger and vertical – per ledger – 2x. (Fig. A9.01b)

Is the row of holes at the top?

In the further structure, a distinction is made between two variants:
- Moveable unit – with carriage.
- Fixed unit – with bearer.

During assembly of the supporting structure, consider how the verticals are aligned.

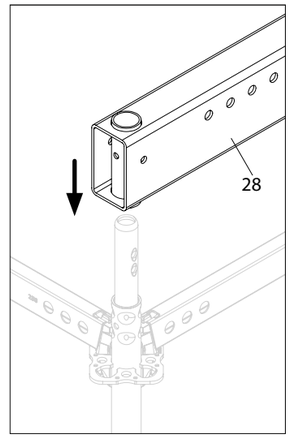


Fig. A9.01a

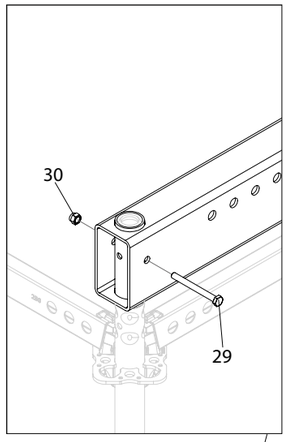


Fig. A9.01b

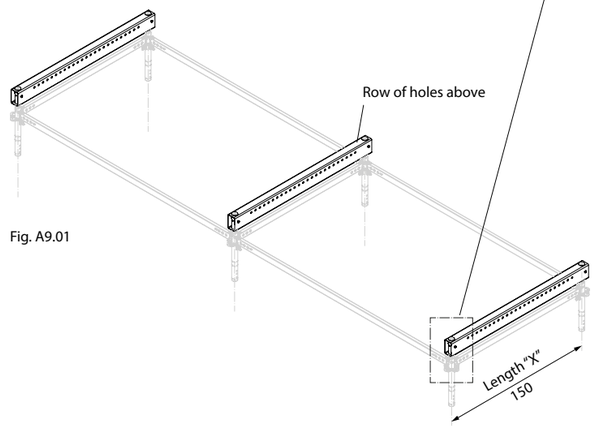


Fig. A9.01

Rail support

Connects the rail with the ledger.

Components

6	Bolt Ø 16 x 70	3x
7	Cotter pin 4/1	3x
31	Rail Support URF	3x

Assembly
1. Place the rail support (31) on the ledger (28).
2. Secure the rail support on the ledger by means of bolts (6.1) and cotter pins (7).
   → Secured connection

(Fig. A10.01 + A10.01a)

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

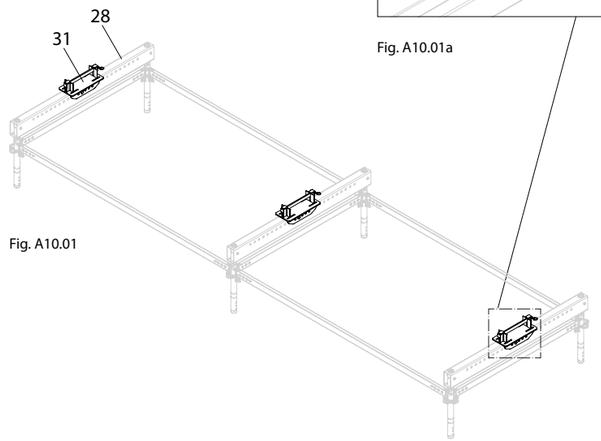


Fig. A10.01

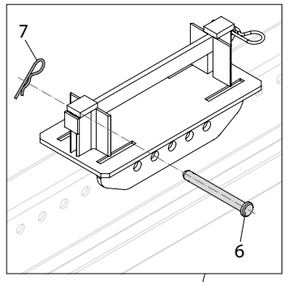


Fig. A10.01a

Rail

The girder packages are moved on the rail.

The Rail URT is available in four different lengths "Y":
- 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 the cotter pin (31a) from the holder (31b).
2. Pull out the holder (31b).

(Fig. A10.02b)

Assembly
1. Place one aluminium rail (32) between two rail supports (31). (Fig. 10.02)
2. Push one holder (31.2) through the guide of the rail support above the lower profile tubes (32.1). (Fig. 10.02a)
3. Insert a cotter pin (31.1) into the hole of the holder. (Fig. 10.02a)
   → 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. A10.02)
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. A10.02b)
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. 10.02b)
8. Insert a cotter pin (31.1) into the hole of the holder. (Fig. 10.02c)
   → The holder is secured.

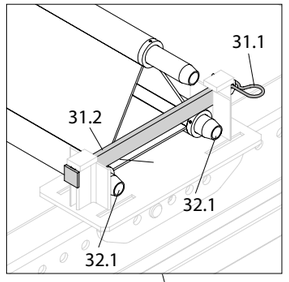


Fig. A10.02a

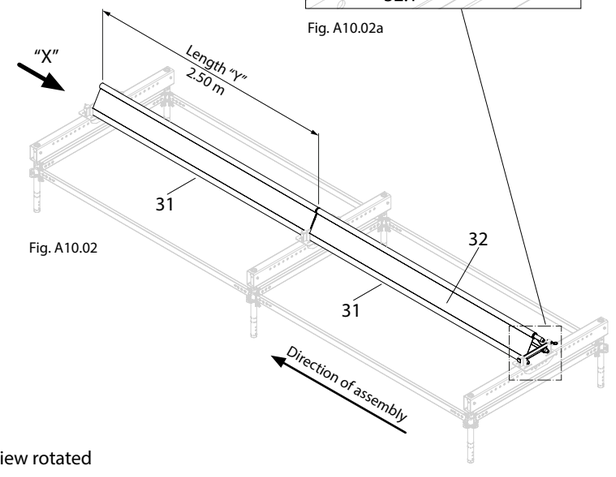


Fig. A10.02

"X" - view rotated

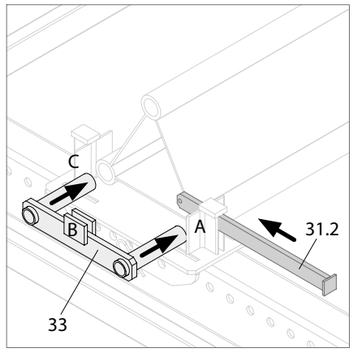


Fig. A10.02b

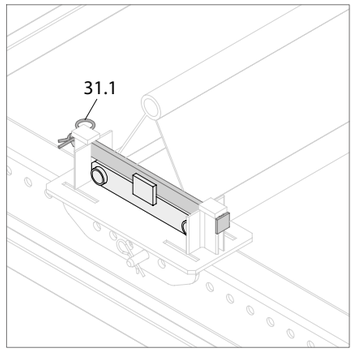


Fig. A10.02c

Stopper

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. A10.03a)
2. Secure the wedge (34.3) with a hammer.
   → The stopper is securely locked in position.

(Fig. A10.03)

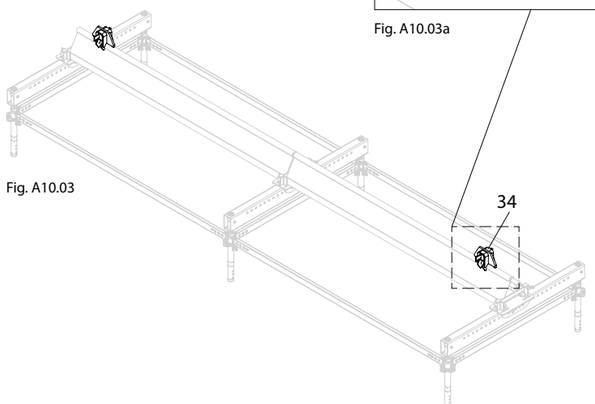


Fig. A10.03

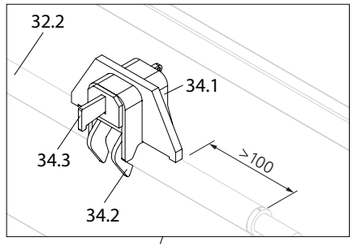


Fig. A10.03a

Carriage

The carriage
- connects the support to the rail,
- can be moved in the 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.
2. Fit the lift lock (35.6).

→ Carriage is secured against lifting.

(Fig. A10.04 + A10.04a)

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

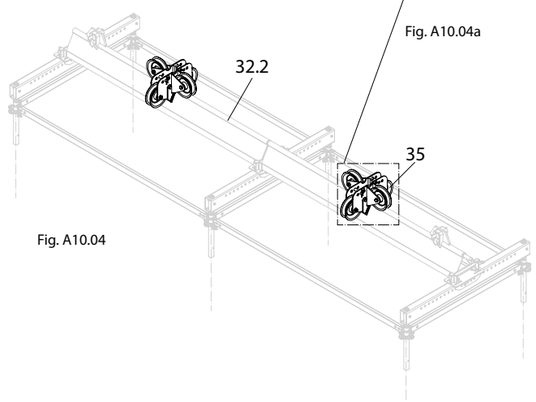


Fig. A10.04

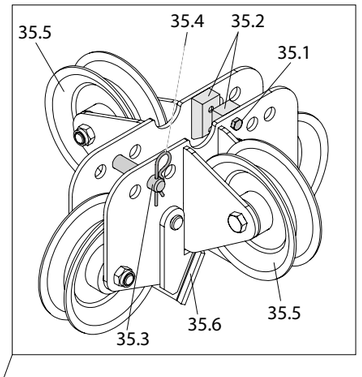


Fig. A10.04a

Mounting 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.
- 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. Raise 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. A10.05a)
3. Insert bolts through the designated recess of the carriage (35) and hole of the support (26a), and secure with cotter pins. (Fig. A10.05a)
   → Fixed bearing. (Fig. A10.05b)
4. Install second side, as described in steps 1 + 2.
   Do not fasten bolts and cotter pins.
   → Floating bearing. (Fig. A10.05c)

(Fig. A10.05)

Are all the fixed bearings of the girder package bolted in the same recess?

