

Swings, platforms and hammocks are very popular in schools, nurseries and day care centres as well as in therapy practices and facilities for disabled people. People in swings relax and enjoy the sense of weightlessness, whilst they gently swing backwards and forwards.

Once you have found the right swing for your needs the correct suspension has to be considered. This must always be chosen dependent on the existing ceiling. There are different requirements for each type of ceiling and different installations are necessary. As all attachments are safety-relevant, some important aspects have to be considered.

We have compiled this companion for you to provide you with an overview and to make selecting the right suspension system easier. Here you can find everything you need to know about different ceiling types (in blue) and the suitable suspensions (in grey):

1. Sound concrete ceiling	page 2
1.1 1-point suspension.....	page 2
1.2 2-point suspension	page 3
1.3 4-point suspension	page 3
1.4 Ceiling cross: the flexible multi-point suspension system.....	page 4
1.5 Ceiling rails.....	page 4
2. Concrete ceiling with suspended ceiling	page 5
2.1 Ceiling cross for concrete ceilings with suspended ceiling	page 5
2.2 Ceiling rails.....	page 5
3. Ceiling with beam construction	page 6
3.1 1-point suspension.....	page 6
3.2 2-point suspension	page 6
3.3 4-point suspension	page 7
3.4 Ceiling rails.....	page 7
4. Ceilings in old buildings and unsound ceilings	page 8
4.1 Installation of a laminated beam between the walls	page 8
4.2 Self-supported frames/swing centre.....	page 8

Please read this companion carefully before you choose a suspension; mistakes during assembly can have life-threatening consequences.

Important safety advice

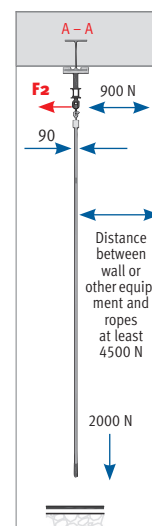
- Make absolutely sure to choose the right attachment for your purposes and have the attachment installed by an expert company.
- In addition, get a local structural engineer to check the ceiling's load-bearing capacity.
- The entire suspension must be regularly checked for wear. When individual parts of the suspension are damaged or show abrasion of at least 20% because of wear, they must be replaced immediately.

Load bearing / notes for the structural engineer

For the suspension of rope ladders, swings, ropes etc. for each suspension a vertical load of 2,000 N and a horizontal load of 900 N must be taken into account (without the dynamic coefficient). To be consulted when planning: DIN 18032 part 6, pages 6/7 in combination with DIN 1055, part 3. You can find further functional and safety requirements as well as testing procedures for the suspension of swing rings in DIN EN 12655.

Safety distances

- There must be a distance of 70 cm to the next obstacle on either side.
- The safety distance in front and behind can be calculated using the following formula:
 $\text{Length of the swing ropes} \times 0.867 + 1.75 \text{ m}$ (e.g. length approx. 3.00 m \times 0.867 + 1.75 m = 4.35 safety distance must be ensured in front and behind)



1. Sound concrete ceiling

A sound concrete ceiling is ideal for the mounting of a variety of different ceiling attachments. Important: A professional ceiling suspension must not be fitted using a simple ceiling hook. The swing's vibrations are transferred to the hook and into the concrete ceiling. This leads to parts of the concrete ceiling around the hook crumbling and after a while the hook will come loose completely. When swings are rotated, the hook can unscrew itself from the wall plug. In addition, the swing can detach from the hook if it is an open hook.

