

USER'S MANUAL

# HAKI® Frame ALUMINIUM



This version of the manual is for the UK market.

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## Important information

HAKI's product liability and user's manuals apply only to scaffolds entirely composed of components manufactured and supplied by HAKI.

HAKI's type examination certificate apply only to scaffolds whose materials, dimensions and design accord with those specified in the documentation upon which this certificate is based.

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.














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](http://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 |  |      |   |
| 770  |  | 1550 |  | 2500 |  |      |   |
| 1010 |  | 1655 |  | 2550 |  |      |   |

## Forces and dimensions

1000 N = 1 kN ~ 100 kg

10 N ~ 1 kg

All measurements are in millimeters (mm)

## HAKI Frame

Following by RISE, Research Institutes of Sweden, the scaffolding has been issued in accordance with EN 12811-1 and associated standards. HAKI Ram is validated for load class 3 (2.0 kN/m<sup>2</sup>).



## General

The HAKI Frame scaffolding system consists of vertical frames, decking units and guardrail frames.

The scaffolding is erected with bay widths of 700 mm and bay lengths of 1655, 1964, 2500 or 3050 mm and with 2000 mm between lifts.

Using brackets, the width of the work platforms can be increased by 310 mm or 620 mm.

Clear height between the work plane must normally correspond to height class H2, which means a clear height of at least 1.90 m between the work plane and the transoms.

Access to the scaffolding consists of a staircase that is mounted on the outside of the scaffolding using two additional frames or an internal ladder. The access path must be provided with two-part stair handrails on the outside, with two-part guardrails in the ends and with a toeboard in the lower end. The top lift must be provided with shorter handrails towards the stairs to prevent a fall.

Platforms used must be type-examined and designed so that they can be safely placed between the upper horizontals of the frames and secured against accidental lifting at both ends.

Lattice beams and couplers used must be certified.

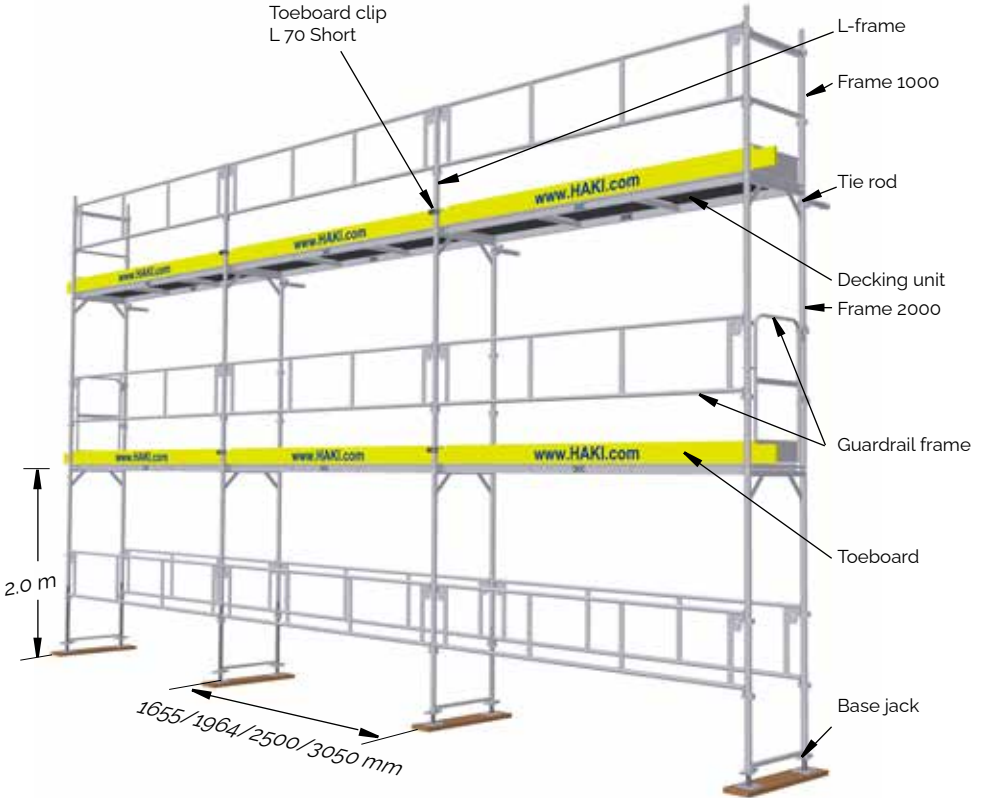
Mixing of HAKI Frame steel and aluminum components is allowed between the systems.




