



Horisont Site stairway



User instructions

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 Reservation for technical changes.

General

The Horisont stairway from Horisont Safety Systems, also called the site stairway etc, is a transportable and collapsible stairway manufactured mainly in steel. The stairway is especially suitable for use at building sites and other work places where there are varying heights, it can even be used on slopes with varying inclinations.

The tread is flexibly connected to four load-carrying side rails, two on each side of the tread. This design ensures that the steps are always horizontal, as the stairway adjusts to the inclination and height, assuming that the base is level.

The stairway has a standard width of 750 mm and has expanded metal steps. Other widths and models e.g. wooden steps, can be supplied by order. The stairway is supplied in standard lengths of 3, 6, 9, 12, 15 or 18 steps. The stairway has a jointing system that allows connection of an unlimited number of lengths. Longer stairways should be reinforced with supports beneath the stairway, very long stairways should be equipped with extendable stiffening beams. Supports and stiffening beams are available as extra accessories.

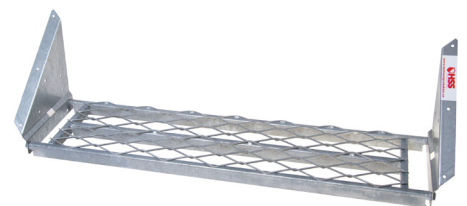
The stairway can be fitted with handrails on one or both sides. The stairway is available as hot-dip galvanised.



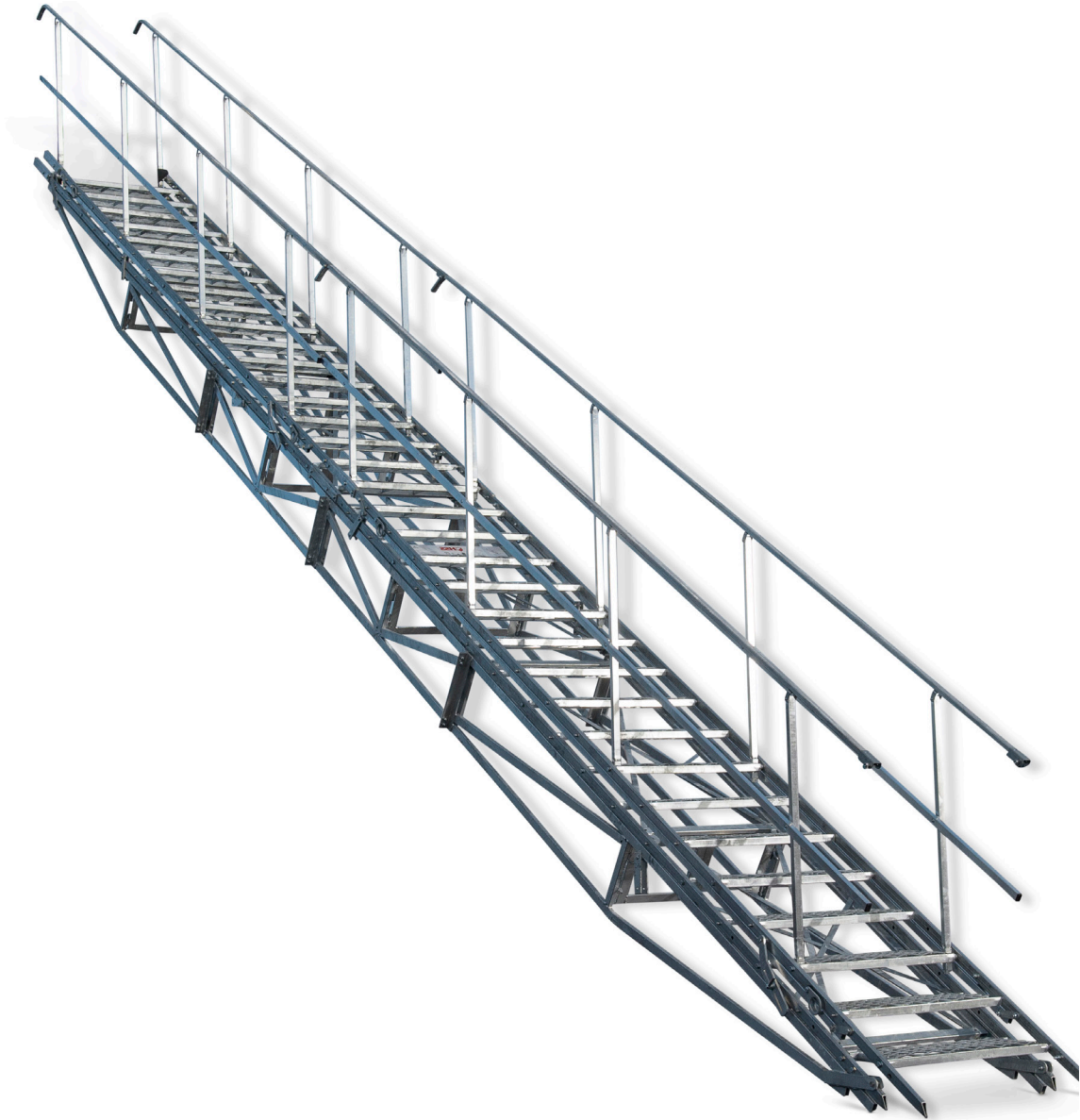
Pic 1. Horisont Site stairway



*Pic 2. Barack stairway
(Can be supplemented with a platform for upper floors)*



*Pic 3. The Loose Step
(Building Step) is available
in several designs and sizes*



Pic 4. Horisont Stairway equipped with stiffening beam

Safety instructions

Always check products and equipment before use.

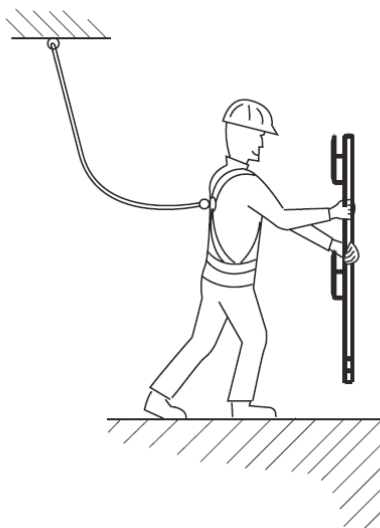
Check all included stairway parts before assembly. Never use damaged or rusty materials as this can affect safety.

Do not combine products

Stairways that are mounted, combined or connected using products other than HSS products are not recommended. HSS product liability applies only -to combinations of correctly assembled HSS products.

Always use personal fall protection equipment

Personal fall protection equipment must always be worn during assembly and dismantling when a risk of falling exists. This also applies to MEWPs (mobile elevating working platforms).



Pic 5. Personal fall protection equipment

Inspection after a fall

If a stairway has been involved in an accident or has been subject to heavy loading, it should be removed from service and inspected by a competent personnel. Contact HSS in the event of uncertainty.