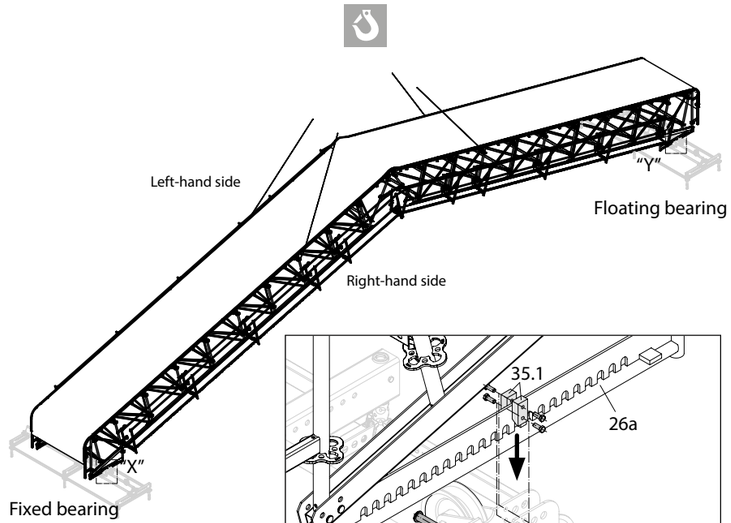


Fig. A10.05

Fig. A10.05a – Bolts and cotter pins only on fixed bearing

"X"

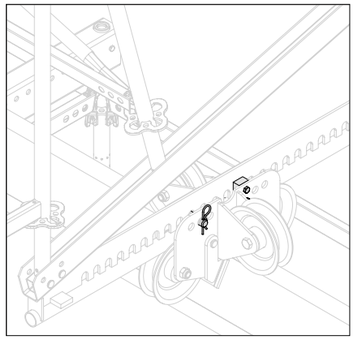


Fig. A10.05b – Fixed bearing with bolts on the support

"Y"

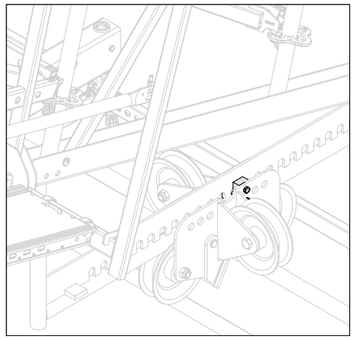


Fig. A10.05c – Floating bearing without bolts on the support

Guide the girder package with ropes.

Bearer

- The exact position of the bearer (36) on the ledger (28) with the hole to be used is project-specific and provided in the project drawing.
- Hole positions of the bearer are not mirrored. Therefore, always install the bearers in the same way.

Components

36	LGS Bearer URS	4x*
3.3	Ledger Brace UBL-2 250/50	4x*

* per girder package

Preparation
Release cotter pins (36.2) and bolts (36.1) on the bearer (36) – 3x per bearer. (Fig. A11.01a)

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 + C – 3x.
   → Fixed bearing. (Fig. A11.02a)
3. Fit one bolt (36.1) and one cotter pin (36.2) into both B + C – 2x.
   → Floating bearing. (Fig. A11.02b)
4. Install ledger braces crosswise on the bearer (3.3). (Fig. A11.01)

Have the bearers
- been installed in the same way?
- been bolted in the same hole (A) on the fixed bearing?

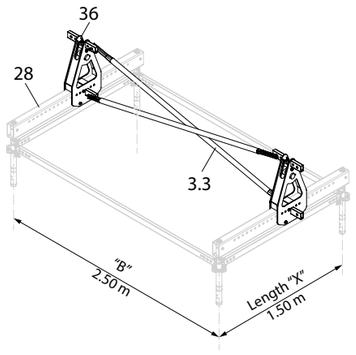


Fig. A11.01 – Fixed bearing or floating bearing

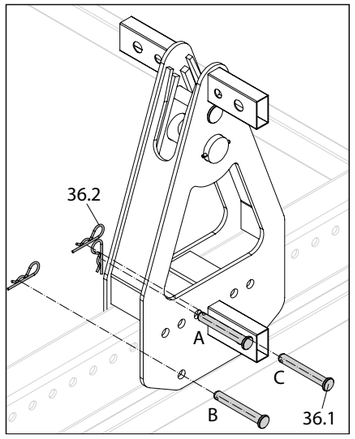


Fig. A11.01a

"X"

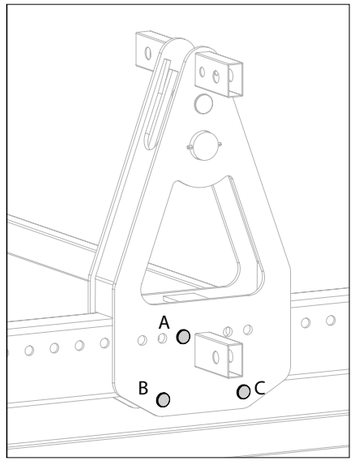


Fig. A11.02a – Fixed bearing – bolted to the ledger

"Y"

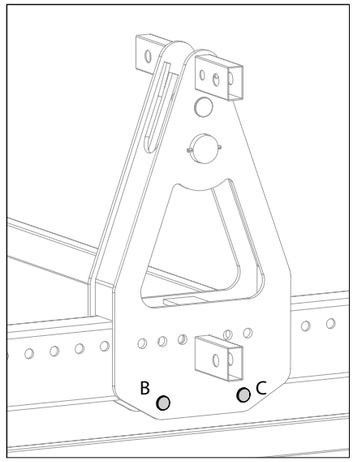


Fig. A11.02b – Floating bearing – not bolted to the ledger

Mounting on the bearer

Preparation
Remove the cotter pin (36.4) and bolt (36.3) from the top of the bearer (36). (Fig. A11.03b)

Assembly
1. Raise the girder package with the crane and place it in the brackets of the bearer (36.5).
2. Fix the bolts (36.3) and cotter pins (36.4). (Fig. A11.03b)
   → The bearer and girder package are now securely connected. (Fig. A11.03c)

(Fig. A11.03 + A11.03a)

Are the 15° supports bolted to the bearer (36) in pairs?

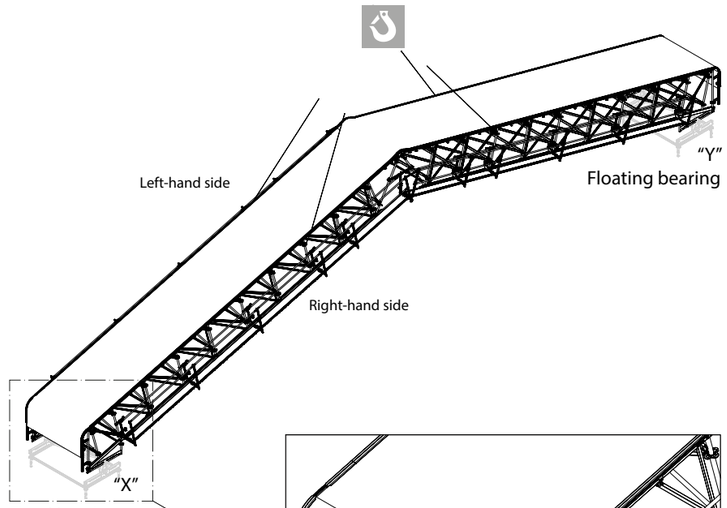


Fig. A11.03

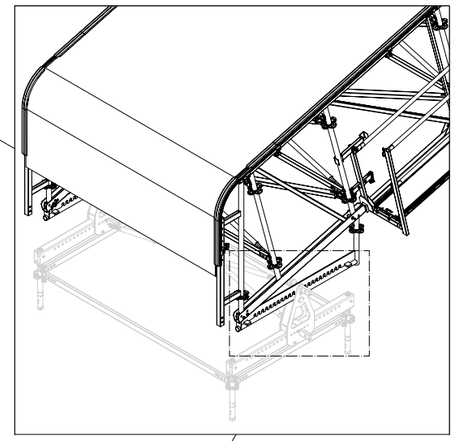


Fig. A11.03a

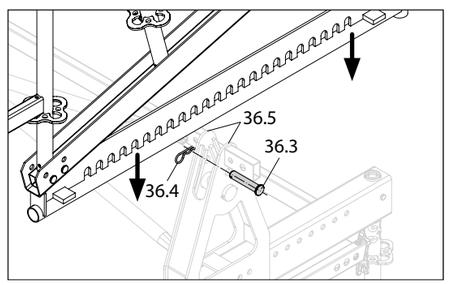


Fig. A11.03b

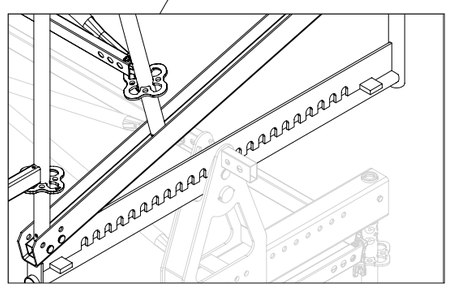


Fig. A11.03c

Disassembly

Dismantle the
Weather Protection Roof LGS 150 by reversing the procedure shown in the assembly diagrams.