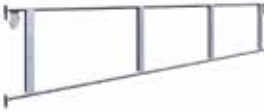

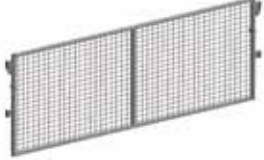
When mixing the systems, the design values of the weakest system are assumed.

Manufactured in aluminium.







## Marking









All components with the exception of locking pins etc. come permanently marked with the HAKI logo or HAKI text, the first letter of the country of manufacture and the last two figures of the year of manufacture (US24). The markings are placed on the vertical tubes of the frames, the hooks of the guardrail frames and the decking's transverse profile.





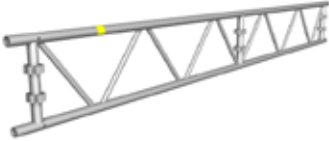
| Name  | Code  | Item No.       | Weight |
|---|---|----------------|--------|
| <b>Base jack</b><br>Adjustable<br>BS=55-570 mm  | BS  | <b>2071000</b> | 5.0    |
|        |   |                |        |
| <b>Frame RA AL</b>  | 500   | <b>4731051</b> | 3.8    |
|   | 800   | <b>4731081</b> | 5.1    |
|   | 1000  | <b>4731101</b> | 6.4    |
|   | 2000  | <b>4731201</b> | 8.9    |
| <b>Frame RAF AL</b><br>With toeboard  | 1000  | <b>4731105</b> | 7.7    |
|   |  |                |        |
| <b>L-frame RAL</b>  | 1000  | <b>8734100</b> | 6.1    |
|   | 2000  | <b>8734200</b> | 9.8    |
|        |   |                |        |
| <b>Guardrail frame GFL</b><br>With spring locking catch                                 | 1655  | <b>7052164</b> | 7.4    |
|   | 1964  | <b>7052194</b> | 8.1    |
|   | 2500  | <b>7052254</b> | 9.2    |
|   | 3050  | <b>7052304</b> | 10.5   |
|       |   |                |        |
| <b>Guardrail frame SKRD AL</b><br>With spring locking catch                             | 1655  | <b>4052161</b> | 5.9    |
|   | 1964  | <b>4052191</b> | 6.6    |
|   | 2500  | <b>4052246</b> | 7.8    |
|   | 3050  | <b>4052301</b> | 8.9    |
|      |   |                |        |
| <b>Safety gate with net SGF</b><br>Continuously adjustable in height<br>Jaw width 22 mm | 1655  | <b>7055161</b> | 17.0   |
|   | 1964  | <b>7055191</b> | 19.4   |
|   | 2500  | <b>7055250</b> | 23.2   |
|   | 3050  | <b>7055300</b> | 26.8   |
|      |   |                |        |

| Name   |   | Code   | Item No.   | Weight                       |
|--|---|--|--|------------------------------|
| <b>Guardrail frame SKRDF</b><br>With toeboard  |    | 700  | <b>8753000</b>   | 7.5                          |
| <b>Guardrail frame SKRA</b>  |    | 500-700                                      | <b>8751075</b>   | 4.4                          |
| <b>Bracket SK</b><br>Jaw width 22 mm<br>Load class 3   |    | 300<br>700<br>800                            | <b>8775030</b><br><b>8775070</b><br><b>8775080</b>                   | 3.9<br>7.9<br>9.1            |
| <b>Bracket SK AL</b><br>Bracket SK 700 with spigot<br>Bracket SK 650 without spigot<br>Jaw width 22 mm<br>Load class 3 |    | 700<br>650                                   | <b>4211072</b><br><b>4211073</b>                                     | 3.5<br>3.0                   |
| <b>Decking unit AL B=620mm</b><br>Load class 3 (2.0 kN/m <sup>2</sup> )  |   | 1655x620<br>1964x620<br>2500x620<br>3050x620 | <b>4081167</b><br><b>4081197</b><br><b>4081257</b><br><b>4081307</b> | 11.6<br>13.1<br>16.6<br>18.9 |
| <b>Decking unit AL B=310mm</b><br>Load class 3 (2.0 kN/m <sup>2</sup> )  |  | 1655x310<br>1964x310<br>2500x310<br>3050x310 | <b>4082167</b><br><b>4082197</b><br><b>4082247</b><br><b>4082307</b> | 7.7<br>8.9<br>11.3<br>13.4   |
| <b>Decking unit hatch AL B=620mm</b><br>Load class 3 (2.0 kN/m <sup>2</sup> )  |  | 1964x620<br>2500x620<br>3050x620             | <b>4081192</b><br><b>4081242</b><br><b>4081303</b>                   | 14.8<br>17.4<br>20.2         |
| <b>Ladder ST AL</b><br>For decking unit with hatch   |  | 2100   | <b>2091210</b>   | 3.4                          |

