

GASS[®]

Shoring system

User guide



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1 Product features

The GASS shoring system offers a great variety of applications for every construction site. The strong aluminum legs prove a great adaptability to heights and loads and they are of light design.

They can be used as single props or load towers or large-area floor tables being connected and stiffened by ledger frames. Many application variants ensure a huge rate of utilization and therefore a high profitability of the system. One prop (or leg) is made up of 1 or 2 inner legs at base and head, one alu leg and one or more extension legs. With the inner legs the prop is fine adjusted. Therefore, the props can be lowered material friendly without much force.

Towers or tables that are braced with frames can safely transfer loads into the ground even from big heights. The 4 sizes of ledger frames permit a proper adaptation of the shoring structure to nearly all shapes of ground plans and loads without any problems.

Ledger frames, cantilever frames, castor shoes, single guardrails and advanced guardrails are provided with the necessary connectors. There are no loose parts that can be lost. To tighten the connecting only a carpenter's hammer is required. The maximum weight of a single component is 26.20 kg. Practical accessories for various applications complete the alu shoring system.

1.1 Intended use

The typical assembly shown in this user guide is intended to transfer vertical loads into the ground.

The GASS shoring system can be used for the following purposes:

- To carry the loads of components, systems and equipment resulting from the construction, maintenance, modification or removal of structures.
- To carry the loads generated by the freshly poured concrete until the construction has even reached a self-supporting capacity.
- Additionally, as support for the temporary storage of building materials, components and equipment.

The permitted loads must be observed. For more information, refer to the valid type approval.

2 General information

This user guide for assembly and use contains important information regarding the assembly and use of the HÜNNEBECK GASS system, as well as safety advice.

These instructions are created to support effective working processes on site when using the HÜNNEBECK GASS system, therefore carefully read this user guide before assembly and use of the system, always keep it at hand and archive it for future reference.

2.1 Safety instructions

It is the responsibility of the site Management / Supervisors to ensure that all operatives involved in the assembly of the HÜNNEBECK GASS system have been made aware of this document and that they understand the drawings (if supplied) and the function of the various components.

The Contractor is also responsible for drawing up a comprehensive risk assessment and a set of installation instructions. The latter is not usually identical to the assembling instructions.

Risk assessment

The Contractor is responsible for the compilation, documentation, implementation and revision of a risk assessment for each construction site. His / her employees are obliged to implement the resulting measures in accordance with all legal requirements.

Assembly instructions

The assembly instructions are an integral component of the HÜNNEBECK GASS system construction and are a part of the installation instructions. They comprise safety guidelines, details of standard configurations and intended use as well as the system's description.

The functional instructions (standard configuration) contained in the assembly instructions are to be complied with as stated. Enhancements, derivations or changes represent a risk and therefore require separate verification with the help of a risk assessment or a set of instructions which comply with the relevant laws, standards and safety regulations. The same also applies in those cases where components are provided by the Contractor.

Availability of the assembly instructions

The Contractor has to ensure that the assembly instructions provided by the manufacturer or supplier are available at the place of use. Site personnel are to be informed of this before assembly and use takes place and that they are available at all times.

Detailed assembly

The method of erection / dismantling detailed is intended to be used as a general guide to inform the user about the product's details to enable safe use. It must not be used as a substitute for a contractor's specific risk assessment and method statement, and all relevant health and safety regulations must be adhered to. Due to the variety of possible configurations of temporary work systems, the method of erection or parts of it may differ from that shown. Additionally, alternative methods of erection may be preferred or developed in which case it is imperative that all relevant health and safety legislation is adhered to.

2.2 Method statement guidelines

HÜNNEBECK can provide further guidance and on-site assistance on any issues contained in this document that are not clear.

Further information can be found in the product's data sheets. IF IN DOUBT ASK.

Design Risk Assessment

Where relevant site-specific scheme designs are produced, they will generally be to a recognised standard arrangement otherwise calculations will be done to verify the design.

The Design Risk Assessment is an integral part of HÜNNEBECK's design process. The designer will assess the hazards and risks associated with erection, use and dismantling of the temporary works at an early stage of the design process. HÜNNEBECK will communicate where risks to health and safety remain by including a "Residual Risk Note" on the drawing. This note will be clearly visible and marked by the familiar black exclamation mark on a yellow triangle. The statement will be brief but clear to enable appropriate action by a competent contractor.

HÜNNEBECK draws attention to the following Health and Safety legislation:

The Construction (Health, Safety and Welfare) Regulations 1996 (CHSW Regs);

Construction (Design and Management) Regulations 2015 (CDM Regs);

Lifting Operations and Lifting Equipment Regulations 1998 (LOLER);

Work at Height Regulations 2005 (WaH Regs);

Manual Handling Operations Regulations 1992 (MHO Regs).

The Personal Protective Equipment at Work Regulations 1992 (PPE Regs)

Work at Height Regulations - Hierarchy of Controls Avoiding Work at Height

Work at height can be reduced / eliminated by considering the method of assembly and use:

- Walkways that are designed to be re-used reduce the amount of time and effort dismantling and re-erecting;
- Walkways that can be pre-assembled on the ground and then raised by crane to an elevated position will remove some of the work at height;
- Installing completed walkways when the walkway is on the ground will remove work at height associated with the construction later on.

Preventing Falls - The use of guardrails and other collective measures

The use of PPE / Safety Harnesses.

Suitable PPE MUST be used at all times during assembly and dismantling of this equipment. Lanyards MUST always be secured to a suitable part of the structure. Always consider the attachment level and deployment (extension) of the lanyard when under load.

2.3 Equipment information

Material check

Material deliveries are to be checked on arrival at the construction site / place of destination, as well as before each use, to ensure it's in serviceable condition and functions correctly. Changes to the material are not permitted.

On-site preparations

The Contractor must ensure the appropriate environment and conditions for storage and the particular application of the system(s) supplied.

Storage and transportation

The special requirements of the GASS system either as individual components and / or as pre-assembled parts regarding storage and transportation procedures must be complied with. This applies not only to and from the site but also to the movement of individual components and / or pre-assembled parts on the construction site / place of use.

Lifting

When applicable, the lifting requirements of the individual components and / or pre-assembled parts must be followed.

Genuine components

The information provided assumes that any product combinations will be between genuine HÜNNEBECK products or products supplied by HÜNNEBECK unless otherwise stated.

Combining components from different manufacturers carries certain risks. They are to be individually verified and a separate set of instructions for the installation of the equipment may be required.

Any unauthorised use in relation to third party products could give rise to a risk of collapse, damage, injury or death.

Spare parts and repairs

Only original components may be used as spare parts. Repairs are to be carried out by the manufacturer or by authorised facilities only.








2.4 Document information

Representations

The representations shown in the assembly instructions are in part, situations of assembly and not always complete in terms of safety considerations. The safety installations which have possibly not been included in these representations must be available and must be in accordance with the latest regulations. Overviews and diagrams are for illustrative purposes only and whilst we endeavour to ensure accuracy, we are not responsible for omissions or errors.

Safety symbols

Individual safety symbols are to be complied with. Examples:

 DANGER	Danger! DANGER indicates a hazardous situation that, if not avoided, will cause death or serious injury.
 WARNING	Warning! WARNING indicates a hazardous situation that, if not avoided, can cause death or serious injury.
 CAUTION	Caution! CAUTION indicates a hazardous situation that, if not avoided, can cause minor or moderate injury.
NOTICE	Notice! NOTICE indicates a hazardous situation that, if not avoided, can cause property damage.
	This note indicates that an additional check, visual or otherwise, is required.
	This note shares practical experience with the user, e.g. how to more easily or quickly perform a task.
	This note draws the user's attention to particularly important information, e.g. that a pre-requisite must be fulfilled.
	This symbol indicates that additional information from other documents is required. These documents could be user guides or operating instructions for other products.

User guide compliance

HÜNNEBECK will not be liable for any damage to property, personal injury or any losses caused by failure to follow the instructions contained in this guide. It remains the responsibility of the user to comply with the applicable legislation.

2.5 Other information

This guide provides an overview of the GASS system's instructions for assembly and use. More specific component data sheets are available upon request for some product lines. HÜNNEBECK reviews and updates its product guidance from time to time. Due to continuous development, it is important that only current documents are used.

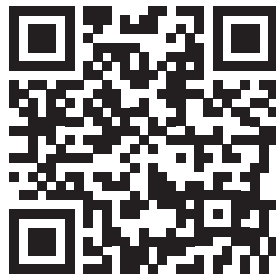
HÜNNEBECK reserves the right to alter or amend, without notice, the design and / or specifications of products in the interests of improvement or when required to comply with new regulations, other safety guidances or industry advancements.

HÜNNEBECK also issues safety notes on its products or packaging where required. These notices may affect the manner in which products are used and should therefore be adhered to. The most recent published notice should prevail.

All information in this guide is correct at the time of going to press and / or other publication media.

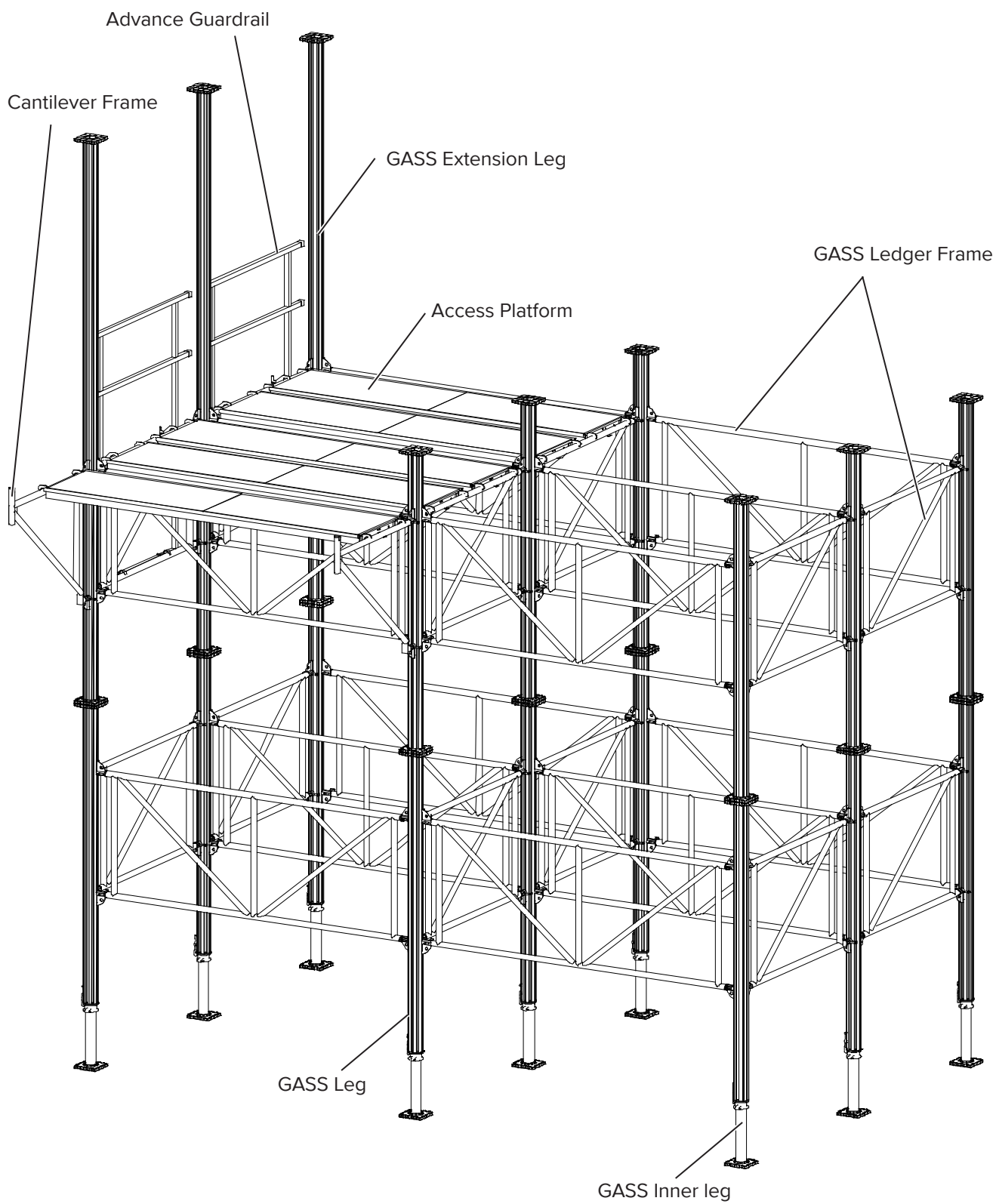
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www.huennebeck.com/downloads


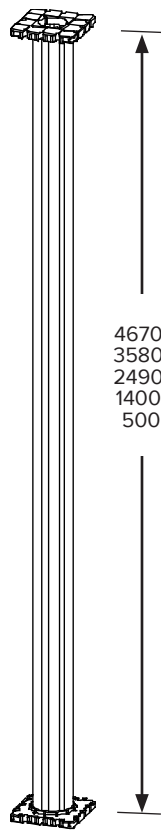


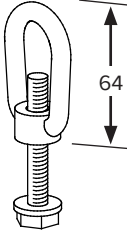
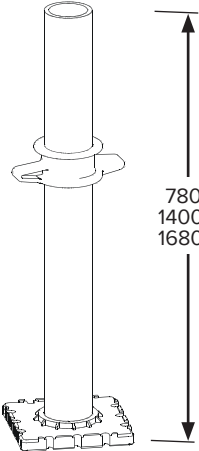
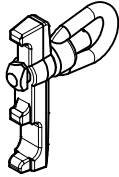
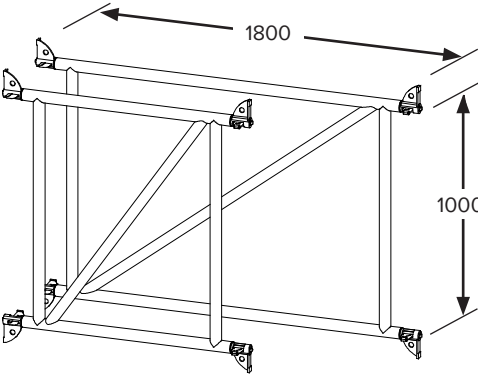
SGB, HÜNNEBECK, ALUMA and BRAND are trading names of BRANDSAFWAY.

