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Guldmann planning guide

Our intention with this planning guide is to offer architects, consulting engineers and others a tool that can simplify the planning of effective ceiling hoist systems.

Our goal is to ensure reliable, effective solutions for the benefit of all parties.

Although we have made every effort to provide answers to the most frequently asked questions, which experience has shown may arise when planning ceiling hoist systems, other questions and problems will unavoidably arise.

We therefore offer professional assistance in the form of such services as:

- initial demand analyses carried out by Guldmann's ergonomic specialists
- help with planning and calculations, call us or send us a sketch or AutoCAD drawing
- participation in planning meetings
- a visit to our demo-rooms where you can see and try out the functions of the products and test planning arrangements in practice

As a principal rule we provide service free of charge.

Guldmann's installation and service departments have undoubtedly the most experienced corps of quality conscious installers and service consultants. This allows us to offer installation and, if required, subsequent operation of both simple and highly complex systems at competitive prices.

You can contact us at the following address:

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Guldmann™

PLANNING GUIDE

Vers. 7.00

INTRODUCTION

SOLUTION TYPES

CONSIDERATIONS

PLANNING

Guldmann develops, manufactures,
distributes and maintains products and
services that make the daily lives
of disabled people and their
helpers a little easier.

| Time to care |

INTRODUCTION

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Guldmann's FACT of life**Flexibility**

We know and we act according to the fact that what is right today may be wrong tomorrow – we do not have a monopoly of the truth.

Ambitions

We set common ambitious goals and strive for improvements.

Competence

We know what we talk about. The capability and knowledge of the individual is our common strength.

Trustworthiness

We inspire to instill confidence in us through confidence in each other.

Guldmann in brief

Since the beginning in 1980 Guldmann has devoted the company's entire resources to making life easier for the disabled and their helpers.

Today Guldmann works within three focus areas:

1. Guldmann

Guldmann offers a comprehensive system comprising different solutions that create better working conditions for carers and care institutions. A Guldmann system releases resources to allow more and better care for the disabled. The products in the Guldmann system comprise lifting and moving systems as well as hospital and nursing beds.

2. Stepless

Stepless is a series of products that makes it easier for walking-impaired people to gain access to their surroundings.

The products from Stepless comprise portable and stationary ramps and lifting platforms.

3. G2

G2 supplies mobility that gives the walking-impaired and wheelchair users the freedom to choose to participate in life around them. G2 cooperates with leading suppliers worldwide and offers an extensive range of manual and electric wheelchairs, scooters and pressure sore preventing seating systems.

G2 exclusively operates in Denmark.

An international company

Guldmann is a well-established, international company with its own representatives in Denmark, Sweden, Germany, England, Italy, France, Brazil, Ukraine and the USA. In addition we have partners and distributors in many other countries.

Facts about Guldmann

Started	1980
Number of employees	250
Headquarters	Denmark
CBR No.	27 70 67 46
Owner	Guldmann Holding A/S
Bank	Danske Bank
Accountants	Deloitte
Member of	The Confederation of Danish Industries The Danish Export Group Association

Security, safety and comfort. These are the key words when lifting a disabled person. Both for the disabled person and for the carer, who must also safeguard his or her health.

Guldmann's activities have since 1980 been based on these three key words. Today Guldmann specialises in technical aids for securely, safely and comfortably lifting and moving disabled people. Constant product development has resulted in the Guldmann's ceiling hoist system - a comprehensive, unique and cohesive system that is characterised by great flexibility.

Guldmann's ceiling hoist system comprises a wide range of lifting and rail modules that can be combined with different types of hoist and lifting sling. A lifting sling is a textile belt that the disabled person is placed in when being lifted. The individual components can be combined to create both simple and highly complex systems.

A ceiling hoist system is extremely flexible and is designed to meet the individual needs of the disabled. At the same time the system makes it possible to adapt to the various architectural conditions and limitations that must be taken into account when installing a hoist.

Guldmann's ceiling hoist system has a simple, distinguished design and can be discreetly incorporated into the user's surroundings.