| Name  | Code        | Item No.       | Weight |
|---|-------------|----------------|--------|
| <b>Toeboard FL</b><br>Wood, yellow glazing paint<br>Any logo can be applied         | 3300x150x32 | <b>2025331</b> | 6.6    |
|    |             |                |        |
| <b>Wire Toe Board Clip</b>  | Steel       | <b>2131003</b> | 0.13   |
|   | LF 70 Short | <b>7161006</b> | 1.0    |
|    |             |                |        |
| <b>Tie rod tube SVF AL</b><br>Permissible load 5.4 kN<br>Tube Ø 48 mm               | 450x48      | <b>4832045</b> | 1.2    |
|    |             |                |        |
| <b>Tie rod tube SVF 16</b><br>Permissible load 9 kN<br>Hook Ø16 mm                  | 300         | <b>8832031</b> | 1.4    |
|   | 450         | <b>8832046</b> | 2.2    |
|   | 600         | <b>8832061</b> | 2.6    |
|   | 900         | <b>8832091</b> | 3.7    |
|   | 1200        | <b>8832121</b> | 4.8    |
|    |             |                |        |
| <b>Tie rod SVFA 16</b><br>Permissible load 5.2 kN<br>Adjustable 709-1109 mm         |             | <b>8832110</b> | 4.9    |
|    |             |                |        |
| <b>Wall tie VST</b><br>With flexible plate<br>Two Ø 22 mm holes in the plate        | 1000        | <b>7111100</b> | 5.3    |
|   | 2000        | <b>7111200</b> | 9.1    |
|   | 3000        | <b>7111300</b> | 13.7   |
|   | 4000        | <b>7111400</b> | 16.7   |
|   | 5000        | <b>7111500</b> | 21.9   |
|   | 6000        | <b>7111600</b> | 24.5   |
|  |             |                |        |

| Name  | Code   | Item No.       | Weight |
|---|--|----------------|--------|
| <b>Stair UTV AL</b><br>With platform and locking catch at the top<br>LxH 3050x2000 mm<br>Width 600 mm                 | 1000   | <b>4102100</b> | 12.1   |
|   | 2500x2000  | <b>4102247</b> | 22.9   |
|   | 3050x2000  | <b>4102302</b> | 29.2   |
| <br><b>Handrail HLAL</b>             | 2500x2000  | <b>4058245</b> | 9.2    |
|   | 3050x2000  | <b>4058300</b> | 10.3   |
| <b>Handrail inner HLI UTV AL</b><br> |  | <b>7058253</b> | 11.4   |
| <b>Handrail post LSS</b><br>As guardrail post   | 1000   | <b>7015102</b> | 4.2    |
| <b>Bracket handrail post LSS</b><br>For stair UTV AL 4102302  | <br> | <b>7058300</b> | 1.5    |
| <b>Transom ground level ULB</b><br> | 700  | <b>8743700</b> | 2.4    |
| <b>Platform locking LSB</b><br>    | 700  | <b>8744700</b> | 2.3    |
|                                    | 700  | <b>8744701</b> | 2.3    |
| <b>Transom intermediate level TP</b><br>Jaw width 22 mm   | 700  | <b>8743701</b> | 3.7    |
|                                    |  |                |        |




| Name   | Code                 | Item No.   | Weight               |
|--|----------------------|--|----------------------|
| <p><b>Pavement frame</b><br/>           With two fixed and two adjustable spigots<br/>           Bay width 1460 mm</p>  | 1460                 | <b>8732201</b>                                     | 39.5                 |
| <p><b>Lattice beam FB 450 AL</b></p>    | 4100<br>6100<br>8100 | <b>4032410</b><br><b>4032610</b><br><b>4032810</b> | 16.7<br>24.3<br>32.3 |
| <p><b>Lattice beam FB 450 AL</b><br/>           Brackets intended only for tilt bracing</p>                             | 4100<br>6100<br>8100 | <b>4032411</b><br><b>4032611</b><br><b>4032811</b> | 17.8<br>25.8<br>34.0 |

## Other components (not included in the Certificate)









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| Name  | Code | Item No.       | Weight |
|---|------|----------------|--------|
| <b>Landing link panel UTV AL/Frame</b><br>For covering the hole between<br>platform and frame<br>Only for UTV<br>3050x2000 AL |      | <b>7211044</b> | 3.6    |

