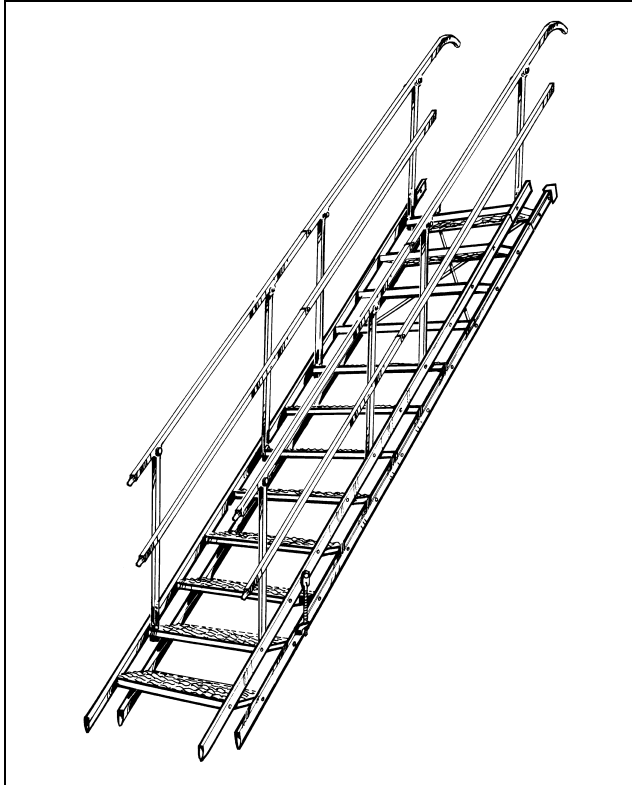


COMBISAFE[®]

Builders Stairways



INSTRUCTIONS

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Reservation for technical changes

General

The Combisafe stairway, also called the builders stairway, 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 or painted steel.



1664_001

Figure 1. Stairway

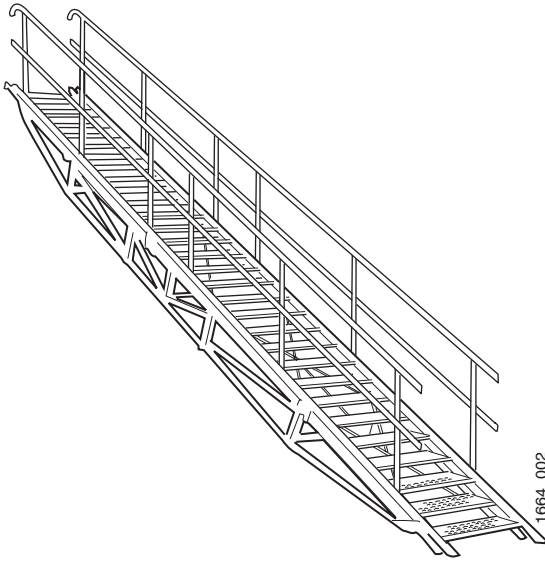


Figure 2. Stairway equipped with stiffening beam

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 COMBISAFE products are not recommended. Combisafe product liability applies only -to combinations of correctly assembled COMBISAFE 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).

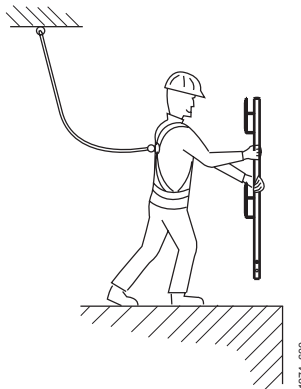


Figure 3. Personal fall protection equipment

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 Combisafe 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.
- Many fall accidents occur from a low height.

Technical data

Loading

The stairway can withstand a uniformly distributed load (UDL) of 1.0 kN/m^2 . Max load per step is 1.5 kN and max two persons may use the stairway at the same time