The following systems are suitable types of suspension:

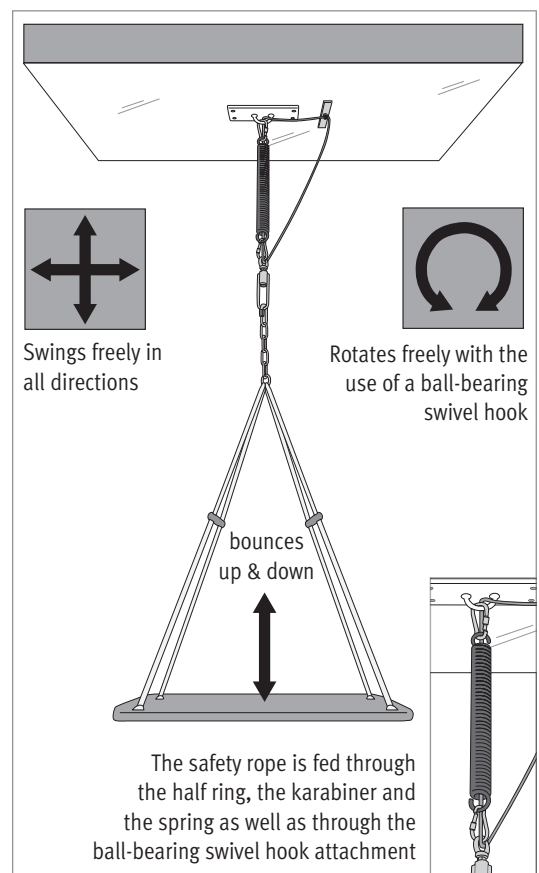
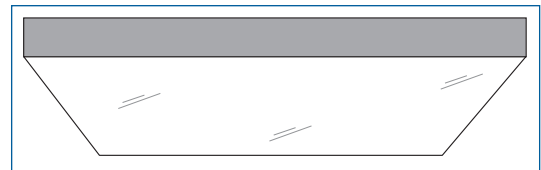
1.1 1-point suspension

The swing or platform is attached to one point. The 1-point suspension creates radial movement in all directions (backwards and forwards, sideways, diagonal and so on). The platform/swing tilts during the movement. Rotations are also possible as long as there is a ball-bearing swivel hook between swing and ceiling attachment. By using a spring, additional vertical movements are possible. The ceiling mount should be mounted centrally above the desired position of the swing/platform. Should the swing require to be taken down regularly, suspension chains that remain attached to the ceiling hook are recommended for ceiling heights above 240 cm. The complete swing is then simply attached to the bottom end of the suspension chain using a snap hook and can easily be reached from the floor.

Fall protection: In order to ensure that parts of the suspension and/or the entire swing system cannot accidentally fall if attachment parts are damaged, they must be secured with the safety device for ceiling fixings (product code: 12 174 8039). The loop rope with chain quick release fastener is attached to a separate hook alongside the main ceiling mount and fed through all parts of the attachment. If a ball-bearing swivel hook is mounted, feed the safety device rope immediately above the swivel mechanism through all attachment parts mounted above.

Required assembly parts:

- 1 x ceiling mount with half ring (product code 12 177 3806)
- 1 x belt loop (product code 12 168 0805)
- 1 x safety device for ceiling fixings (product code 12 174 8039)
- 1 x spring (product code 12 174 2305 et seq.) (optional, choose according to maximum user weight)
- 1 x ball bearing swivel hook (product code 12 174 7108) (optional)
- 1 x safety snap hook (product code 12 174 7313) (optional)
- For ceiling heights 2.80-3.40 m: 1 x suspension chain, l: 1 m (product code 12 207 1015) (optional)
- For ceiling heights above 3.40 m: 1 x suspension chain, l: 2 m (Product code 12 207 1002) (optional)