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**Other accessories** (not included in the Certificate)

| Name  |   | Code        | Item No.       | Weight |
|---|---|-------------|----------------|--------|
| <b>Right angle coupler</b><br>Jaw width 22 alt. 23 mm<br>Type Examination Certificate 145515  |    | 48x48 23 mm | <b>2041010</b> | 1.0    |
|   |   | 48x48 22 mm | <b>2048010</b> | 1.2    |
| <b>Swivel coupler</b><br>Jaw width 22<br>Type Examination Certificate 145515  |    | 48x48 23 mm | <b>2048013</b> | 1.4    |
|   |   | 48x48 22 mm | <b>2048011</b> | 1.4    |
| <b>Adapter guardrail</b><br>For guardrail for corner applications etc.<br>Jaw width 22 mm   |    |             | <b>8792000</b> | 0.6    |
| <b>Bracket coupler</b>  |    |             | <b>2048017</b> | 1.4    |
| <b>Locking device guardrail</b><br>For guardrail, tube diameter 38 mm<br>Jaw width 22 mm  |    |             | <b>8833000</b> | 0.8    |
| <b>Locking hook LK</b><br>For locking standard joint in connection with tensile load, e.g. when lifting or when scaffolding is used for temporary roof<br>Not for suspended scaffolding |    | 10x48       | <b>8793000</b> | 0.1    |
| <b>Ramtainer</b><br>For twenty vertical frames<br>The frames are lashed to the ramtainer with strapping   |  |             | <b>8871000</b> | 28.9   |
| <b>Scaffold safety sign</b><br>Is hooked on the standard<br>With pocket in A4 for "Facts about the scaffold"  |  |             | <b>2112000</b> | 1.1    |

For other accessories, see HAKI Component List.

## Information on safety when erecting and dismantling

1. Before erecting or dismantling a scaffold, try to fence off the working area if possible.
2. The location for the scaffold must be checked in order to prevent risks when erecting, dismantling and moving the scaffold and to ensure that work can be carried out safely with regard to level and slope, obstacles and wind conditions.
3. 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 authorized person in accordance with local regulations.
4. Check that tools and protective equipment are available at the worksite.
5. Wear appropriate personal safety equipment at all times, e.g. safety harnesses, proper independent lifelines with suitable fixings, etc.
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, discontinue erection or dismantling work if weather conditions become severe. Make sure that all loose components are properly fixed before leaving the scaffold.
10. Scaffolding work must be done by "competent workmen" under the supervision of a "competent person".
11. Raising and lowering of parts, material and tools using ropes or slings must be carried out in a protected lifting area.
12. Lifting equipment must not be fitted to scaffolding unless ties or equivalent devices are secure.
13. Beware of any overhead power lines nearby.
14. Always observe and comply with the regulations issued by the local authorities concerned.

Before erecting the scaffold, check and flatten out the ground. The support surface must not be subject to uneven settlement. Its bearing capacity may be improved with the help of sole pads.



1.

**1.** Set out the material for the bottom of the scaffold along the facade.

Place the base jacks about 200 mm out from the facade and at the bay lengths that are to be used.

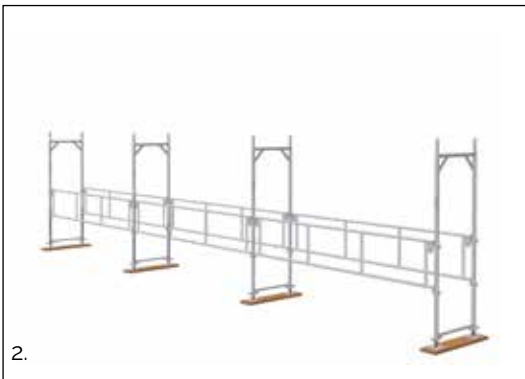
If inside brackets are to be used, increase the distance to the facade by the length of the bracket.

The greatest permissible distance between the facade and work platform without an internal guardrail is 225 mm.

Always start erection at the point that is situated highest.

When erecting, always check carefully that the material is not damaged. Damaged material must not be used.

For more information on damaged material and renovation, please refer to the HAKI Safety Guide.



2.

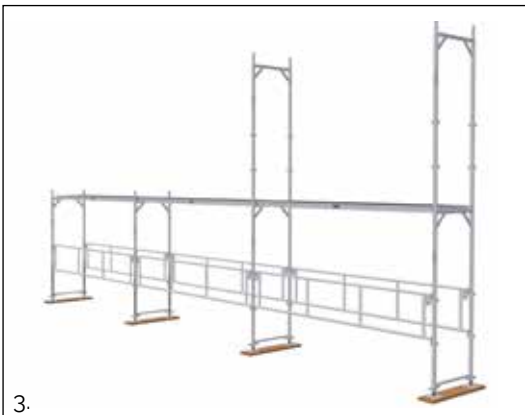
**2.** Erect the first two frames on the base jacks and hook both the internal and external guardrail frames into the pockets on the frames.