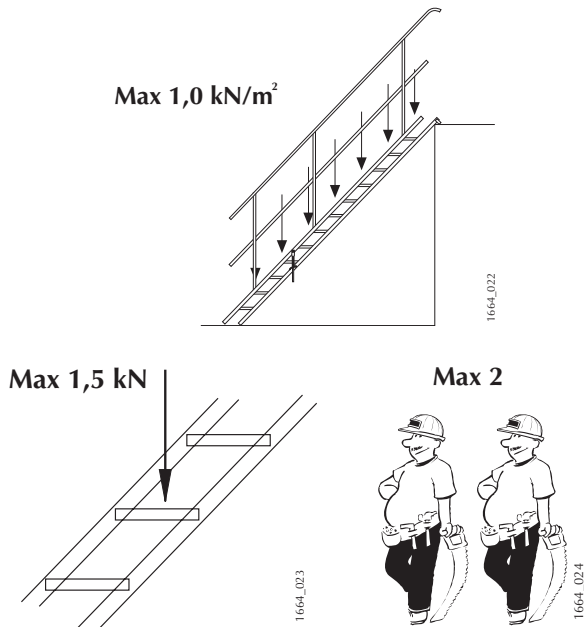


Figure 4. Loading

Inclination diagram

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

Combisafe recommended use

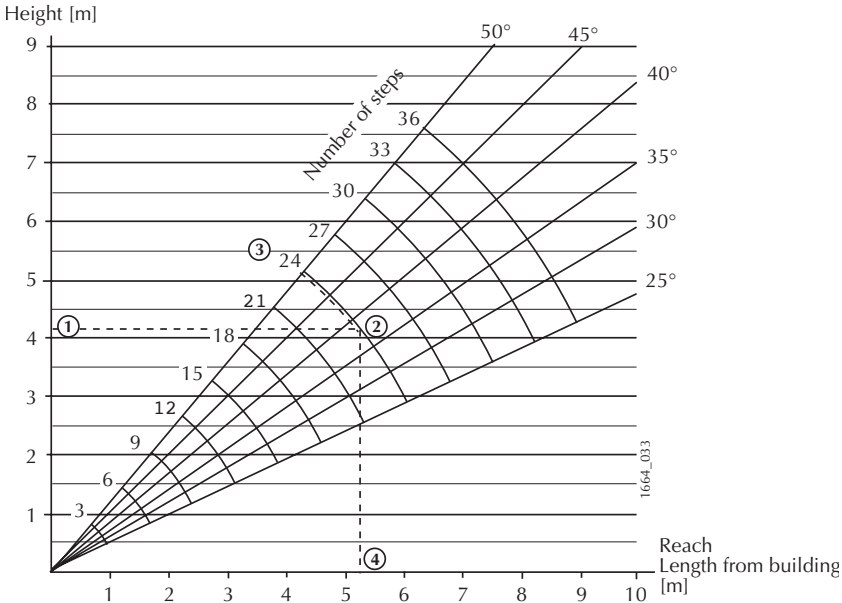


Figure 5. Inclination diagram

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).

NB!

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	Support 	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

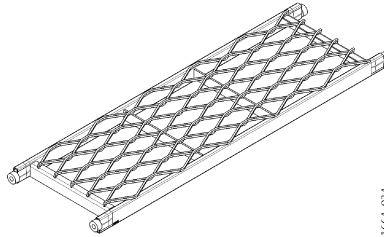
Part no.	Product	Stairway length [m]	Weight [kg]
CT1004	Stairway 3 step	1,03	17
CT1003	Stairway 6 step	1,84	31
CT1002	Stairway 9 step	2,65	47
CT1001	Stairway 12 step	3,46	57
CT1000	Stairway 15 step	4,27	82
CT1018	Stairway 18 step	5,08	104

Step

Self-adjusting, of expanded metal, 3–18 pcs.

Replacement step

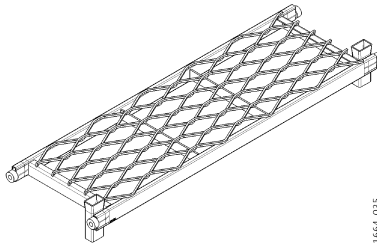
CT10505 Replacement step with fixing nuts



1664_034

Figure 6. Replacement step with fixing nuts

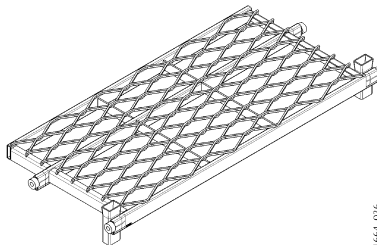
CT10511 Replacement step with fixing nuts and post sockets



1664_035

Figure 7. Replacement with fixing nuts and post sockets

CT10518 Replacement top step with post socket



1664_036

Figure 8. Replacement top step with post sockets

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.

Latch Lock**CT1012 Semi-automatic lock**

Comprises latch rod, latch pawl and spring.