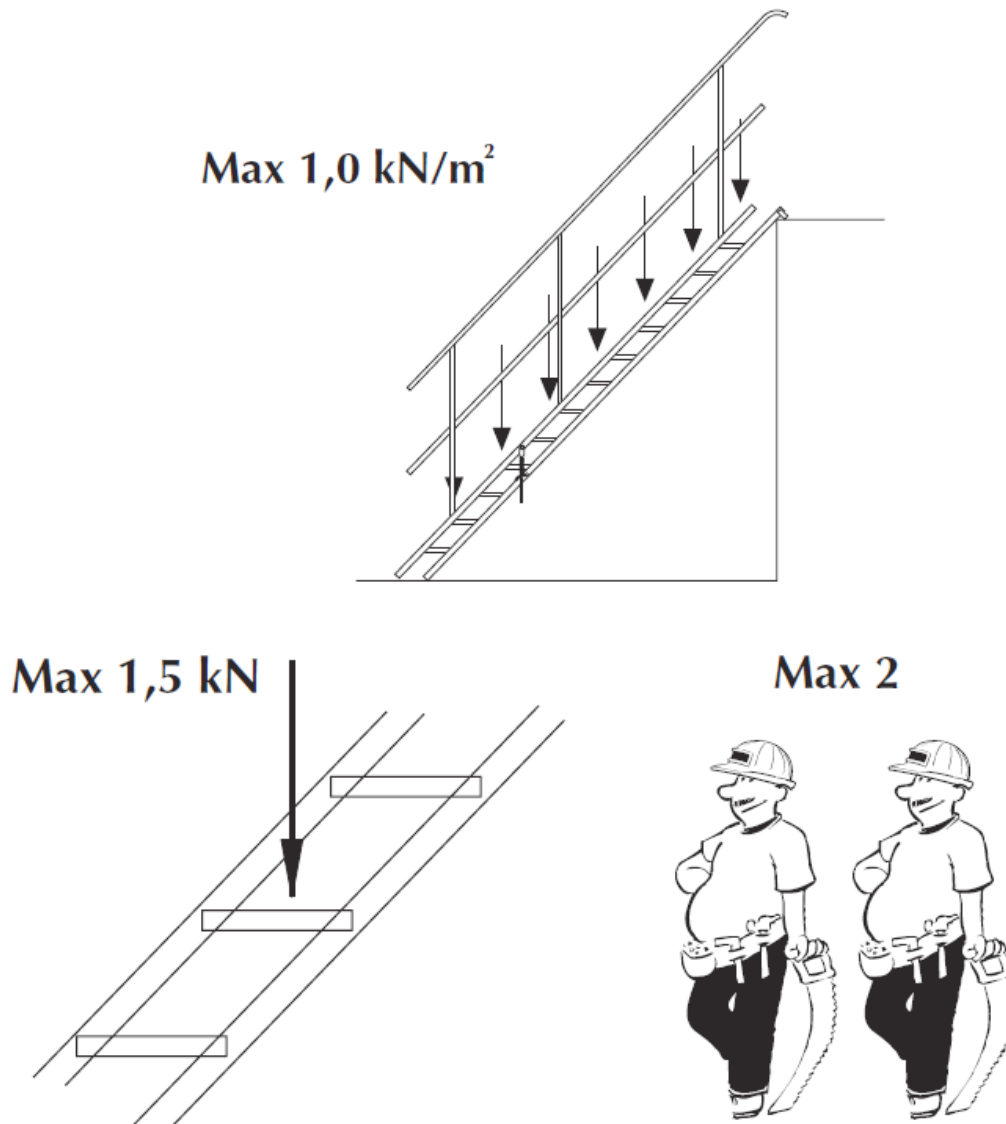
Remember

- Plan walkway locations at an early stage, this will benefit everyone.
- Use only safety-controlled products.
- Cordon off below and around the assembly area in connection with the installation so that unauthorized personnel are not injured if, for example, you should drop tools or material.
- Use tools designed for the type of work to be carried out.
- Tighten screws properly and check that split pins lock correctly.
- Keep threads clean and lubricated.
- Keep the installation area in order.
- A safe workplace is an agreeable workplace.

Technical data

Loading

The stairway can withstand a uniformly distributed load (UDL) of 1.0 kN/m². Max load per step is 1.5 kN and max two persons may use the stairway at the same time.