Lock the guardrail frames in place.

Continue erecting the bottom of the scaffold using base jacks, frames and guardrail frames bay by bay.

Check the levels step by step in both the transverse and longitudinal directions using a spirit level and adjust using the base jacks.

If required, the first lift can be provided with decking mounted on ULB 700 transoms ground level.



3.

**3.** Fit decking for the second lift.

Make sure that the decking hooks in the grooves of the frames.

Lock the decking in place with the frames of the second lift.



4.

4. Fit the guardrail frames and end guardrails for the second lift. To create a safe zone fit the guardrail frames on the first and second lift using bracket coupler.

Fit the toeboards with the aid of the LF 70 short toeboard clips.

Fit decking for the third lift.

5. Anchor the scaffolding using tie rods and clamps. Check that the fixings in the facade can carry the forces involved.

Continue erecting the subsequent lifts as described above. Use approved lifting aids for transport of the material.



5.

On the uppermost lift, RAF 1000 frames with toeboards are fitted at the ends of the scaffolding. Next to these, toeboards are locked using LF 70 toeboard clips.

RA 1000 frames can also be used at the ends of the scaffolding. Toeboards must then be added.

RAL 1000 L-frames are otherwise fitted. Alternatively, RA 2000 frames can be used for the entire top lift.

Dismantling is carried out in reverse order. Scaffolding components must not be thrown down from the scaffolding.



6.

You should not use tools such as steel hammers when dismantling owing to the risk of local buckling. (The risk is greater for aluminium). For assessment and renovation of damaged material, please refer to the HAKI Safety Guide.

### Internal ladders

6. Decking with a hatch must be used instead of ordinary decking in bays where ladders are sited.

The decking with a hatch must be installed so that the ladders are positioned at opposite ends of the bays on each subsequent lift and the ladders must be securely hooked onto the deck above.



7.

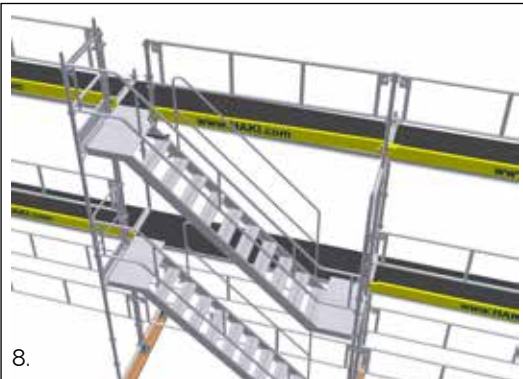
## External stairway

**7.** The UTV stairway is fitted in an external bay of length 3050 mm using extra frames.

The external bay should be erected parallel with the rest of the scaffolding.

Lay out two base jacks.

Erect one frame on each and connect these frames to the frames of the main scaffold using two SW 48x48 swivel couplers for each frame, one at the top and one at the bottom.



8.

**8.** Hook on a UTV stairway and lock using a new frame.

Connect this frame to the frame of the main scaffold using two SW 48x48 swivel couplers.

Fit the handrail at a height of 1.0 m and provide the top end with an SKRDF 700 guardrail frame.

Erect the next lift using a stairway, frames, handrail and guardrail frames.

The gap between the scaffold and the stairway is covered using a landing link panel for UTV.

If required, an inner handrail is fitted on the inside of the flight of stairs.



9.

**9.** Continue erection up to the desired height.

At the top level, an RAF 1000 frame is fitted and a handrail post holder is fitted on the inside of the stairway.

An LSS 1000 handrail post is fitted into the holder so that an GFL 2500 guardrail frame can be fitted between the post and L-frame.

The guardrail frame provides fall protection at the top level of the scaffold. At other levels, the next stairway provides sufficient protection.



## Brackets

Brackets can be fitted at various heights using the coupler.

Fit the decking units. Make sure that the decking units are hooked into the grooves of the brackets and lock the decking units successively using the T-lock device.

Frames with brackets must be anchored both at the top and at the bottom.

### 10. SK 300 internal brackets

These are fitted in combination with 310 mm decking. The ends of the internal brackets must be protected by scaffold tube guardrails and toeboards.



### 11. SK 700 internal brackets

Where required, provide the decking on brackets with end guardrails with the aid of L-frames and SK 700 external.