CT1013 Manual lock

As an additional accessory, for attachment to the left side of the stairway.

Handrail

Part no.	Product	Weight [kg]
CT1009	Handrail for 3 step	5
CT1008	Handrail for 6 step	8
CT1007	Handrail for 9 step	10
CT1006	Handrail for 12 step	14
CT1005	Handrail for 15 step	16
CT1019	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.

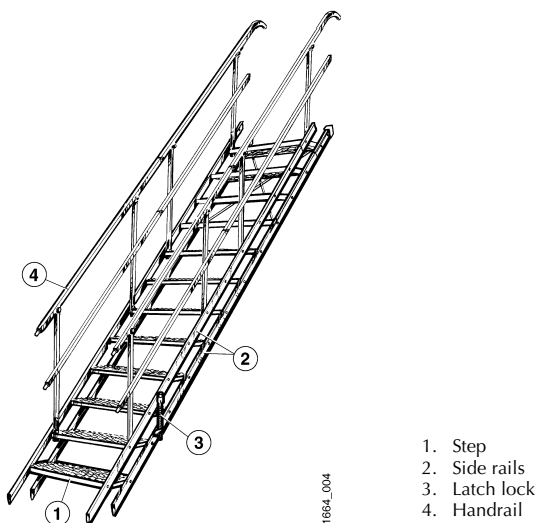


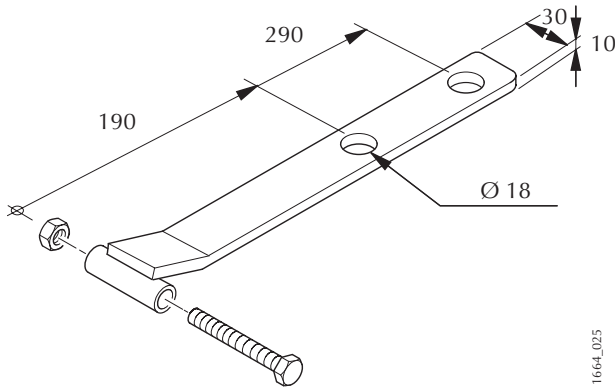
Figure 9. Stairway complete

Additional accessories

CT1017 Slab attachment

Weight 0.8 kg

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



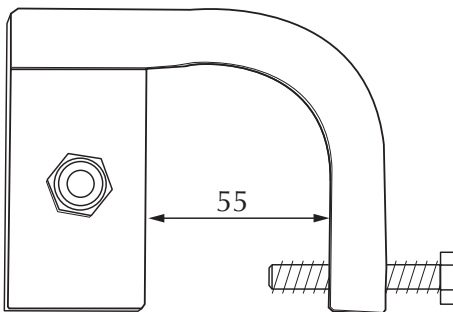
1664_025

Figure 10. Slab attachment

CT1021 Scaffold hook

Weight 0.6 kg

The scaffold hook is fitted to the top joint and used to secure the top of the stairway to a horizontal scaffold tube.



1664_027

Figure 11. Scaffold hook

CT1023 Universal support

Weight: 18 kg

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

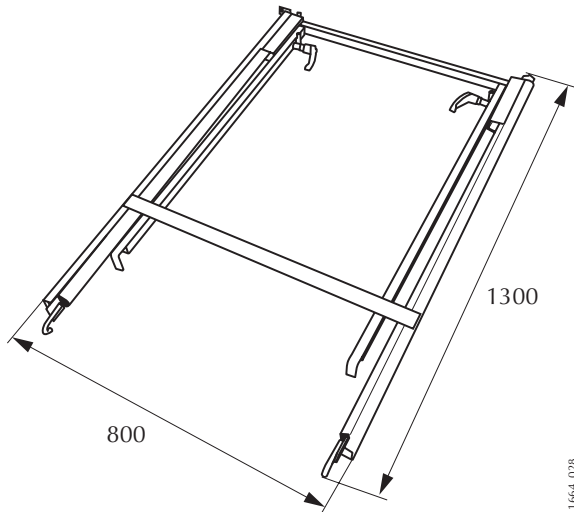


Figure 12. Universal support

Combibeam: CT1015 Combibeam Y12, CT1016 Intermediate part M6

Weight: CT1015 60 kg, CT1016 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, etc.

