

USER'S Manual HAKI Bridge System (HBS)



Important information

HAKI's product liability and user's manuals apply only to scaffolds that are entirely composed of components that have been made and supplied by HAKI.

HAKI's scaffold systems must not be erected using components of makes other than HAKI or be connected to scaffolds of makes other than HAKI. In such cases, a special study of load-bearing capacity must be carried out. However, HAKI has no objection to the customary addition of scaffold tubes and approved couplers to the scaffold.

Adding components from different suppliers may invalidate the insurance cover.

This user's manual is based on a minimum of 2 competent erectors.

This user's manual is to be used in conjunction with HAKI training courses.

A user's manual should be provided to the user together with the scaffolding.
















HAKI reserves the right to make technical modifications on a continual basis.

The latest versions of HAKI user's manuals can be downloaded from our website, www.HAKI.com.

For scaffold structures that are not covered by this user's manual, please contact HAKI's technical department.

HAKI colour code

Horizontals and diagonals are marked with their nominal sizes (bay sizes) and a colour code. The marking is a useful means of identification when erecting and handling the scaffold material.

564 	1050 	1964 	3050 
700 	1250 	2050 	3650 
770 	1550 	2500 	4050 
1010 	1655 	2550 	

Forces and dimensions

1000 N = 1 kN ~ 100 kg

10 N ~ 1 kg

All measurements in mm

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HAKI Bridge System (HBS)

The HAKI Bridge System (HBS) is designed for loadings up to 7.5kN/m². The HAKI Bridge System is designed to be used as a pedestrian bridge over rail tracks/roadways and similar projects, or to act as a spine beam for scaffolds, or to support temporary roofs. It is a perfect complement to the HAKI Public Access Stair (PAS).

All HAKI Systems have been designed to conform to current British and European Standards. The loading criteria contained in this manual have been calculated according to current European Standards, SS-EN 12810 and SS-EN 12811.

General

The HBS incorporates the use of HAKI Universal system components including the single ledgers, ledger beams, and guardrail frames. The handrails (barriers) are specially designed for use on a HBS and PAS system. All components for the HAKI Bridge System are hot-dip galvanized with the exception of the insert panels and AL planks.

The HBS can be erected in bay widths of 1250mm, 1655mm, 1964mm or 2500mm (where permitted) and bay lengths of 2500mm or 1250mm with the minimum of tools.

The HBS may be constructed;

1. on a temporary scaffold at ground level, then lifted into place.
2. on a temporary scaffold at finished level.
3. by a progressive 'roll-out' method.

Marking

All components, with the exception of locking catches, pins etc, come permanently marked with the HAKI logo and the last two figures of the year of manufacture (1818).

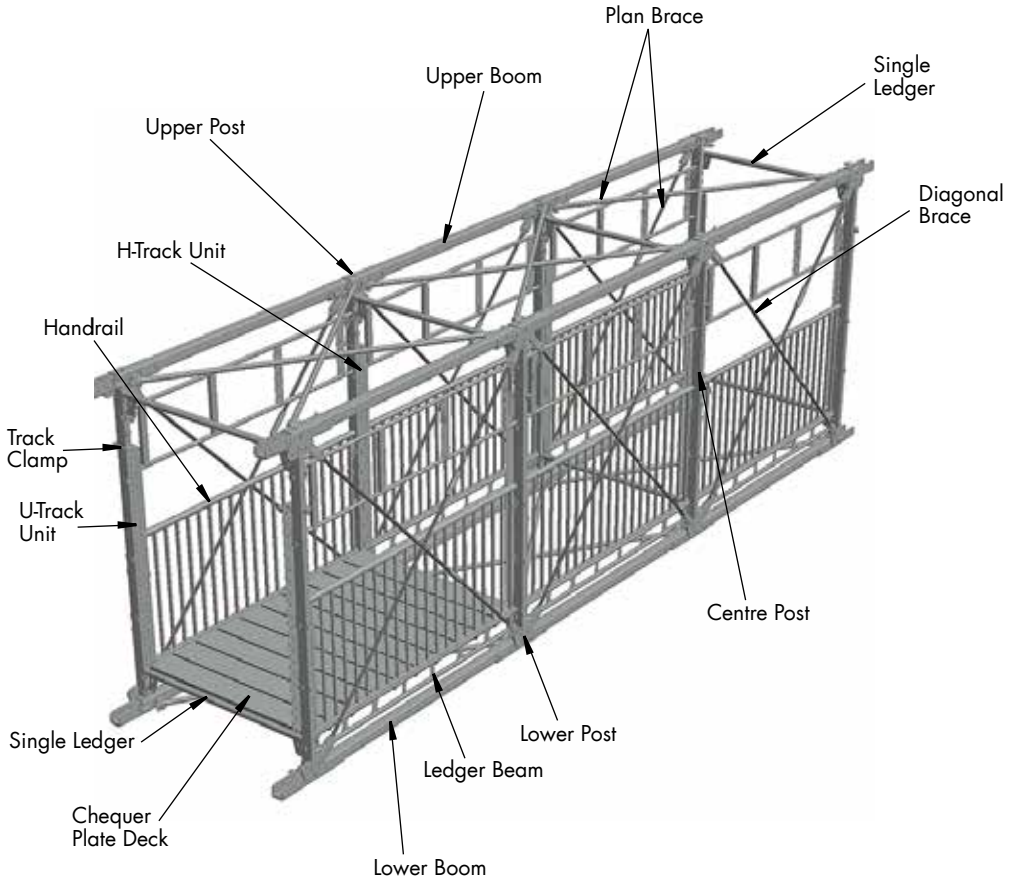
All load bearing components are marked for full traceability.