1.2 2-point suspension

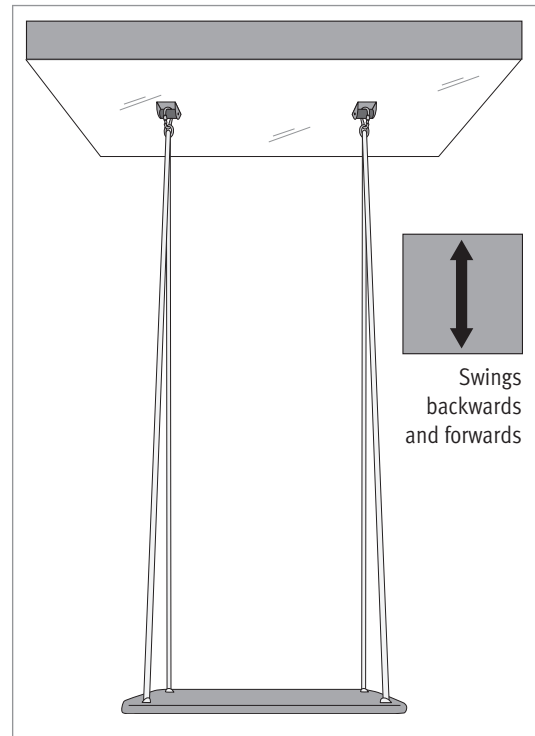
To suspend the swing in the classic style you require two attachment points mounted next to each other. The distance between the attachment points depends on the distance at which the ropes are fixed to the swing/platform. The 'Marathon' swing suspension is ideal for a 2-point suspension from a concrete ceiling. The ball-bearing roller joint with built in safety mechanism ensures friction-free and safe swinging. This allows the swing/platform to swing gently and quietly for prolonged periods of time. Should the swing require to be taken down regularly, suspension chains that remain attached to the ceiling hook are recommended for ceiling heights above 240 cm. The complete swing is then simply attached to the bottom end of the suspension chains using snap hooks and can easily be reached from the floor.

Required assembly parts

1 pair 'Marathon' swing suspension (product code 12 196 1502)

For ceiling heights 2.40-3.40 m: 2 x: suspension chain, l: 1 m
(product code 12 207 1015) (optional)

For ceiling heights above 3.40 m: 2 x: suspension chain, l: 2 m
(product code 12 207 1002) (optional)



1.3 4-point suspension

With the 4-point suspension the swing/platform always swings parallel to the floor and never tilts. This makes swinging particularly comfortable. This type of suspension is often used in wellness and therapy as well as in inclusive facilities. 4-point suspension is possible when the swing/platform has 4 suspension ropes. Accordingly, you need 4 suspension points positioned in relation to the swing ropes. Should the swing require to be taken down regularly, suspension chains that remain in the ceiling hook are recommended for ceiling heights above 240 cm. The complete swing is then simply attached to the bottom end of the suspension chains using snap hooks and can easily be reached from the floor.

Required assembly parts

4 x ceiling mount with half ring (product code: 12 177 3806)

4 x belt loop (product code: 12 168 0805)

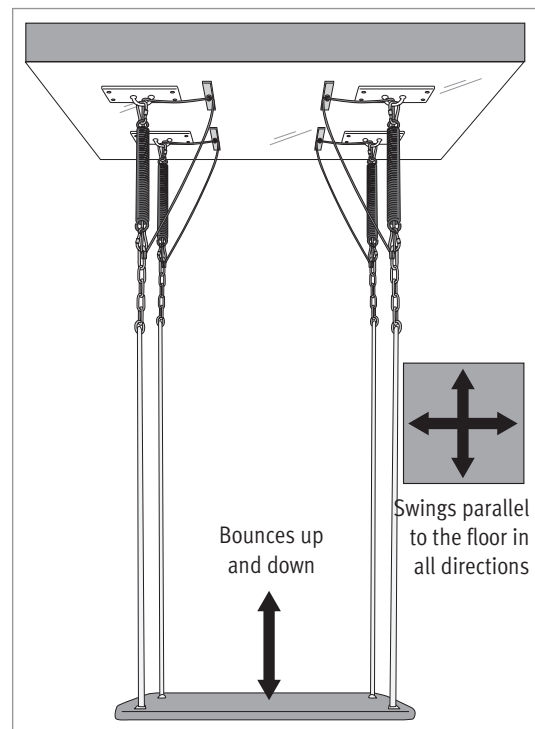
4 x safety device for ceiling fixings (product code: 12 174 8039)

4 x spring (product code: 12 174 2305 et seq.) (optional, choose according to maximum user weight)

4 x safety snap hook (product code: 12 174 7313) (optional)