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

(Fig. A12.01)

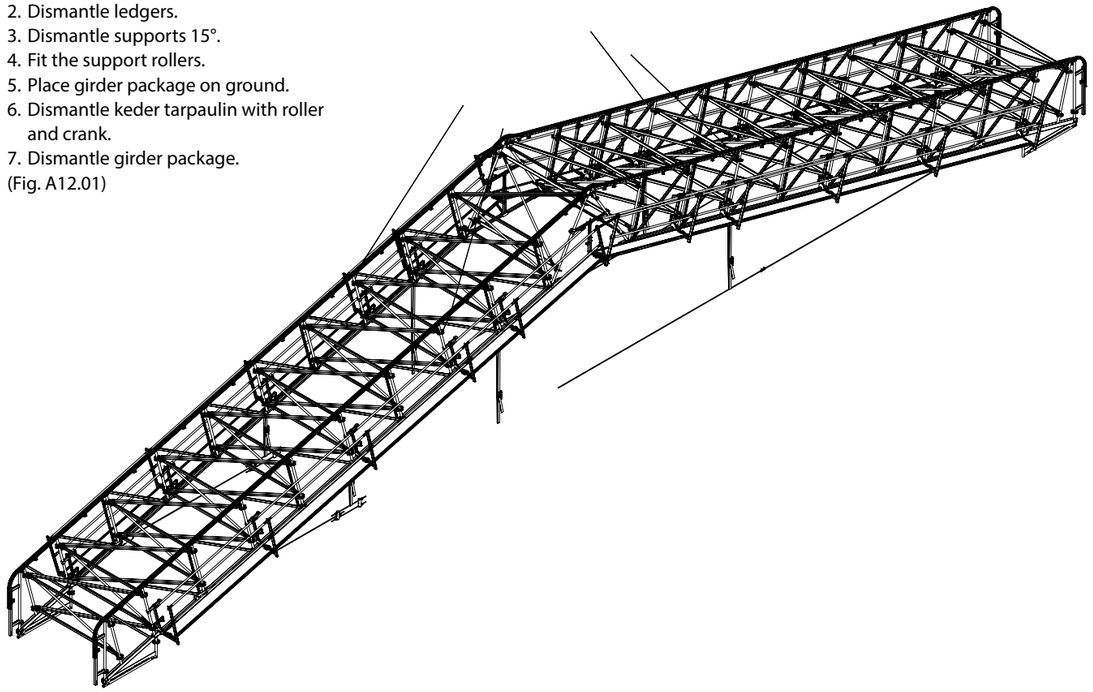


Fig. A12.01 – without keder tarpaulin

Lean-to roof
(Fig. A13.02)

Separate project-specific planning required.

Components

5	LGS Standard Element URB 300/150
26a	LGS Support URS 15°
45	LGS End Element URB 150

Assembly
The assembly sequence can be derived from the symmetrical roof on a project-specific basis.

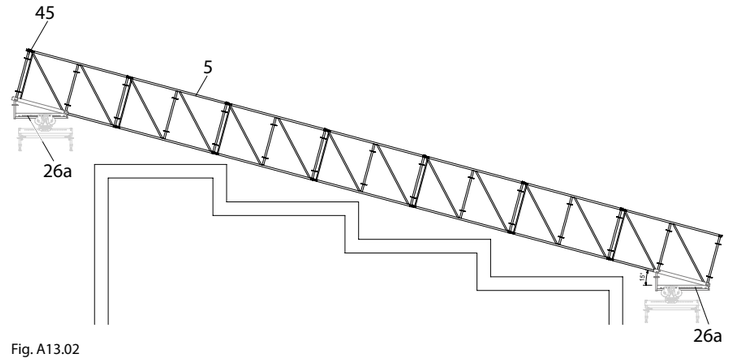


Fig. A13.02

Span 27.0 m

Girder package permissible
– with tension system,
– without tension system.

With tension system
Tension system depends on application, e.g. geometry of the building, connection to
– Eave element (Fig. B1.01a)
– 1. standard element (Fig. B1.01b)

Intermediate bays
Connect the individual girder packages with
– horizontal ledgers,
– ledger braces and
– H-braces.
(Fig. B1.02)

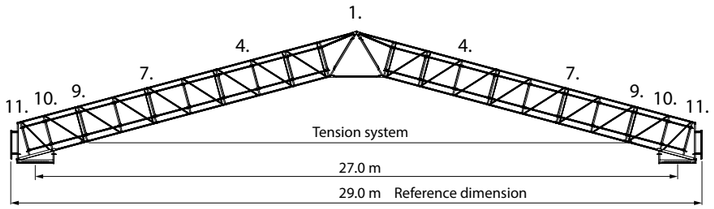


Fig. B1.01a

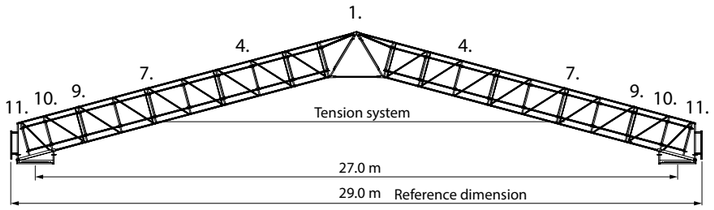


Fig. B1.01b

The numbers in Fig. B1.01a + Fig. B1.01b refer to the suspension points of the connecting components of the intermediate bays in Fig. B1.02.

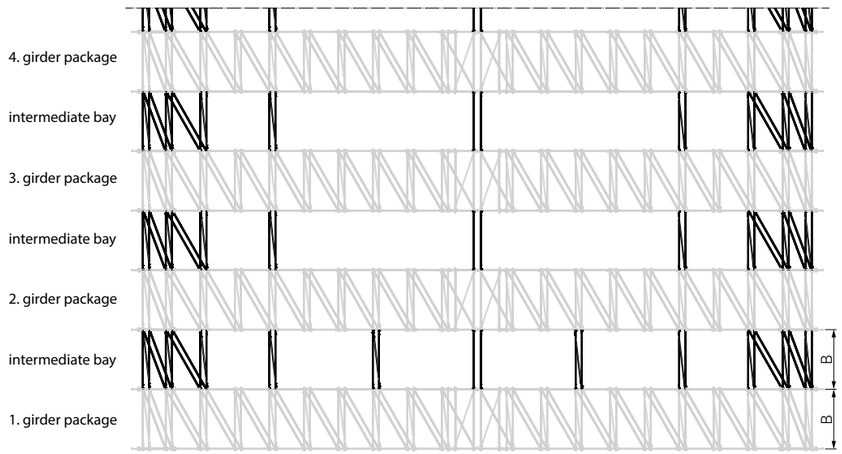


Fig. B1.02

Snow load s [kN/m²]			0.1			0.25			0.6		
Wind load q [kN/m]			0.35	0.56	0.77	0.35	0.56	0.77	0.35	0.56	0.77
with TS*	Eave element	max. width B [m]	3.00	3.00	3.00	3.00	3.00	3.00	2.50	2.50	2.50
	1. stand. elem.		3.00	2.50	2.00	3.00	2.50	2.00	1.50	1.50	-
without tension system			2.50	2.50	2.00	1.50	1.50	-			

*TS – tension system

Span 35.7 m

Girder package permissible
– with tension system,
– without tension system.

With tension system
Tension system depends on application, e.g. geometry of the building, connection to
– Eave element (Fig. B1.03a)
– 1. standard element (Fig. B1.03b)

Intermediate bays
- Connect the individual girder packages with
  – horizontal ledgers,
  – ledger braces and
  – H-braces.
- In the process, differentiate in the edge area between
  – 1. girder package, single (Fig. B1.04a)
  – double girder package (Fig. B1.04b)

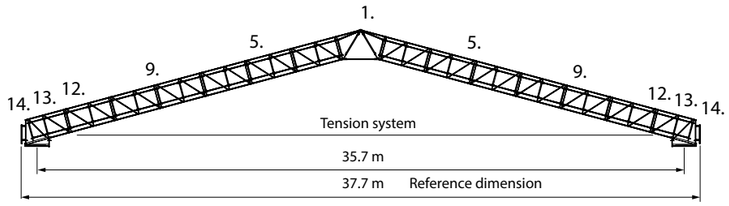


Fig. B1.03a

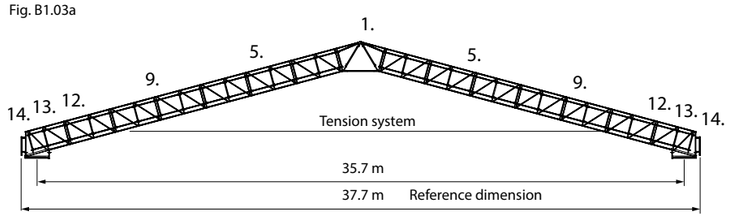


Fig. B1.03b

The numbers in Fig. B1.03a + B1.03b refer to the suspension points of the connecting components of the intermediate bays in Fig. B1.04a + B1.04b.