3 Overview

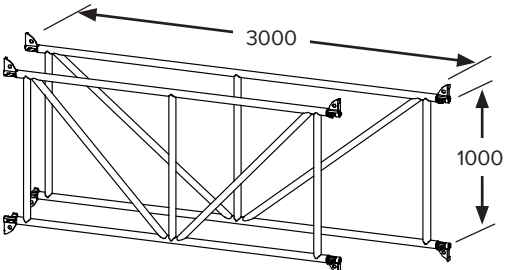


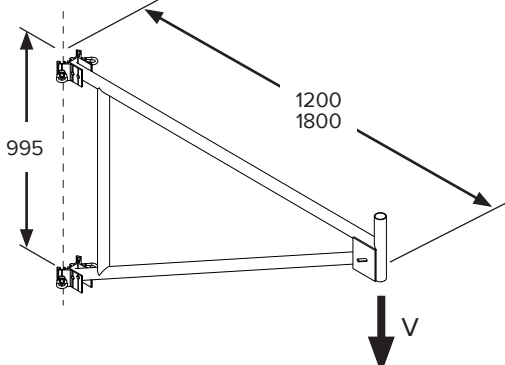
4 Components

	Component	Product code	Weight [kg]
	GASS Leg 4670 mm	718004	22.62
	GASS Leg 3580 mm	718003	17.90
	GASS Leg 2490 mm	718002	13.19
	GASS Leg 1400 mm	718001	8.47
	<p>An aluminum outer leg which is used together with GASS Inner Leg. Can be used as single prop or together with Ledger Frames to form shoring towers. (see page 17).</p> <p>From October 2020 all new production of GASS outer legs will include double bowtie latches.</p> <p>A program to retrofit existing GASS Outer Legs with the double latch arrangement is underway, during this retrofit period both single and double latch Outer Legs will be in our stocks. Both options are interchangeable however the separate Safety Latch (code: 718907) must be used on all single latch legs when lifting or flying, see page 22.</p>		
	GASS Extension Leg 4670 mm	718011	23.60
	GASS Extension Leg 3580 mm	718010	18.91
	GASS Extension Leg 2490 mm	718009	14.23
	GASS Extension Leg 1400 mm	718008	9.54
	GASS Extension Leg 500 mm	718007	5.63
	<p>The rigid extension legs for the props. (see page 18).</p>		

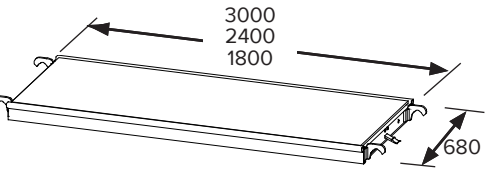
	Component	Product code	Weight [kg]
	<p>GASS Ring Bolt</p> <p>Used to join the legs and the extension legs. 4 Ring bolt clamps for GASS leg to GASS leg are required per joint.</p>	<p>718901</p>	<p>0.23</p>
	<p>GASS Inner Leg 1680 mm (adjustable jack)</p> <p>GASS Inner Leg 1450 mm (adjustable jack)</p> <p>GASS Inner Leg 780 mm (adjustable jack)</p> <p>Used together with GASS Legs or GASS Extension Legs to form adjustable prop. They can be used at the bottom and/or at the top of a shoring system (see page 20).</p>	<p>718016</p> <p>718014</p> <p>718015</p>	<p>10.20</p> <p>8.70</p> <p>5.50</p>
	<p>GASS Leg Safety Wedge Lock</p> <p>Prevents the inner leg from falling out of the leg.</p> <p>Must always be installed to the GASS leg with a single bowtie latch (see page 10) for lifting operations (see page 22).</p>	<p>718907</p>	<p>0.55</p>
	<p>GASS Ledger Frame 1.2 m</p> <p>GASS Ledger Frame 1.8 m</p> <p>The aluminum ledger frames connect and brace the props with each other (see page 19).</p>	<p>718020</p> <p>718021</p>	<p>9.40</p> <p>10.30</p>

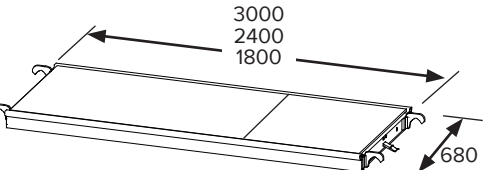
Components

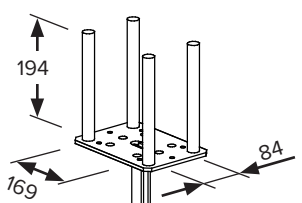
	Component	Product code	Weight [kg]
	GASS Ledger Frame 2.4 m	718022	13.36
	GASS Ledger Frame 3.0 m	718023	15.76
<p>The aluminum ledger frames connect and brace the props with each other (see page 19).</p>			

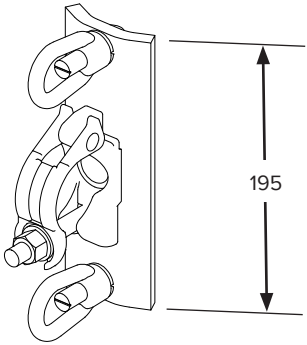
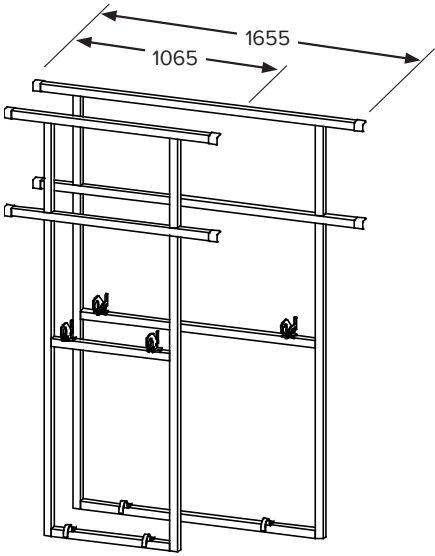
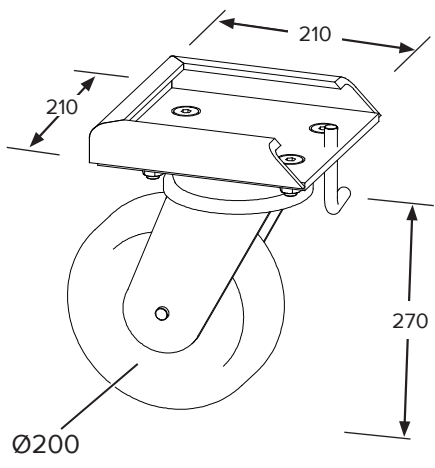
	GASS Cantilever Frame 1200 mm*	718028	6.65
	GASS Cantilever Frame 1800 mm*	718026	9.40
<p>Used to extend deck area for access purposes. SWL: $V = 5 \text{ kN}$</p>			

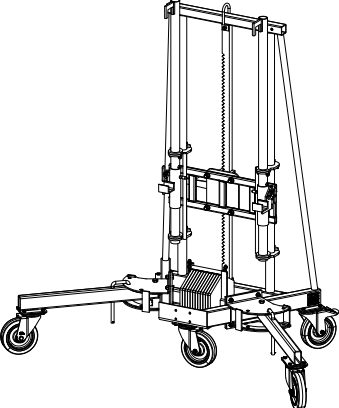

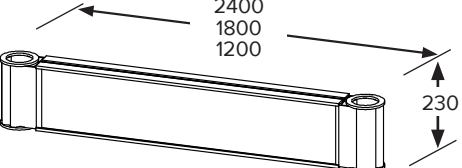
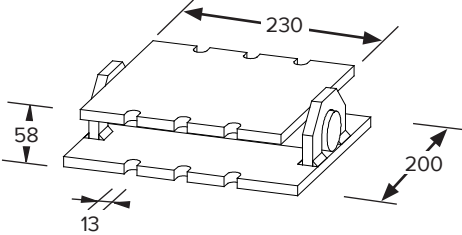
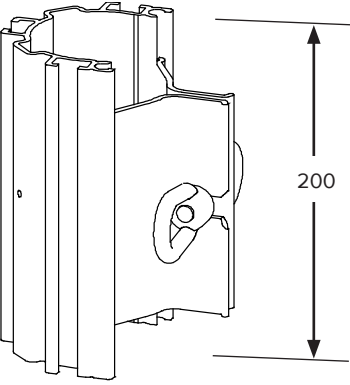
4.1 Accessories

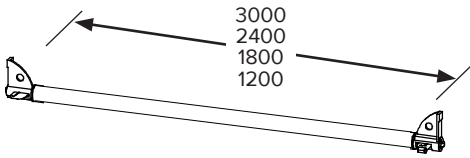
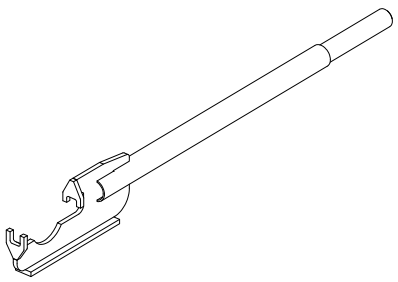
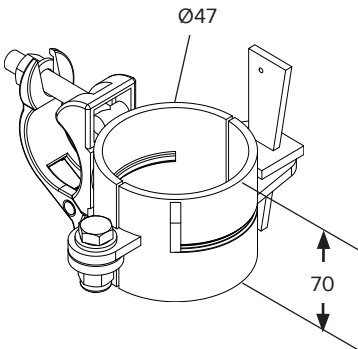
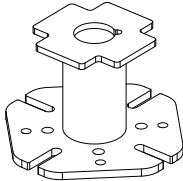
	Component	Product code	Weight [kg]
	GASS Access Platform 3.0 m	718084	25.70
	GASS Access Platform 2.4 m	718083	19.40
	GASS Access Platform 1.8 m	718082	14.80
<p>To be placed onto the ledger frames. SWL: $= 1.5 \text{ kN/m}^2$</p>			

	GASS Trap Door Access Platform 3.0 m	718088	26.20
	GASS Trap Door Access Platform 2.4 m	718087	19.90
	GASS Trap Door Access Platform 1.8 m	718086	15.30
<p>To be placed onto the ledger frames. SWL: $= 1.5 \text{ kN/m}^2$</p>			

	Fork Head 8/20	417565	2.96
<p>Secures H 20 beams on the leg head plate from falling.</p>			

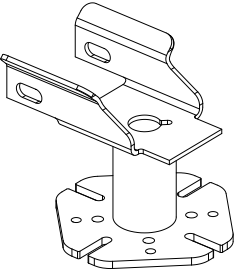
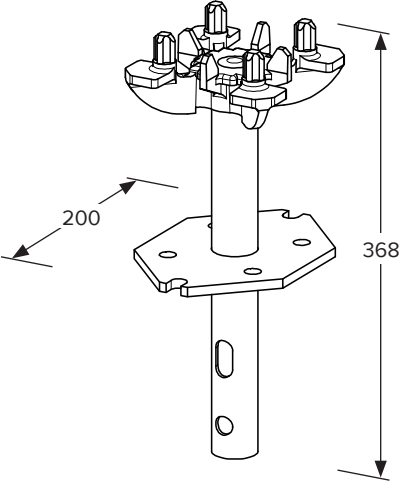
	Component	Product code	Weight [kg]
	<p>GASS Leg Bracing Coupler + N&B Is fixed to the slots of the legs to connect scaffold tubes via the integrated coupler. SWL: = 6.1 kN</p>	<p>718044</p>	<p>1.75</p>
	<p>GASS Advanced Guardrail: narrow* GASS Advanced Guardrail: wide*</p> <p>By attaching this component to the ledger frame the working platform can be secured at the front ends during assembly (see page 30).</p>	<p>718137</p>	<p>9.50</p>
	<p>GASS Castor Unit</p> <p>Is fixed to the bottom plate to move the shoring structure to the next place of use (see page 31). SWL: = 950 kg</p>	<p>718079</p>	<p>9.77</p>

	Component	Product code	Weight [kg]
	<p>TOPMAX Lifting Jack Carriage 750</p> <p>Is used to transport GASS towers up to a height of 7.50 m horizontally.</p> <p>It is supplied together with adjustable outriggers and counter weights.</p> <p>SWL: 700 kg</p>	<p>607111</p>	<p>219.13</p>
	<p>Always refer to the separate operating instructions of the TOPMAX Lifting Jack Carriage 750.</p>		
	<p>GASS Saddle Beam 2.4 m</p> <p>GASS Saddle Beam 1.8 m</p> <p>GASS Saddle Beam 1.2 m</p>	<p>718070</p> <p>718069</p> <p>718068</p>	<p>23.40</p> <p>18.40</p> <p>10.70</p>
<p>Is used to support crossing timber beams on floor table structures or to create a beam formwork. For example: primary and secondary beams (see page 38).</p>			
	<p>GASS Rocking Base Plate</p> <p>Is attached to the head or base plate to support beams or to compensate uneven ground or inclinations.</p>	<p>718091</p>	<p>8.25</p>
	<p>GASS Jack Guardrail Collar</p> <p>To be fixed to the inner leg (adjustable jack) to create guard rails in combination with the single guard rails of the required lengths (see page 29).</p>	<p>718042</p>	<p>1.10</p>