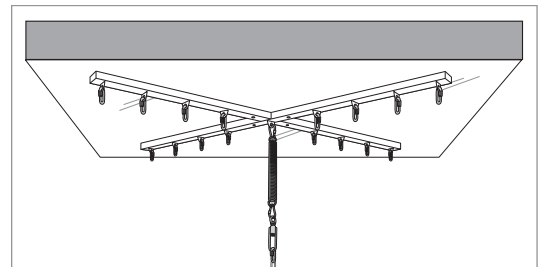
For ceiling heights 2.80-3.40 m: 4 x suspension chain, l: 1 m
(product code: 12 207 1015) (optional)

For ceiling heights above 3.40 m: 4 x suspension chain, l: 2 m
(product code: 12 207 1002) (optional)



1.4 Ceiling cross: the flexible multi-point suspension system

The ceiling cross for concrete ceilings is the ideal and universal solution for all uses if are various swings/platforms or various attachments (1-point, 2-point or 4-point suspension) are planned. A total of 17 eyelets ensures that you can suspend any swing in any possible variation. The ceiling cross is mounted diagonally across the room's ceiling. The ceiling cross is one of the few suspension systems available in different versions for suspended ceilings. Should the swing require to be taken down regularly, suspension chains that remain attached to the various positions on the ceiling cross are recommended for ceiling heights above 240 cm. The complete swing is then simply attached to the bottom end of the suspension chain(s) using a snap hook and can easily be reached from the floor



Required assembly parts:

1 x ceiling cross (product code 12 207 4809)

4 x safety device for ceiling fixings (product code 12 174 8026)

1 x ball bearing swivel hook (product code 12 174 7108) (optional)

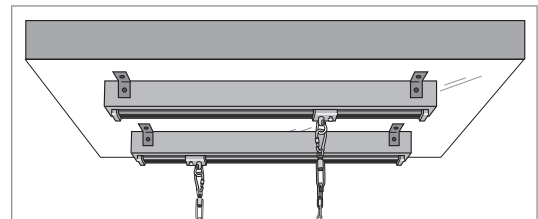
1 x safety snap hook (product code 12 174 7313) (optional)

For ceiling heights 2.40-3.40 m: up to 5 x suspension chain, l: 1 m (product code 12 207 1015) (optional)

For ceiling heights above 3.40 m: up to 5 x suspension chain, l: 2 m (product code 12 207 1002) (optional)

1.5 Ceiling rails

Ceiling rails allow you to vary the suspension points and to easily change the distance between them. The multi-functional ceiling rail suspension system gives you increased flexibility and, using the slider, you can achieve any desired hook position on ceiling or wall. A separate ball-bearing swivel hook is not required as a pendulum swivel hook integrated into the slider fulfils this function. This system is particularly recommended when you work with various swings. Mounting to an 8 x 10 cm laminated beam that is fixed with angle plates directly to the ceiling is ideal. If you are planning to use a 4-point suspension you require two parallel ceiling rails.



The distance is the same as the distance between the suspension rope attachment points on the swing/platform.

Required assembly parts:

1 x ceiling rail set (recommended for two parallel 3 m rails) (product code 12 174 8505)

2 x pair beam wall holder (product code 12 174 5001)

2 x laminated beam (to be provided on-site, available from local carpenters)

1 x telescopic rod for adjusting the slider from the ground (product code 12 174 8882) (optional)

Alternatively, you can design your own set depending on the individual demands on the swing system and adjusted to the size of the room:

suspension rail, l: 1 m (product code 12 174 8811)

suspension rail, l: 2 m (product code 12 174 8824)

suspension rail, l: 3 m (product code 12 174 8837)

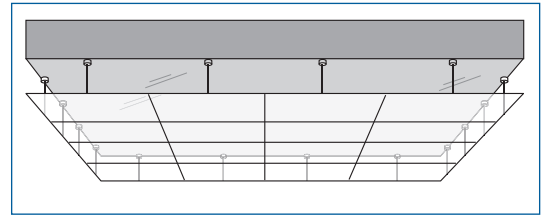
suspension rail, l: 4 m (product code 12 174 8840)