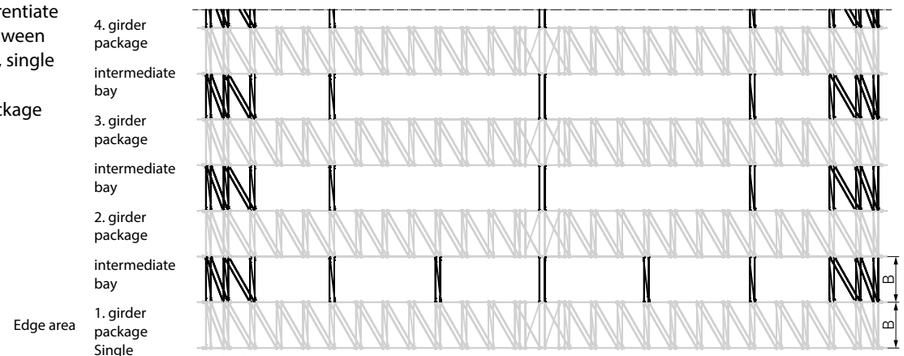


Fig. B1.04a

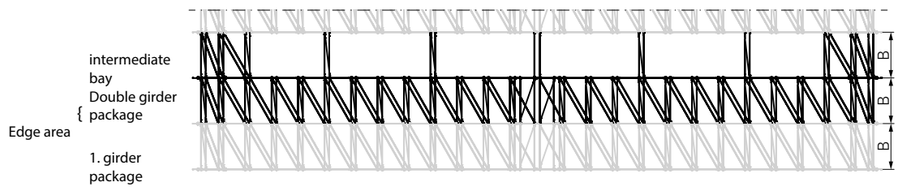


Fig. B1.04b

Snow load s [kN/m²]			0.1			0.25			0.6		
Wind load q [kN/m²]			0.35	0.56	0.77	0.35	0.56	0.77	0.35	0.56	0.77
with tension system	Eave elem.	max. width B [m]	3.00	3.00	2.50	3.00	3.00	2.50	2.00	2.00	2.00
		Girder package for edge area	single	single	double	single	single	double	single	single	double
	1. stand. elem.	max. width B [m]	2.50	2.00	2.00	2.00	2.00	2.00			
		Girder package for edge area	single	single	double	single	single	double			
without TS*		max. width B [m]	1.50	1.50	1.50						
		Girder package for edge area	single	single	double						

*TS – tension system

Span 41.5 m

For spans of 41.5 m, the girder package is only permissible with a tension system.

With tension system
Tension system depends on application, e.g. geometry of the building, connection to
– Eave element (Fig. B1.05a)
– 1. standard element (Fig. B1.05b)

Intermediate bays
- Connect the individual girder packages with
  – horizontal ledgers,
  – ledger braces and
  – H-braces.

- In the process, differentiate in the edge area between
  – 1. girder package, single (Fig. B1.06a)
  – double girder package (Fig. B1.06b)

The numbers in Fig. B1.05a + BS1.05b refer to the suspension points of the connecting components of the intermediate bays in Fig. B1.06a + B1.06b.

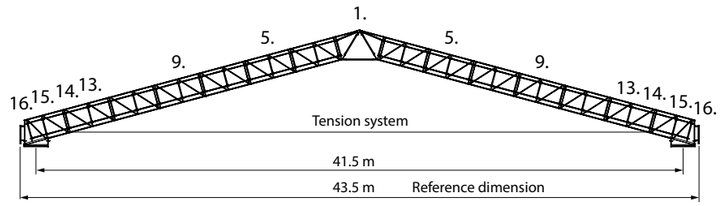


Fig. B1.05a

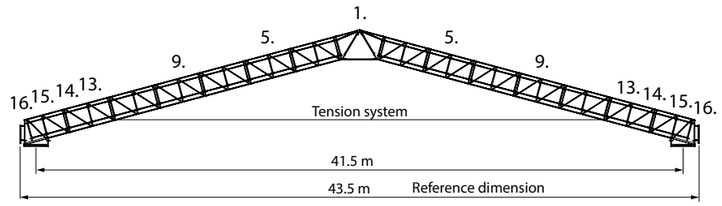


Fig. B1.05b

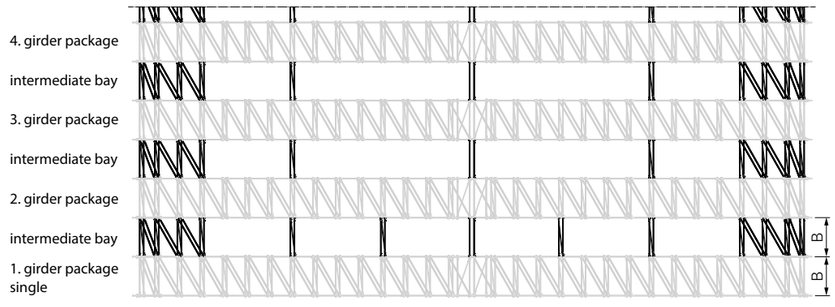


Fig. B1.06a

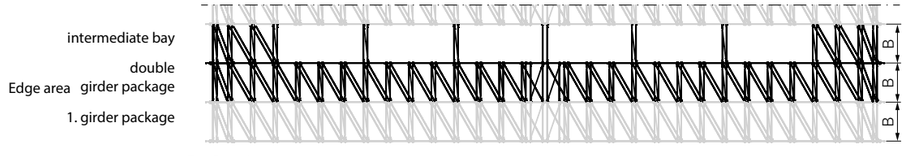


Fig. B1.06b

Snow load s [kN/m²]			0.1			0.25			0.6	
Wind load q [kN/m²]			0.35	0.56	0.77	0.35	0.56	0.77	0.35	0.56	0.77
with tension system	eave elem.	max. width B [m]	3.00	2.50	1.50	3.00	2.50	1.50	1.50	1.50	-
		Girder package for edge area	single	single	double	single	single	double	single	single	-
	1. stand. elem.	max. width B [m]	2.50	2.00	-	1.50	1.50	-			
		Girder package for edge area	single	single	-	single	single	-			

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)				One-sided walkway
Width B [m]		1.50	2.00	2.50	3.00	1.50	2.00	2.50	3.00	
Span [m]	21.2	1,750 kg	1,850 kg	1,950 kg	2,100 kg	2,850 kg	3,050 kg	3,250 kg	3,500 kg	250 kg
	24.0	1,950 kg	2,050 kg	2,150 kg	2,300 kg	3,150 kg	3,350 kg	3,600 kg	3,900 kg	280 kg
	27.0	2,150 kg	2,250 kg	2,400 kg	2,500 kg	3,450 kg	3,700 kg	4,000 kg	4,200 kg	320 kg
	29.9	2,300 kg	2,450 kg	2,600 kg	2,700 kg	3,700 kg	4,000 kg	4,300 kg	4,500 kg	350 kg
	32.8	2,500 kg	2,650 kg	2,800 kg	3,000 kg	4,050 kg	4,350 kg	4,700 kg	5,000 kg	390 kg
	35.7	2,700 kg	2,850 kg	2,900 kg	3,200 kg	4,350 kg	4,650 kg	5,000 kg	5,400 kg	430 kg
	38.6	2,900 kg	3,050 kg	3,250 kg	3,500 kg	4,700 kg	5,000 kg	5,400 kg	5,800 kg	470 kg
	41.5	3,100 kg	3,250 kg	3,450 kg	3,700 kg	4,950 kg	5,300 kg	5,700 kg	6,100 kg	500 kg

Crane attachment points

Span 27.0 m
(Fig. B1.07)

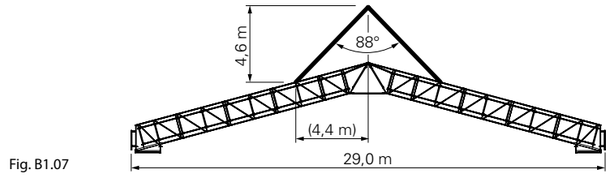


Fig. B1.07

Span 35.7 m
(Fig. B1.08)

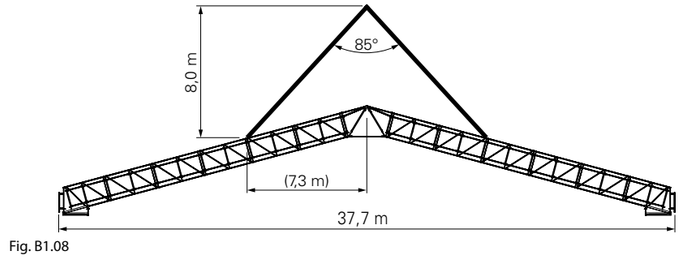


Fig. B1.08

Span 41.5 m
(Fig. B1.09)

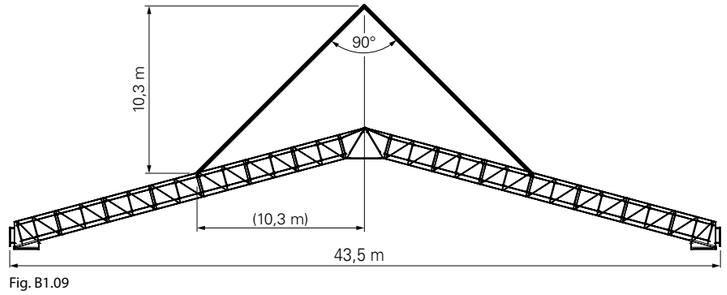


Fig. B1.09

- The support forces are dependent on
  - Lspw = span
  - q = wind load
  - s = snow load
  - B = width
  - L = total length of the roof
  - n = total number of supports
- Calculate the supporting structure in each case.
- Verification required for the load transfer from roof and scaffold to the ground.