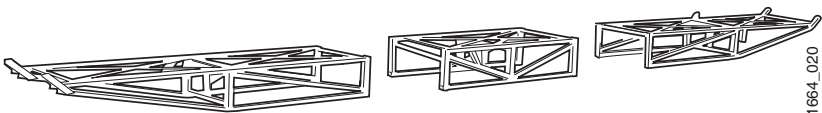


Figure 13. Combibeam Y12+Intermediate part M6+Combibeam Y12

Design and function

All steps are flexibly attached to the four load-carrying side rails. To prevent the stairway from tipping forward when one goes up or down the steps, -there is a spring-loaded latch that automatically locks the stairway. The latch rod, which is attached to the upper side rail, locks into the pawl that is attached to the lower side rail and thereby locks the stairway so that it cannot collapse. The stairway can be expanded without the latch locking it.

NB!

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

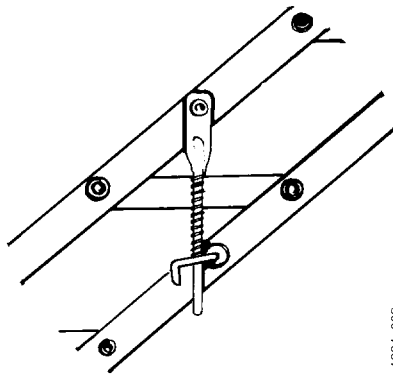
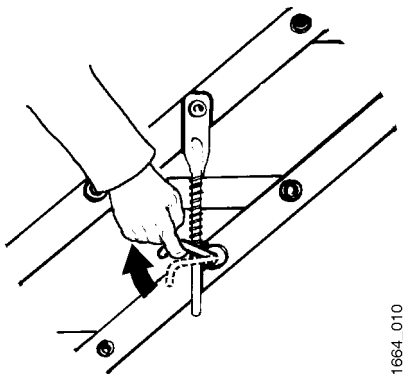


Figure 14. Locking device

Important!

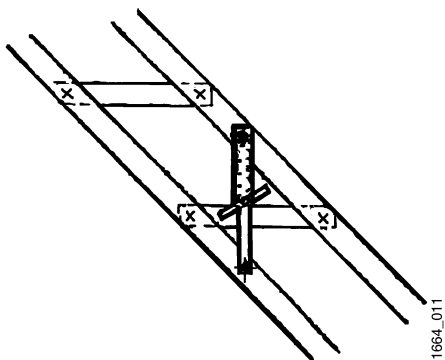
When collapsing the stairway, or if reducing the inclination, the latch pawl must be lifted slightly or tapped up with a light hammer blow. When collapsing the stairway, the pawl must be held up during the entire operation.



1664_010

Figure 15. Lifting lock pawl

With long-term or permanent stairway installation, or if the base surface is loose or uneven, a double-action manual lock should be used. This lock works in both directions and is fitted to the pre-drilled holes on the opposite side to the semi-automatic lock.



1664_011

Figure 16. Manual, double-action lock

Assembly

Delivery

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

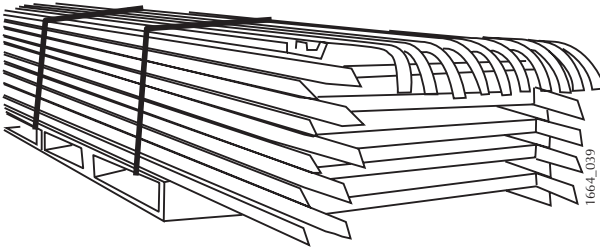


Figure 17. Stairway

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.

— NB! —

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

— NB! —

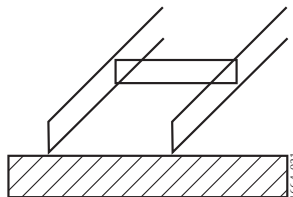
Max one joint per self-supporting stairway combination. If you need to have more joints, you must use the Combibeam.

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.

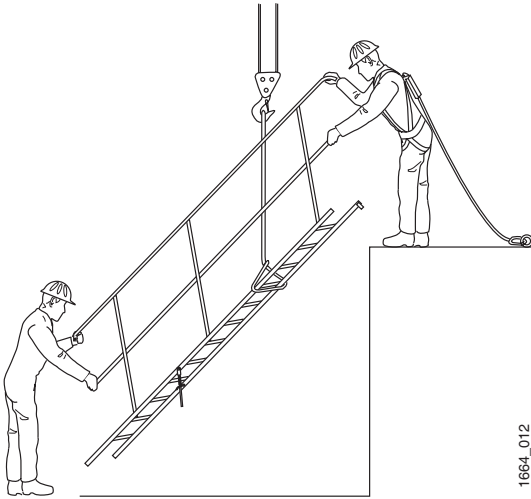
— NB! —

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.