Slider with integrated pendulum hook (product code 12 174 8853)

End piece (product code 12 174 8879)

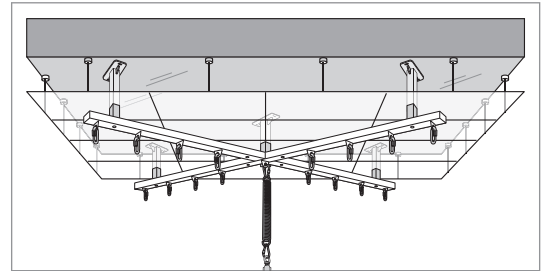
2. Concrete ceiling with suspended ceiling

Suspended ceilings underneath a concrete ceiling are the most common type of ceiling in new builds these days as cables can be run between the concrete and suspended ceiling and lights be mounted easily. Of course suspensions cannot be mounted to a suspended ceiling.



2.1 Ceiling cross for concrete ceilings with suspended ceiling

The suspended ceiling is opened at the points where ceiling suspensions are planned. The ceiling cross (product codes 12 207 4812, 12 207 4825, 12 207 4838 - depending on suspension height) can be mounted at these points. It is one of the few suspension systems specifically designed for mounting to concrete ceilings with suspended ceiling. Should the swing require to be taken down regularly, suspension chains that remain attached to the various positions on the ceiling cross are recommended for ceiling heights above 240 cm. The complete swing is then simply attached to the bottom end of the suspension chain(s) using snap hook(s) and can easily be reached from the floor.

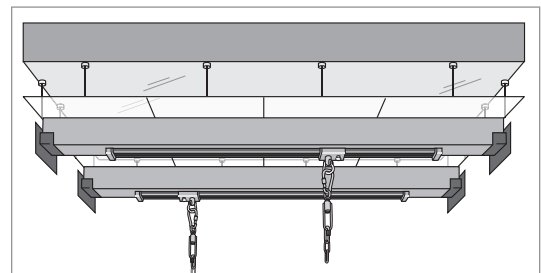


Required assembly parts:

- 1 x ceiling cross (product code 12 207 4812) for suspended ceilings up to 20 cm
- 1 x ceiling cross (product code 12 207 4825) for suspended ceilings up to 40 cm
- 1 x ceiling cross (product code 12 207 4838) for suspended ceilings up to 60 cm
- 4 x safety device (product code 12 174 8026)
- 5 x belt loop (product code 12 168 0805) (optional)
- 1 x ball bearing swivel hook (product code 12 174 7108) (optional)
- 1 x safety snap hook (product code 12 174 7313) (optional)
- For ceiling heights 2.40-3.40 m: up to 5 x suspension chain, l: 1 m (product code 12 207 1015) (optional)
- For ceiling heights above 3.40 m: up to 5 x suspension chain, l: 2 m (product code 12 207 1002) (optional)

2.2 Ceiling rails

Ceiling rails allow you to vary the suspension points and to easily change the distance between them. The multi-functional ceiling rail suspension system gives you increased flexibility and, using the slider, you can achieve any desired hook position on ceiling or wall. A separate ball-bearing swivel hook is not required as a pendulum swivel hook integrated into the slider fulfils this function. This system is particularly recommended when you work with various swings. If you are planning to use a 4-point suspension you require two parallel ceiling rails. The distance is the same as the distance between the suspension rope attachment points on the swing/platform. In the case of suspended ceilings, a laminated beam must be mounted underneath the concrete ceiling between two beam wall holders. Ensure, that the maximum distance between the walls is 6 m. The walls must be solid.