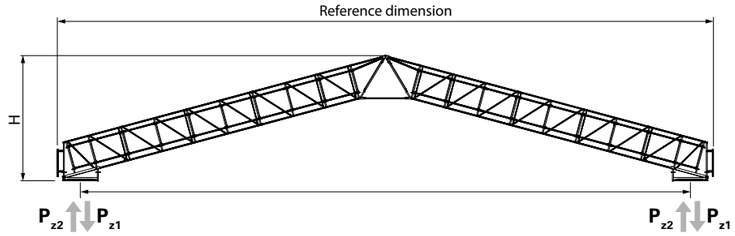


Fig. B1.10a

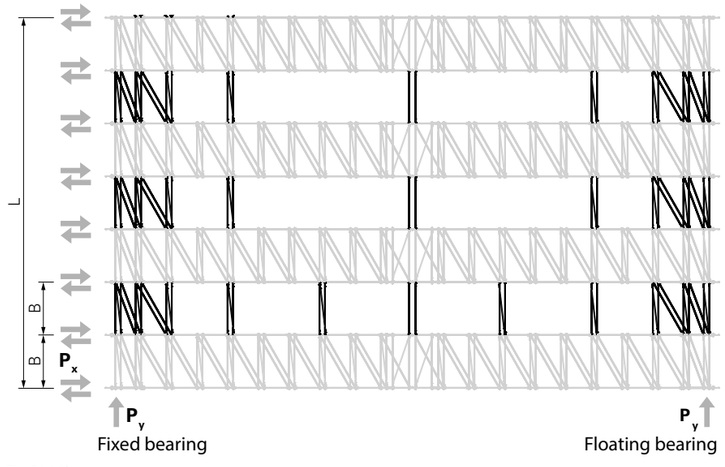


Fig. B1.10b

Span 27.0 m

Horizontal force [kN]	in direction of girder	P_x	3.0 * q * B
	in direction of gable	P_y	41.8 * q / n
Vertical force [kN]	downwards	P_{z1}	12.8 * s * B + 3.2 * q * B + 143.7 * q / L + 9.8
	upwards	P_{z2}	8.0 * q * B + 27.5 * q / L – 7.3

Span 35.7 m

Horizontal force [kN]	in direction of girder	P_x	3.6 * q * B
	in direction of gable	P_y	49.4 * q / n
Vertical force [kN]	downwards	P_{z1}	15.2 * s * B + 3.8 * q * B + 203.3 * q / L + 11.2
	upwards	P_{z2}	9.5 * q * B + 32.4 * q / L – 8.3

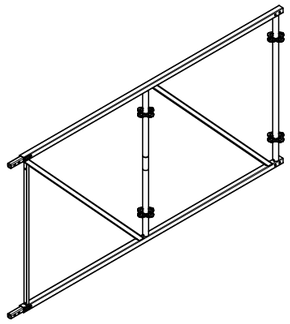
Span 41.5 m

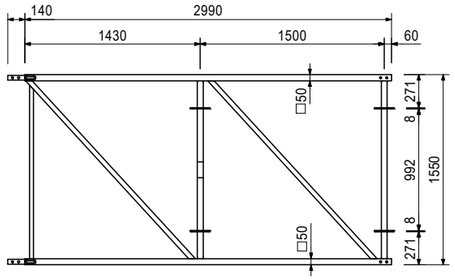
Horizontal force [kN]	in direction of girder	P_x	4.1 * q * B
	in direction of gable	P_y	57.0 * q / n
Vertical force [kN]	downwards	P_{z1}	17.5 * s * B + 4.4 * q * B + 258.6 * q / L + 12.7
	upwards	P_{z2}	11.0 * q * B + 37.4 * q / L – 9.4

PERI UP Flex Weather Protection Roof LGS 150
Instructions for Assembly and Use – Standard Configuration

Art. no.	Weight [kg]	
104768	55.400	LGS STANDARD ELEM. URB 300/150

Standard element for the LGS Lattice Girder System.





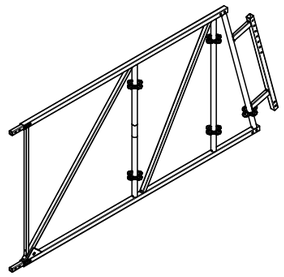
		Accessories (not included)
018060	0.014	COTTER PIN 4/1 GALVANISED
106031	0.142	BOLT D=16/70, GALV.

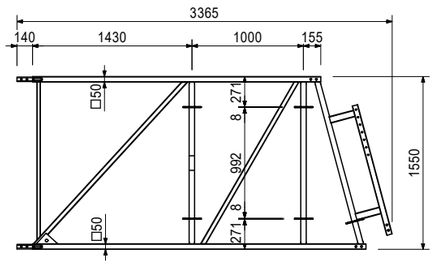
Note

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

Art. no.	Weight [kg]	
126483	65.900	LGS EAVE ELEM. URB 300/150

Eave element for the LGS Lattice Girder System.





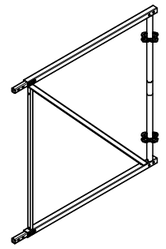
		Accessories (not included)
018060	0.014	COTTER PIN 4/1 GALVANISED
106031	0.142	BOLT D=16/70, GALV.

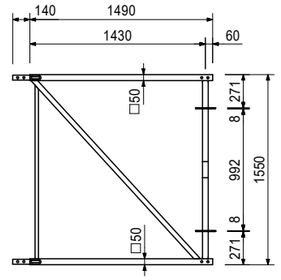
Note

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

Art. no.	Weight [kg]	
104792	29.700	LGS INTERMEDIATE ELEM. URB 150/150

Filler element for the LGS Lattice Girder System.





		Accessories (not included)
018060	0.014	COTTER PIN 4/1 GALVANISED
106031	0.142	BOLT D=16/70, GALV.

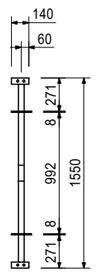
Note

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

Art. no.	Weight [kg]	
105334	7.390	LGS END Element URB 150

For assembly at the last LGS Standard or Intermediate Element.





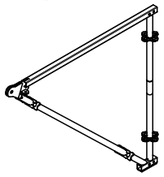
		Accessories (not included)
018060	0.014	COTTER PIN 4/1 GALVANISED
106031	0.142	BOLT D=16/70, GALV.

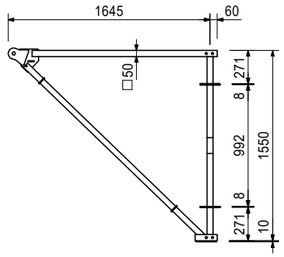
Note

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

Art. no.	Weight [kg]	
104769	25.700	LGS RIDGE ELEMENT URR 150

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





Accessories (not included)

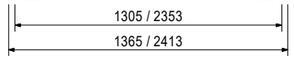
022230	0.033	COTTER PIN 5/1 GALVANISED
127468	0.325	BOLT D=24/70, GALV.

Note

Alternative accessories:
105032 Nut ISO 7040 M24-8, galv.
026220 Bolt ISO 4014 M24 x 80-10.9, galv.

Art. no.	Weight [kg]	
404891	14.700	RIDGE BAR UR 150 DEGREE

Connects two LGS Ridge Elements URR 150 at an ridge angle of 120° or 150°.



Accessories (not included)

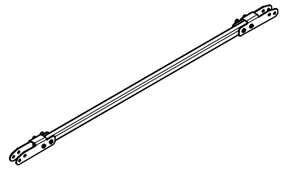
018060	0.014	COTTER PIN 4/1 GALVANISED
106031	0.142	BOLT D=16/70, GALV.

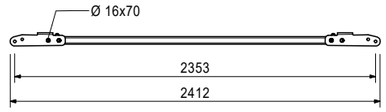
Note

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

Art. no.	Weight [kg]	
128334	21.700	RIDGE BAR HD UR 150°

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





Accessories (not included)

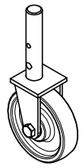
018060	0.014	COTTER PIN 4/1 GALVANISED
106031	0.142	BOLT D=16/70, GALV.

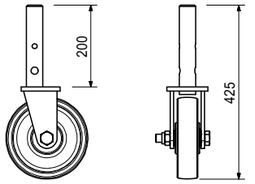
Note

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

Art. no.	Weight [kg]	
104854	5.220	SUPPORT ROLLER UEW UNSTOPPED

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





Accessories (not included)

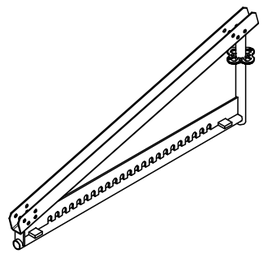
018060	0.014	COTTER PIN 4/1 GALVANISED
106031	0.142	BOLT D=16/70, GALV.

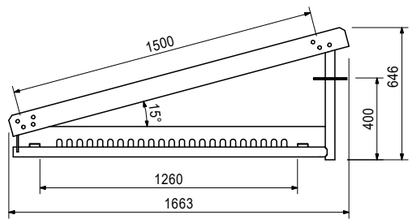
Note

Alternative accessories:
070890 Nut ISO 7040 M16-8, galv.
721729 Bolt ISO 4014 M16 x 90-8.8, galv.
Permissible load up to 12 kN.

Art. no.	Weight [kg]	
104771	33.400	SUPPORT URS 15 DEGREES

For roofs with 15° angle of inclination.





		Accessories (not included)
018060	0.014	COTTER PIN 4/1 GALVANISED
106031	0.142	BOLT D=16/70, GALV.

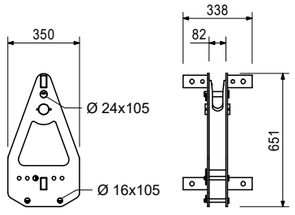
Note

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

Art. no.	Weight [kg]	
105398	23.600	BEARER URS

Connects the LGS Support to the
Ledger URL.

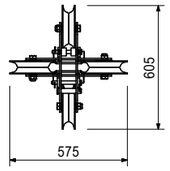


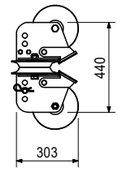


Art. no.	Weight [kg]	
104777	42.800	CARRIAGE URW

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

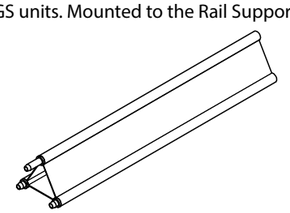


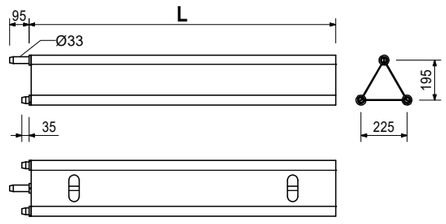




Art. no.	Weight [kg]		L [mm]
		Aluminium Rails URT	
104790	21.400	ALUMINIUM RAIL URT 150	1500
104791	28.000	ALUMINIUM RAIL URT 200	2000
104796	34.600	ALUMINIUM RAIL URT 250	2500
104797	41.200	ALUMINIUM RAIL URT 300	3000

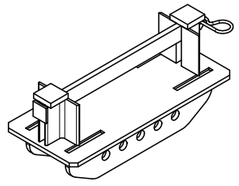
For moving LGS units. Mounted to the Rail Support URF.