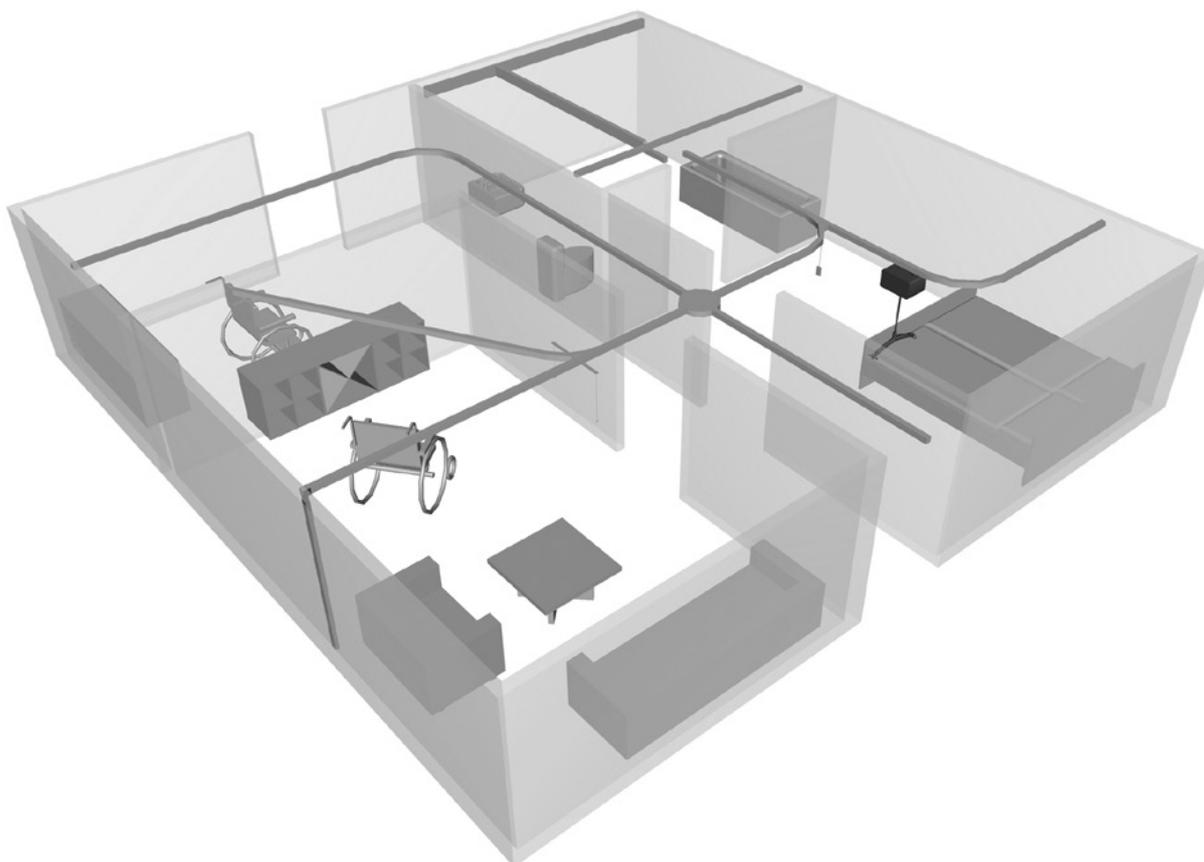
In order to gain the maximum benefit of a ceiling hoist system it is important to take the system into consideration from the beginning when planning accommodation for the disabled - whether this is a new building or a conversion of existing premises.

A rail system comprises one or more rails, which are installed on the ceiling, the wall or on freestanding upright support brackets.

The rail system is constructed in modules. This makes it easy to create individual solutions and to adapt the system to existing buildings. The modules are easy to handle during installation and transport. The flexible modules also make the system suitable for recirculation.

Rail systems can be installed anywhere. Private homes, hospitals, nursing homes, therapy clinics, riding centres and swimming pools are just some of the places where a rail system can help to improve the working environment for carers and heighten the quality of life for the disabled.

A ceiling hoist system takes up no floor space, makes little noise and is always ready for use.



The ceiling hoist itself runs in the rail system. All Guldmann's ceiling hoists lift with the help of a battery operated motor. The hoist is equipped with a hanger to which the sling is secured. The rail system that the hoist runs in can be:

- A room-covering system
- Single track
- A combination of the two systems

The hoist is manually controlled, or controlled with the help of a drive-motor.



SOLUTION TYPES

- Presentation of different ceiling hoist systems

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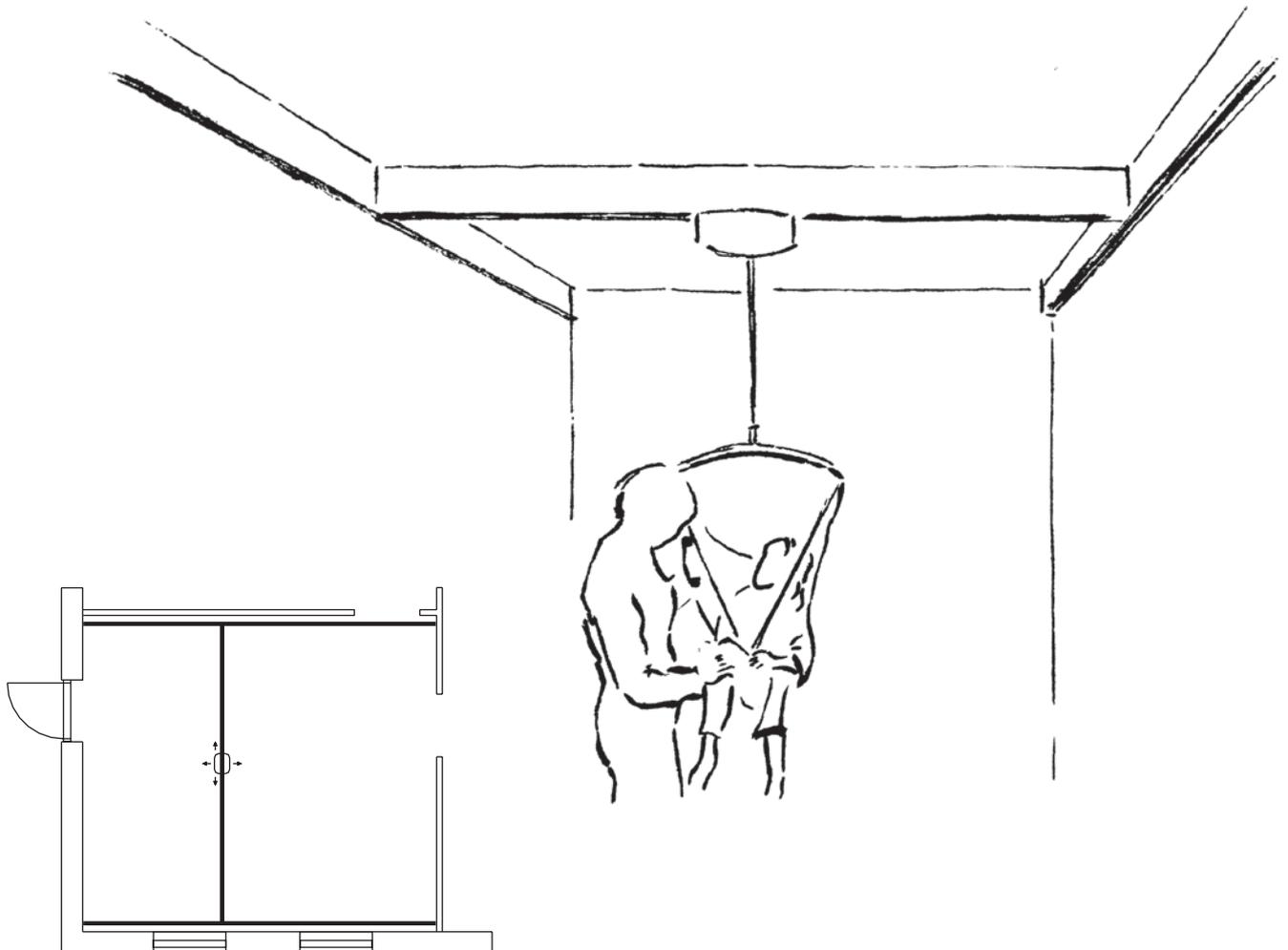
The room-covering rail system comprises two parallel rails installed on the ceiling, the wall or on freestanding upright support brackets. A traverse rail runs between the parallel rails. The hoist itself glides backwards and forwards on the underside of the traverse rail in a travelling trolley, which is equipped with wheels that run inside the rail. Horizontal movement is smooth and comfortable for the user.