Required assembly parts:

- 1 x ceiling rail set (recommended for two parallel 3 m rails) (product code 12 174 8505)
 - 2 x pair beam wall holder (product code 12 174 5001)
 - 2 x laminated beam (to be provided on-site, available from local carpenters)
 - 1 x telescopic rod for adjusting the slider from the ground (product code 12 174 8882) (optional)
- Alternatively, you can design your own set depending on the individual demands on the swing system and adjusted to the size of the room:
- suspension rail, l: 1 m (product code 12 174 8811)
 - suspension rail, l: 2 m (product code 12 174 8824)
 - suspension rail, l: 3 m (product code 12 174 8837)
 - suspension rail, l: 4 m (product code 12 174 8840)
 - Slider with pendulum hook (product code 12 174 8853)
 - End piece (product code 12 174 8879)

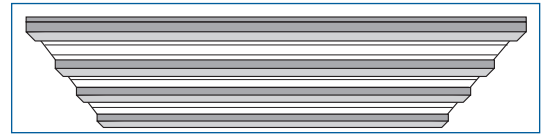
3. Ceiling with beam construction

You may mount various attachments from underneath to non-load-bearing wooden beams. If the wooden beam is load-bearing and has a structural function, no holes can be drilled into the underside.

In this case the suspensions must be attached to the beam using a bracket.

Important: Simple ceiling hooks must not be used for this either. When a swing is

rotated, the hook can unscrew itself from the wall plug. In addition, the swing can detach from the hook if it is an open hook

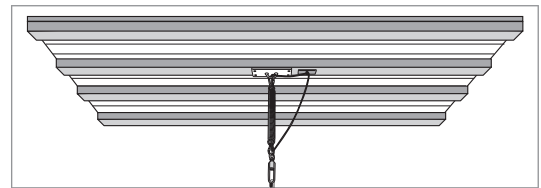


The following systems are suitable types of suspension:

3.1 1-point suspension

The swing or platform is attached to one point. This suspension offers the advantage that the device can move in all directions: backwards and forwards, sideways, diagonally etc. Rotations are also possible as long as there is a ball-bearing swivel hook between swing and ceiling mount: minimum beam width 15 cm. The ceiling mount should be mounted centrally above the desired position of the swing/ platform. Should the swing require to be taken down regularly, suspension chains that remain attached to the ceiling hook are recommended for ceiling heights above 240 cm. The complete swing is then simply attached to the

bottom end of the suspension chain using a snap hook and can easily be reached from the floor.



Fall protection: In order to ensure that suspension parts and/or the entire swing system cannot accidentally fall if attachment parts are damaged, they must be secured with the safety device for ceiling fixings (product code: 12 174 8039). The loop rope with chain quick release fastener is attached next to the actual ceiling mount to a separate hook and fed through all parts of the attachment. If a ball bearing swivel hook is mounted, feed the safety device rope immediately above the swivel mechanism through all attachment parts mounted above.

Required assembly parts:

1 x ceiling mount with half ring (product code 12 177 3806)

1 x belt loop (product code 12 168 0805)

1 x safety device for ceiling fixings (product code 12 174 8039)

1 x ball bearing swivel hook (Product code 12 174 7108)) (optional)

1 x safety snap hook (product code 12 174 7313) (optional)

For ceiling heights 2.40-3.40 m: 1 x: suspension chain, l: 1 m (product code 12 207 1015) (optional)

For ceiling heights above 3.40 m: 1 x: suspension chain, l: 2 m (product code 12 207 1002) (optional)

3.2 2-point suspension

To suspend the swing in the classic style you require two attachment points mounted next to each other. The distance between the attachment points depends on the distance at which the ropes are fixed to the swing/platform. The 'Marathon' swing suspension is ideal for a 2-point suspension. The ball-bearing roller joint with built-in safety mechanism ensures friction-free and safe swinging. This allows

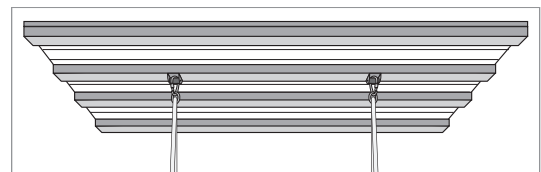
the swing/platform to swing gently and quietly for prolonged periods of time. Should the swing require to be taken down regularly, suspension chains that remain attached to the ceiling hook are recommended for ceiling heights above 240 cm. The complete swing is then simply attached to the bottom end of the suspension chains using snap hooks and can easily be reached from the floor.