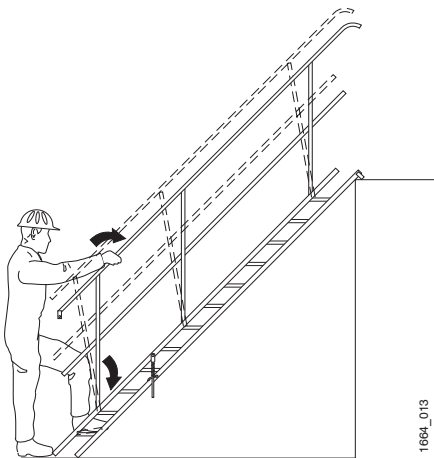
2. Lift the collapsed stairway to the level it is to serve.



1664_012

Figure 18. 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.



1664_013

Figure 19. Extending the stairway by using the handrail

— NB! —

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.

— NB! —

The slab attachments are to be mounted with the curve turned upwards from the supporting surface.

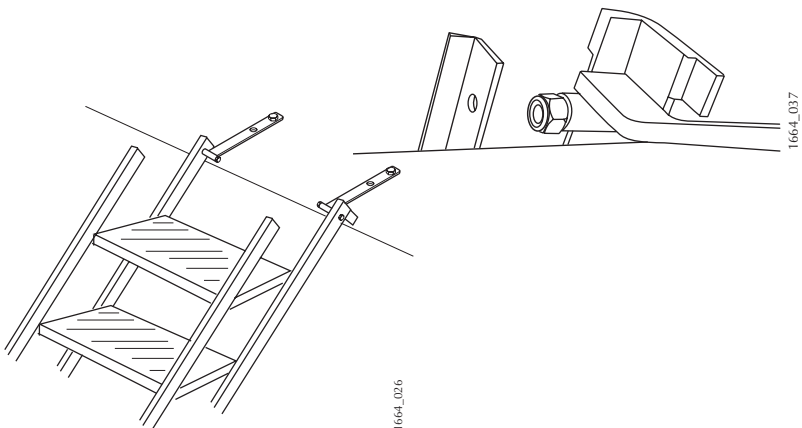


Figure 20. Mounting slab attachments

Mounting scaffold hooks

Mount the scaffold hooks 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 hooks so that they prevent the hook lifting off. To prevent the stairway sliding sideways along the scaffold pole, mount a check fitting (scaffold coupler) on the outside of each scaffold hook.

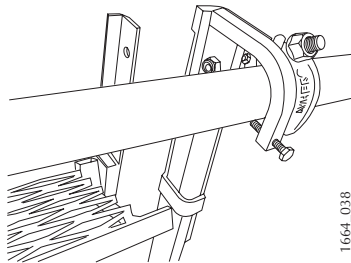


Figure 21. Mounting scaffold hooks

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.

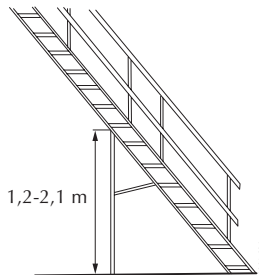


Figure 22. Universal support

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.

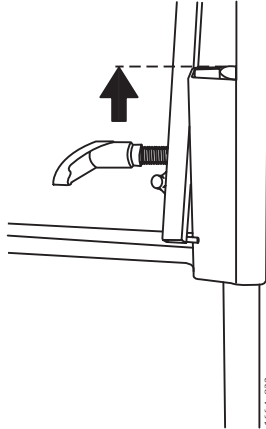


Figure 23. Maximum extension of support leg.

Combibeam

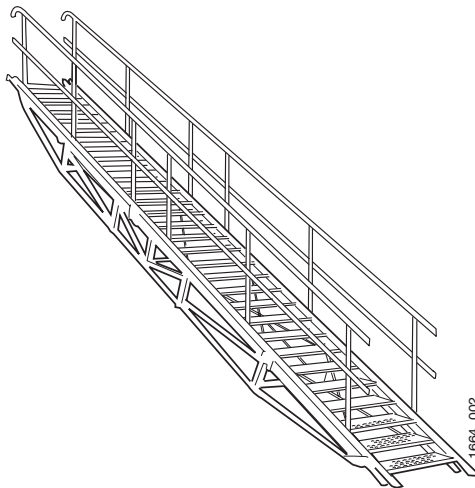


Figure 24. Combibeam in combination with long (coupled) stairways

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.