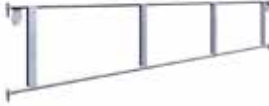


IMPORTANT







**ENGAGE LOCKING CATCHES AS EACH
COMPONENT IS FIXED**













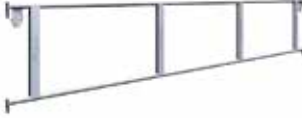


Name	Code/Data	Item No.	Weight(kg)
HBS Post	Upper	7104109	21.5
	Centre	7104140	16.0
	Lower	7104108	23.6
HBS Upper Boom	1250	7104135	10.9
	2500	7104118	23.2
HBS Lower Boom	1250	7104136	12.5
	2500	7104130	26.8
HBS Plan Brace	1250 x 1250	7105121	4.4
	1250 x 1655	7105161	5.0
	1250 x 1964	7105191	5.7
	1250 x 2500	7105251	6.8
	2500 x 1250	7105126	6.8
	2500 x 1655	7105195	7.4
	2500 x 1964	7105197	7.8
2500 x 2500	7105199	8.7	
HBS Diagonal Brace	1250	7104138	14.5
	2500	7104119	17.0







Name	Code/Data	Item No.	Weight(kg)
Landing Handrail 	1250	7053125	19.5
	2500	7053250	34.2
Ledger Beam LBL With spring locking catch Ø34mm 	1250	7021122	6.5
	1655	7021162	6.7
	1964	7021192	8.0
	2500	7021252	10.9
Single Ledger ERB With spring locking catch Ø48mm 	1250	7022121	5.1
	1655	7022161	6.3
	1964	7022191	7.3
	2500	7022246	8.9
Guard Frame GFL With spring locking catch 	1250	7052124	5.7
	2500	7052254	9.2
Ledger with lock (anti-vandal) 	1250	7104124	5.1
	1655	7104164	6.3
	1964	7104192	7.3
	2500	7104254	8.9
Ledger Adjustable Adjustable 647-1010m 	647-1010	7053005	4.1


Name	Code/Data	Item No.	Weight(kg)
HBS Tripod Head Adapter incl. Clamps Top plate is detachable to be re-fitted in opposite hand 		7104111	27.5
HBS Clevis Pin (With 1 clip) 	20 x 125 20 x 70 16 x 90 R-Clip	2113010 2113012 2113011 6130203	0.3 0.2 0.2 0.0
Bult & Nut 	M20 x 80		0.0
Tripod Adapter 60G 		7203312	11.6
Tripod 	500 1000 1500 2000 3000	7203340 7203341 7203344 7203342 7203343	10.0 17.3 23.3 31.8 45.8
Tripod Base Jack 60 G 		2071061	15.6

Name	Code/Data	Item No.	Weight(kg)
HBS Checker Plate deck 	1250 x 200	2140125	13.1
	1250 x 250	2140126	14.9
	1655 x 200	2140165	17.4
	1655 x 250	2140166	19.7
	1964 x 200	2140195	20.6
	1964 x 250	2140196	23.4
	2500 x 200	2140255	26.2
2500 x 250	2140256	29.8	
Aluminium Deck 	1250 x 200	2153125	5.0
	1655 x 200	2153165	6.2
	1964 x 200	2153195	7.1
	2500 x 200	2153255	8.7
	1250 x 295	2153124	6.1
	1655 x 295	2153164	7.5
	1964 x 295	2153194	8.6
2500 x 295	2153254	10.5	
Steel Deck 	1250 x 230	2152122	9.8
	1655 x 230	2152162	12.5
	1964 x 230	2152192	14.5
	2500 x 230	2152252	18.1
Insert Panel 	1250 x 230	2171250	5.9
	1655 x 230	2171655	7.7
	1964 x 230	2171964	11.5
	2500 x 230	2172500	14.5
HBS Sway Brace 	4000	7104141	15.3
Intermediate Transom 	1250	7204122	6.3
	1655	7204162	7.8

"Roll-Out" method accessories

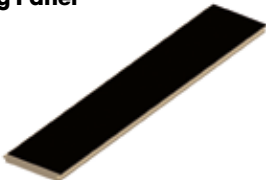
Name	Code/Data	Item No.	Weight(kg)
750 Frame AL 	1250	4032125	9.4
	2250	4032225	16.6
	3250	4032325	23.9
	6250	4032625	46.0
750 Straight Connector		7203001	2.0
Spring Pin 	12	2113100	0.1
Guard Frame GFL 	1655	7052164	7.4
	1964	7052194	8.1
	2500	7052254	9.2
	3050	7052304	10.5
750 Plan Brace AL 	1250 x 1250	4122121	2.7
	1250 x 2000	4122123	3.0
	1250 x 2250	4122124	4.0
	1655 x 1250	4122162	3.4
	1655 x 2000	4122163	3.3
	1655 x 2250	4122164	4.0
	1964 x 1250	4122192	3.7
	1964 x 2000	4122193	4.3
	1964 x 2250	4122194	4.6
	2500 x 1250	4122249	4.4
	2500 x 2000	4122254	4.9
	2500 x 2250	4122253	5.1
	3050 x 1250	4122299	5.0
	3050 x 2000	4122303	5.5
3050 x 2250	4122304	5.6	
HBS Erecting Roller		7104143	6.0
			