	Component	Product code	Weight [kg]
	GASS Single Guardrail 3.0 m	718135	5.64
	GASS Single Guardrail 2.4 m	718134	4.94
	GASS Single Guardrail 1.8 m	718133	4.30
	GASS Single Guardrail 1.2 m	718131	3.60
	Is inserted into the jack guardrail collar or GASS leg to secure the working platform (see page 29).		
	GASS Spanner	718063	8.00
	Is used to operate the jack collar nuts of the inner legs (adjustable jacks).		
	GASS Jack Half Coupler	718043	1.50
	Can be used to install a scaffold tube as a guardrail or as a brace.		
	TOPMAX GASS Multi Adapter	606993	4.62
	<p>The TOPMAX GASS multi adapter allows to attach TOPMAX floor tables in combination with the TOPMAX folding head to the GASS props. The proven functionality of swivelling the mounted props remains. Additionally, the TOPMAX floor tables can be used with GASS shoring structures. The TOPMAX GASS multi adapter is connected to the GASS system components with four ring bolt clamps for GASS leg to GASS leg.</p> <p>The connection plate of the multi adapter has multiple connection holes to connect HÜNNEBECK steel props as well as prop systems of other manufacturers.</p>		

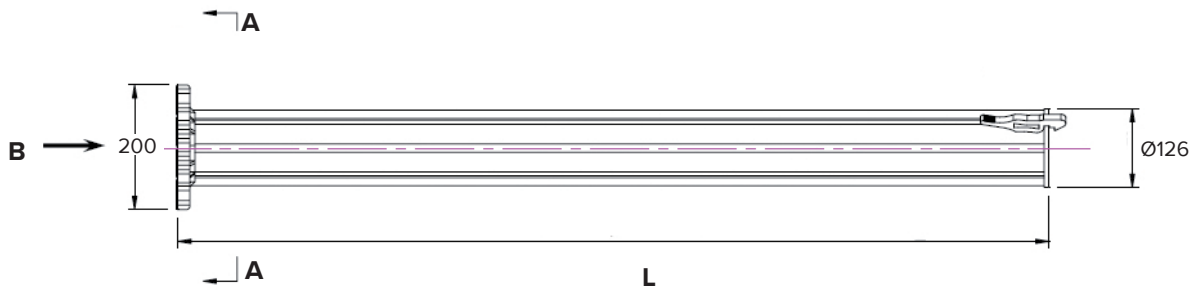


If single GASS Legs are used with the TOPMAX Floor Tables, the legs must not be swung when moving the table and must remain in the vertical position at all times

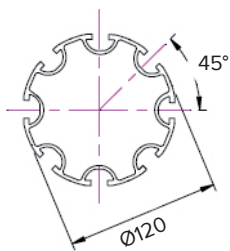
	Component	Product code	Weight [kg]
	<p>TOPMAX GASS Tower Adapter</p> <p>The TOPMAX GASS tower adapter is used to attach TOPMAX floor tables to GASS shoring structures. The special design of the adapter allows fast setting up of the floor tables. The TOPMAX GASS tower adapter is fixed to the GASS system with four ring bolt clamps for GASS leg to GASS leg. To secure the TOPMAX floor table to the TOPMAX GASS tower adapter use TOPMAX locking pins.</p> <p>GASS legs must not be used in any swinging applications.</p>	<p>606994</p>	<p>5.89</p>
	<p>GASS TOPEC Bearing</p> <p>Support for TOPEC Panels when using GASS props.</p> <p>Maximum load capacity: 40.00 kN</p> <p>Fixed to the GASS props using GASS Ring Bolts (code:718901).</p> <p>Refer to page 104.</p>	<p>602042</p>	<p>3.45</p>

5 Dimensions

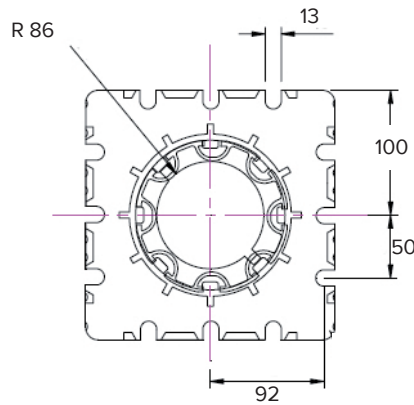
5.1.1 GASS Leg



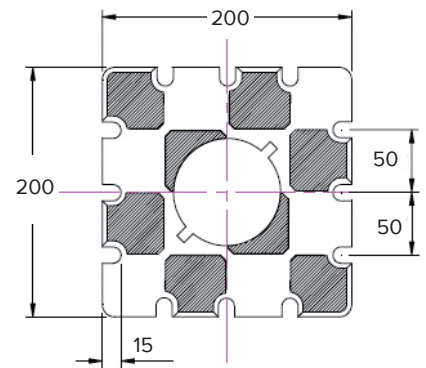
Profile of leg



Plan view



View B



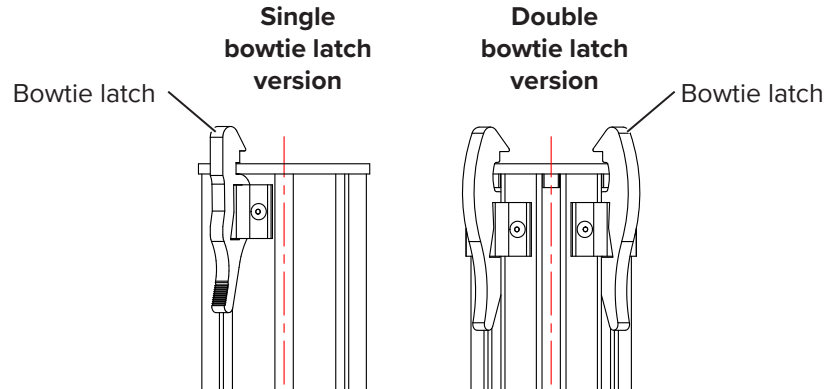
Section: A - A



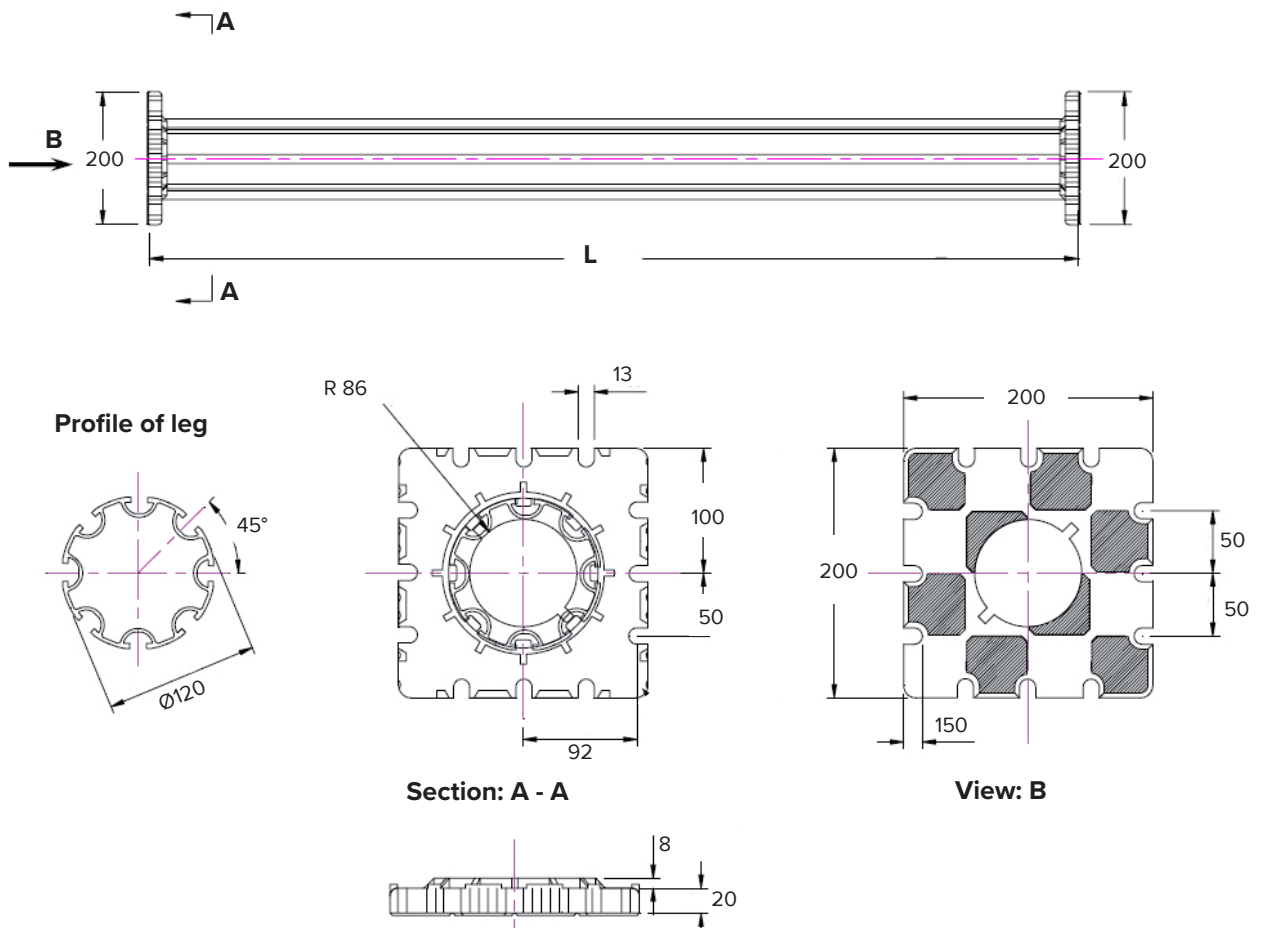
Product code	Component	Length (L) [mm]	Weight [kg]
718004	GASS Leg 4670 mm	4670	22.10
718003	GASS Leg 3580 mm	3580	17.41
718002	GASS Leg 2490 mm	2490	12.73
718001	GASS Leg 1400 mm	1400	8.04

All new production of GASS outer legs will include double bowtie latches.

A program to retrofit existing GASS outer legs with the double latch arrangement is underway, during this retrofit period both single and double latch outer legs will be in our stocks. Both options are interchangeable however the separate safety latch (code:718907) must be used on all single latch legs when lifting or flying, see page 22.



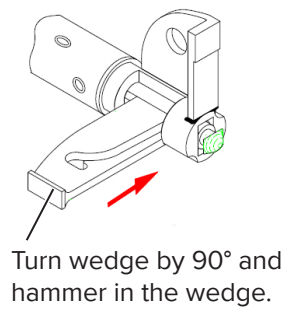
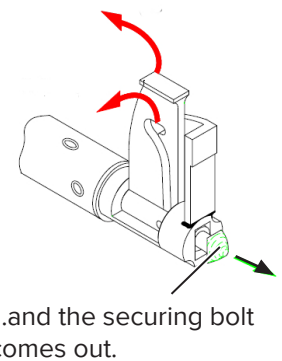
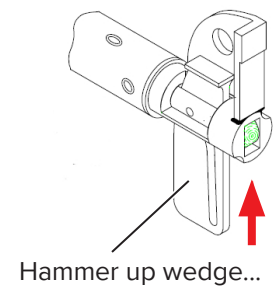
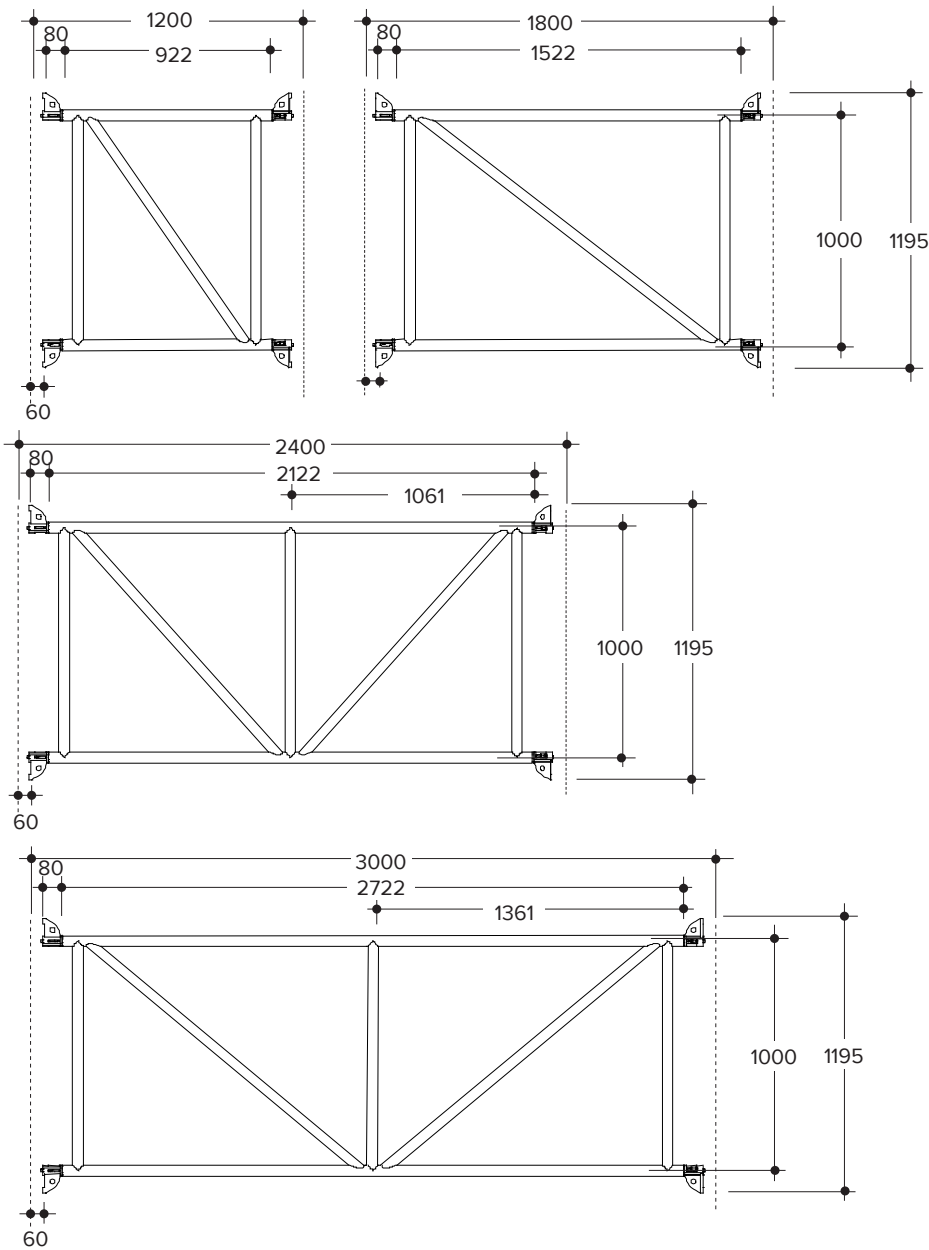
5.1.2 GASS Extension Leg