The room-covering system makes it possible to lift the disabled person to and from any place in the room and is the optimum solution in rooms where many lifts are carried out.

Installing a room-covering system saves space and provides an extremely high degree of freedom. The bed, a wheelchair and the other furniture in the room can be placed as desired and lifting can be carried out rapidly, easily and comfortably both with regard to the carer and the disabled person.

In addition the planner has considerable freedom to design the rooms in the building – both because the system saves space and because it offers flexibility when lifting a person.

In some cases the parallel rails can be built into the ceiling so that only the lower part of them is visible.



Rail profiles

Bracket

Bracket

Bracket

GH3

Bracket

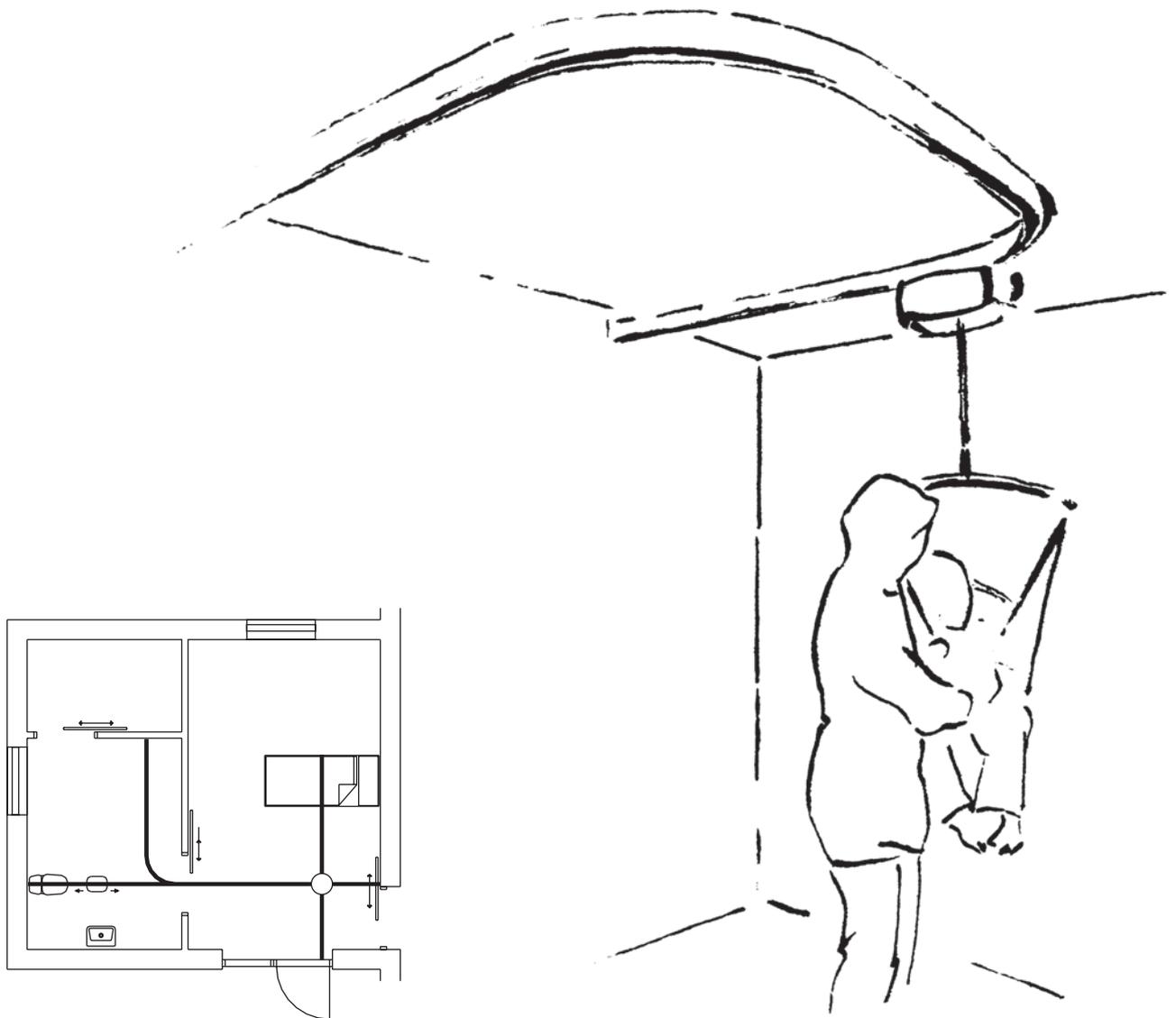


In its basic form the single track rail system comprises a single rail in which the ceiling hoist runs. The system can be extended with curves of various angles..