Name	Code/Data	Item No.	Weight(kg)
HBS Jacking Bracket 		7104142	17.5
Bottle Jack Supplied by customer 			
750 Rolling Roof Wheel Adjustable G 		7142006	15.0
Base Jack BS Adjustable 55-570 mm 		2071000	5.0
Standard S Standard joint with spigot Pockets at same level Ø 48 mm 	1000	7016100	5.3
Diagonal Brace DS With wedge couplers Ø 48 mm 	1655 1964 2500	7122164 7122194 7121254	10.1 10.9 12.6


Name	Code/Data	Item No.	Weight(kg)
Ledger beam LBL With spring locking catch Ø 34 mm 	1250	7021122	6.5
	1655	7021162	6.7
	1964	7021192	8.0
	2500	7021252	10.9
	3050	7021302	12.3

Beam rider BRS For ledger beams With locking screw 		7208020	2.0
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HBS Cladding System accessories

Name	Code/Data	Item No.	Weight(kg)
HBS Cladding Panel 	1250 x 250	2033120	2.0
	1250 x 500	2033122	4.0
	2500 x 250	2033250	4.0
	2500 x 500	2033252	8.0

HBS H-Track Unit 		7104132	7.0
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HBS U-Track Unit 	Left	7104129	3.5
	Right	7104131	3.5

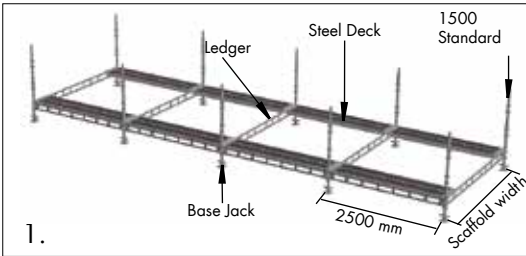
HBS Track Clamp 		7104133	0.5
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For other accessories, see HAKI Component List.

Information on safety when erecting and dismantling

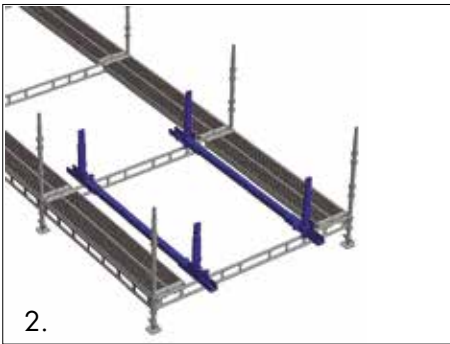
1. Carry out local risk assessment and method statement.
2. Make sure that all lifting equipment to be used, e.g chain hoists, lifting ropes, pulley blocks, etc., has been thoroughly tested and approved by an authorised person in accordance with local regulations.
3. Check that tools and protective equipment are available at the worksite.
4. Wear appropriate personal safety equipment at all times, e.g safety harnesses, proper independence lifelines with suitable fixings, etc.
5. When erecting and dismantling a scaffold, robust temporary decking must be used as temporary platforms for the scaffolders.
6. Always make sure that the safety locking devices that prevent a platform lifting off have been activated once a platform has been installed.
7. Study all relevant instructions or safety directions from the manufacturers of the various scaffolds that are to be used.
8. Never climb up a scaffold from the outside. Always use the stairs, ladders or climbing frames that are designed to provide access to the upper decks from the inside of the scaffold.
9. If the scaffold is to be used outdoors, erection or dismantling work must be discontinued if the weather conditions are too bad. Make sure that all loose components are properly fixed before leaving the scaffold.
10. Scaffolding work must be carried out by "competent operatives" under the supervision of a "competent person".
11. Lifting equipment must not be attached to a free-standing scaffold.
12. Beware of any overhead power lines nearby.
13. Always observe and comply with the regulations issued by the local authorities concerned.
14. Erectors/dismantlers should always be clipped to a single ledger or ledger beam during erection/dismantling. Reference should also be made to section "Personal Safety Equipment" in the Universal User manual.

Before erecting the scaffold, check and flatten out the ground. Check the levels in both the transverse and longitudinal directions using a spirit level and adjust using the base jacks.

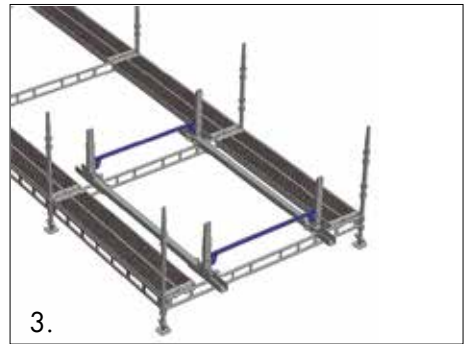


1. Construct low scaffold of sufficient width to comfortably walk around the HBS.

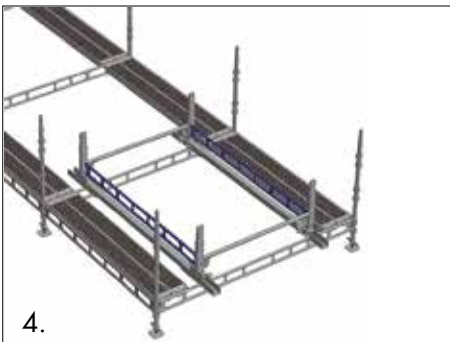
HBS Width	Scaffold Width
1.25m	1.964m
1.655m	2.5m
1.964m	3.05m
2.5m	2 x 1.655m



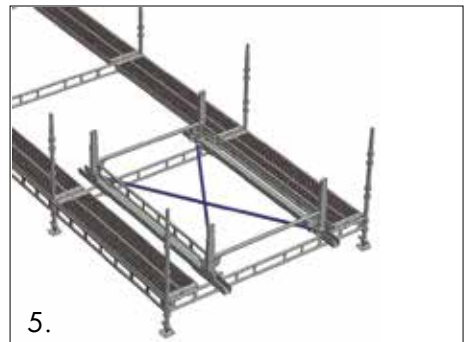
2. Install lower post units with lower booms.