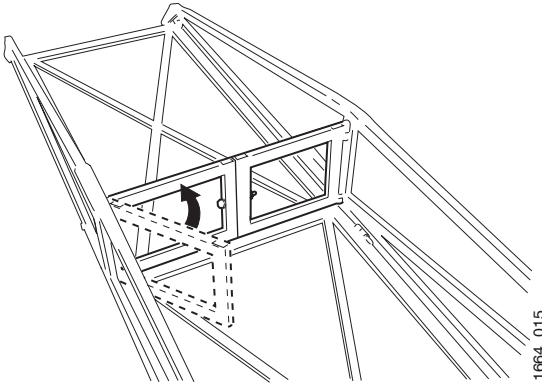


Figure 25. Beam sections with the cross braces downwards

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.

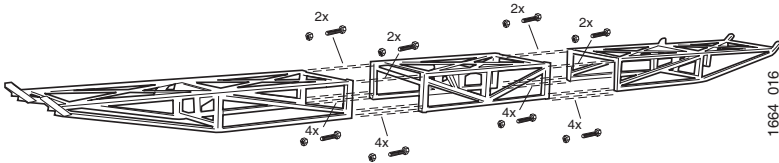


Figure 26. Beam Y12+M6+Y12, assembly

Assembling stairways on beam

— NB! —

When joining stairways, it is only possible to have an extended top step on the upper stairway. Other top steps (CT10518) must be replaced with normal steps (CT 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.

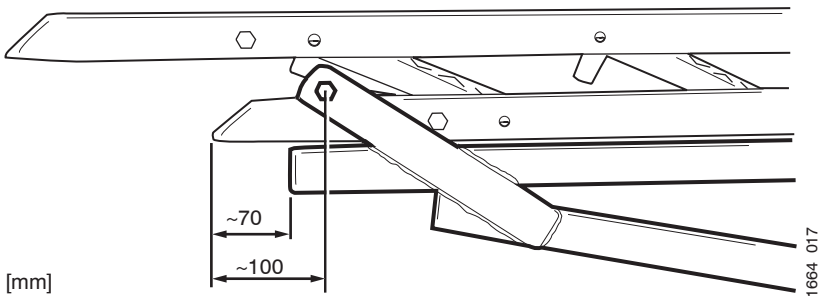


Figure 27. Detail of lower end of beam with stairway assembled

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.

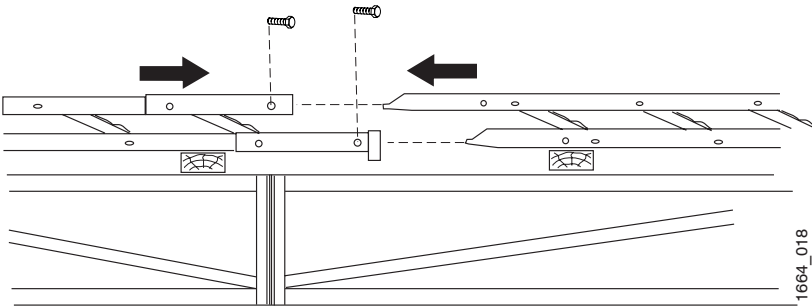


Figure 28. Coupling stairways on a beam

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.

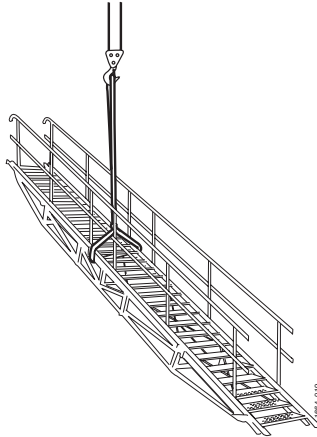


Figure 29. Connecting the crane sling to the stairway and beam

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.

NB!

Lift the latch pawl when collapsing the stairway.

- 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 placed in the store.

Safety checks are to be carried out by a competent person. Combisafe 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. Combisafe 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 mechanisms. 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 COMBISAFE products protected from external influences in a dry and ventilated area protected from the effects of the weather and from corrosive substances.

COMBISAFE®

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