The single track system is very suitable for moving people over longer distances. Examples of this could be corridors, riding schools or swimming pools.

Over and above this the single track system can be used in the same situations and rooms as the room-covering system. But attention should be paid to the fact that wheel-chairs, beds and other aid facilities must be located directly beneath the rail. This places limitations on the layout of the room due to the location of the rail.

In some cases the rail can be built into the ceiling so that only the lower part is visible.



GH1 F

Travelling trolley

Bracket

Curves

Free standing system

Traverse trolleys

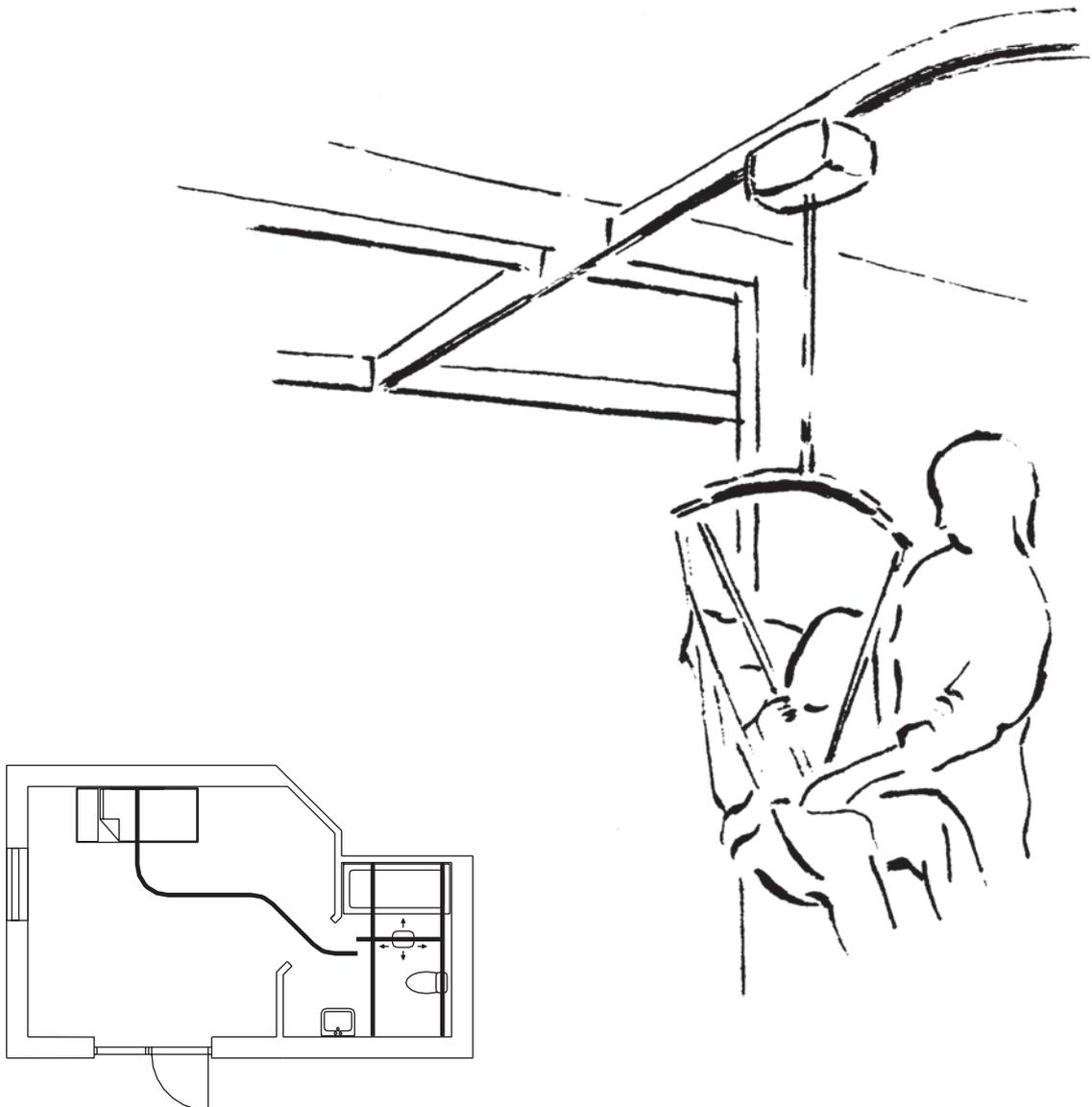


It is possible to combine the room-covering system with a single track rail system in adjacent rooms with the help of a Combi-lock.

A safety lock is installed in the traverse rail in the room-covering system to prevent the hoist from running out of the rail. A Combi-lock is installed in the single track rail system. The Combi-lock locks the traverse rail to the single track rail and at the same time releases the safety lock. The hoist can then be run from one system to the other without problems.

The rail in the single track rail system must be installed at a right angle to the parallel rails on the room-covering rail system.

The parallel rail in the room-covering system which is closest to the room with the single track system must be installed some distance into the room to provide space for the safety lock and the Combi-lock between the wall and the rail.



GH1

Bracket

Lifting hanger

Rail combination



All Guldmann's hoist types lift with the help of a battery-driven motor and run in the rail system with the help of a travelling trolley, which is manually controlled or controlled with the help of a motor.