Product code	Component	Length (L) [mm]	Weight [kg]
718011	GASS Extension Leg 4670	4670	23.60
718010	GASS Extension Leg 3580	3580	18.91
718009	GASS Extension Leg 2490	2490	14.23
718008	GASS Extension Leg 1400	1400	9.54
718007	GASS Extension Leg 500	500	5.63

5.1.3 GASS Ledger Frame

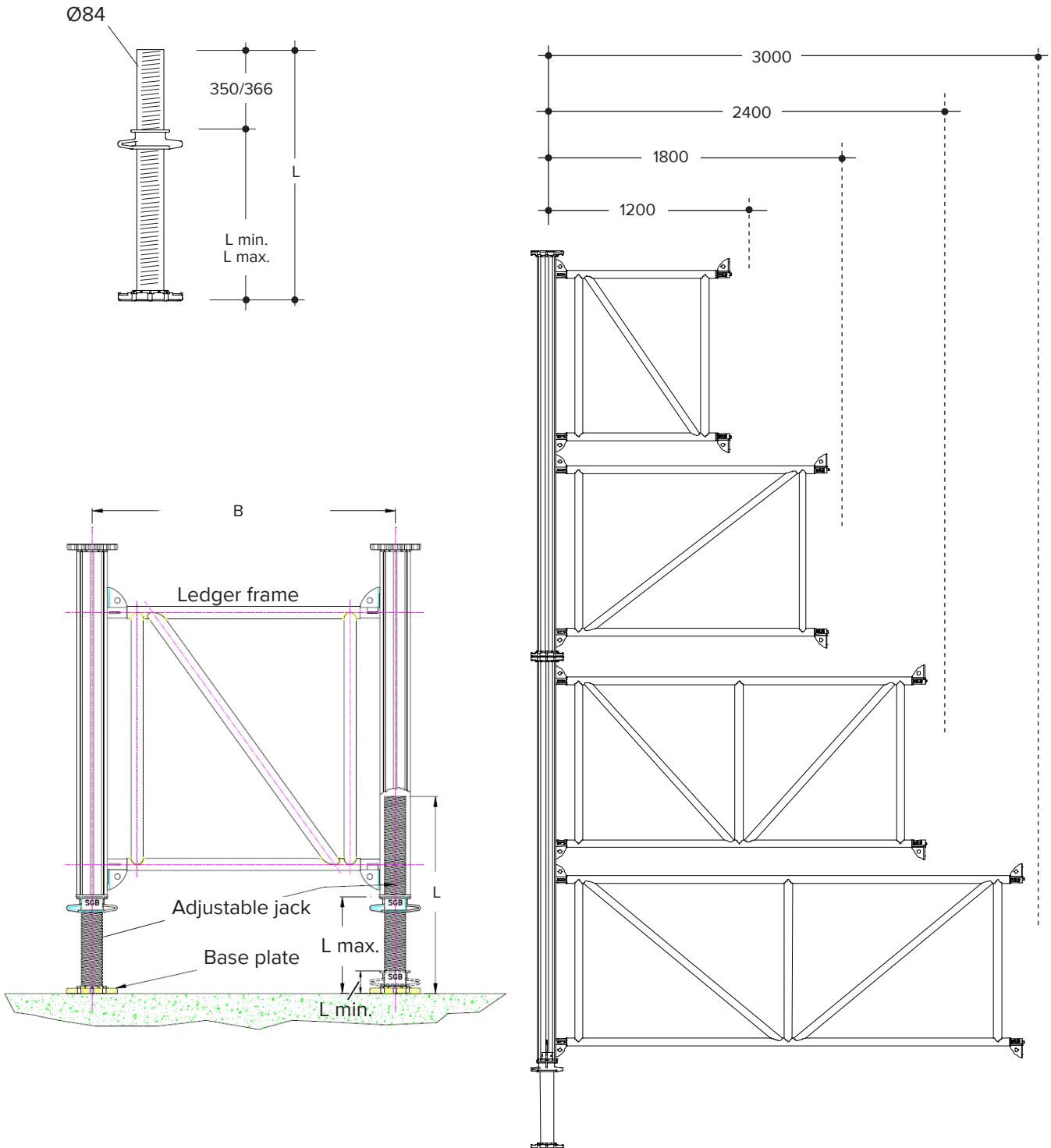
Function of wedge



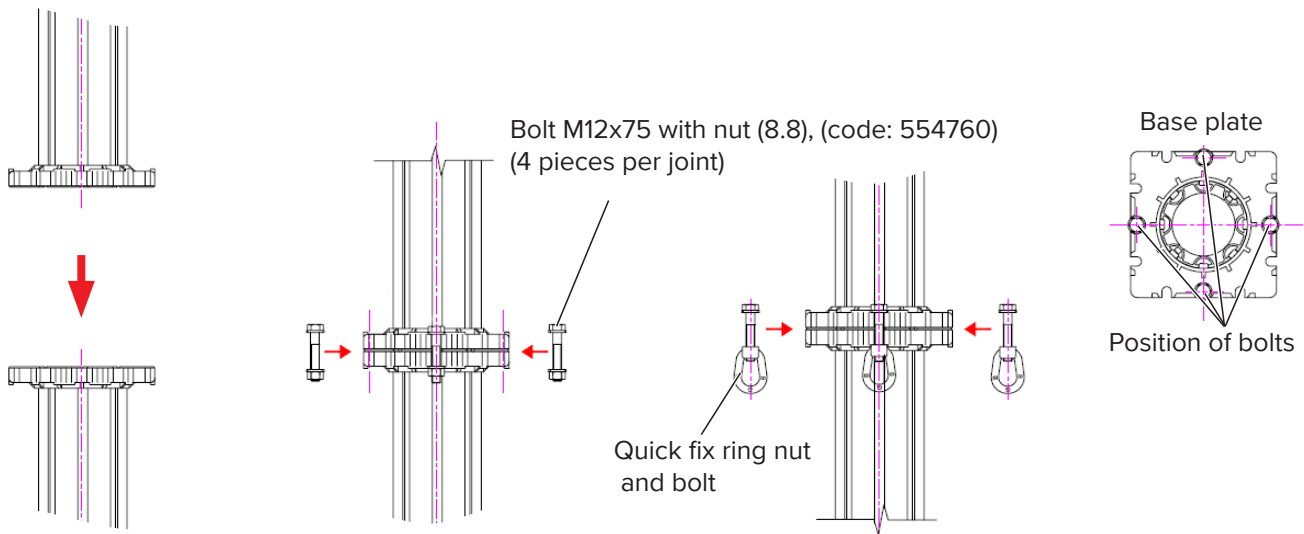
Product code	Component	Length (L) [mm]	Weight [kg]
718023	GASS Ledger Frame 3.0	3000	15.76
718022	GASS Ledger Frame 2.4	2400	13.36
718021	GASS Ledger Frame 1.8	1800	10.30
718020	GASS Ledger Frame 1.2	1200	9.40

5.1.4 Inner Leg

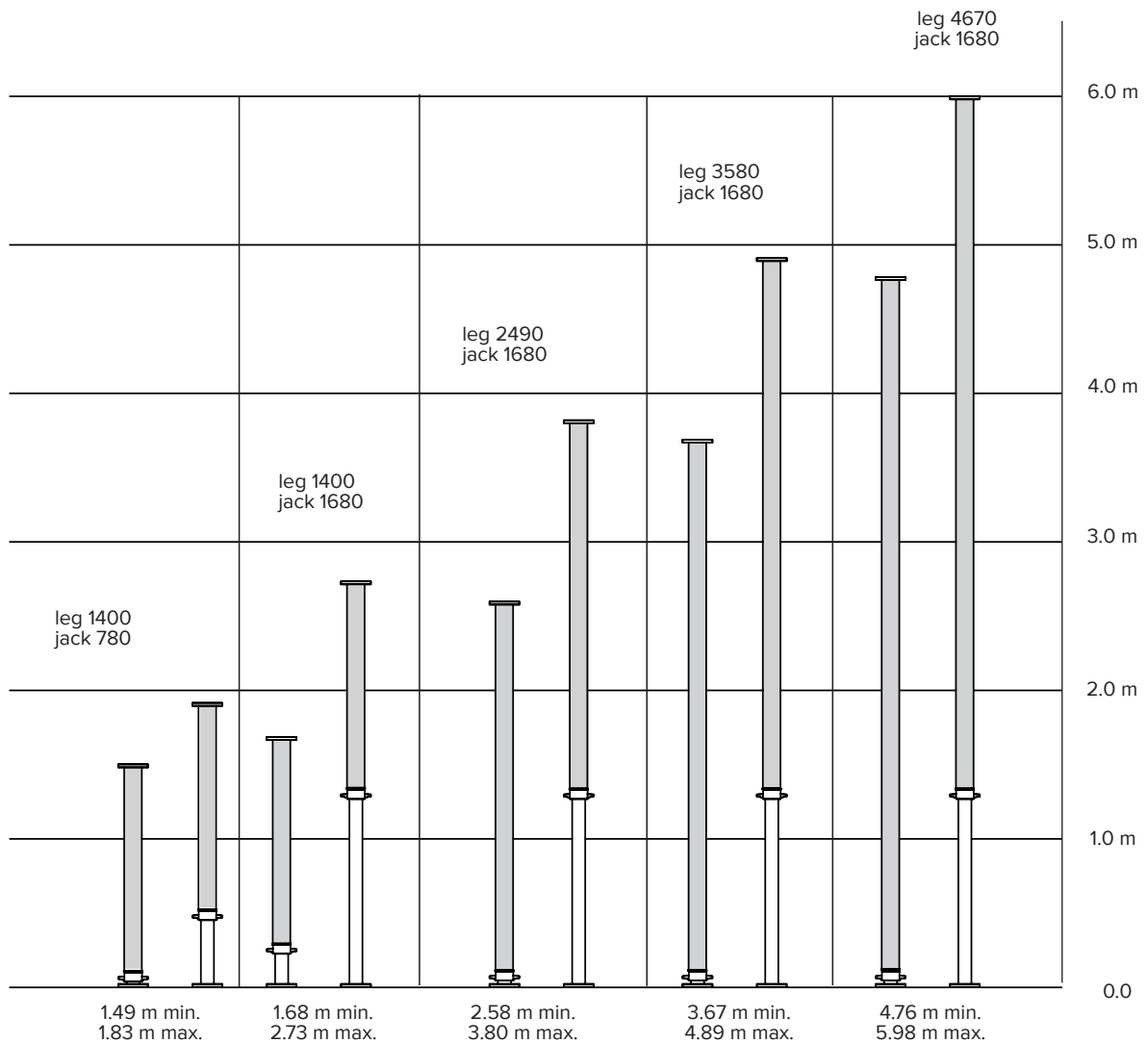
Product code	Component	Length (L) [mm]	Weight [kg]	L max. [mm]	L min. [mm]
718016	GASS Inner Leg 1680 mm adjustable jack	1680	10.20	1330	98
718014	GASS Inner Leg 1450 mm adjustable jack	1450	8.70	1100	98
718015	GASS Inner Leg 1450 mm adjustable jack	780	5.50	430	98



5.1.5 Leg connections



5.1.6 Combinations of GASS legs and GASS inner legs



6 Assembly

6.1 Installing additional safety latch for lifting operations

Before transporting GASS Legs on site e.g. with a crane or the TOPMAX Lifting Jack Carriage 750 (part code 607111), all GASS Legs with a single bowtie latch (see page 17), either being used as stand-alone or in towers, must always be secured with an additional Safety Latch (part code 718907) against unintentional disengagement. GASS legs that are mounted on TOPMAX floor tables must always be secured with an additional safety latch.