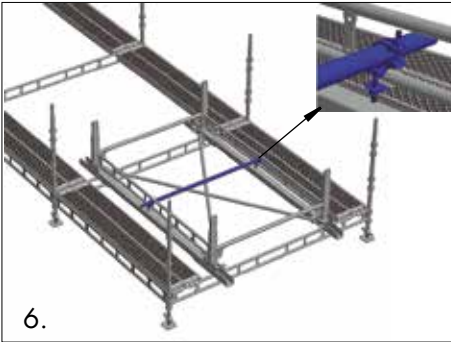
3. Install the appropriate single ledger as transom.



4. Install ledger beams between posts.

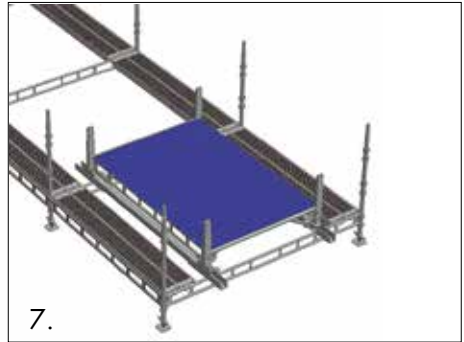


5. Install plan braces at foot level.



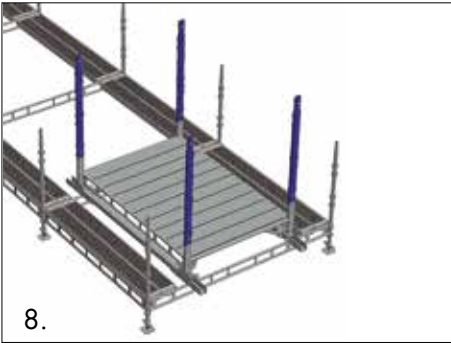
6.

6. Install a transom on the bottom chord of the ledger (transom is not necessary, if AL decks are used on the HBS).



7.

7. Install the decks.



8.

8. Install the central sections of the posts and secure them with bolts and nuts (hand tighten only).



9.

9. Install side handrail units and a guardrail frame at front of assembly.



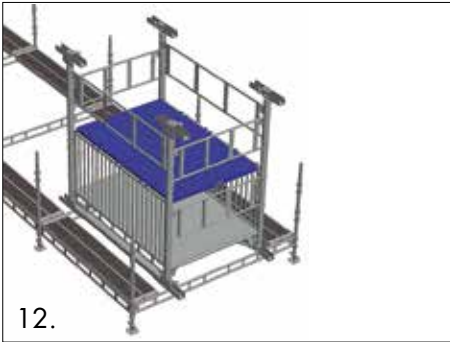
10.

10. Install the upper post units and secure them with bolts and nuts (hand tighten only).



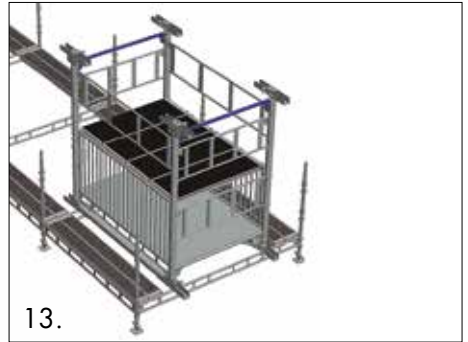
11.

11. Install guardrail frames around all 4 sides of the HBS bay.



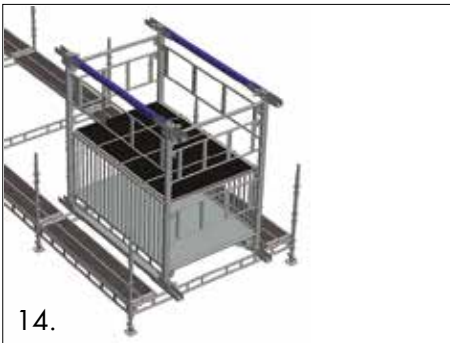
12.

12. Install the erection platforms to the top of the handrails, and access to the temporary platform.



13.

13. Install upper single ledgers between upper post units.



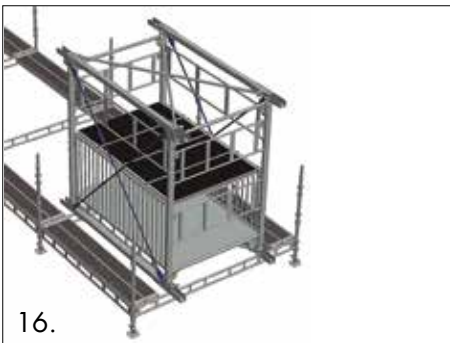
14.

14. Install upper booms.



15.

15. Install upper plan braces.



16.