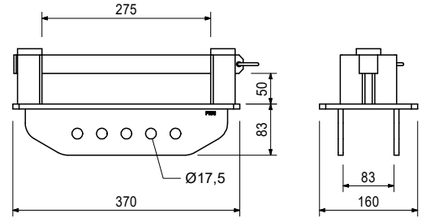




Art. no.	Weight [kg]	
104853	8.260	RAIL SUPPORT URF

Connects the Rail URT with the Ledger URL.





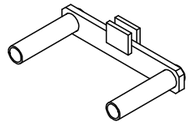
		Accessories (not included)
022230	0.033	COTTER PIN 5/1 GALVANISED
715357	0.238	BOLT 16X146 GALV.

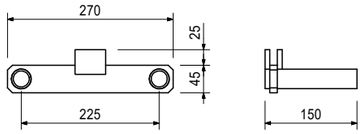
Note

Alternative accessories:
070890 Nut ISO 7040 M16-8, galv.
105402 Bolt ISO 4014 M16 x 120-8.8, galv.

Art. no.	Weight [kg]		
104852	1.870	RAIL END PIECE URD	

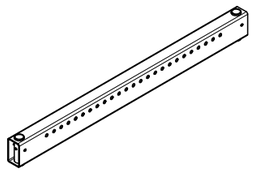
To secure the Aluminium Rail URT. Assembly at the last Rail Support URF.

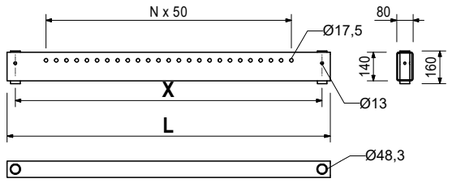




Art. no.	Weight [kg]		L [mm]	X [mm]
		Ledger URL		
132553	12.600	LEDGER URL 67/14	750	670
131869	13.900	LEDGER URL 75/14	830	750
115018	17.700	LEDGER URL 100/14	1080	1000
105386	25.600	LEDGER URL 150/14	1580	1500

Connects the LGS Unit to the PERI UP substructure.



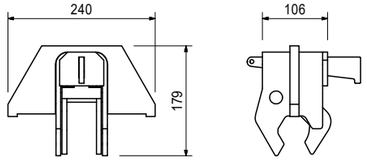


		Accessories (not included)
710242	0.063	BOLT.ISO 4014-M10X100-8.8-VZ
780356	0.011	HEX. NUT ISO 7040-M10-8-VZ

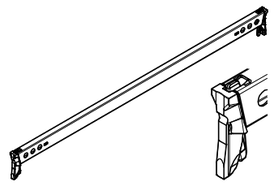
Art. no.	Weight [kg]	
118022	5.130	STOPPER URA-2

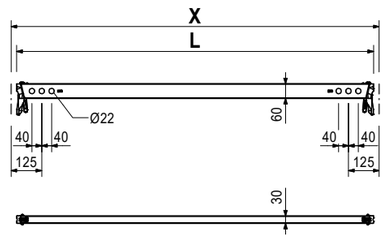
Limit stop for the Carriage URW on the Aluminium Rail URT.





Art. no.	Weight [kg]		L [mm]	X [mm]
		Horizontal Ledger UH-2		
131995	1.400	HORIZONTAL LEDGER UH-2 25	204	250
133900	1.590	HORIZONTAL LEDGER UH-2 33	284	330
131998	2.030	HORIZONTAL LEDGER UH-2 50	454	500
133903	2.470	HORIZONTAL LEDGER UH-2 67	624	670
132213	2.680	HORIZONTAL LEDGER UH-2 75	704	750
132004	3.730	HORIZONTAL LEDGER UH-2 100	954	1000
132007	4.500	HORIZONTAL LEDGER UH-2 125	1204	1250
132010	4.670	HORIZONTAL LEDGER UH-2 150	1454	1500
132013	5.330	HORIZONTAL LEDGER UH-2 175	1704	1750
132016	5.990	HORIZONTAL LEDGER UH-2 200	1954	2000
132019	6.650	HORIZONTAL LEDGER UH-2 225	2204	2250
132025	7.310	HORIZONTAL LEDGER UH-2 250	2454	2500
132022	8.640	HORIZONTAL LEDGER UH-2 300	2954	3000

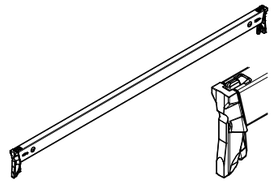


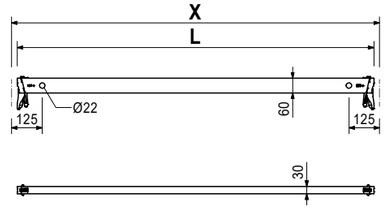


Note

With length marking for easier identification.

Art. no.	Weight [kg]		L [mm]	X [mm]
		Horizontal Ledger UH Plus		
414613	1.430	HORIZONTAL LEDGER UH 25 PLUS	204	250
414595	2.080	HORIZONTAL LEDGER UH 50 PLUS	454	500
414629	2.740	HORIZONTAL LEDGER UH 75 PLUS	704	750
414632	4.470	HORIZONTAL LEDGER UH 100 PLUS	954	1000
414638	5.440	HORIZONTAL LEDGER UH 125 PLUS	1204	1250
414641	4.720	HORIZONTAL LEDGER UH 150 PLUS	1454	1500
417032	5.390	HORIZONTAL LEDGER UH 175 PLUS	1704	1750
414645	6.050	HORIZONTAL LEDGER UH 200 PLUS	1954	2000
416356	6.710	HORIZONTAL LEDGER UH 225 PLUS	2204	2250
414648	7.370	HORIZONTAL LEDGER UH 250 PLUS	2454	2500
414651	8.690	HORIZONTAL LEDGER UH 300 PLUS	2954	3000



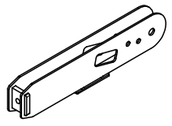


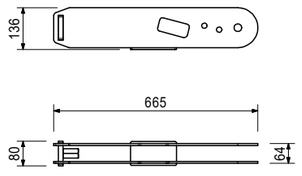
Note

With length marking for easier identification.

Art. no.	Weight [kg]	
128823	8.750	SUSPENSION TIE CONNECTOR URU

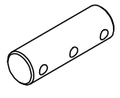
Connection to Eave Element or Standard Element URB 300/150.

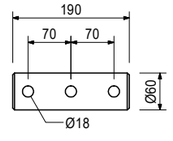




Art. no.	Weight [kg]	
128817	3.850	ANCHOR TIE YOKE URU

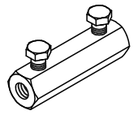
For closing and tensioning the tension system.

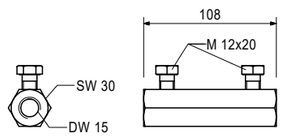




Art. no.	Weight [kg]	
129435	0.444	TENSION SYSTEM CONNECTOR URU

For coupling and securing Tie Rod DW 15.

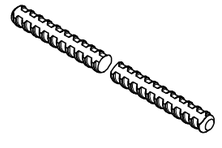




Note

Permissible tension force 90 kN.

Art. no.	Weight [kg]	
		Tie Rod DW 15
030050	0.000	CUTTING COSTS DW 15 / B 15
030005	0.720	TIE ROD 0.50 MTR DW 15
030010	1.230	TIE ROD 0.85 MTR DW 15
030480	1.440	TIE ROD 1.00 MTR DW 15
030490	1.730	TIE ROD 1.20 MTR DW 15
030170	2.160	TIE ROD 1.50 MTR DW 15
030020	2.450	TIE ROD 1.70 MTR DW 15
030180	2.880	TIE ROD 2.00 MTR DW 15
030710	3.600	TIE ROD 2.50 MTR DW 15
030720	4.320	TIE ROD 3.00 MTR DW 15
030730	5.040	TIE ROD 3.50 MTR DW 15
030160	8.640	TIE ROD 6.00 MTR DW 15
030030	1.440	TIE ROD SPECIAL LENGTH DW15



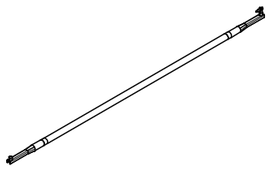


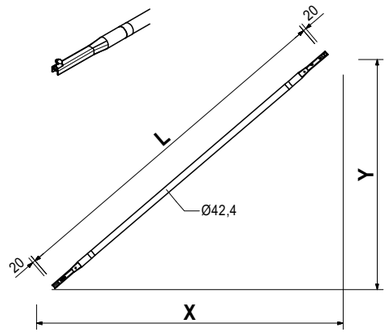
Note

Non-weldable! Observe the permissions!
Permissible tension force 90 kN.