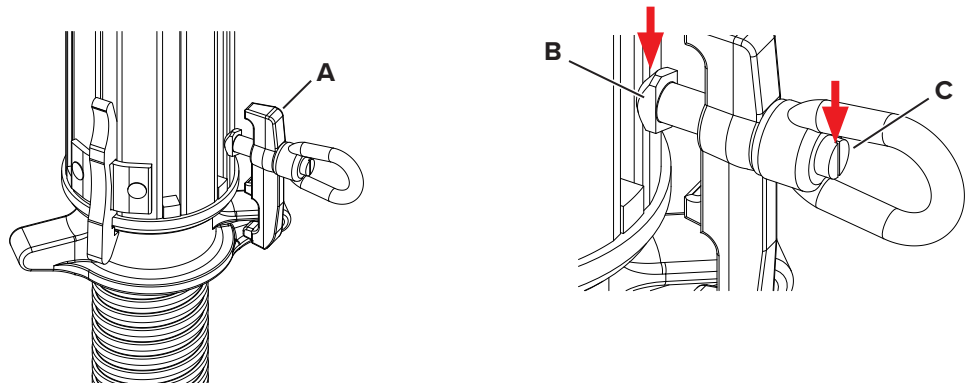
WARNING

Risk of personal injury!

The inner legs can fall out of the GASS legs! This can cause personal injury or death!

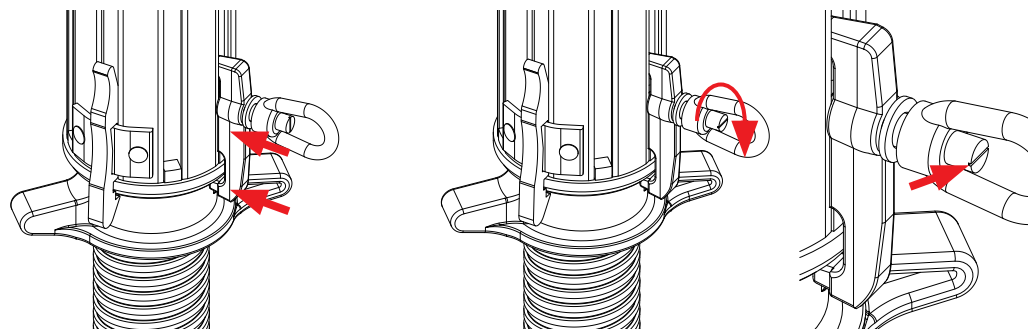
Always secure the inner legs with additional safety latches before lifting by crane or moving with the TOPMAX Lifting Jack Carriage 750 (part code 607111).

- Step 1** Align the T bolt (**B**) of the safety latch (**A**) with the grooves in the GASS leg. Indication slot (**C**) in the T bolt will also be in parallel with the grooves in the GASS leg, see detail.

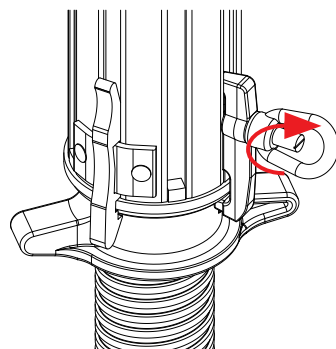


- Step 2** Insert T bolt into the groove in the GASS leg ensuring the bottom part of the safety latch captivates the jack nut.

- Step 3** Manually rotate T bolt clockwise through 90 degrees until indication slot in the back of the T bolt is perpendicular to the grooves in the GASS leg.

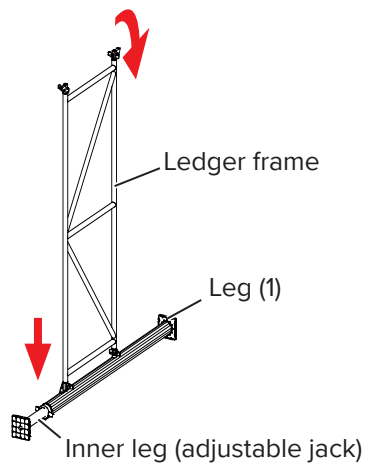


- Step 4** Tighten ring nut to captivate safety latch to the leg. Make sure that T bolt indication slot remains perpendicular to the grooves in the GASS leg when secured.

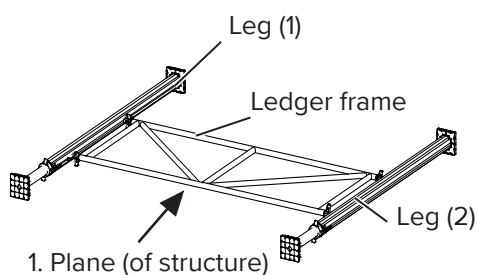


6.2 Assembling the first plane

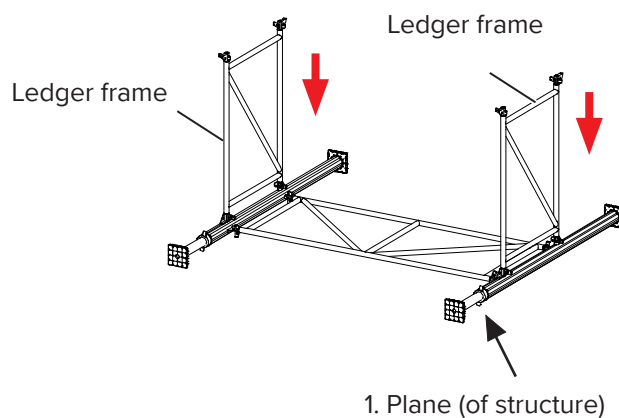
Step 1 First insert the inner leg (adjustable jack) into the leg and secure it against falling out with the leg safety latch. Then connect the ledger frame to the leg (see „Function of wedge“ on page 19). Then place unit at the ground.



Step 2 Connect the second leg (2). Now the first plane (of structure) is ready.

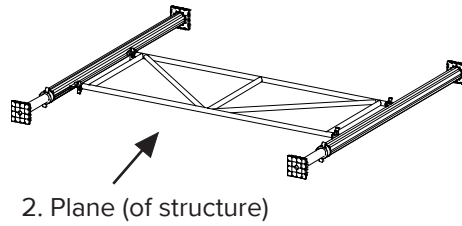


Step 3 Connect the next ledger frames to the legs.

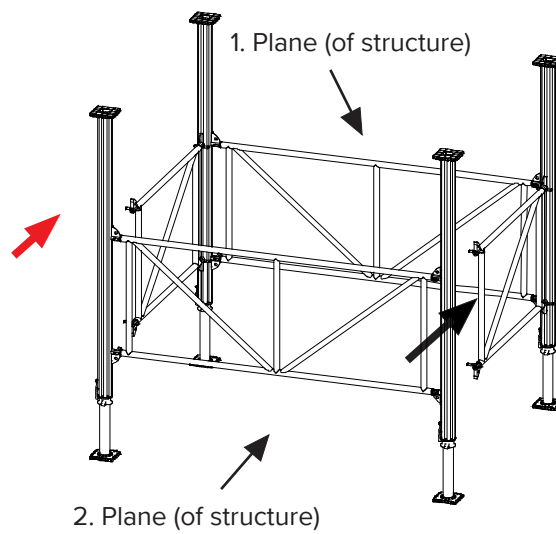


6.3 Assembling further planes

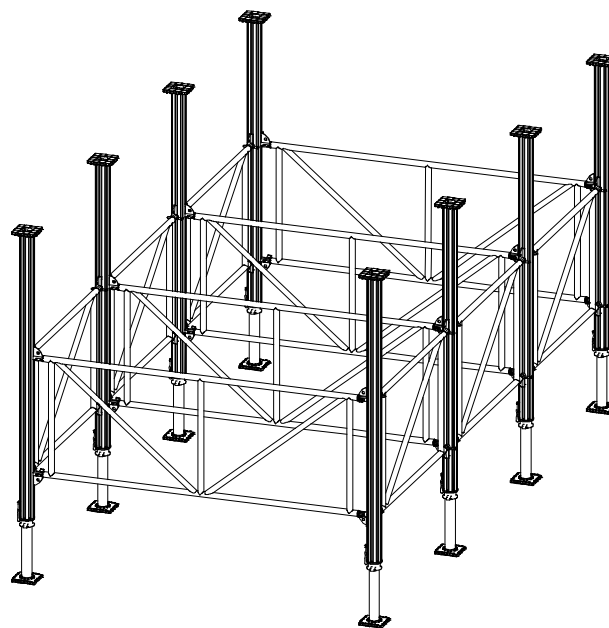
Step 1 Assemble the second plane (of structure).



Step 2 Erect the two preassembled units and connect to each other.
Now adjust the tower with a lever gauge and check the extension length of the jacks.

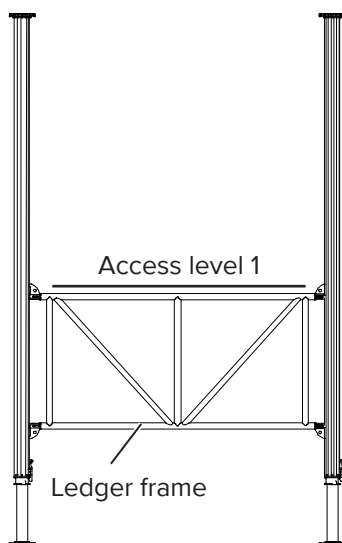


Step 3 This way allows to connect any number of further ledger frames with different lengths to the existing units.

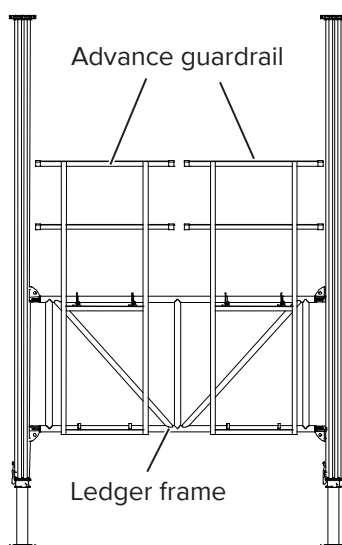


6.4 Assembling platforms and further levels

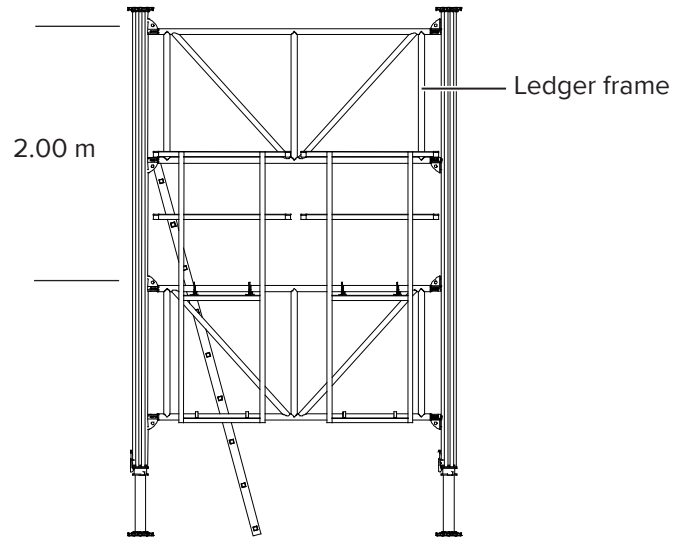
Step 1 If necessary now attach the access platforms.



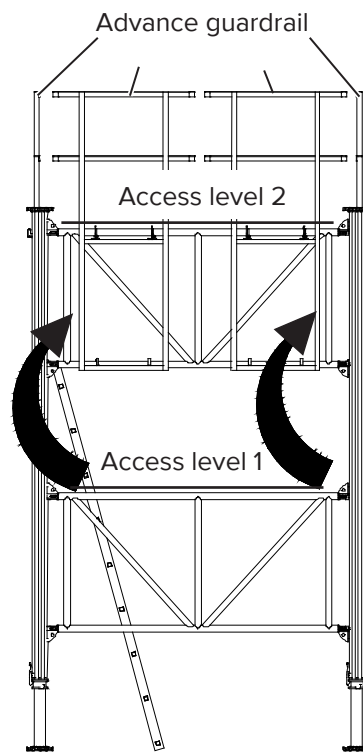
Step 2 Hook the advance guardrails to the ledger frames.



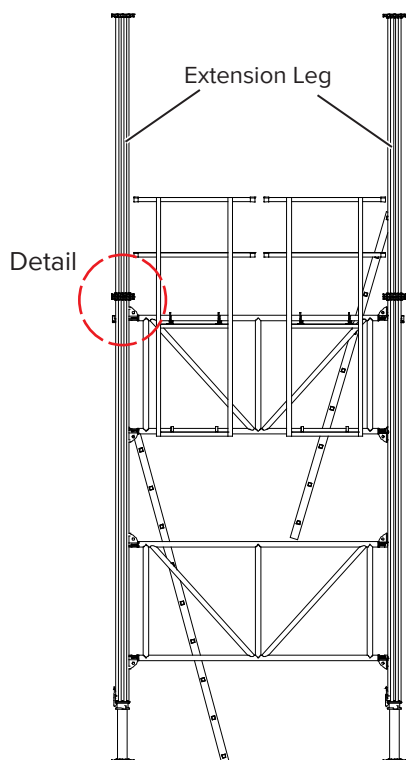
Step 3 Install the ledger frames for access level 2 from access level 1.



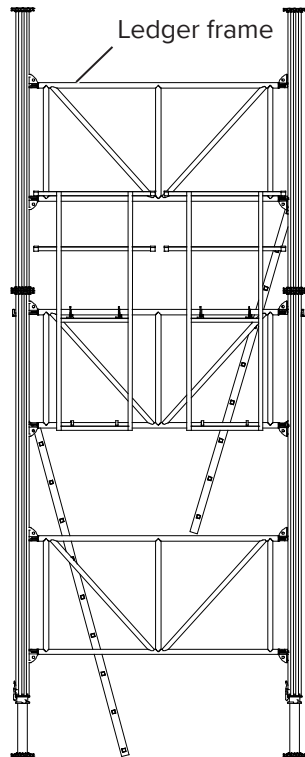
Step 4 Hook the advance guardrails from access level 1 to access level 2.