Lock the L-frames using locking pins and locking hooks.



### 12. SK 700 external brackets

Brackets and decking should be fitted as described above, but without using the T-lock device.

Erect L-frames and lock them using locking pins and locking hooks.

Erect guardrail frames, end guardrails and toeboards.

If the decking on brackets is on the top lift, the decking on the main scaffold should be secured using LSB 700 platform locking units.

The scaffold should be anchored to the wall at the level of the bracket decking.





### **Safety gate with net**

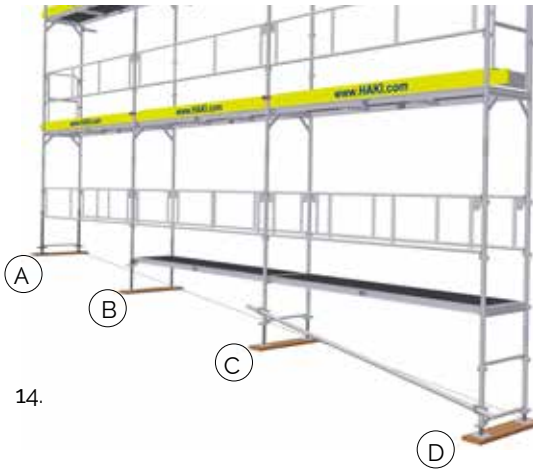
**13.** Safety gates with nets are fitted in the same way as guardrail frames.

Their design eliminates the need for toeboards on this lift.

The safety gates with nets are used as personal fall protection and to prevent objects falling, e.g. in connection with roof work on the top lift.

Not approved fall protection solution in accordance with EN 13374.

## Large differences in the ground level



14.

**14.** Where there are large differences in the level of the ground, compensate for these by using RA 500 or RA 1000 frames and ULB 700 ground level transoms.

- (A) RA 2000 frame erected on base jacks in the usual way.
- (B) Base transom fitted to base jacks as support for decking.
- (C) RA 500 frame erected on base jacks in the usual way.
- (D) RA 1000 frame erected on base jacks in the usual way.

If guardrail frames cannot be erected between the base frames, i.e. between C and D, SR 48 scaffold tubes are fitted between the outer standards using swivel couplers.

## Pavement frames

**15.** Pavement frames are erected on base jacks.

Guardrail frames are hooked into the pockets of the pavement frames both on the inside and outside of the scaffolding.

In scaffolding with pavement frames, the lowest wall tie must be fitted to the first frame of the main scaffolding at a height not exceeding 4.6 m above the ground.

The pavement frames have 2 fixed and 2 adjustable spigots, which allow some flexibility when erecting the frames above.



15.

## **Instructions for dismantling**

1. Dismantle the scaffold from the topmost lift.
2. Start by taking down the toe boards, mid-rails and hand rails.
3. Take down the topmost decking, then the stairs.
4. Take down the horizontals and diagonals of the topmost lift.
5. Finally, take down the frames of the topmost lift.
6. Repeat steps 3 to 5 to take down the second topmost lift and continue the whole process until the tower is completely dismantled.
7. Do not throw or dump the material onto 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 carried down by hand.
8. Ties must not be removed before the dismantling process has reached the level in question.

## Bracing and tying-in

Each lift must be equipped with guardrail frames on the outside of the scaffolding 1.0 m above the lift level and with decking.

The lower frames must all be fitted with guardrail frames both internally and externally. Guardrail frames must always be fitted at the lowest possible level.

Each inside frame standard must be tied to the facade or equivalent at every 4th metre in height adjacent to the corner of the frame. The lowest tie must be fitted no more than 4.6 m above ground level.

There must be ties that can carry horizontal forces on at least every 5th pair of frame standards along the scaffold and at every level of ties.

In addition, we recommend that the scaffold always be anchored as high up as possible.

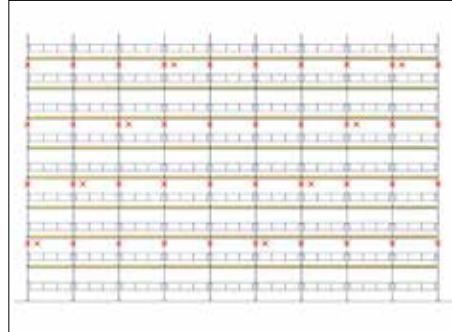
Frames with brackets must be anchored at the top and at the bottom.

Cantilevered scaffolding and the lift below the cantilevered scaffolding must be anchored at every lift level.