Required assembly parts:

1 pair 'Marathon' swing suspension (product code 12 196 1515)

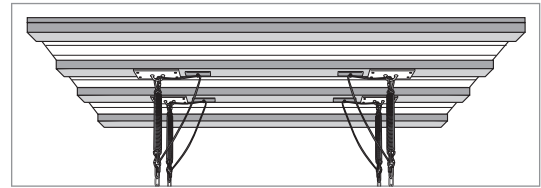
For ceiling heights 2.40-3.40 m: 2 x: suspension chain, l: 1 m (product code 12 207 1015) (optional)

For ceiling heights above 3.40 m: 2 x: suspension chain, l: 2 m (product code 12 207 1002) (optional)



3.3 4-point suspension

With the 4-point suspension a large swing/platform always swings parallel to the floor and never tilts. This makes swinging particularly comfortable. This type of suspension is often used in wellness and therapy as well as in inclusive facilities. 4-point suspension is possible when the swing/platform has 4 suspension ropes. Accordingly, you need 4 suspension points positioned in relation to the swing ropes. Should the swing require to be taken down regularly, suspension chains that remain attached to the ceiling hook are recommended for ceiling heights above 240 cm. The complete swing is then simply attached to the bottom end of the suspension chains using snap hooks and can easily be reached from the floor.

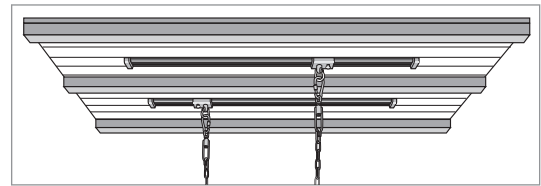


Required assembly parts:

- 4 x ceiling mount with half ring (product code: 12 177 3806)
- 4 x belt loop (product code: 12 168 0805)
- 4 x safety device for ceiling fixings (product code: 12 174 8039)
- 4 x spring (product code: 12 174 2305 et seq.) (optional, choose according to maximum user weight)
- 4 x safety snap hook (product code: 12 174 7313) (optional)
- For ceiling heights 2.80-3.40 m: 4 x suspension chain, l: 1 m (product code: 12 207 1015) (optional)
- For ceiling heights above 3.40 m: 4 x suspension chain, l: 2 m (product code 12 207 1002)

3.4 Ceiling rails

Ceiling rails allow you to vary the suspension points and to easily change the distance between them. The multi-functional ceiling rail suspension system gives you increased flexibility and, using the slider, you can set any desired hook position on ceiling or wall. A separate ball-bearing swivel hook is not required as a pendulum swivel hook integrated into the slider fulfils this function. This system is particularly recommended when you work with various swings. If you are planning to use a 4-point suspension you require two parallel beams to which the ceiling rails can be attached - ideally at approximately the same distance as between the attachment points on the swing/platform.



Required assembly parts:

- 1 x ceiling rail set (recommended for two parallel 3 m rails) (product code 12 1748505 8505)
 - 1 x telescopic rod for adjusting the slider from the ground (product code 12 174 8882) (optional)
- Alternatively, you can design your own set depending on the individual demands on the swing system and adjusted to the size of the room:
- suspension rail, l: 1 m (product code 12 174 8811)
 - suspension rail, l: 2 m (product code 12 174 8824)
 - suspension rail, l: 3 m (product code 12 174 8837)
 - suspension rail, l: 4 m (product code 12 174 8840)
 - slider with pendulum swivel hook (product code 12 174 8853)
 - End piece (product code 12 174 8879)

4. Ceilings in old buildings and unsound ceilings

For safety reasons no attachments may be mounted to the ceiling itself. However, even in these cases the following options allow for the stable suspension of a swing:

4.1 Installation of a laminated beam between the walls.

The laminated beam is mounted to two beam wall holders. Ensure, that the maximum distance between the walls is 6 m. The walls must be solid. Ceiling rails (product code 12 174 8505) or the 'Marathon' swing suspension (product code 12 196 1515) can then be mounted to the laminated beam.