Art. no.	Weight [kg]		L [mm]	X [mm]	Y [mm]
		Ledger Braces UBL-2			
132771	2.140	LEDGER BRACE UBL-2 100/50	901	1000	500
132773	2.830	LEDGER BRACE UBL-2 100/100	1250	1000	1000
132775	3.680	LEDGER BRACE UBL-2 100/150	1677	1000	1500
132777	4.600	LEDGER BRACE UBL-2 100/200	2136	1000	2000
132779	3.030	LEDGER BRACE UBL-2 150/50	1347	1500	500
132781	3.530	LEDGER BRACE UBL-2 150/100	1601	1500	1000
132783	4.230	LEDGER BRACE UBL-2 150/150	1953	1500	1500
132785	5.040	LEDGER BRACE UBL-2 150/200	2358	1500	2000
132787	5.330	LEDGER BRACE UBL-2 175/200	2500	1750	2000
132789	3.970	LEDGER BRACE UBL-2 200/50	1820	2000	500
132791	4.360	LEDGER BRACE UBL-2 200/100	2016	2000	1000
132793	4.940	LEDGER BRACE UBL-2 200/150	2305	2000	1500
132795	5.640	LEDGER BRACE UBL-2 200/200	2658	2000	2000
132797	4.450	LEDGER BRACE UBL-2 225/50	2062	2250	500
132808	4.800	LEDGER BRACE UBL-2 225/100	2236	2250	1000
132810	5.980	LEDGER BRACE UBL-2 225/200	2829	2250	2000
132812	5.250	LEDGER BRACE UBL-2 250/100	2462	2500	1000
132814	5.730	LEDGER BRACE UBL-2 250/150	2705	2500	1500
132816	6.340	LEDGER BRACE UBL-2 250/200	3010	2500	2000
132827	5.920	LEDGER BRACE UBL-2 300/50	2795	3000	500
132829	6.180	LEDGER BRACE UBL-2 300/100	2926	3000	1000
132831	6.590	LEDGER BRACE UBL-2 300/150	3133	3000	1500
132833	7.120	LEDGER BRACE UBL-2 300/200	3400	3000	2000

They are attached using holes in the horizontal ledgers.

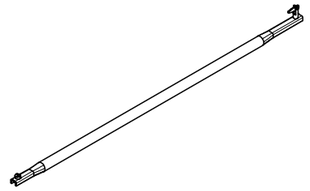


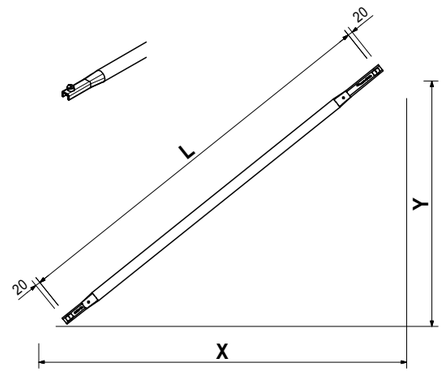


Note

Longitudinally-stamped with coloured label for easier identification.
UBL-2 150/250 identical to UBL-2 300/50.
UBL-2 225/150 identical to UBL-2 175/200.
UBL-2 250/50 identical to UBL-2 200/150
UBL-2 75/200 identical to UBL-2 225/50.

Art. no.	Weight [kg]		L [mm]	X [mm]	Y [mm]
		Ledger Braces UBL			
415156	2.660	LEDGER BRACE UBL 100/50	901	1000	500
415513	4.640	LEDGER BRACE UBL 100/150	1677	1000	1500
415157	5.810	LEDGER BRACE UBL 100/200	2136	1000	2000
407867	3.790	LEDGER BRACE UBL 150/50	1347	1500	500
400055	4.440	LEDGER BRACE UBL 150/100	1601	1500	1000
402846	5.340	LEDGER BRACE UBL 150/150	1953	1500	1500
400057	6.380	LEDGER BRACE UBL 150/200	2358	1500	2000
409034	6.740	LEDGER BRACE UBL 175/200	2500	1750	2000
404391	5.000	LEDGER BRACE UBL 200/50	1820	2000	500
400059	5.500	LEDGER BRACE UBL 200/100	2016	2000	1000
402862	6.240	LEDGER BRACE UBL 200/150	2305	2000	1500
400061	7.160	LEDGER BRACE UBL 200/200	2658	2000	2000
430282	4.450	LEDGER BRACE UBL 225/50	2062	2250	500
430283	4.800	LEDGER BRACE UBL 225/100	2236	2250	1000
417689	7.580	LEDGER BRACE UBL 225/200	2829	2250	2000
400063	6.640	LEDGER BRACE UBL-2 250/100	2462	2500	1000
402861	7.260	LEDGER BRACE UBL-2 250/150	2705	2500	1500
400065	8.050	LEDGER BRACE UBL-2 250/200	3010	2500	2000
404762	7.490	LEDGER BRACE UBL 300/50	2795	3000	500
400067	7.830	LEDGER BRACE UBL 300/100	2926	3000	1000
404766	8.360	LEDGER BRACE UBL 300/150	3133	3000	1500
400069	9.050	LEDGER BRACE UBL 300/200	3400	3000	2000



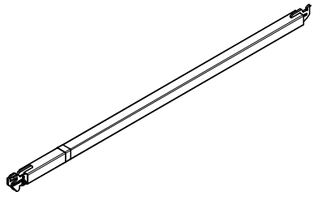


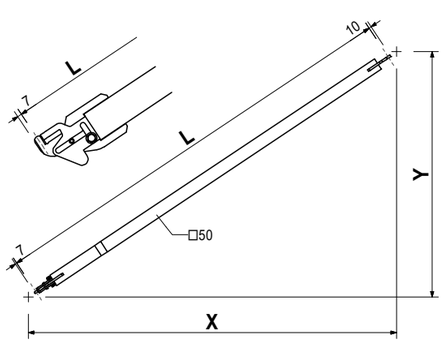
Note

Longitudinally-stamped with coloured label for easier identification.
UBL 150/250 identical to UBL 300/50.
UBL 225/150 identical to UBL 175/200.
UBL-2 250/50 is identical to UBL 200/150
UBL 75/200 identical to UBL 225/50.
UBL 100/100 identical to Diagonal Rod ST 100 (Art. no. 019940).

Art. no.	Weight [kg]		L [mm]	X [mm]	Y [mm]
		Horizontal Braces UBH Flex			
114818	4.590	H-BRACE UBH FLEX 100/100	1335	1000	1000
114904	5.630	H-BRACE UBH FLEX 125/125	1689	1250	1250
114821	5.730	H-BRACE UBH FLEX 150/100	1725	1500	1000
114908	6.170	H-BRACE UBH FLEX 150/125	1874	1500	1250
114912	6.660	H-BRACE UBH FLEX 150/150	2042	1500	1500
114820	7.010	H-BRACE UBH FLEX 200/100	2161	2000	1000
124097	7.780	H-BRACE UBH FLEX 200/150	2422	2000	1500
114916	8.740	H-BRACE UBH FLEX 200/200	2749	2000	2000
114896	8.130	H-BRACE UBH FLEX 250/75	2541	2500	750
114819	8.360	H-BRACE UBH FLEX 250/100	2620	2500	1000
114996	8.650	H-BRACE UBH FLEX 250/125	2720	2500	1250
124101	9.000	H-BRACE UBH FLEX 250/150	2838	2500	1500
114920	9.840	H-BRACE UBH FLEX 250/200	3123	2500	2000
114928	10.800	H-BRACE UBH FLEX 250/250	3456	2500	2500
114900	9.550	H-BRACE UBH FLEX 300/75	3025	3000	750
114892	9.740	H-BRACE UBH FLEX 300/100	3092	3000	1000
124105	10.300	H-BRACE UBH FLEX 300/150	3279	3000	1500
114924	11.000	H-BRACE UBH FLEX 300/200	3528	3000	2000
114932	11.900	H-BRACE UBH FLEX 300/250	3826	3000	2500
114936	12.900	H-BRACE UBH FLEX 300/300	4163	3000	3000

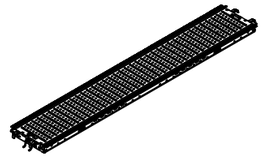
For horizontal bracing of towers.
Can also be used underneath Decks UDG.

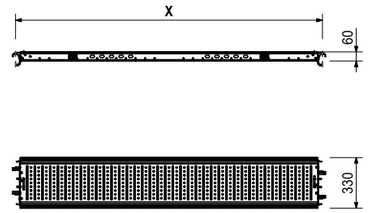




Art. no.	Weight [kg]		X [mm]	perm. p [kN/m²]
		Steel Decks EDS 33		
130450	5.420	STEEL DECK EDS 33X67	670	6
130448	7.360	STEEL DECK EDS 33X100	1000	6
130445	10.300	STEEL DECK EDS 33X150	1500	6
130441	13.300	STEEL DECK EDS 33X200	2000	6
130438	16.200	STEEL DECK EDS 33X250	2500	4.5
129272	19.200	STEEL DECK EDS 33X300	3000	3

Installation on crossbar of the frame components or on Horizontal Ledger UH.

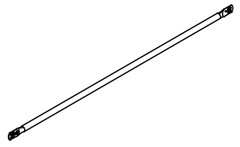


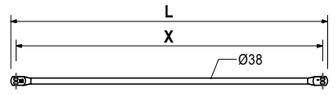


Note

Values correspond with EN 12811-1.

Art. no.	Weight [kg]		L [mm]	X [mm]
		Guardrail Posts EPG		
130193	1.680	GUARDRAIL POST EPG 100	1065	1000
130195	2.480	GUARDRAIL POST EPG 150	1565	1500
130197	3.280	GUARDRAIL POST EPG 200	2065	2000
130199	4.090	GUARDRAIL POST EPG 250	2565	2500
130201	4.890	GUARDRAIL POST EPG 300	3065	3000



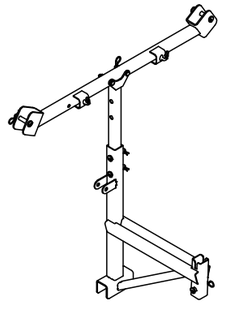


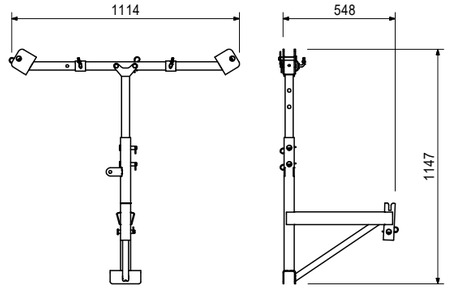
Note

With length marking for easier identification.