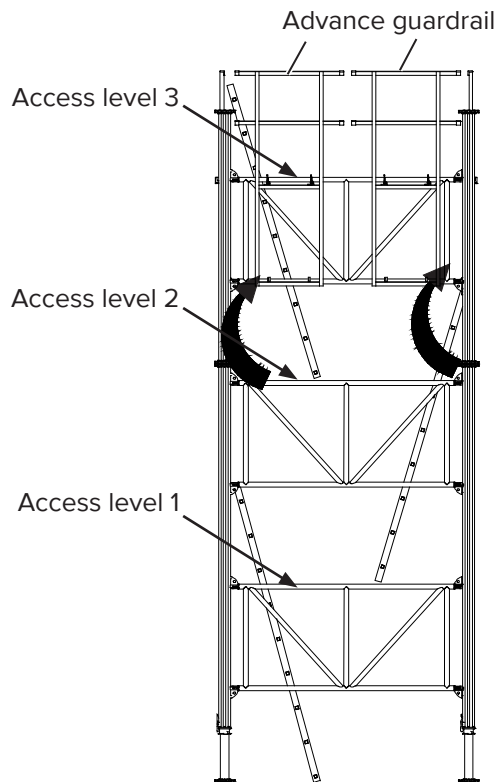
Step 5 Install the extension legs on top of legs of substructure (detail see page 21 legs and ledger frames).



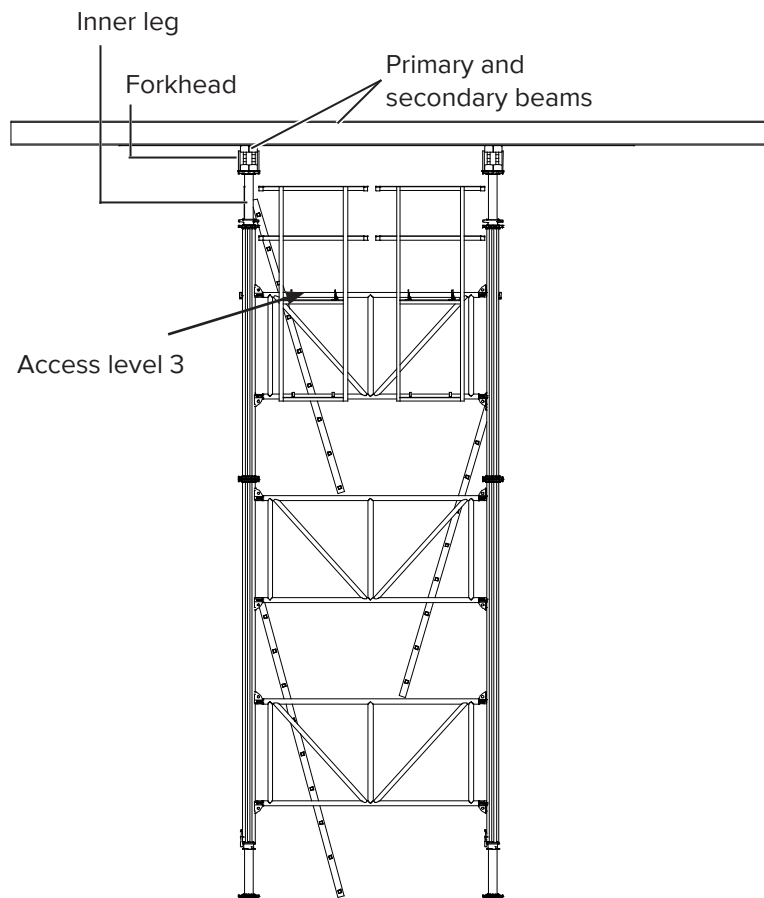
Step 6 Install the third level of ledger frames to prepare the assembly of the next access level.



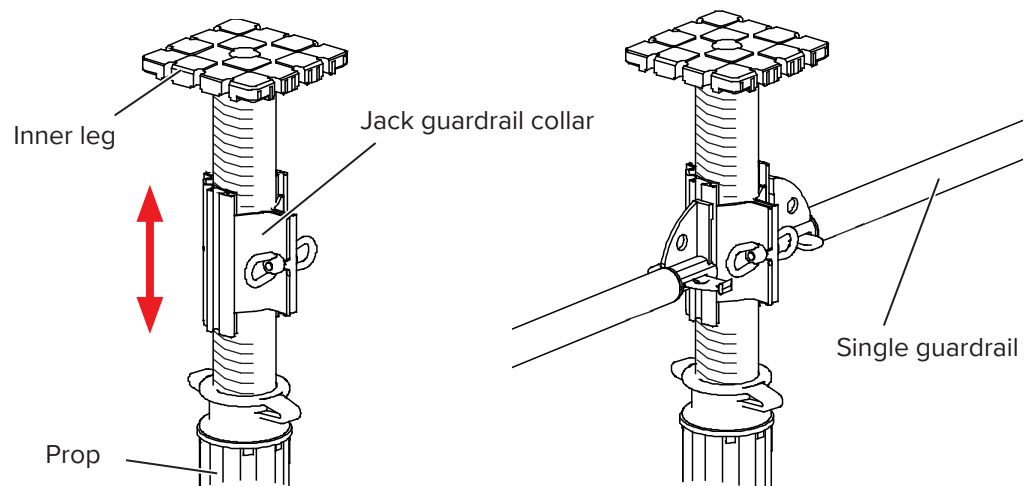
Step 7 Hooked the advance guardrail from access level 2 to access level 3.



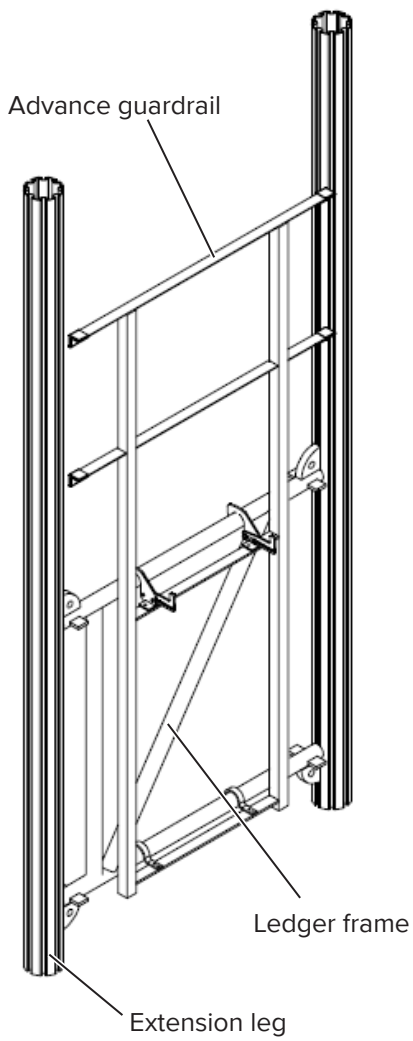
Step 8 From the protected upper access level 3 attache the required assembly e.g. a slab formwork with DU-AL or H 20 beams supported by forkheads.



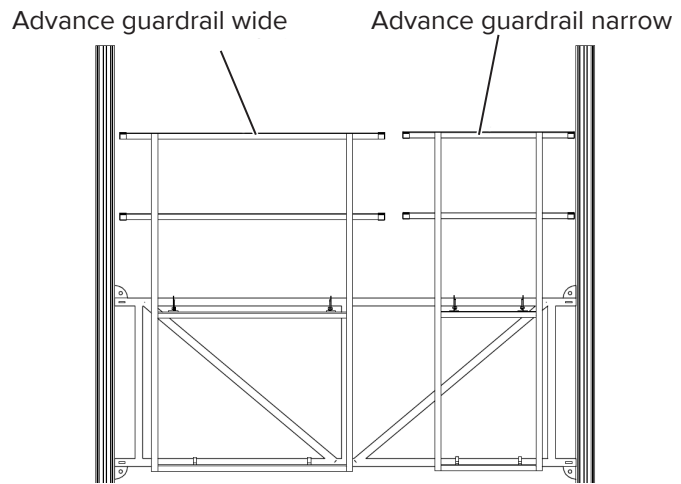
Using the single guard rail with the jack guardrail collar



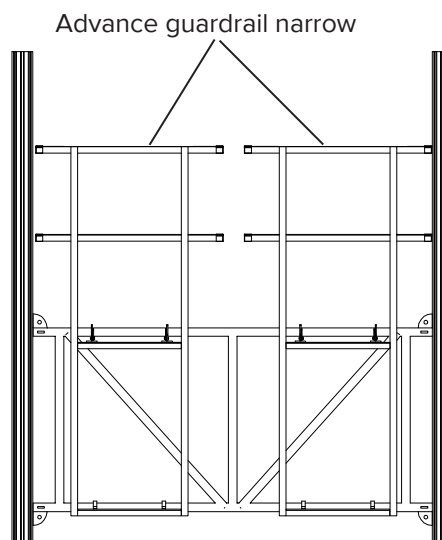
Using the advance guardrail



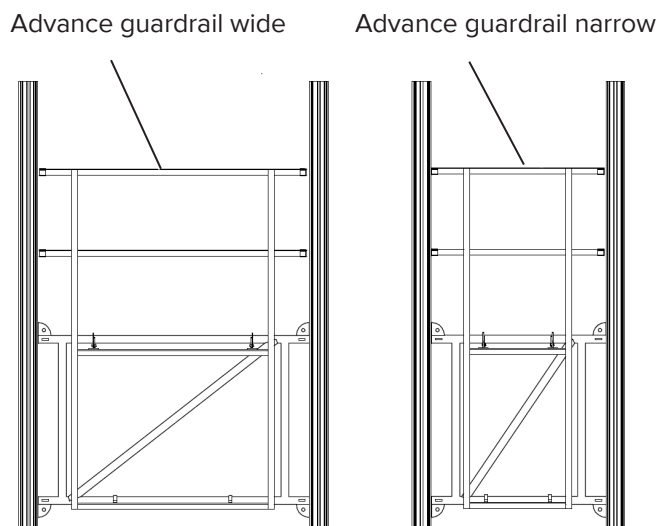
Leg spacing of 3.0 m



Leg spacing of 2.4 m



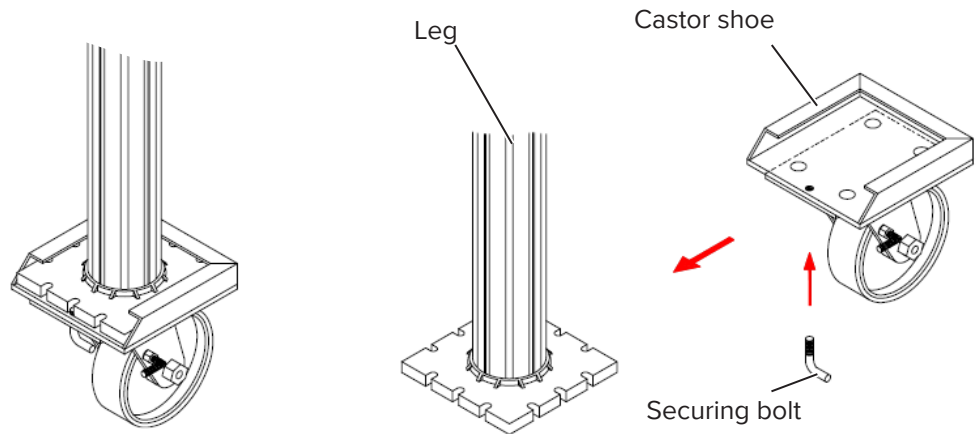
Leg spacing of 1.8 m and 1.2 m.



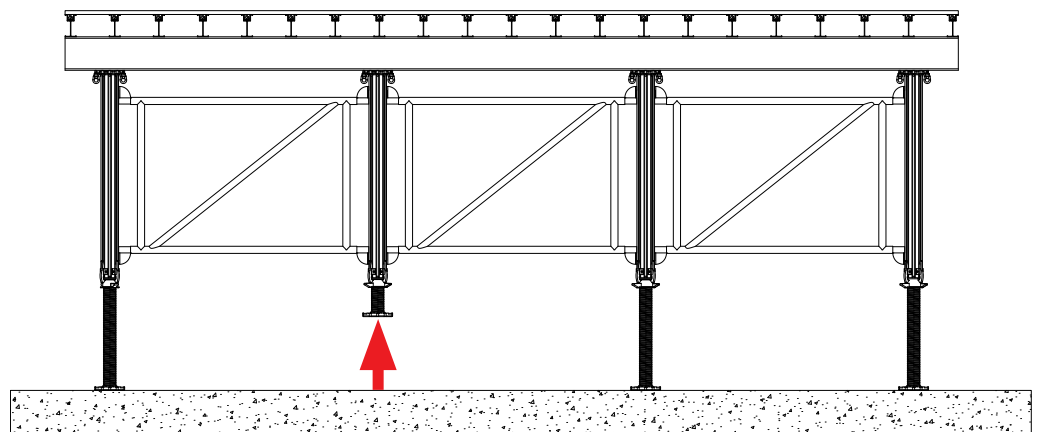
7 Horizontal transport

7.1 With castor shoes

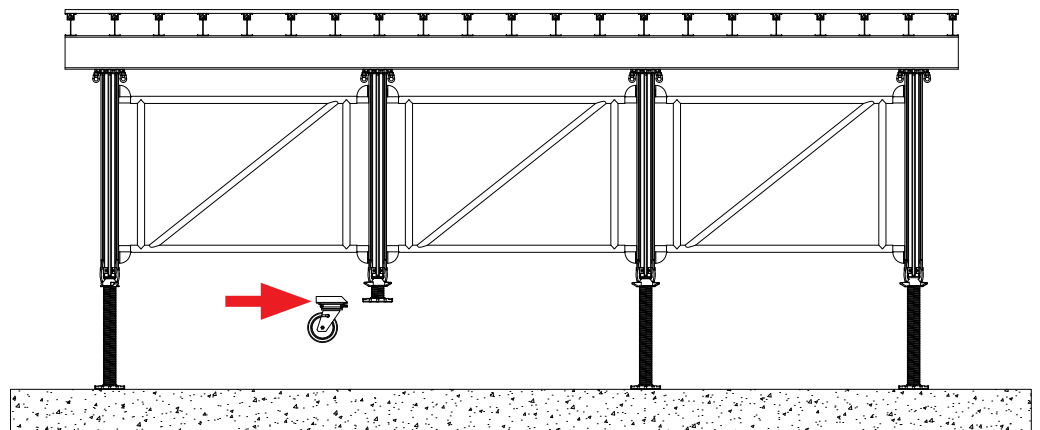
Step 1 Push the castor shoe over the base plate of the prop and lock it with the securing bolt.