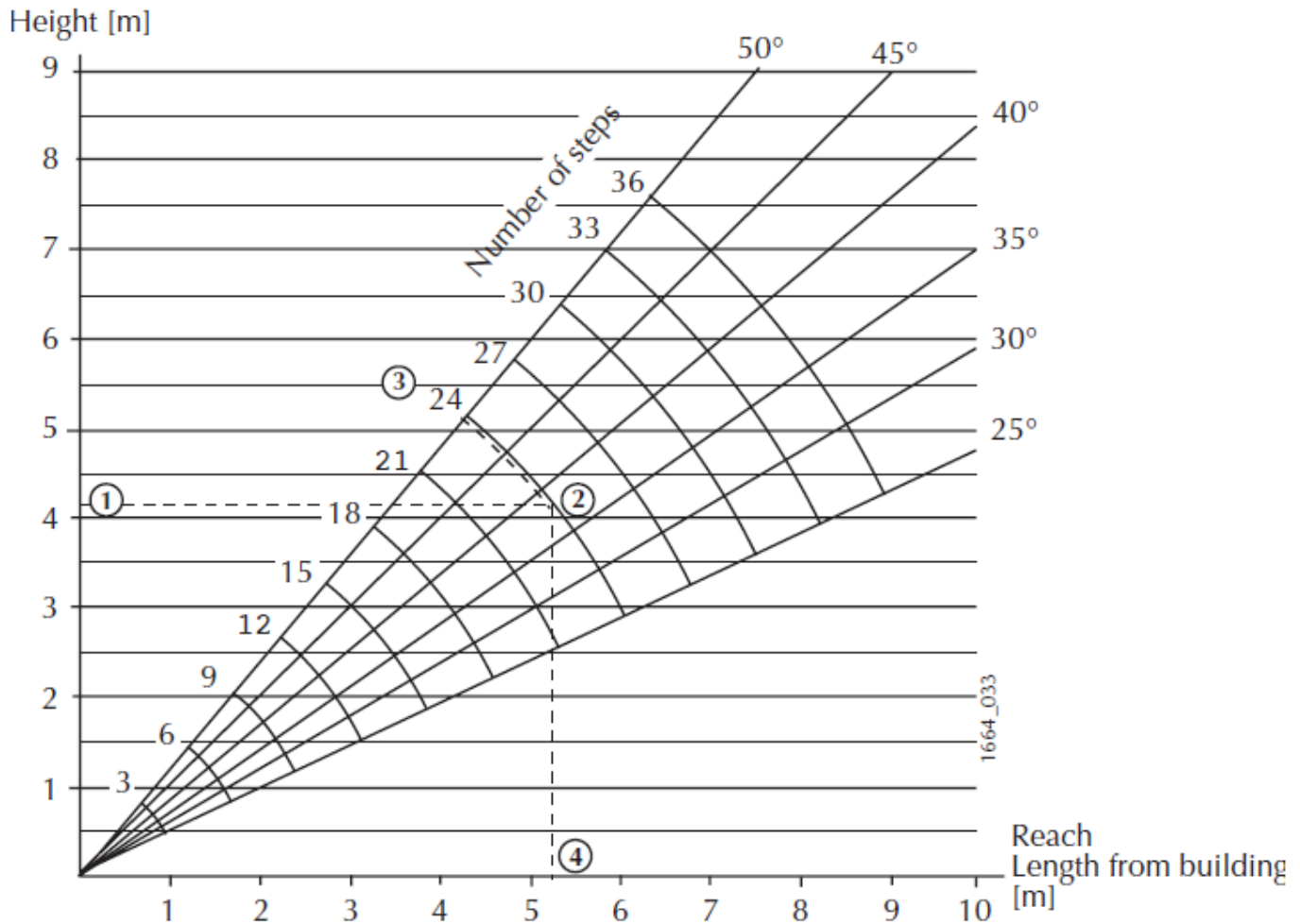


Pic 6. Loading

Inclination diagram

The inclination diagram shall be used for selecting the stairway length.

Horisont Safety Systems recommended use.



Pic 7. Inclination diagram

Recommended inclination range is 25-50°

The example in the diagram is shown with dotted lines and shall be interpreted as follows (example within parentheses):

1. Start with the total rise height required (4.2 m).

2. Follow the rise height across into the fan of recommended inclination (38°).






3. Choose a number of steps based upon the inclination required (24 steps at 38°)

4. Follow downwards from the intersection - and read off how far out the base of the stairway will be (5.3 m).

NOTE! National regulations may impose other requirements. Take these into consideration!

Table for supports and beams

Stairways with 3 to 15 steps require no additional support, however. It is advisable to complement 15 step stairways set up at a shallow angle, with a support for improved performance.

Number of steps	Suport 	Y12 	M6 	M6 	Y12 
18	X				
21	X				
24		X			X
27		X			X
30		X	X		X
33		X	X		X
36		X	X	X	X

Component parts Stairway

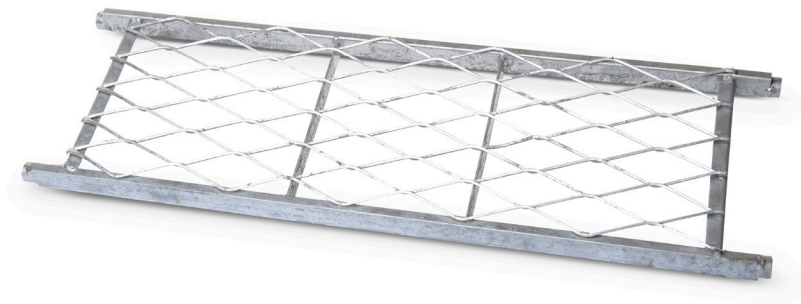
Part no.	Product	Stairway length [m]	Weight [kg]
HP1004	Stairway 3 step	1,03	17
HP1003	Stairway 6 step	1,84	31
HP1002	Stairway 9 step	2,65	47
HP1001	Stairway 12 step	3,46	57
HP1000	Stairway 15 step	4,27	82
HP1018	Stairway 18 step	5,08	104

Steps

Self-adjusting of expanded metal, 3-18pcs

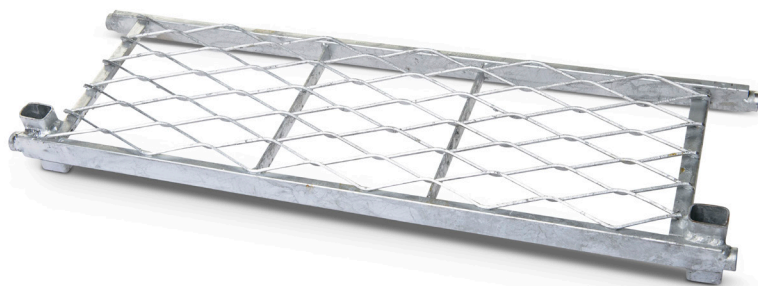
Replacement step

HP10505 - Nutstep



Pic 8. Nutstep

HP10511 - Nutstep with handrailholders



Pic 9. Nutstep with handrailholders

HP10518 - Topstep with handrailholders



Pic 10. Topstep with handrailholders

Side rails

The side rails are fitted with sleeve joints at the top and with spikes at the bottom to prevent slipping, 15 and 18 step stairways are equipped with a tension stay attached to the upper side rails.

Locking device

HP11005 Manual locking device

All our stairs is delivered with a manual locking device on the stair.

Handrails

Part no.	Product	Weight [kg]
HP1009	Handrail for 3 step	5
HP1008	Handrail for 6 step	8
HP1007	Handrail for 9 step	10
HP1006	Handrail for 12 step	14
HP1005	Handrail for 15 step	16
HP1019	Handrail for 18 step	20

The handrail comprises an upper rail, intermediate rail and hinged posts. The handrail can be fitted to the right hand, left hand or both sides.



Pic 12. Stairway, complete



Bild 11. Manual locking device

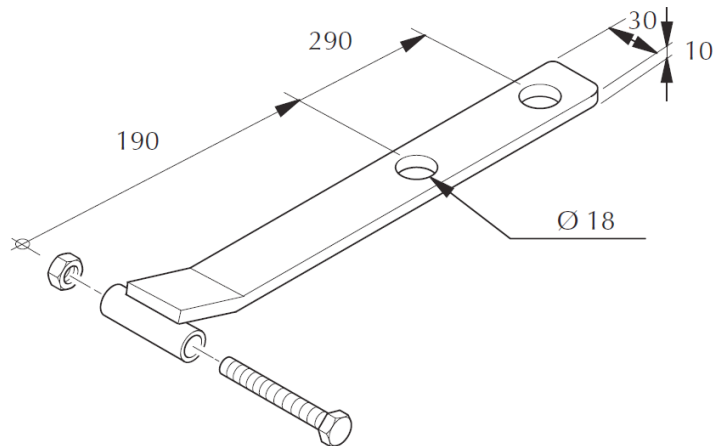
1. Steps
2. Siderails
3. Locking device
4. Handrail

Additional accessories

HP1017 - Slab attachment

Weight 0,8kg

Made from steel bar, fitted to the top joint and used to anchor the top of the stairway.