GH3

GH3 ceiling hoist lifts with the help of a lifting hanger to which the sling is attached. The hanger is raised or lowered from the hoist, which is installed in the rail and can only be moved horizontally. Lifting capacity up to 250 kg (550 lbs).

**GH3+**

Ceiling hoist similar to GH3, but with options like integrated scale, care lift management and service monitoring system. The lifting speed is also faster. Lifting capacity up to 350 kg (770 lbs).

**GH3 Twin**

GH3 Twin is a heavy duty ceiling hoist with double lifting straps, which lifts using a cross hanger or a horizontal lifter on which the sling is attached. Lifting capacity up to 500 kg (1100 lbs).

**GH1**

GH1 has a lifting capacity up to 205 kg (450 Lbs). GH1 is recharged when the hand control is placed in the docking station.

**GH1 F**

GH1 F is a flexible hoist which can rapidly and easily – with the least manual handling – be transferred from one rail system to another in a specially designed transport trolley. GH1 F has a lifting capacity up to 255 kg (560 Lbs.)



CONSIDERATIONS

- Considerations in connection with
integrating a ceiling hoist into a building

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When designing buildings for the disabled it is important for all parties involved to clarify the following questions when choosing technical aids facilities for lifting and moving people:

Who are the users?

It is an often overlooked fact that both disabled people and carers are users of systems for moving people.

Where is the lifting requirement?

The bedroom?

The bathroom and toilet?

Guldmann recommends that daily working routines should be reviewed by a working group comprising a carer, a therapist, technical staff, an architect and a ceiling hoist consultant. This will make it possible to discover where the lifting requirements in the building are and, on the basis of this, to arrive at the best solution for all users.

Which lifting method is best in the specific situation?

A manual lifting?

A mobile hoist?

A ceiling hoist?

Although a ceiling hoist system will be the most functional solution in most situations, other lifting methods can be more suitable in certain cases.

Which rail system should be chosen?

A room-covering system?

A single track system?

A combination?

Which type of ceiling hoist should be chosen?

GH3?

GH3+?

GH3Twin?

GH1?

GH1 F?

Which type of building is in question?

An existing building?

A renovated building?

A new building?

A ceiling hoist system can be adapted for use anywhere, but the possibilities vary depending on whether a new or an existing building is in question.

REMEMBER

– the choice of a technical aid is decisive for:

What the working environment will be like for carers

What the user's quality of life will be

How the entire area of the room can be utilised

How the carer's time can be utilised

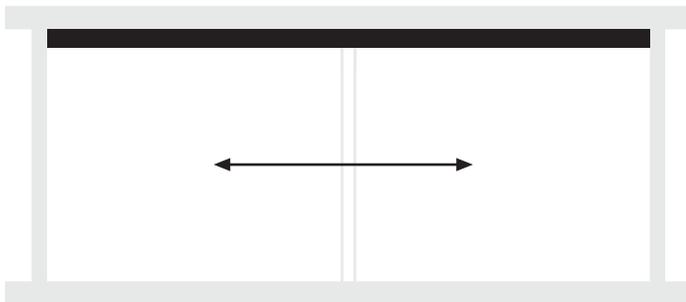
How money can be utilised

Guldmann can help to arrive at the optimum solution in each case.

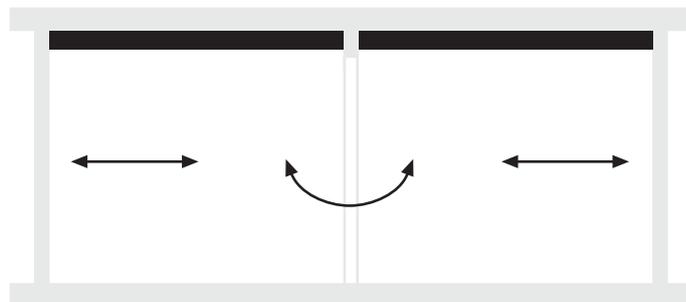
CONSIDERATIONS

Once it has been established that there is a need to carry out lifts in several rooms, a decision must be made as to how the disabled person will be moved from room to room and from rail system to rail system. The door opening can either be heightened so that the rail can be led directly through and the hoist can be run from room to room without stopping. Or a Swing solution can be chosen, where the original height of the door opening can be retained and the disabled person be “swung” through the door opening. This can be carried out with two GH3 hoists where the hanger is “swung” through the door opening.

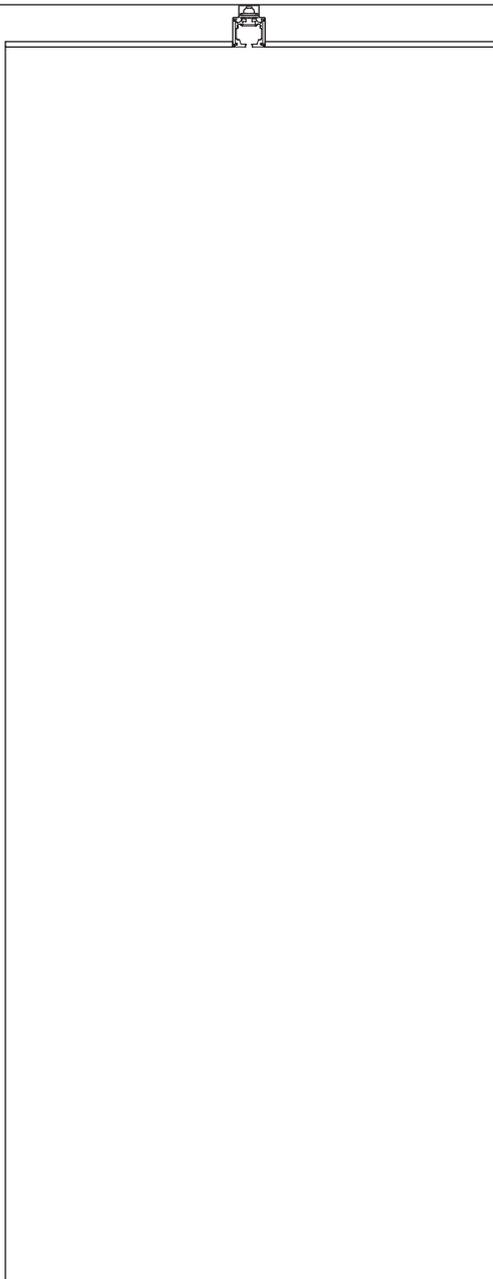
Rail transition is the most functional solution both for the disabled person and the carer. However, attention should be drawn to the fact that there are certain limitations and problems in connection with a Swing solution.