16. Install HBS diagonal braces, 2 per side (hand tighten only).



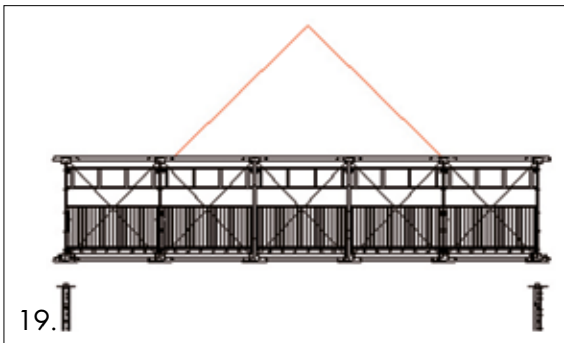
17.

17. Remove all the 1655mm guardrail frames and all the erection platforms. Use the removed components to erect the next bay of the HBS.

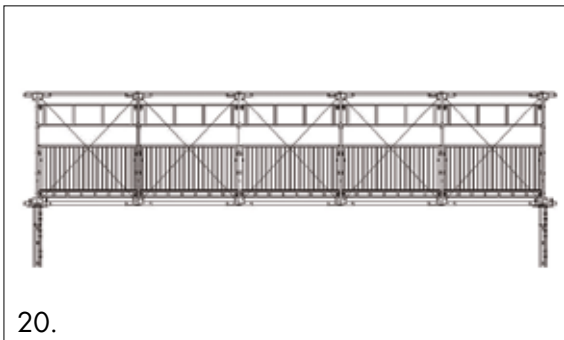


18. Repeat stages 2-17 for remaining HBS bays.

Once bridge has reached required length tighten all fixings (handrails, bracing, vertical posts).



19. In accordance with Lifting Plan, attach slings and lift to allocated position on tripod legs.



20. Fit clamps to tripod head adapter and remove lifting equipment.

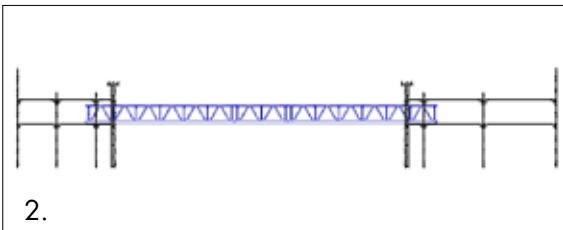
NOTE: Clamps should not be OVERTIGHTENED. Bridge should be permitted to 'slide' in its longitudinal direction.

End fixing details on page # in this manual.

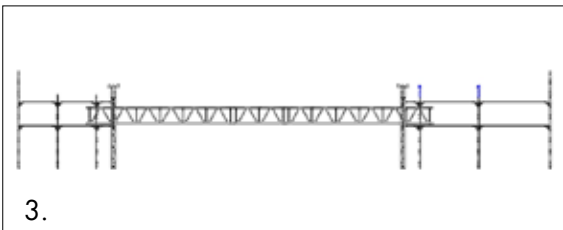
By "Roll-Out"



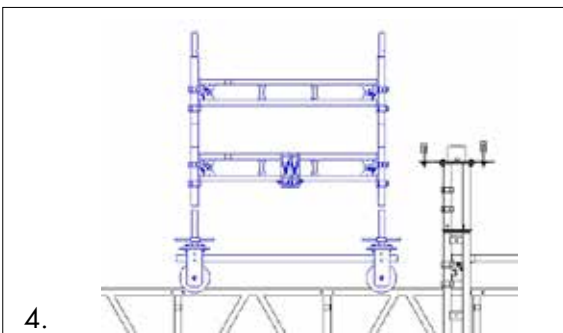
1. Erect towers of sufficient area at each side of bridge opening.



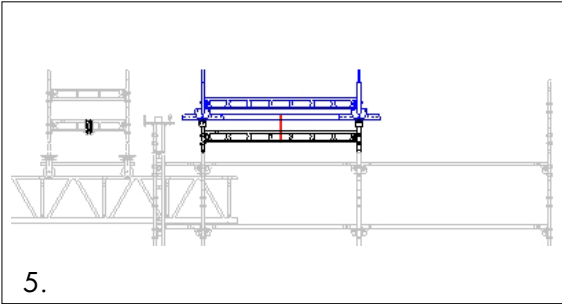
2. Raise HAKITEC750 beams to specified level, then lace & brace together.



3. Fit 6 Erecting Rollers to exposed standard spigots and lace together using Ledger Beams.



4. Assemble trolley on 750 beams.

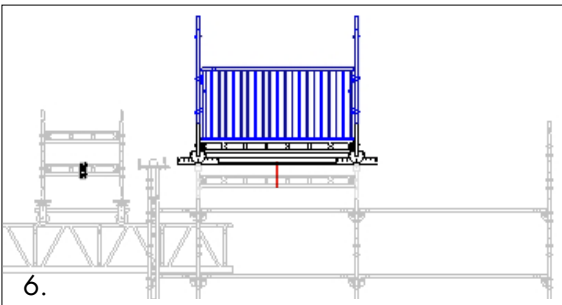


5. On the rollers, assemble 4 lower posts units with 2 lower booms using Clevis Pins.

Form a box using Ledgers and Ledger Beams.

Fit Plan Brace to ensure base is square.

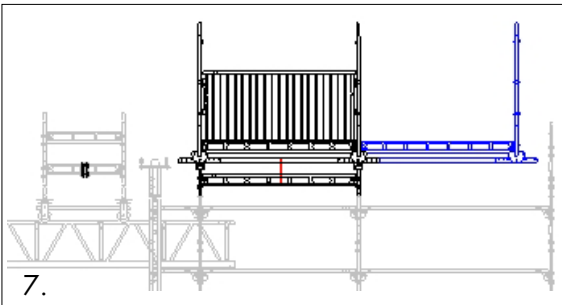
Secure framework to erecting platform using Ratchet Straps.