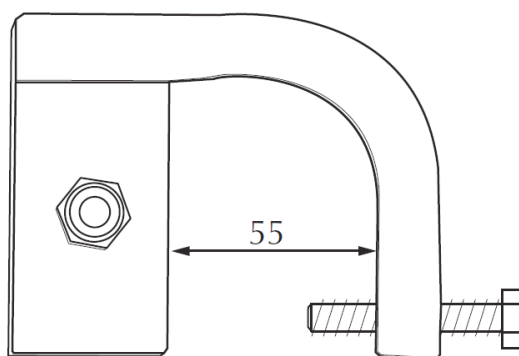


Pic 13-14. Slab attachment

HP1021 Scaffold attachment

Weight 0,6kg

The scaffold attachment is fitted to the top joint and used to secure the top of the stairway.

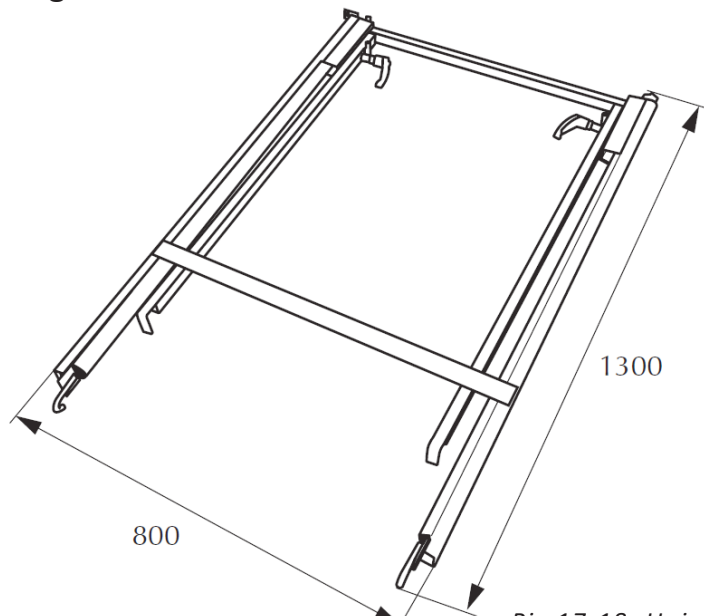


Pic 15-16 Scaffold attachment

HP1023 Universal support

Weight: 18kg

Used to support stairways of 18 and 21 steps, and to stiffen stairways of 15 steps when set up at a low angle. The telescopic support is adjustable to fit different stairways and base surfaces. The support can be adjusted to a vertical height of 1.2-2.1 m



Pic 17-18. Universal support

**Combibeam: HP1015 Combibeam Y12, HP1016 Intermediate part M6**

Weight: HP1015 60 kg, HP1016 42kg

Combibeam is a stiffening beam for very long stairways, assembled from various combinations to produce -24, 30, or 36 step stairways. The Combibeam supports a freestanding stairway of up to 36 steps. The Combibeam is modular and collapsible. Handrails should be joined exactly as the stairway units, i.e. 12 step handrail to a 12 step stairway, 15 step handrail to a 15 step stairway,



Pic 19. Combibeam Y12



Pic 20. Combibeam M6

Design and function

All the steps are pivotally connected through the four supporting side pieces. To prevent the steps from tipping forward when going up or down the stairs have a latch that locks the steps. The latch, which is attached to the upper side piece, snaps into the lower side piece with the help of the handle and thereby locks the stairs so that it cannot be collapsed.

NEVER enter an unlocked staircase.

NOTE!

At least one functioning lock must be fitted to each stairway or stairway combination.



Pic 21. Locking device / latch with handle

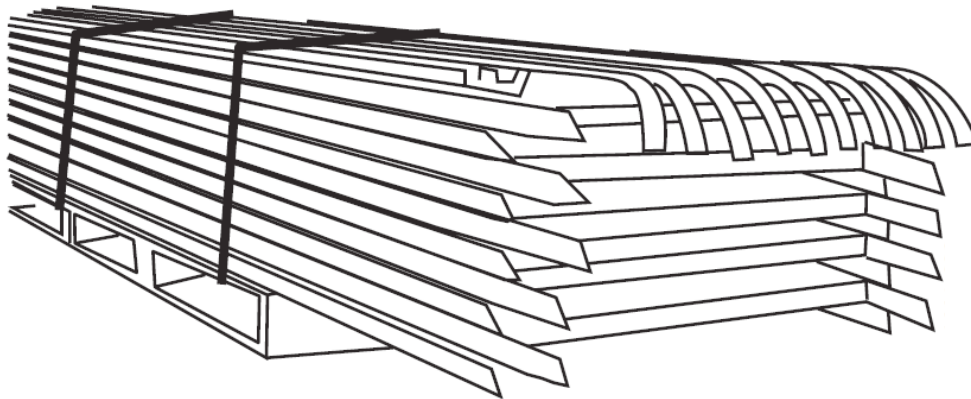
Important!

When folding/collapsing the stairs, or if you want to reduce the inclination, you must first loosen the latch using the handle a little or tap it with light hammer blows. When folding, the latch must be fully open to prevent damage to the stairs.

Assembly

Delivery

The stairway is delivered in the collapsed state. Handrails are packed together with the stairway. The stairway is not normally assembled.



Pic 22. Stairs on delivery

Equipment for assembling and erecting a stairway

The following personnel and equipment are required for assembling and erecting a stairway-

- Two competent operatives and a crane (or other lifting device). Smaller stairways can also be assembled and erected manually. Always perform a risk assessment before handling
- Hammer
- A sole plate or other form of base if the ground is loose or uneven
- A podger, diameter 12–13 mm, to align bolt holes.-

Equipment for assembling and erecting a stairway with combibeam

- Two competent operatives and a crane (or other lifting device)
- Hammer
- A sole plate or other form of base if the ground is loose or uneven
- Spanners/wrenches for M10 bolts and nuts
- 16 mm socket and a max 200 mm long ratchet handle
- Two pieces of wood, approx 50 mm thick and approx 1000 mm long
- A podger, diameter 12–13 mm, to align bolt holes.

Assembling the handrail

It is advisable to mount the handrail before erecting the stairway. Mount the handrail to the stairway by pushing the ends of the posts down into the sockets on the steps. Make sure the posts go all the way down. Mount the handrail with the curve on the upper rail at the top. Secure at least the uppermost posts with R-pins or similar, through the hole in the post.

Jointing

All standard stairways can be joined to each other. First unscrew the four jointing bolts from the lower side rails of the upper stairway. The stairways must be opened to the same extent. Insert the pointed lower end of the upper stairway's side rails into the lower stairways sleeve joints at the top of the side rails. Fix the stairways together with the bolts. Join the handrails by first removing the bolts and then pressing the upper handrail's lower end over the curved section at the top of the lower handrail. Screw the handrails together with the bolts.

--- NOTE! ---

When stairways are joined, one of the latches must be unlocked and the other locked. To disable a lock, remove one fixing bolt.