Step 2 On long tables, 1-2 bays wide by 4-6 bays long, lift from 2nd leg in from each corner. Raise the inner leg to be supported by the castor shoe required height plus clearance.



Step 3 Slide the castor shoe into the Gass Inner Leg plate and secure the castor.

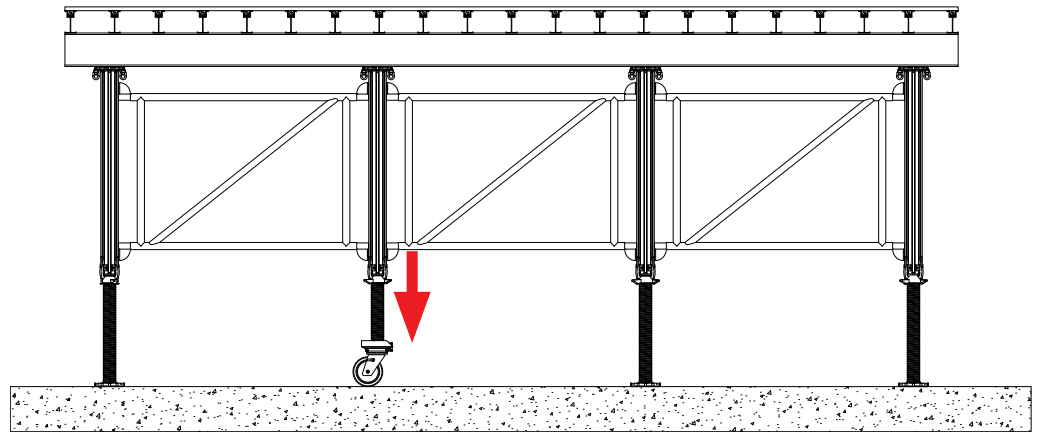


NOTE

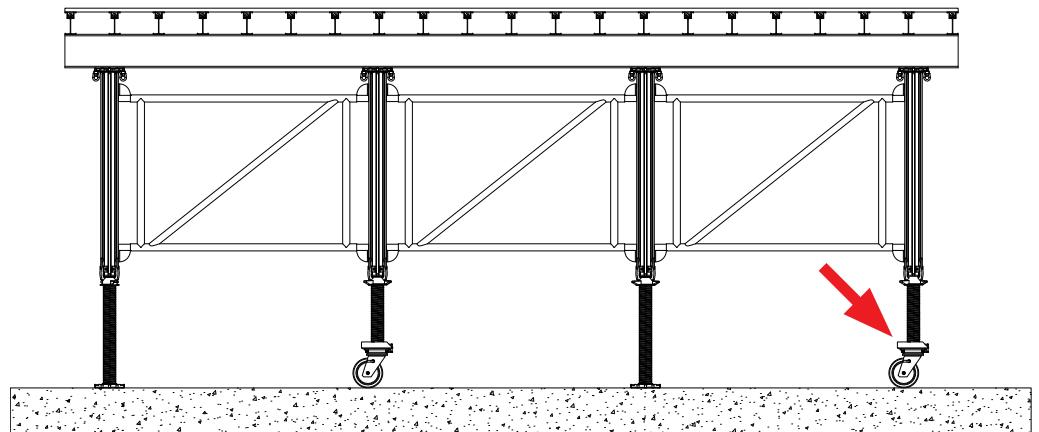
Risk of material damage!

Castors should be aligned to suit the direction of travel before taking the weight of the table form.

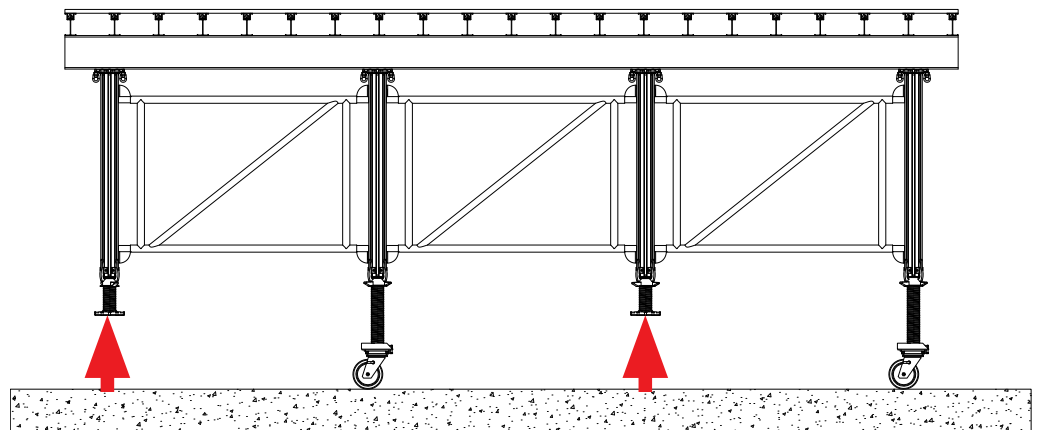
Step 4 Lower the Gass Leg.



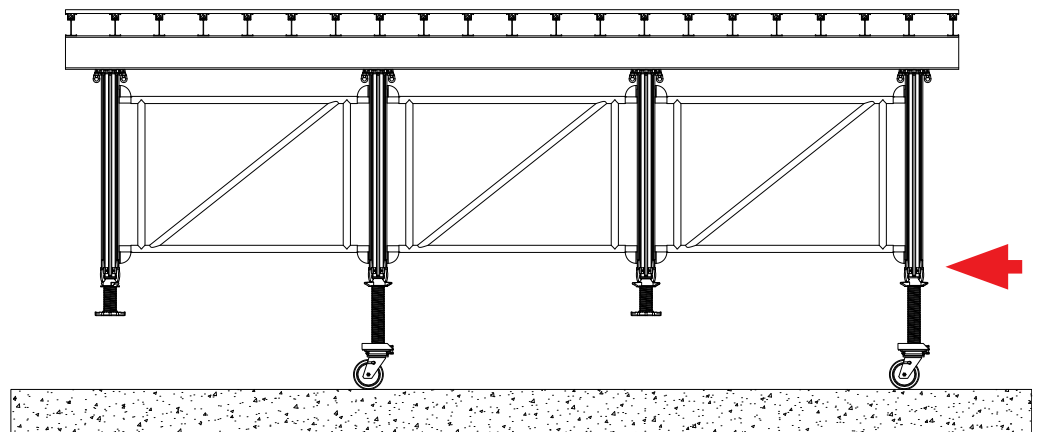
Step 5 Repeat the process for the rest of the required legs.



Step 6 Retract the remaining unsupported inner legs so that the weight of the table form is transferred to the castors.



Step 7 The table is ready to be moved

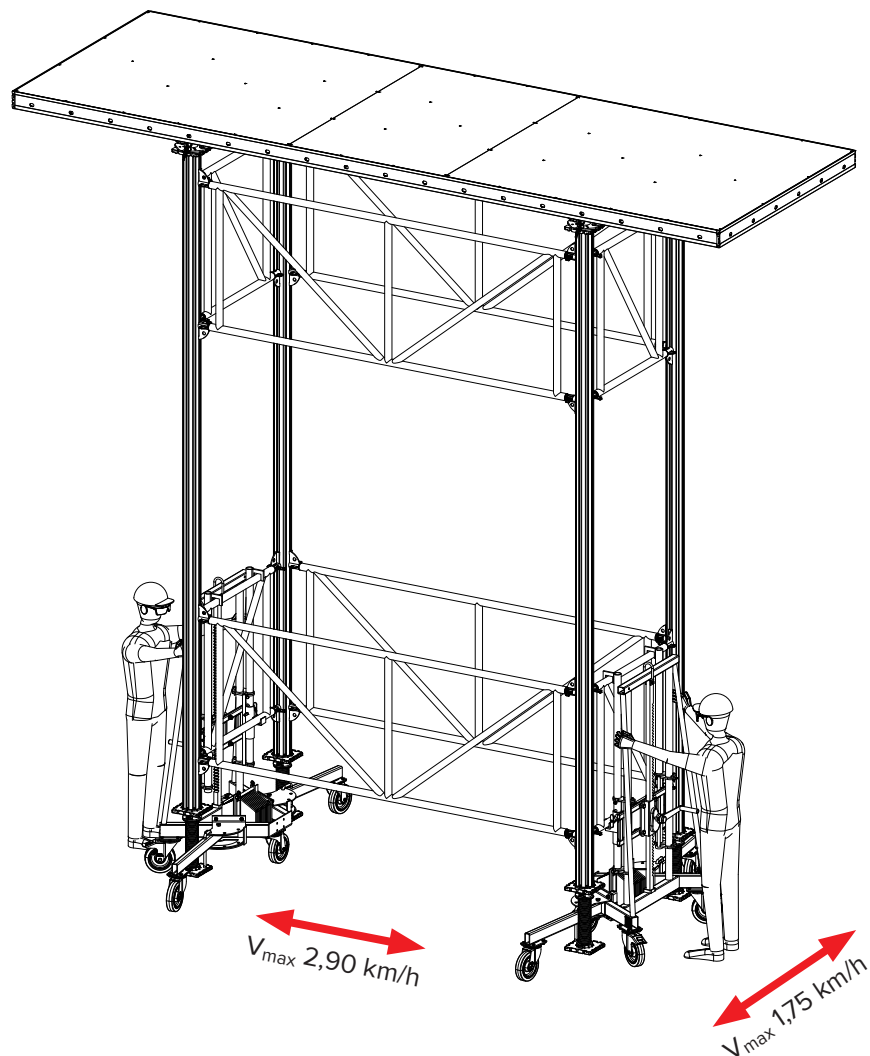


7.2 With the TOPMAX Lifting Jack Carriage 750

The TOPMAX Lifting Jack Carriage 750 can be used to move GASS towers with and without tableform on top.



Always refer to the separate operating instructions on the TOPMAX Lifting Jack Carriage 750. All information that is required to operate the Lifting Jack Carriage 750 safely can be found there.



8 Structural analysis

NOTE

Risk of material damage!

When GASS legs are required to withstand loads higher than 140kN, it is recommended to spray the Collar / Inner Leg (Jack) with Molykote D321-R prior to assembly, to facilitate the release of the nut. Alternatively, the Quickstrike Collar can be used instead of the Collar



For additional information on structural analysis and general conditions please ask HÜNNEBECK.

Shoring tower, one adjustment jack either at top or at bottom – SWL (kN)

GASS loading tables		The top of the tower is horizontally restrained in position. Ledger frame widths may be 1.20, 1.80, 2.40, 3.00 m Differential support settlement 5 mm			
N _{perm} [kN] per prop					
Without wind					
One adjustment jack either at top or at bottom					
Number of ledger frames at height	L [m]	Extension of jack			
		0.30	0.60	0.90	1.30
1 frame	2.79–3.79	140	132	120	92
	3.88–4.88	118	106	92	69
	4.97–5.97	76	65	52	38
2 frames	5.30–6.30	104	92	76	50
	6.30–7.30	83	75	64	45
3 frames	7.30–8.30	94	87	72	53
	8.30–9.30	84	77	66	48
	9.30–10.30	71	67	61	45
4 frames	10.30–11.30	86	79	64	48
	11.30–12.30	77	72	61	46
	12.30–13.30	70	66	59	43
5 frames	13.30–14.30	79	74	61	45
	14.30–15.30	73	68	59	43
	15.30–16.30	67	64	57	41
6 frames	16.30–17.30	76	71	59	42
	17.30–18.30	71	66	58	41
	18.30–19.30	66	62	56	40

Shoring tower, two adjustment jacks at top and at bottom – SWL (kN)

GASS loading tables		The top of the tower is horizontally restrained in position. Ledger frame widths may be 1.20, 1.80, 2.40, 3.00 m Differential support settlement 5 mm			
N _{perm} [kN] per prop					
Without wind					
Two adjustment jacks at top and at bottom - extension of 2nd jack max. 300 mm					
Number of ledger frames at height		Extension of jack			
	L [m]	0.30	0.60	0.90	1.30
1 frame	2.79–3.79	116	112	102	77
	4.18–5.18	110	101	87	65
	5.27–6.27	72	61	47	36
2 frames	5.30–6.60	95	85	70	47
	6.30–7.60	79	71	60	41
3 frames	7.30–8.60	90	83	67	52
	8.30–9.60	80	74	63	46
	9.30–10.60	68	65	58	42
4 frames	10.30–11.60	80	74	61	46
	11.30–12.60	73	68	59	44
	12.30–13.60	65	62	56	41
5 frames	13.30–14.60	75	70	58	43
	14.30–15.60	69	66	56	40
	15.30–16.60	64	60	54	39
6 frames	16.30–17.60	72	66	56	40
	17.30–18.60	67	63	55	40
	18.30–19.60	63	60	53	38

Stand alone leg – SWL (kN)

Arrangement of inner and outer legs	See figure	Total length of prop L [kN]	Outer leg A [m]	Inner leg extension B [m]			
				0.30	0.60	0.90	1.30
Outer Top "A" Inner Bottom "B"	1	1.70–2.70	1.40	169	162	144	111
		2.79–3.79	2.49	125	114	94	69
		3.88–4.88	3.58	74	65	56	43
		4.97–5.97	4.67	44	39	35	28
Inner Top "B" Outer Bottom "A"	2	1.70–2.70	1.40	150	128	119	119
		2.79–3.79	2.49	127	110	85	62
		3.88–4.88	3.58	75	67	55	42
		4.97–5.97	4.67	46	42	36	29
Inner Top 0.60 m Outer "A" Inner Bottom "B"	3	–	1.40	–	–	–	–
		3.39–4.39	2.49	95	84	71	53
		4.48–5.48	3.58	54	49	42	34
		5.57–6.57	4.67	34	31	27	23
Inner Top 0.60 m Outer 2.49 m Outer "A" Inner Bottom "B"	4	4.79–5.79	1.40	39	33	28	23
		5.88–6.88	2.49	22	19	17	13
		6.97–7.97	3.58	13	11	10	8
		8.06–9.06	4.67	7	6	6	5
Inner Top 0.60 m Outer 1.40 m Outer 1.40 m Inner Bottom "B"	5	3.70–4.70	–	60	51	45	35

Interpolation may be used for intermediate values.