Rail transition

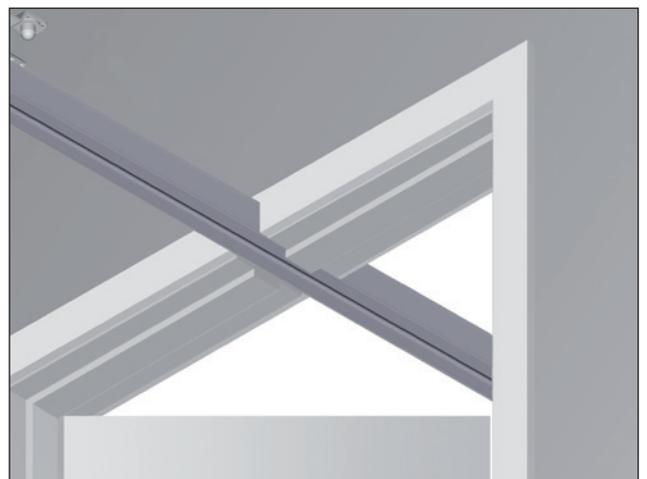


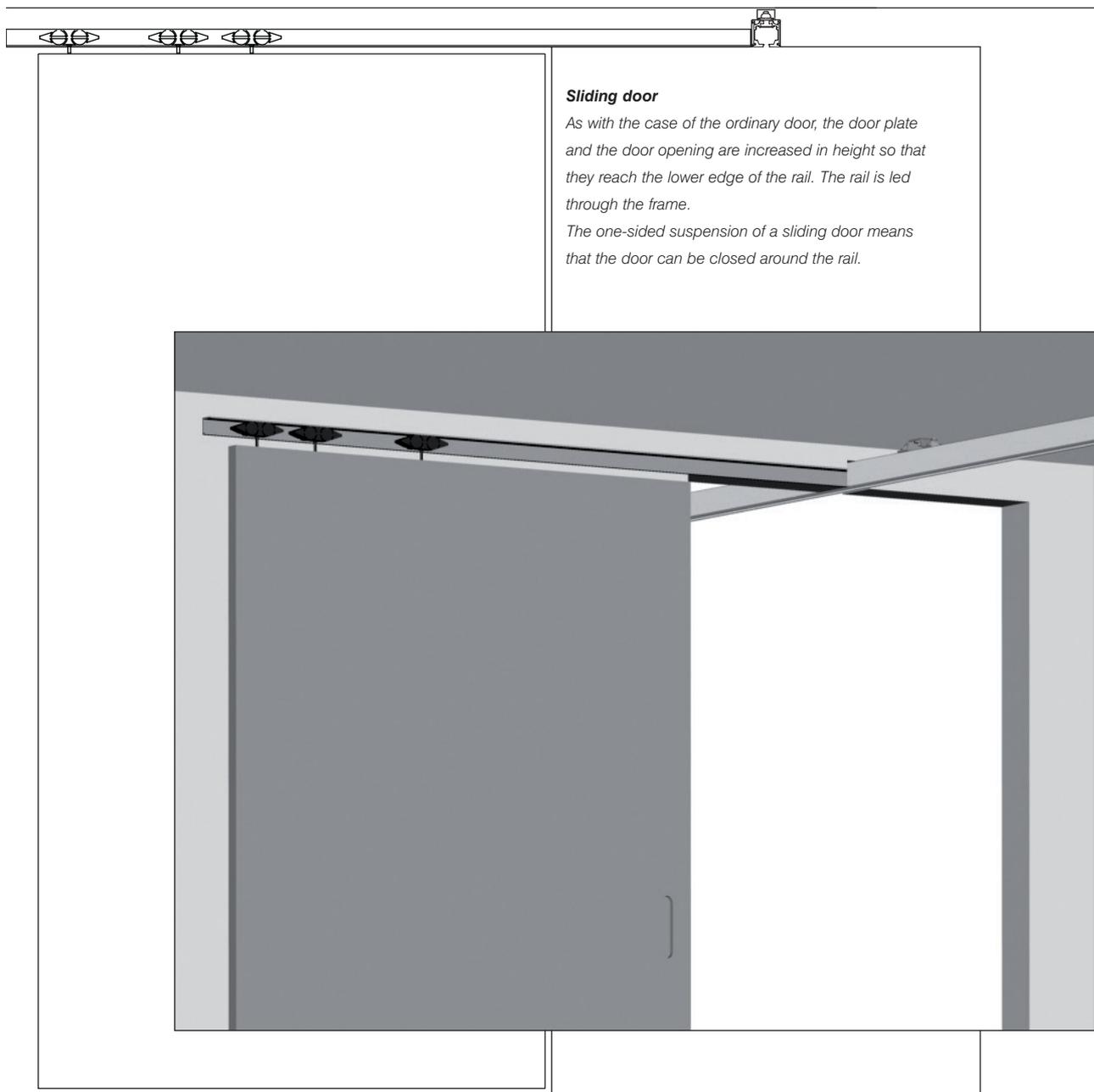
The Swing solution



Ordinary door

The door plate and the door opening are increased in height so that they reach the lower edge of the rail.