--- NOTE! ---

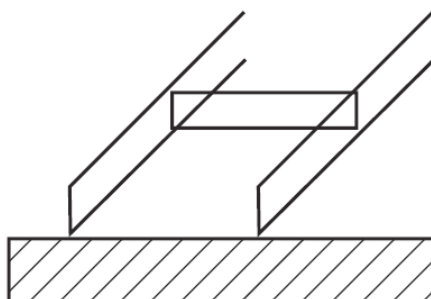
Max one joint per self-supporting stairway combination. If you need to have more joints, you must use the Combibeam.

Erecting a stairway

Erection is easiest if you have access to a crane and two competent operatives . Erection of a collapsed stairway is carried out as follows.

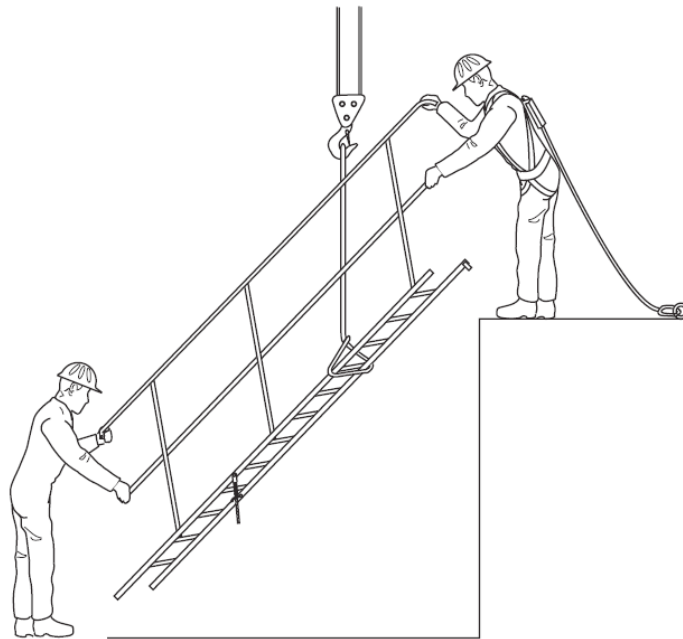
--- NOTE! ---

If the ground is loose, a hard surface should be arranged so that the pointed ends do not sink into the ground and freeze in place. Ensure that the surface is level.



1. Connect the crane to a sling around the upper part of the stairway, put the sling around a step and within the handrails, so that the handrail and stairway are able to open. Make sure the sling is not around the centre of the step, or it may be bent.

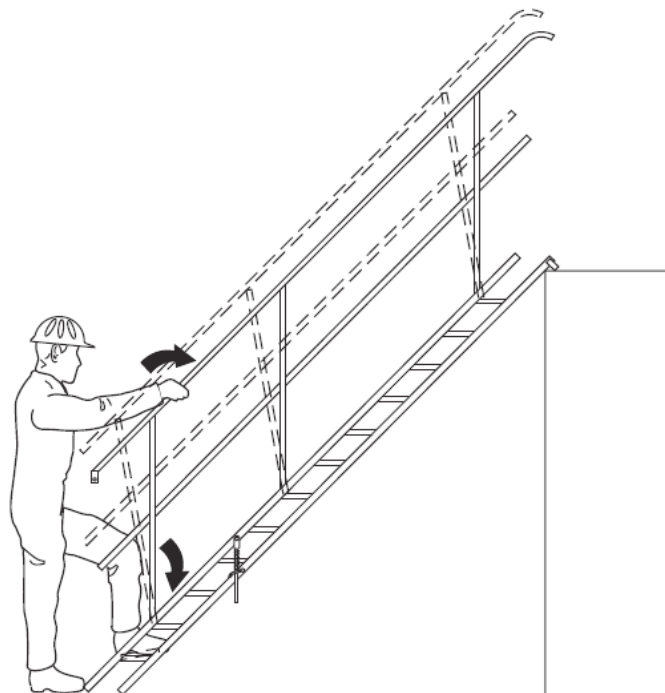
2. Lift the collapsed stairway to the level it is to serve.



Pic 23. Erecting a stairway.

3. Adjust the stairway so that the angled grip on the upper end is 50 mm above the supporting surface.

4. Stand on the lowest step and push the handrail forwards so that the stairway is opened. If the supporting surface is level, all the steps will now adjust to the level position.



Pic 24. Extending the stairway by using the handrail

NOTE!

If the steps lean backwards due to the supporting surface not being level, the stairway must be collapsed slightly. This is achieved using the handrail. The lock must be released at the same time. Now place blocks on the supporting surface under the rear side rails to make the stairway's contact point level. This is a difficult procedure and the stairway should be partially opened during erection. Complete opening is performed as in point 4.

5. If the stairway is to be anchored at the upper end, use a slab attachment or scaffold hook.

Erecting a stairway against a sloping surface

When a stairway is erected on sloping earth or rock, it should be anchored at both top and bottom. If the stairway is to be in place for a long period, it should be fitted with additional manual locks to prevent the semi-automatic locks working loose in use.

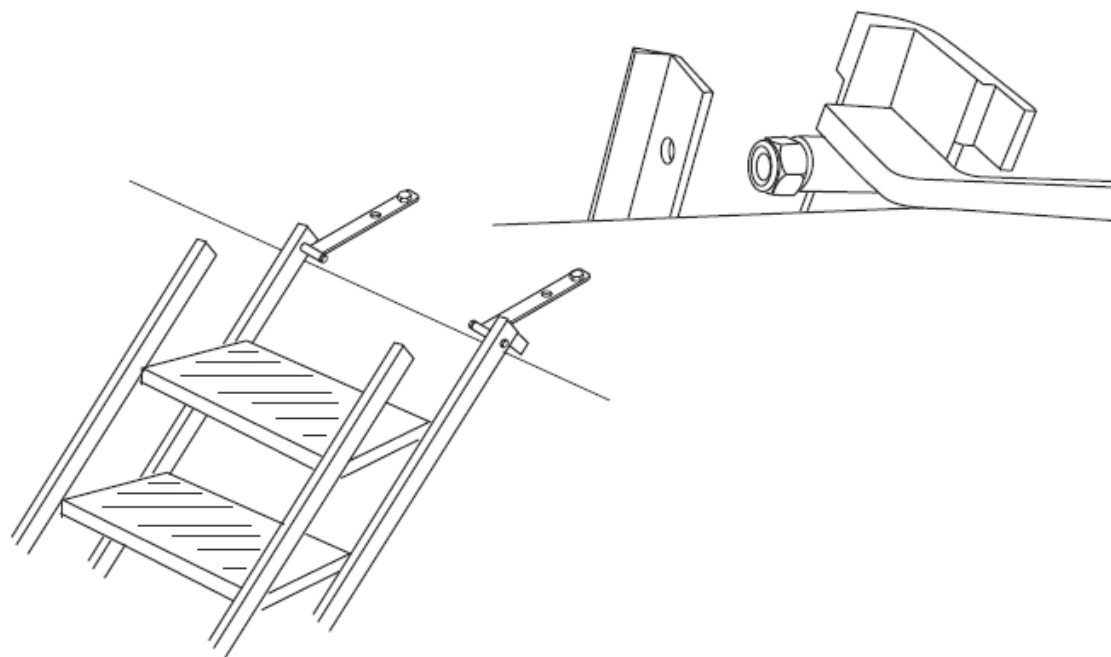
Mounting slab attachments

Two slab attachments shall be used to anchor the stairway.