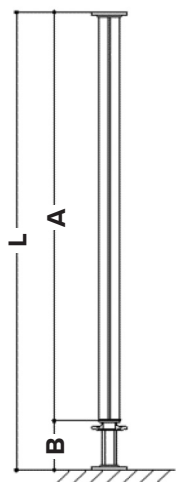


Fig. 1

Outer Top "A"
Inner Bottom "B"

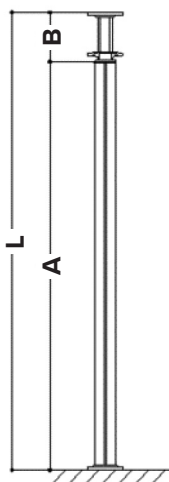


Fig. 2

Inner Top "B"
Outer Bottom "A"

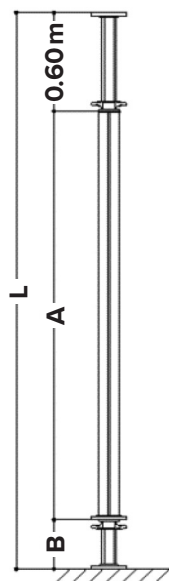


Fig. 3

Inner Top 0.60 m
Outer "A"
Inner Bottom "B"

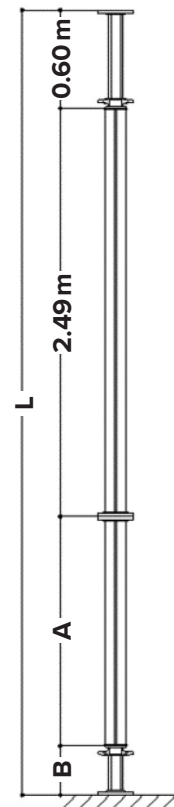


Fig. 4

Inner Top 0.60 m
Outer 2.49 m
Outer "A"
Inner Bottom "B"

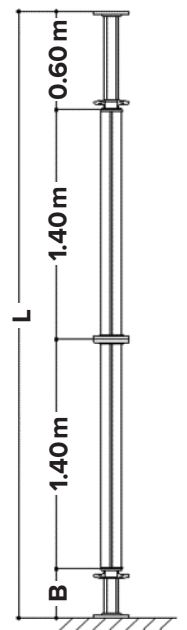


Fig. 5

Inner Top 0.60 m
Outer 1.40 m
Outer 1.40 m
Inner Bottom "B"

Backpropping – SWL (kN)

Arrangement of inner and outer legs	See figure	Total length of prop L [kN]	Outer leg A [m]	Inner leg extension B [m]			
				0.30	0.60	0.90	1.30
Outer Top "A" Inner Bottom "B"	6	1.70–2.70	1.40	190	178	162	147
		2.79–3.79	2.49	165	154	137	107
		3.88–4.88	3.58	113	99	87	70
		4.97–5.97	4.67	70	60	54	46
Inner Top "B" Outer Bottom "A"	7	1.70–2.70	1.40	188	177	160	143
		2.79–3.79	2.49	160	153	136	106
		3.88–4.88	3.58	110	97	86	70
		4.97–5.97	4.67	70	60	54	46
Inner Top 0.60 m Outer "A" Inner Bottom "B"	8	–	1.40	–	–	–	–
		3.39–4.39	2.49	134	124	102	79
		4.48–5.48	3.58	82	72	62	51
		5.57–6.57	4.67	50	44	40	34
Inner Top 0.60 m Outer 2.49 m Outer "A" Inner Bottom "B"	9	4.79–5.79	1.40	57	49	41	32
		5.88–6.88	2.49	32	28	25	21
		6.97–7.97	3.58	21	18	16	14
		8.06–9.06	4.67	14	12	11	10
Inner Top 0.60 m Outer 1.40 m Outer 1.40 m Inner Bottom "B"	10	3.70–4.70	–	95	82	71	57

Interpolation may be used for intermediate values.

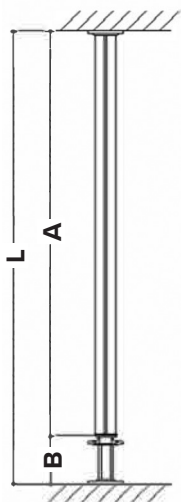


Fig. 6

**Outer Top "A"
Inner Bottom "B"**

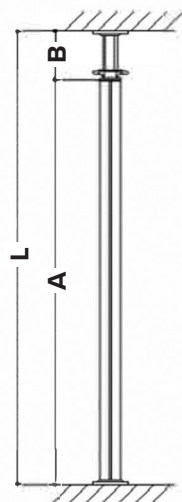


Fig. 7

**Inner Top "B"
Outer Bottom "A"**

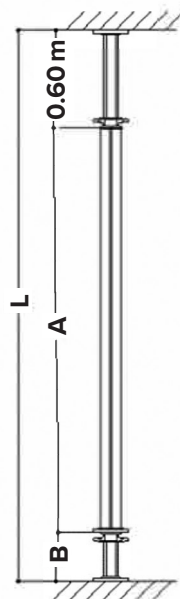


Fig. 8

**Inner Top 0.60 m
Outer "A"
Inner Bottom "B"**

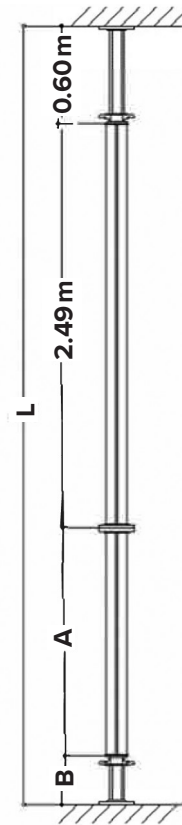


Fig. 9

**Inner Top 0.60 m
Outer 2.49 m
Outer "A"
Inner Bottom "B"**

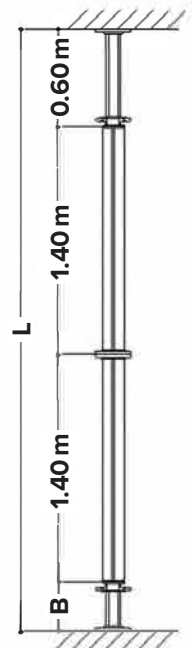
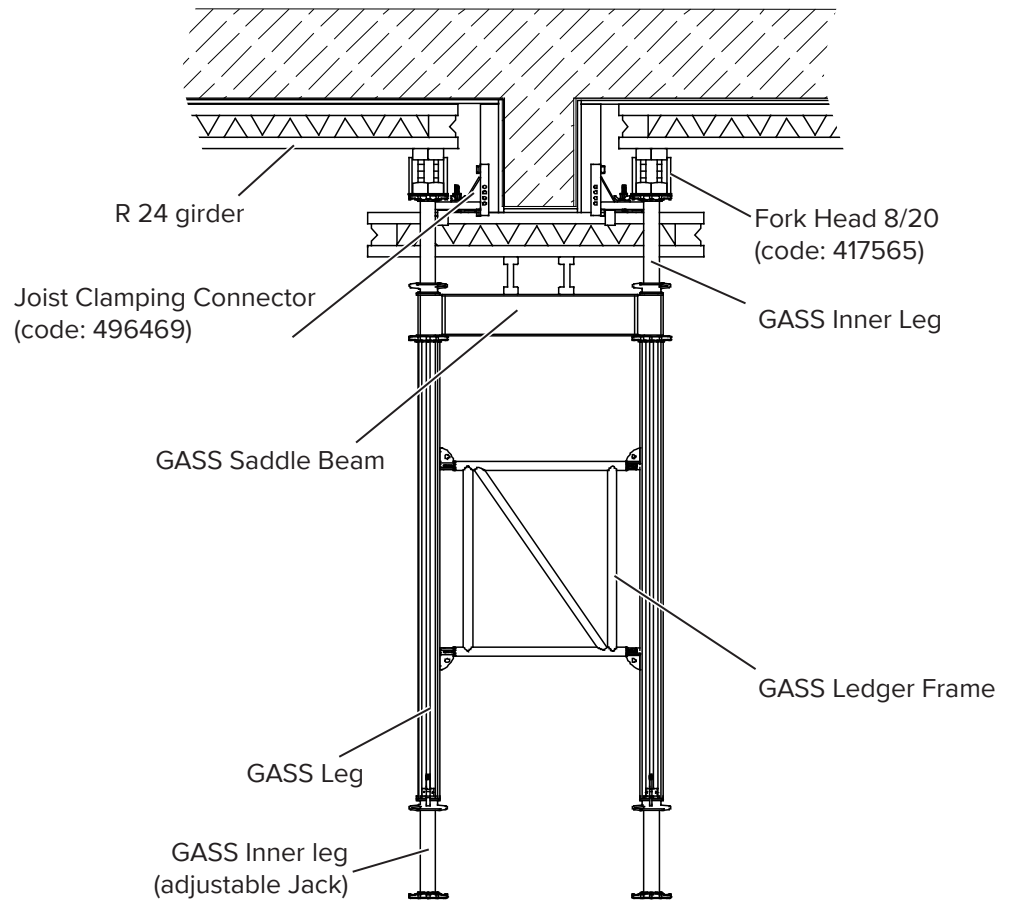


Fig. 10

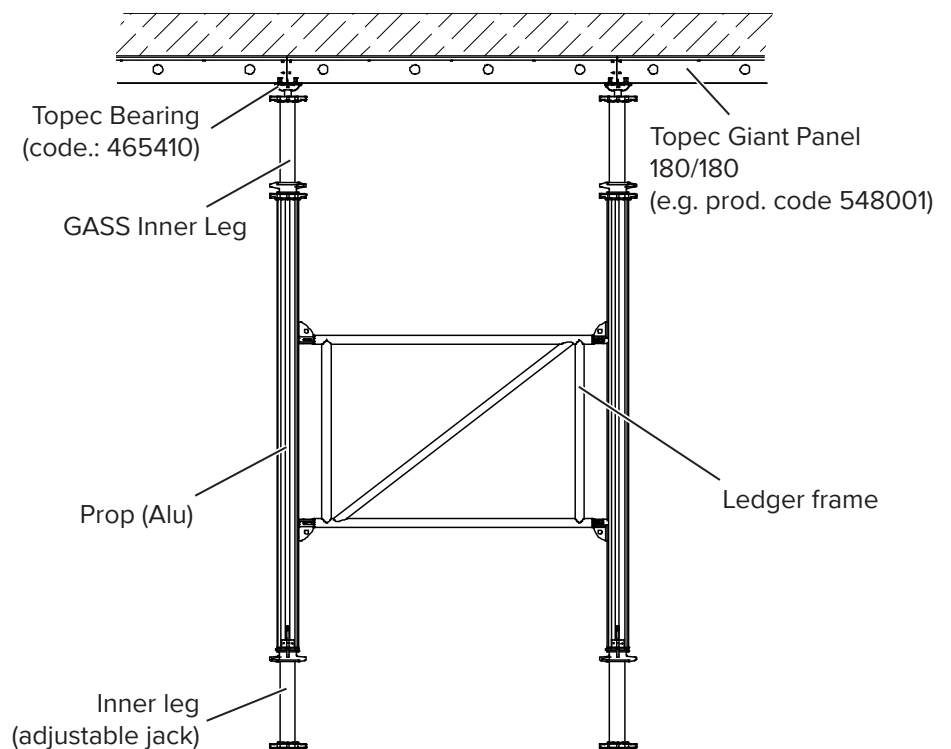
**Inner Top 0.60 m
Outer 1.40 m
Outer 1.40 m
Inner Bottom "B"**

9 Application variants

9.1 With R 24 lattice girders



9.2 With TOPEC



10 Chronology

Changes compared to issue 2021-03		
Changes	Page	Date
Section Structural analysis updated	34	2021-08
TOPMAX Lifting Jack Carriage 750 added	33	2021-08

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