Sliding door

As with the case of the ordinary door, the door plate and the door opening are increased in height so that they reach the lower edge of the rail. The rail is led through the frame.

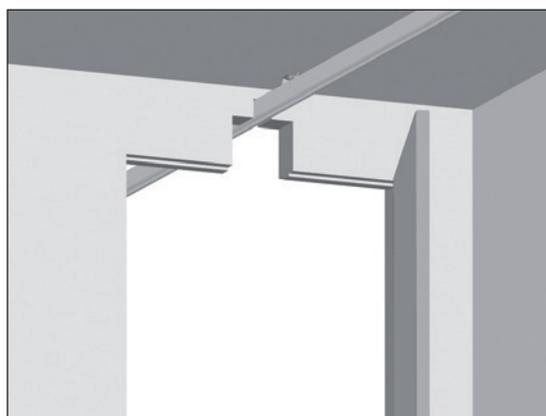
The one-sided suspension of a sliding door means that the door can be closed around the rail.



Ordinary door

– cutting a hole in the wall for the hoist
The hoist is run through an opening in the wall –
allowing the original door height to be maintained.

Remember to find out how wide the hole for the
hoist should be.



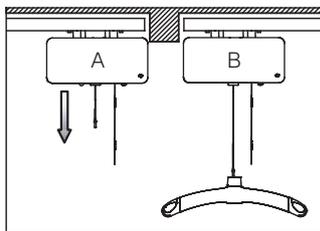
In order to be able to use a GH3 Swing solution with transition through a door opening, ceiling height must be at least 2400 mm and the maximum thickness of the wall must be 110 mm.

Advantages of the GH3 Swing

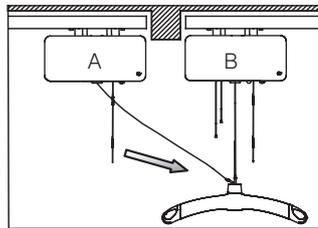
- Saves the expense of heightening the door opening and door plate.

Disadvantages of the GH3 Swing

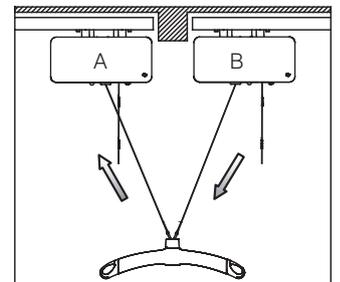
- Moving the disabled person from room to room is time consuming.
- The carer must be given special instructions in order to be able to carry out the move correctly.
- It is necessary to use two hoists – one in each room.



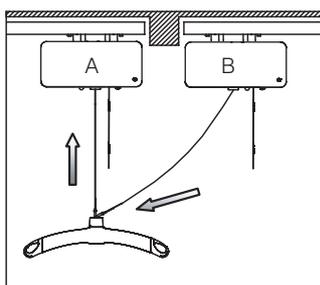
1. Bring the two hoist as close to each other as possible. Adjust the height of the lifting hanger on B so that the transfer can be performed without the user touching the floor during the transfer from one hoist to another.



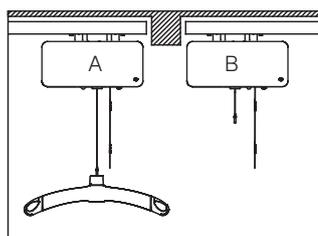
2. Take the free lifting strap from hoist A and secure it to the swing adapter on the lifting hanger. In order to lower the free lifting strap on A a slight pull must be applied to the strap.



3. Lower the lifting hanger using hoist B while lifting the strap on A to perform the swing transfer. The transfer has been completed when there is no load on the lifting strap on B.



4. Disconnect the lifting strap on hoist B from the lifting hanger and raise the strap on B out of the way.



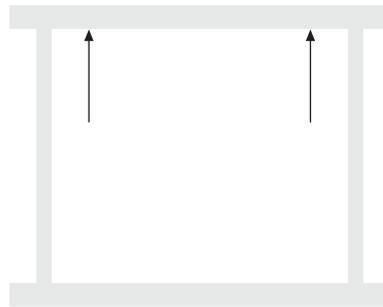
5. Move the lifting hanger from hoist A to operating height, and the doorway transfer is complete.

A ceiling hoist system can be installed on the ceiling, on the wall, or with the help of upright support brackets. The method of installation should be chosen on the basis of the specific conditions in each situation.