Mount the slab attachments in the holes at the upper end of both jointing irons. The slab attachments can be placed on the inside or outside of either side rail. Anchor the stairway by bolting the slab attachments to the supporting surface or similar.

--- NOTE! ---

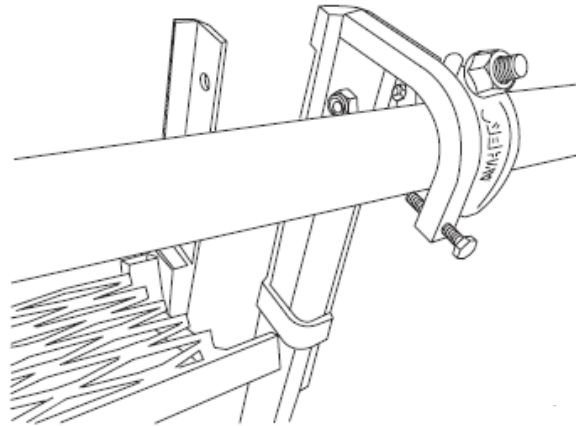
The slab attachments are to be mounted with the curve turned upwards



Pic 25. Mounting slab attachments

Mounting Slab attachments

Mount the scaffold attachments on both stairway sleeve joints. Make sure the locking bolt is unscrewed to permit hooking over a scaffold pole. Lift the stairway and lean it on the scaffold tube on which it is to be fixed. Let the stairway slide down so that the hooks grip the scaffold pole. Lower the bottom end of the stairway to the ground and adjust the stairway to level as before. Tighten the locking bolts on the scaffold attachments so that they prevent the hook lifting off. To prevent the stairway

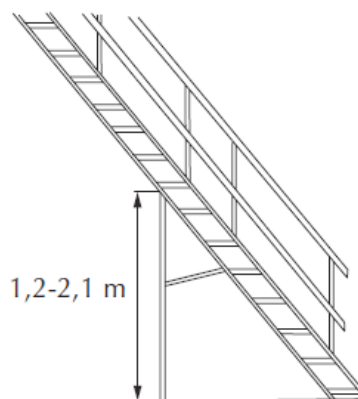


Pic 26. Mounting the scaffold attachments

Mounting universal support

If a support is used, it must always be anchored at two points. With a loose surface, use a sole plate.

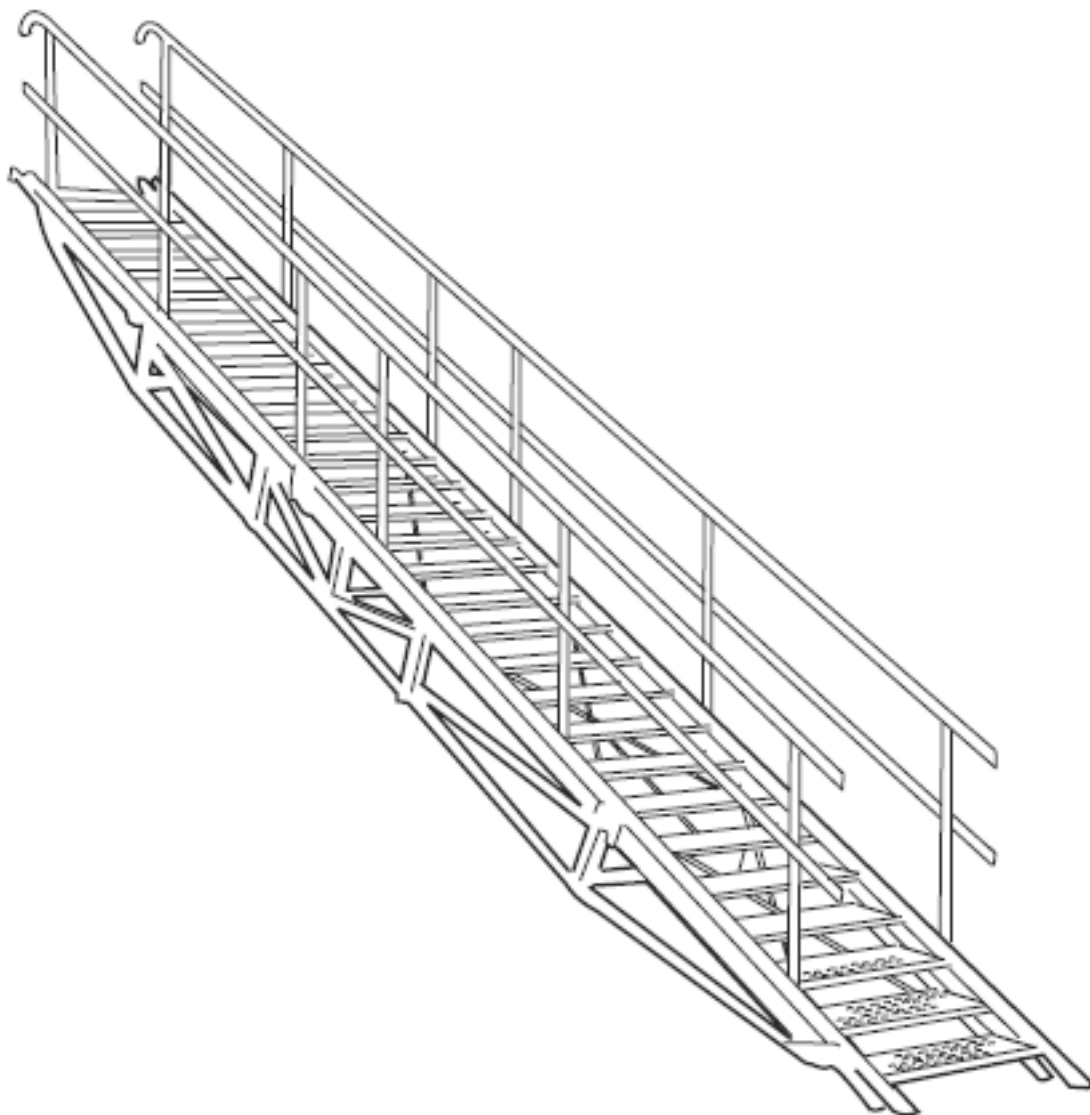
1. Make sure the support hooks point forwards/upwards with respect to the stairway, hang the support on it's hooks from a suitable foot step as close to the middle of the stairway as possible. But no more than 2.1 m above the ground, which is the max support height. Check that the hooks fasten on both sides of the foot step.
2. Release the stays by pulling the lower ends inwards towards the handles and rotate so that the welded stop clears the support leg. Extend the stays and hook onto a suitable foot step, so that the support leg is as close to vertical as possible.
3. Turn the handles to release and lower the support legs.