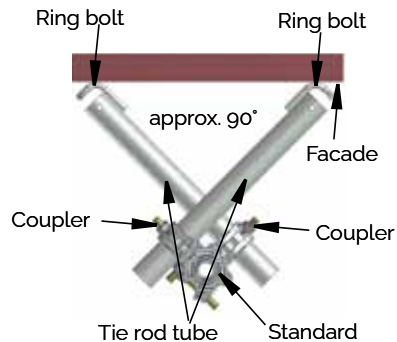
Frames with lattice beams must be anchored at the fixing points of the beams.

The following estimated maximum loads apply to scaffolding of this type of 24 m in height in accordance with EN 12811. Ties that can withstand horizontal forces should be specified for a load of 5,0 kN parallel with the facade and 3,3 kN perpendicular to the facade. Other ties should be dimensioned for a load of 2,7 kN perpendicular to the facade.

Where a scaffold is covered in sheeting, the number of ties must be increased to take account of wind load. Separate calculations are therefore required.



Permissible load=dimensionerande last/1,5



Examples of ties that can carry horizontal forces  
(PLEASE NOTE! use only type examined couplers)

## Permissible loads on standards

The permissible load on a standard is 4.2 kN. For HAKI Frame of aluminium, a permissible load on a standard of 7.6 kN is applicable in structures where a maximum of 25% of the uniformly distributed working load may consist of material stored on a work platform (load class 3).

The support surface must be capable of withstanding a design load of 20 kN per standard.

## Permissible construction heights

The tables are valid for HAKI Frame scaffolding with bay widths 700 mm, bay lengths 3050 mm, lift heights 2.0 m, vertical distances between ties of 4.0 m, and erected using HAKI Frame decking units.

Work must only be carried out on one level at a time.

For building heights above 24 m, increased wind load is not taken into account.

Other bay lengths and load classes will have an effect on the permissible construction height. Please contact HAKI's technical department in these cases.

### Permissible construction heights for HAKI Frame Aluminium

| Construction   | Load class / Permissible load [kN/m <sup>2</sup> ] |          |
|--|--|----------|
|  | 2<br>1.5   | 3<br>2.0 |
| without brackets / without brackets with bridge beam | 30,5   | 24,6     |
| with SK 300 brackets, all levels                     | 24,5   | 22,5*    |
| with SK 300 brackets, 1 lift, internal               | 30,5   | 26,5     |
| with SK 700 brackets, 1 lift, internal               | 22,5   | -        |
| with SK 300 brackets, 5 lifts, internal              | -  | -        |

\* With an anchoring distance of 2 m, the permitted building height is 24.5 m with SK 300 brackets.

### Permissible loads on platforms

| Platform     | Width [mm] | Length [mm] | Load class | Permissible load [kN/m <sup>2</sup> ] |
|--------------|------------|-------------|------------|---------------------------------------|
| Decking unit | 620        | 1655-3050   | 3          | 2.0                                   |
| Decking unit | 310        | 1655-3050   | 3          | 2.0                                   |

## Guardrails

All decked lifts must be provided with guardrail frames and toeboards.  
Double handrails must be fitted to access stairways.

## Access ways

Access is usually provided by means of HAKI UTV stairways that are fitted to the outside of the scaffold using extra frames (see erection page 21).

Steel scaffolds having UTV stairways fitted externally may be built to a height of 37.5 m.  
Alternatively, the HAKI Stair Tower may be used. See User's Manual HAKI Stair Tower.

## Load classes

Refers to EN 12811-1

| Load class | Uniformly distributed load [kN/m <sup>2</sup> ] | Concentrated load on area 0.5mx0.5m [kN] | Load of one person on area 0.2mx0.2m [kN] | Partial area load         |                           |
|------------|---|--|---|---------------------------|---------------------------|
|            |   |  |   | Load [kN/m <sup>2</sup> ] | Partial [m <sup>2</sup> ] |
| 2          | 1.5   | 1.5                                      | 1.0                                       | -                         | -                         |
| 3          | 2.0   | 1.5                                      | 1.0                                       | -                         | -                         |
| 4          | 3.0   | 3.0                                      | 1.0                                       | 5.0                       | 0.4 A                     |
| 5          | 4.5   | 3.0                                      | 1.0                                       | 7.5                       | 0.4 A                     |
| 6          | 6.0   | 3.0                                      | 1.0                                       | 10.0                      | 0.5 A                     |