6. Fit Central sections of Posts, and secure with Bolts and Nuts (hand tighten only).

Fit Guard Frame at front of assembly.

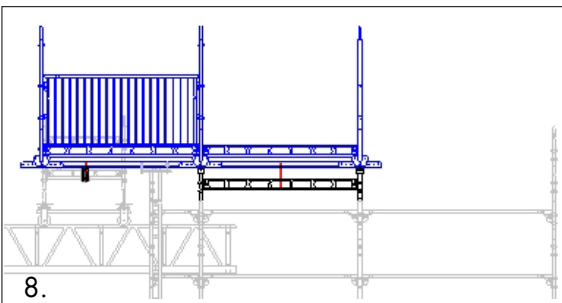
Fit side Handrail units (locked in high position at this stage).



7. Next, fit next 2 lower booms and rear lower post units.

Fit Single Ledger, Ledger Beams and Plan Brace.

Fit Central sections of Posts, and secure with Bolts and Nuts (hand tighten only).

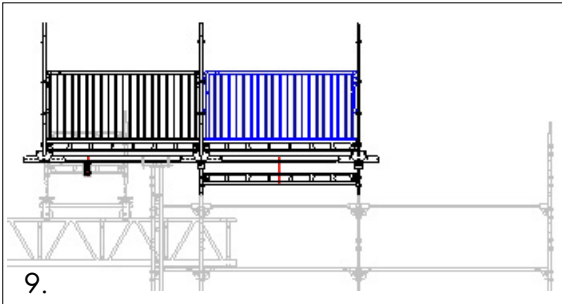


8. Release ratchet straps and roll bridge sections forward and align over front trolley.

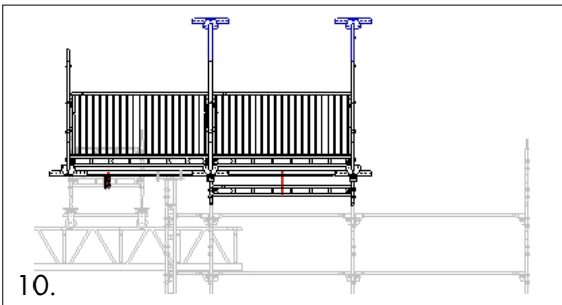
Ensure that rear T sections are aligned over erection rollers.

Refit ratchet straps to rear bay and erection platform.

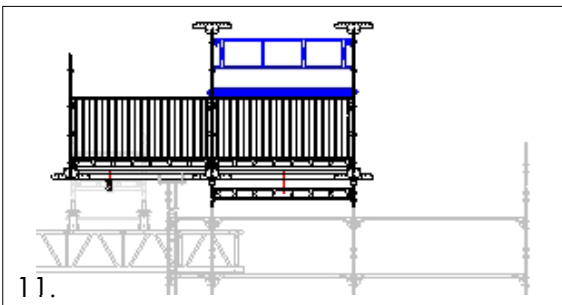
Next, deck out both bays.



9. Fit Guard Frame to end of framework, then Central sections of Posts, and secure with Bolts and Nuts (hand tighten only) and Handrails (in raised position) to the remaining bay.

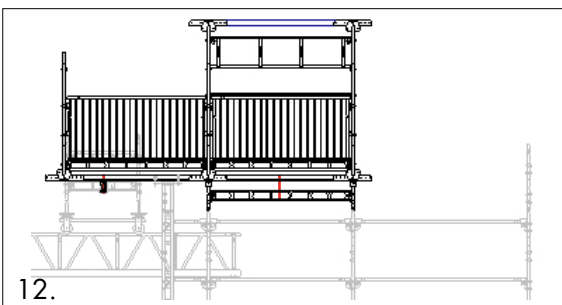


10. In rear bay, fit the top T sections to uprights using nuts and bolts (hand tighten only).

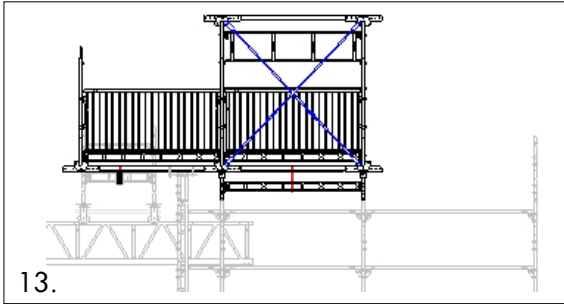


11. Fit Guard Frames to all sides of rear bay.

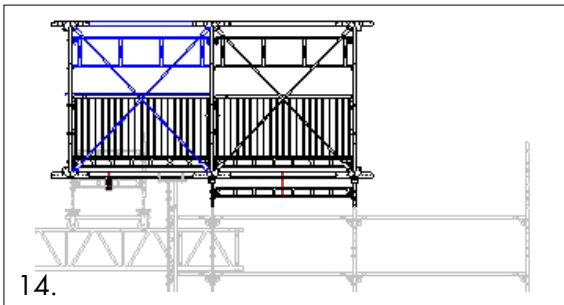
Then fit the erection platforms to the top of the hand rails, then access the temporary platform. Fit upper transoms to Posts.