Pic 27. Universal support

4. Adjust the length of the support leg to bear on the ground/sole plate . The top of the leg must be above the top of the the locking device sleeve . Tighten the handle firmly so that the support leg is secured in the friction surface in the locking device. Each support leg has a hole to permit anchoring of the support leg to the supporting surface.

Combibeam

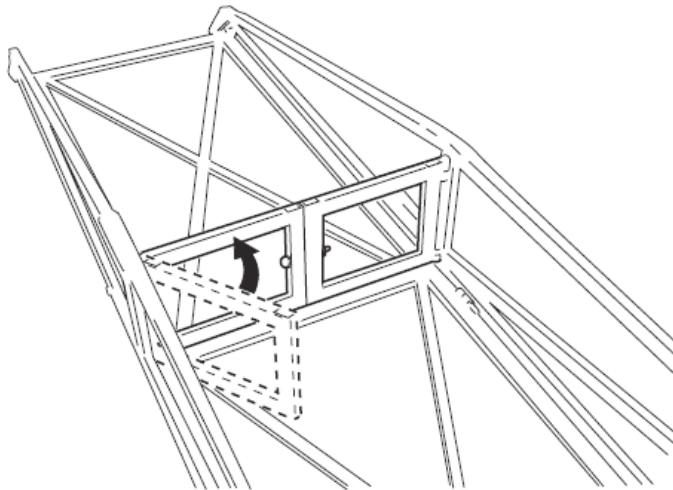


Pic 28. Combibeam in combination with long (coupled) stairways

Mounting the beam

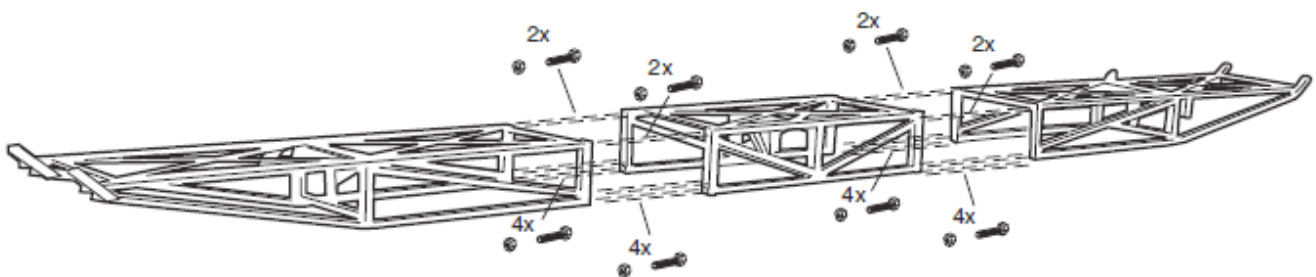
For selection of beam sections and number of steps, refer to fig. 5, and “Table for supports and beams” on page 9.

1. Select a surface that is as level as possible.
2. Lay the collapsed beam sections with the cross braces downwards.
3. Fold out the beam section side beams and lock them with the hinged frames.



Pic 28. Beam sections with the cross braces downwards

4. Lay out the sections after one another and turn them over so that the cross braces form the top surface (an outer section Y12 and an additional one or two intermediate sections M6 followed by an outer section).
5. Take the supplied bolts.
6. Bolt the sections to each other. Four bolts at the bottom and at least two bolts at the top on each side. Tighten all bolts equally.

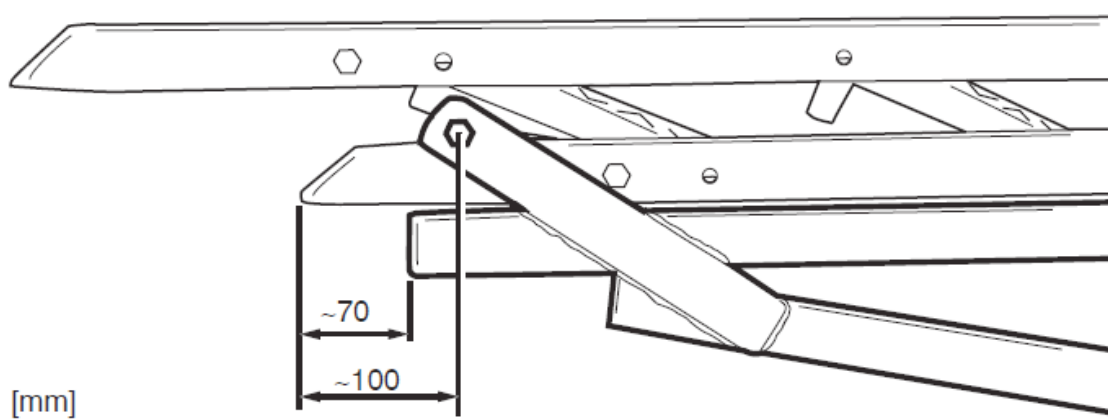


Pic 29. Beam Y12+M6+Y12, assembly

Assembling stairways on beam**-- NOTE! ---**

When joining stairways, it is only possible to have an extended top step on the upper stairway. Other top steps (HP10518) must be replaced with normal steps (HP 10511).

1. Position the collapsed stairway that is to be the lowest on the beam, so that the pointed ends stick out 100 mm from the hole in the beam's fixing plate and approx 70 mm from the end of the beam. Remove the anchor plate bolts, the anchor plate will then lie against the underside of the welded jointing nut on the stairway side rail.



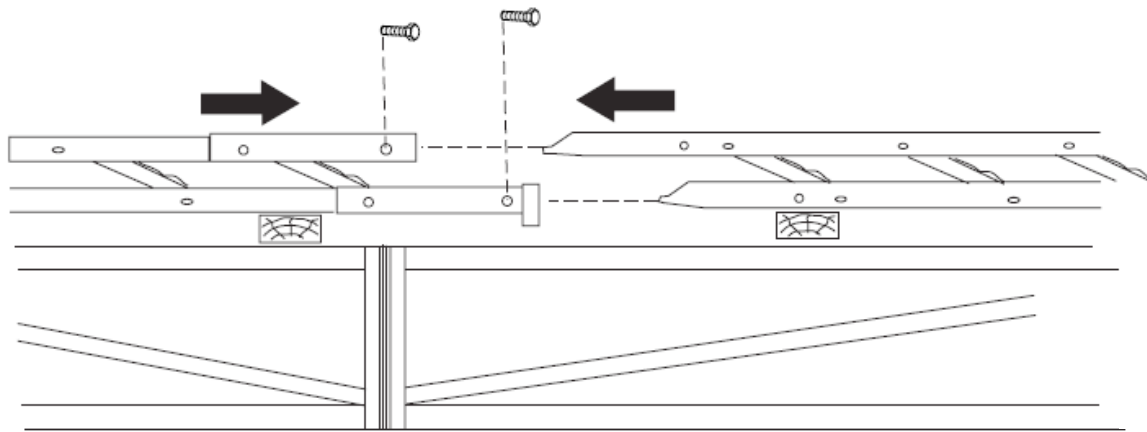
Pic 30. Detail of lower end of beam with stairway assembled

2. Mount the handrails to both sides.
3. Partially open the stairway using the handrails, not more than 20–30 mm distance between side rails.
4. Support the stairway off the surface of the beam on approx 50 mm thick timber packers.
5. Place the next stairway that is to be joined on approx 50 mm thick timber packers and remove the bolts.