4.2 Self-supported frames/swing centre

4.2.1 Motor function centre (product code 12 174 8606)

Use is recommended in all places where ceiling attachment is either not possible or not wanted. The motor function centre is free standing and can be fitted with the rail suspension system or fixed hooks. This allows you to flexibly fix any swing. Even gymnastic wall elements can be attached to the sides. The motor function centre is an open system and is individually tailored to your practice room. Length: 300-500 cm, width: 270-500 cm, height: 220-260 cm.

4.2.2 Erfi-SI-centre (product code 12 174 3005)

A motor functions centre is specially designed for use in sensory processing. Apart from the free-standing frame, it includes all required suspensions and the most important pieces of equipment in the field of sensory processing.

All components are TÜV approved and made in Germany. Everything is fully compatible and offers the user a wide range of possible applications. The Erfi-SI centre consists of four posts and rafters mounted across the top to which the swing systems can be attached.

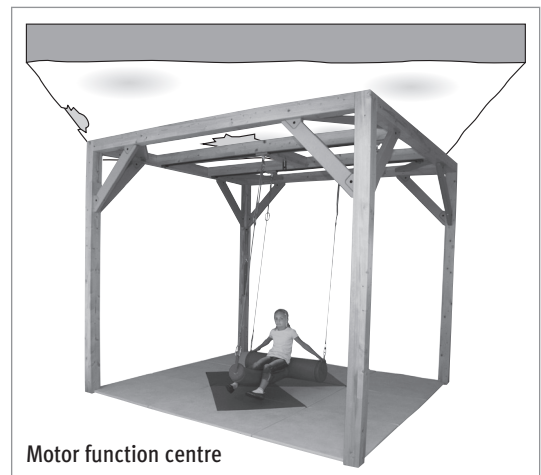
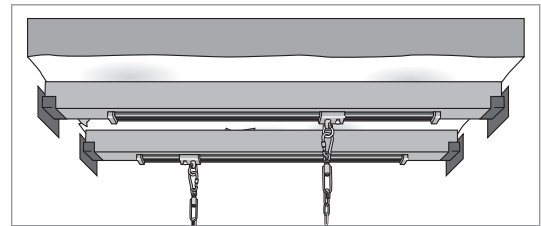
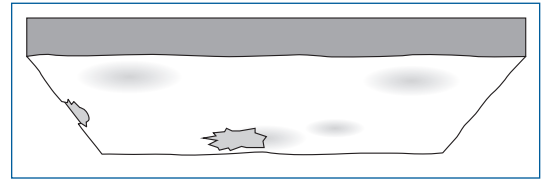
The system includes:

- Frame with numerous attachment points for various swings/platforms
- 1 mobile
- 1 horse swing with tandem
- 1 half-roll 250 mm
- 1 see-saw 250 mm
- 1 wobbly board
- 4 ceiling ropes
- 1 ball-bearing swivel hook

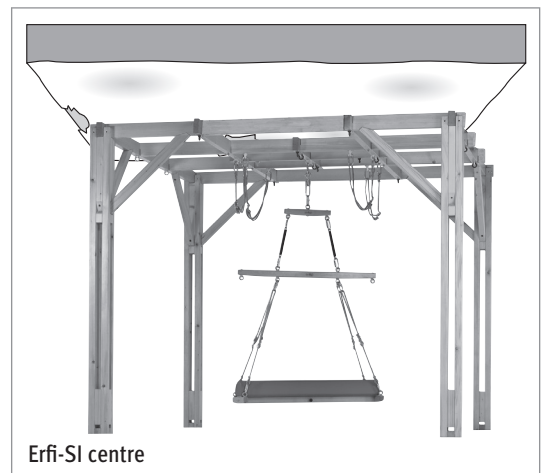
LxWxH: 320 x 290 x 250 cm (required room height 275 cm)

Price includes delivery and assembly.

Custom-made products are possible.



Motor function centre



Erfi-SI centre