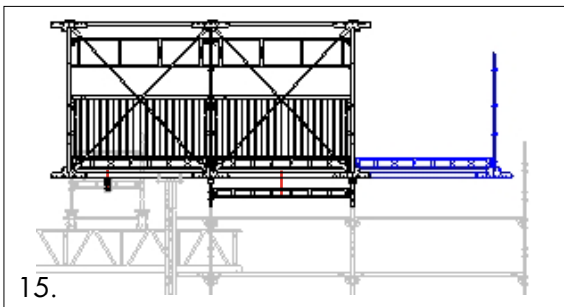
12. Fit Upper Booms in rear bay. Fit plan braces to rear bay.



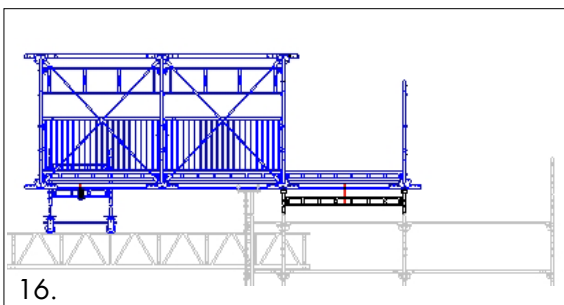
13. Fit Diagonal Braces and hand tighten only.



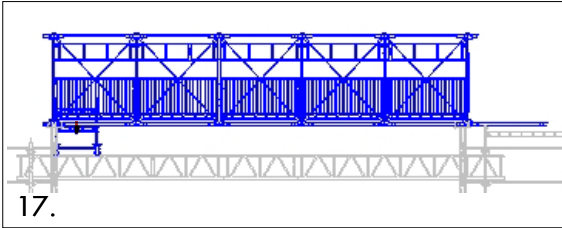
14. Move erection platforms to front bay.
Fit upper transoms to Posts.
Fit Upper Booms.
Fit Diagonal Braces and hand tighten only.



15. Assemble lower section of next bay, all on rollers.

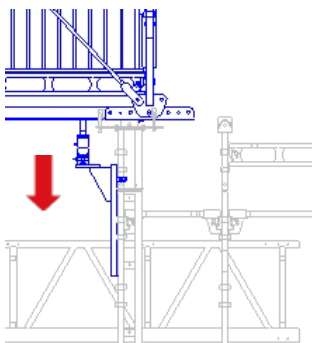
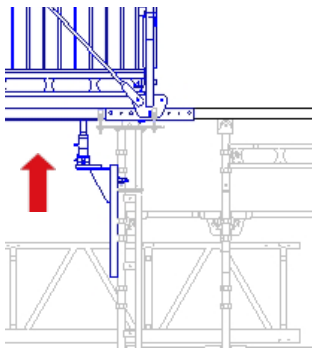
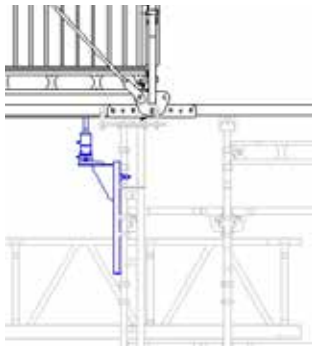


16. Remove braking ratchet straps from the trolley to the main scaffold.
Remove ratchet straps from erection platform and roll the bridge forward such that Lower Post sections are over the erection rollers.
Refit ratchet straps to secure the Lower Boom to erection platform.



17. Repeat sequence(s) until required bridge length is achieved.

Note: use 'spare' Lower Booms to move the bridge to its final position.



Lowering Bridge to its final level.

The following steps are accessed from the safety of the main working platform.

1. Fit jack brackets to tripods and fix the 2 fittings to secure.

2. Mount the bottle jack onto the jack bracket.

3. Disconnect the trolley ratchet straps from the bridge and reconnect the trolley to the main scaffold to prevent trolley from rolling away.

4. Raise both sides of the bridge in unison by 30mm.

5. Lower the trolley jacks nearest the tripods.

6. Release the trolley ratchet straps and push trolley away.

7. Lower bridge into final position and secure using bridge retaining clamps.

8. Remove jack bracket and install on opposite side of bridge.

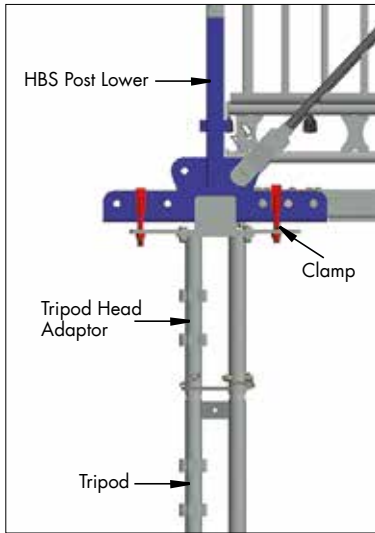
9. Mount bottle jack onto jack bracket.

10. Raise bridge 30mm and remove rear box section and lower bridge to final position and fit bridge clamps.

Instruction for dismantling

1. Dismantle the tower in the reverse order from the erection sequence.
2. Do not throw or drop materials to the ground. This may damage the material or cause personal injury. The material must be lowered down to the ground by means of ropes or slings or passed down by hand.
3. Always observe and comply with the regulations published by the local authorities concerned.
4. Reference should also be made to the section "Information on safety when erecting and dismantling" in this manual.