Alternatively, the stairways can be joined before they are placed on the beam. If this method is used, there must be equipment available to safely lift the joined stairways.

6. Push the stairways together, they must be opened the same extent, use the handrails if necessary. One person should stand beside the joint and check that all four points on the upper stairway slide into the lower stairways side rails.

7. Screw in the bolts when the holes align. Use a podger, diameter 12–13 mm, to align bolt holes.



Pic 31. Coupling stairways on a beam

8. Remove the timber packers and tighten up the anchor plate bolts

9. Used the removed bolts and clamp the upper stairway with these bolts.

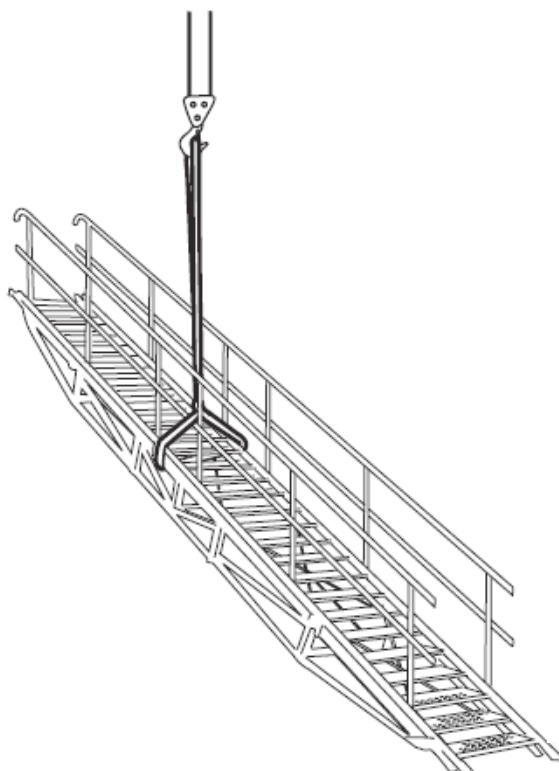
10. Turn or tap up the middle moveable anchor plates and clamp the stairways using them. If more stairways are to be mounted on the same beam, follow points 5–11.

Assembling the handrail

The handrails should already be mounted in conjunction with mounting the stairways. Coupling of these is done by first removing the jointing bolts and then pressing the upper handrail's lower end over the curved top of the lower handrail. Then bolt the handrails together with the jointing bolts.

Erection of stairways on a beam

Erection is performed in the same way as described under heading “Erection of stairway”, with the exception of the procedure described in point 1. Instead, connect the crane sling just above the middle of the stairway, around the beam’s upper section inside the handrails.



Pic 32. Connecting the crane sling to the stairway and beam

Moving stairways and moving stairways attached to beam

Moving stairways and moving stairways attached to a beam can under normal conditions be performed with a crane or similar. With regard to coupling a lifting sling, refer to heading Erection of stairways and Erection of stairways on a beam.

Lowering stairways and lowering stairways attached to beam

Lowering is performed as erection in reverse, with the following additions.

- After lowering, the stairway should be collapsed completely, mainly to take less space when transporting and storing.

-- NOTE! ---**Release locking device before collapsing stairs**

- During storage, the stairway should be collapsed and the handrail removed.
- During storage, the stairway should not lie directly on the ground as this can cause rusting.
- To save space, the beam sections can be collapsed before storage or transport.

Maintenance

To ensure the stairway's function and safety in the future, always handle it with care. If a stairway is damaged, it must be repaired before being used again.

Safety checks

Safety checks are to be made before use and after dismantling and before parts are replaced in the store. Safety checks are to be carried out by a competent person. HSS recommends that only personnel trained by us carry out the safety checks.

Check that:

- no parts are cut or joined
- no parts are buckled or heavily bent/damaged
- no new drill holes have been made
- no corrosion has occurred that can affect strength
- no visible cracks have occurred in welds or the material
- the parts fit together.

Reconditioning

Repairs can be performed on some parts that have been rejected by the safety check, according to the conditions below. Reconditioning must be carried out by a competent person. HSS recommends that only personnel trained by us carry out such work.

- Recondition according to the following guidelines.
- Clean all the parts.
- Only cold working is permitted.
- Parts that after straightening show any indication of fracture must not be used, they must be scrapped.
- Replace parts that cannot be reconditioned and parts that have been lost during handling.

Reconditioning latches

A bent latch rod will have been caused by incorrect handling. When replacing the lock, remove both latch pawl fixing bolts and fit a new lock mechanism. Do not tighten the bolts completely, the latch must be able to rotate in order to function.

Reconditioning steps

When replacing steps, cut off the studs from the step and bolt a new step in place. Always use original parts for repair. Do not tighten bolts too tight, the stairway must be able to collapse when dismantling.

Scrapping

Those parts identified during the safety checks and which have not been possible to recondition should be discarded and destroyed so that they cannot be used. Once the stairway has reached the end of its life due to damage, rusting or wear, it can be handled as galvanized steel scrap.

Storage

Store HSS products protected from external influences in a dry and ventilated area protected from the effects of the weather and from corrosive substances.

The market's oldest and most well-known site stairway - The Horisont Stairway - was constructed by mr. Lennart Bäckström in the early 1960s in Edsbyn, Sweden

Originally, the stairs were made in a length of 12 steps which was adapted for use between two floors. Primarily it was within its own construction activities that the stairs were meant to be used when it was considered that carpentry wooden stairs were not sufficiently slip resistant, basically not safe enough.

Over time, the construction market began to demand the stairs and a larger production and sales started. The design was subsequently patented and additional stair lengths were also added as a jointing function for stairs between themselves.

Since the patented staircase saw the light of the market, around 60,000 copies have been sold throughout Europe, including 2016.

The site stairs have been the cornerstone of the business until the early 2000s when the company was acquired in current form.

The product range has gradually expanded focus on safety in the construction industry.



This picture shows the first ever stairway made longer than 12 steps. This 15 steps was used in the site stairways hometown Edsbyn - Sweden 1976 when the community was bulding a sports and swimming center.



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