A= the area between two pairs of standards

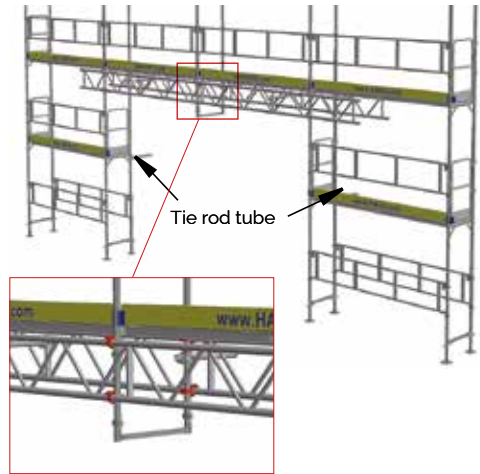
## Lattice beams

### Aluminium lattice beams



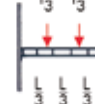
Aluminium lattice beams are fitted in pairs on the inside and outside of the scaffold.

Both the top and bottom tubes must be fixed to the frames using RA 48x48 right angle couplers. The height of the beams is adjusted so that the decking will be horizontal.

Frames with lattice beams must be anchored at the fixing points of the beams. The lattice beams must be braced against lateral stability at a maximum of every second metre using ledger beams or RA 800 units as a basis for further scaffolding.



### Permissible loads on lattice beams when erected as described above

|              |  |  |  |
|--------------|--|--|--|
| Lattice beam | Permissible load<br>q [kN/m]   | Uniformly distributed load<br>Q [kN]   | Centre point load<br>P [kN]  |
|              |  |  | Point loads<br>P <sub>3</sub> [kN]   |
| Aluminium    |  |  |  |
| FB 4100 AL   | 4.9  | 19.4   | 7.5  |
| FB 6100 AL   | 3.0  | 18.3   | 7.5  |
| FB 8100 AL   | 1.7  | 13.7   | 6.9  |

## Maintenance & storage

1. After use, all components must be thoroughly cleaned and inspected before storage.
2. Any damaged parts or components found must be replaced.
3. The manufacturer or supplier must be consulted before repairing scaffold material.
4. Components must be sorted and stacked properly. Take care not to pile the stacks too high, so that the material lower down in the stacks becomes overloaded and damaged. If the material must be stacked up high, suitable racking and shelves should be used.
5. Wooden and plastic components (e.g. platforms, toe boards, toe board holders, etc.) should be stored in a sheltered area so as to maximize their working life.

## Wind, ice and snow

During the winter months, when extreme weather conditions can occur, it is important to remove snow and ice immediately.

With regards to wind loads, ties must be installed every fourth metre in height; see the section "Bracing and tying-in". For clad scaffolding, calculations should be made in each individual case.



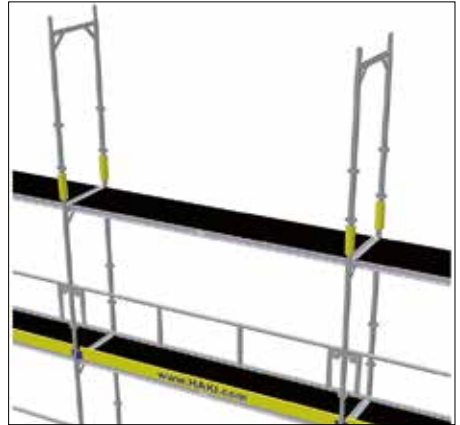
## Attachment points for personal fall protection equipment

Permissible points of attachment for personal fall protection equipment are as described below. PLEASE NOTE: Recommendations for points of attachment apply provided that the component in question is otherwise without load and that only one person is attached to the same component at any one time.

Components that have been subjected to damage from fall protection equipment must be scrapped and replaced by new material.



Around a standard in a frame between two lifts.



On the highest lift, around a standard in a frame that has been erected and locked using locking hooks.



PLEASE NOTE! The frame must be locked using locking hooks both internally and externally.

No other points of attachment can be recommended.

Fall protection equipment **MUST NOT** be attached to guardrails, brackets and cantilevers, i.e. beams fixed at only one end.

Fall protection equipment **MUST NOT** be attached to components that have not been locked into place.

PLEASE NOTE: Use only approved safety equipment.



## Notes

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## **SAFETY CHECKLIST**

1. Supporting surface checked with regard to load-bearing capacity
2. Distance to wall or similar as short as possible
3. Scaffold aligned correctly horizontally and vertically
4. Components correctly fitted and locked
5. Bracing correctly fitted
6. Anchoring with right number and placing of ties
7. Decking correctly fitted
8. Guardrail with toeboard if drop is two metres or more
9. Suitable means of access to scaffold
10. Scaffold erected for correct class of load



## 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 9001:2015, 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.