End Fixing

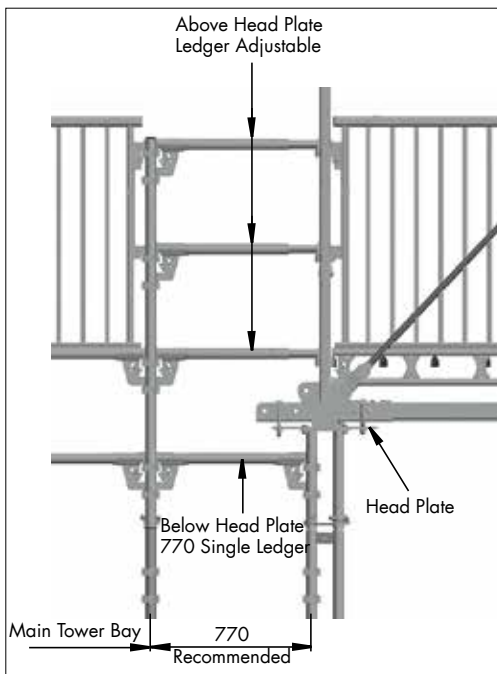


End HBS post-Lower to be positioned centrally over Tripod Head Adaptor.

Clamps should be fitted in most convenient holes in head plate and nuts tightened.

! NOTE: Clamps should not be OVERTIGHTENED. Bridge should be permitted to 'slide' in its longitudinal direction.

Connection to End Structure



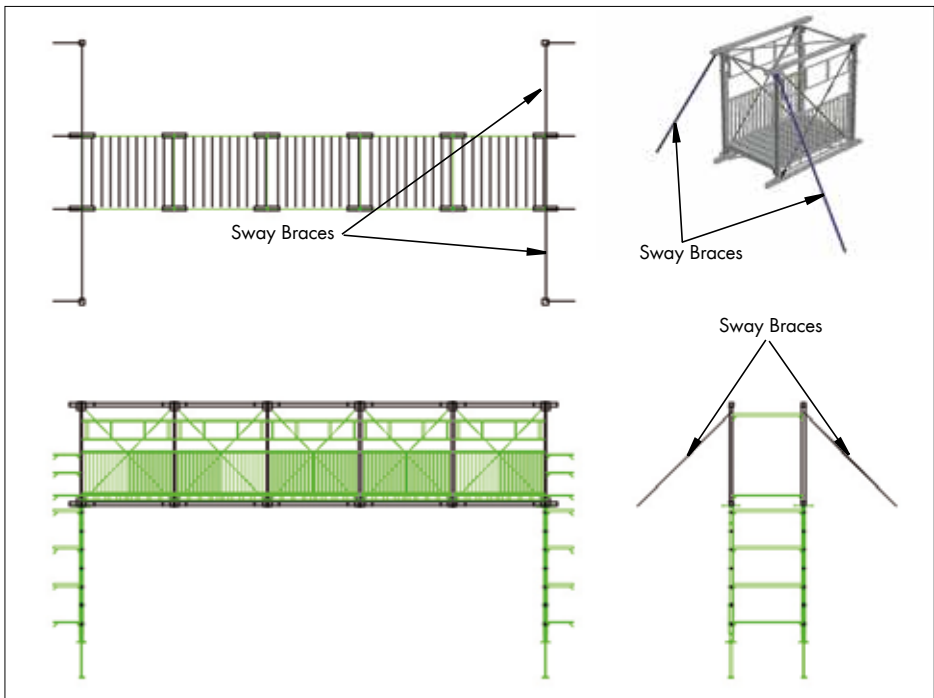
Ledger Adjustable should be erected above the Head Plate of the Tripod Head Adaptor.

The first 770mm Single Ledger should be erected below the Head Plate of the Tripod Head Adaptor. The next 770mm Single Ledgers should be erected at alternate set of pockets of the Tripod Leg.

! NOTE: If the HBS system is going to be used near a railway it is essential that the actual HBS is connected to the main structure (PAS) at each end using Adjustable Ledgers. This allows the HBS to 'float' in its longitudinal direction so that natural horizontal effects are not transmitted into the main structure.

Bracing

At ends of bridge, Sway Braces fitted to Upper Posts using integral bolts & nuts and to adjacent scaffold structure at lower ends using load bearing couplers to provide lateral stability.



Notes

Notes



Experience

With over 60 years experience to call on, HAKI has gained a leading reputation in its field. With its own R & D and manufacturing facilities, the company now operates throughout Europe and its equipment is in use worldwide. With all products designed and manufactured to ISO 9001:2008, and a comprehensive training and support infrastructure, you can rely on HAKI for support.



Training

The Company's dedicated Training Centre is equipped with the full range of HAKI products where a comprehensive choice of courses is offered. With the benefit of this training, all users of HAKI products can be assured that the equipment is being employed safely and effectively.



Support

From computerised estimating facilities to on site assessment and project back up, HAKI is with its customers every step of the way. Working with HAKI means far more than just proven equipment, it means working with people who understand the scaffolding industry. Whatever the project, the company is committed to ensuring every user enjoys the full benefits associated with the use of HAKI - maximising the savings, profitability, and above all, SAFETY.

Health and Safety at Work Act, 1974

HAKI equipment is designed to meet the requirements of the above Act, Section 6.

It is also the customer's responsibility to comply with the requirements of this Act, particularly to use the equipment in accordance with current codes of practice and in ensuring that components are in good working condition prior to each use.

We are able to provide assistance and advice on matters relating to safe and proper use of HAKI equipment.