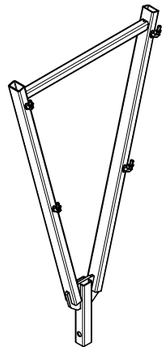
Art. no.	Weight [kg]	
126489	17.900	LGS RIDGE BRACKET URH

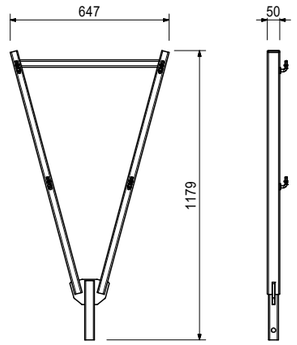
For connection to ridge element and ridge bar for access to the roof.





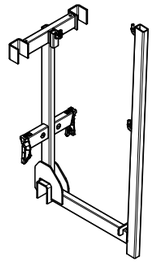
Art. no.	Weight [kg]	
126466	10.100	LGS RIDGE GUARDRAIL URH

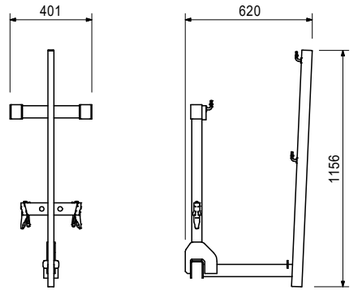




Art. no.	Weight [kg]	
126490	12.100	LGS CONSOLE BRACKET URH

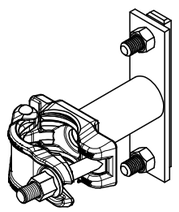
For connection to standard and intermediate element for access to the roof.

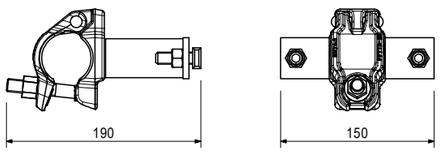




Art. no.	Weight [kg]	
126009	1.630	LGS KEDER CONNECTOR URV

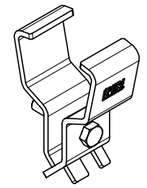
For fixing Keder Tracks URK to scaffolding parts with tube Ø 48.3 mm.

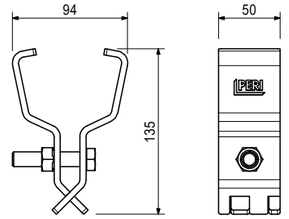




Art. no.	Weight [kg]	
125166	0.674	LGS KEDER CONNECTOR URK

For fixing Keder Tracks URK to LGS Elements.





Art. no.	Weight [kg]	
126051	3.640	LGS RIDGE RAIL URK 150

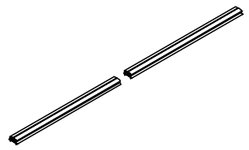
For keder tarpaulin transition over the LGS Ridge Element URR.

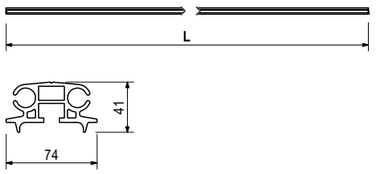




Art. no.	Weight [kg]		L [mm]
		LGS Keder Tracks URK	
127501	3.530	LGS KEDER TRACK URK 150	1500
127500	7.050	LGS KEDER TRACK URK 300	3000
126071	14.100	LGS KEDER TRACK URK 600	6000

Track for drawing keder tarpaulins into scaffolding constructions.

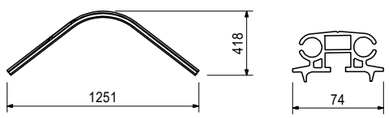




Art. no.	Weight [kg]	
126491	3.370	LGS EAVE RAIL URK

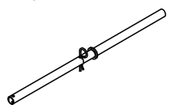
As a keder tarpaulin transition over the LGS Eave Element URB.

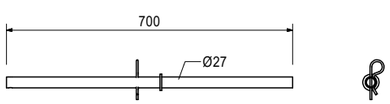




Art. no.	Weight [kg]	
126487	1.150	LGS CRANK URG

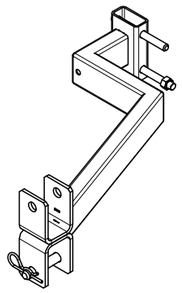
For winding the keder tarpaulins onto the Tarpaulin Reel URG.

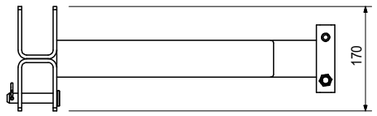


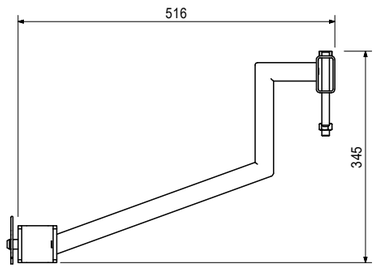


Art. no.	Weight [kg]	
126486	3.420	LGS REEL CONNECTOR URG

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

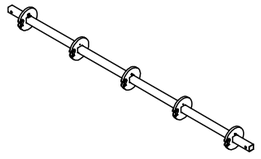


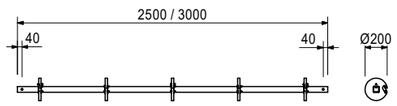




Art. no.	Weight [kg]	
		LGS REEL CONNECTORS URG
126484	10.500	LGS TARPAULIN REEL URG 250
126485	11.900	LGS TARPAULIN REEL URG 300

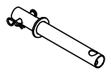
For transport and assembly / disassembly of the keder tarpaulin.

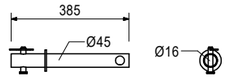




Art. no.	Weight [kg]	
126488	1.240	LGS HANDLE URG

Extension for the Tarpaulin Reel URG.

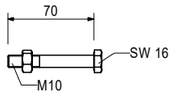




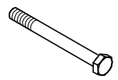
Art. no.	Weight [kg]	
100719	0.060	BOLT.ISO 4014-M10X070-8.8-VZ-MU
138009	0.060	BOLT.ISO 4014-M10X070-10.9-VZ-MU

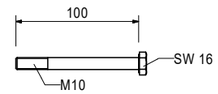
As tension-proof connection of verticals at suspended scaffolds and formwork girders.





Art. no.	Weight [kg]		L [mm]
710242	0.063	BOLT.ISO 4014-M10X100-8.8-VZ	100

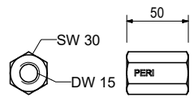




Art. no.	Weight [kg]	
030070	0.222	HEX. NUT AF 30 / 50, galv. DW15

For anchoring with Tie Rod DW 15 and B 15.





Note

Permissible load 90 kN.

Art. no.	Weight [kg]	
		nuts ISO 7040-8, galv.
780356	0.011	HEX. NUT ISO 7040-M10-8-VZ
070890	0.030	HEX. NUT ISO 7040-M16-8-VZ
105032	0.070	HEX. NUT ISO 7040-M24-8-VZ

Self-locking.

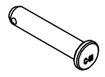


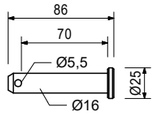


Note

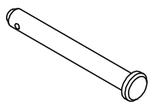
Width across flats AF 16.

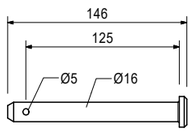
Art. no.	Weight [kg]	
106031	0.142	BOLT D=16/70, GALV.





Art. no.	Weight [kg]	
136880	0.238	BOLT 16X150 COATED



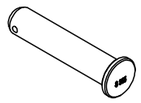


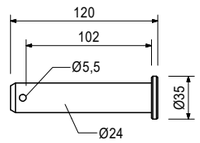
Art. no.	Weight [kg]	
018060	0.014	COTTER PIN 4/1 GALVANISED



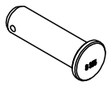


Art. no.	Weight [kg]	
106191	0.438	BOLT D=24/105, GALV.

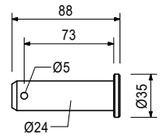




Art. no.	Weight [kg]	
127468	0.325	BOLT D=24/70, GALV.







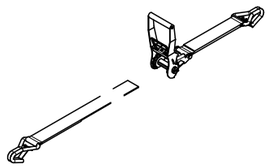
Art. no.	Weight [kg]	
022230	0.033	COTTER PIN 5/1 GALVANISED

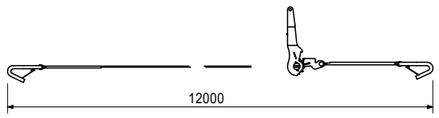




Art. no.	Weight [kg]	
118349	3.530	TENSION BELT PTB 12

Two-piece.





Note

Observe the notes on the belt label!
Total length 12 m, max. span 8 m.
Permissible tensile force 2.5 t.

The optimum system
for every project and
every requirement



Wall formwork



Column formwork



Slab formwork



Climbing systems



Bridge formwork



Tunnel formwork



Shoring



Working scaffolds construction



Working scaffolds facade



Working scaffolds industry



Means of access



Safety scaffolds



Safety systems



System–independent accessories



Services

PERI Danmark A/S
Forskalling & Stilladssystemer
Greve Main 26
2670 Greve
Tlf. +45 4345.3627
peri@peri.dk
www.peri.dk

DK Int Version 2.0 | DO-23-0030851 © PERI DK