Ceiling

Ceiling installation can be carried out on:

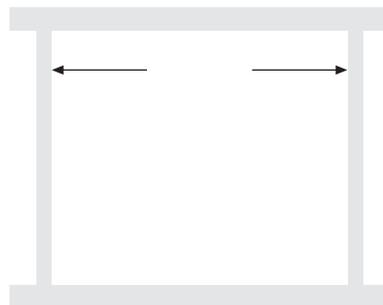
- Concrete ceilings
- Wooden constructions (requires reinforcement between rafters)
- Roof cassettes



Wall

Wall installation can be carried out on:

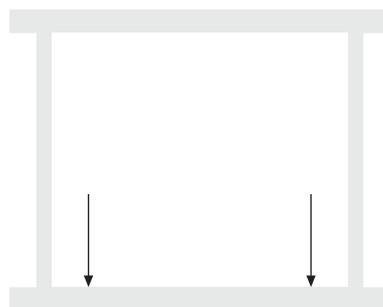
- Brick walls
- Concrete walls
- Light walls such as wooden and plasterboard walls



Upright support bracket

Upright support brackets are used when:

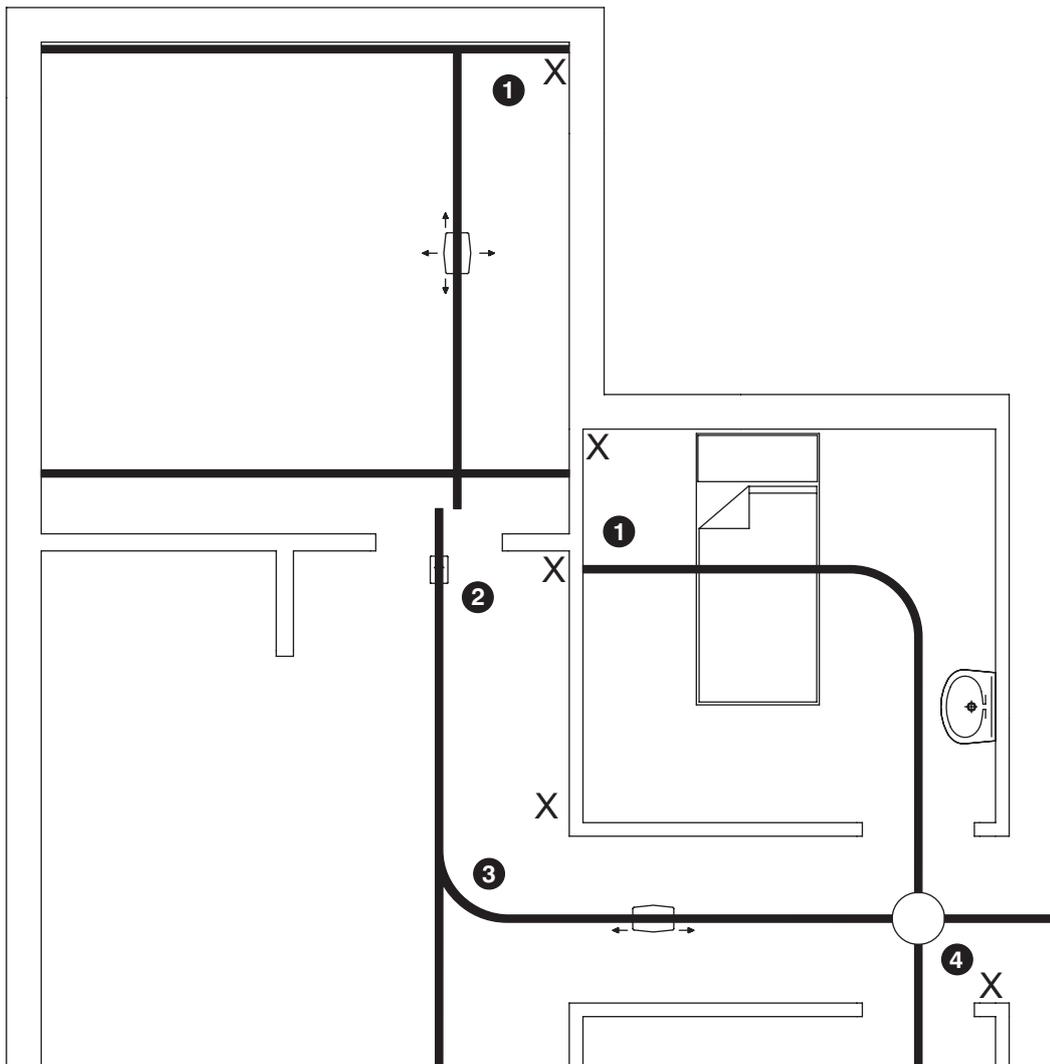
- Ceiling or wall installation is inappropriate or difficult due to lack of strength or other installations in ceiling or on walls.



CONSIDERATIONS

The following components must be connected to the power supply when a ceiling hoist system is installed:

- 1 Transformer for charging of hoist
- 2 The Combi-lock
- 3 The switch track
- 4 The turntable



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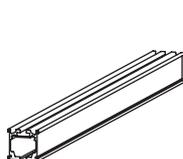
There are three different types of GH3 rails:
Rail A, B and C.

GH3 rail A is normally used in single-track systems, straight and with curves.

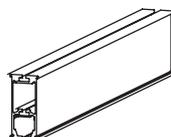
The overall height of the rails in a room-covering system can vary from 99 mm for two GH3 rail A (traverse rail mounted between GH3 rail A parallel rails) to 381 mm for two GH3 rail C (GH3 rail C parallel rails with underhanging GH3 rail C traverse rail).

The traverse rail can be mounted between the parallel rails, be underhanging or be a combination of the two solutions.

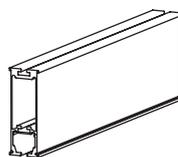
Metre	Max projection			Max distance between supporting points																Delivery length								
	0,3	0,5	0,7	1,0	1,25	1,5	1,75	2,0	3,0	3,5	4,0	4,5	4,75	5,25	6,25	6,75	7,25	8,0	1	2	3	4	5	6	7	8		
GH3 – Max 200 kg (440 lbs)																												
A	x							x											x	x	x	x	x	x				
B		x												x							x	x	x	x	x	x	x	
C			x															x					x	x	x	x		
GH3 – Max 250 kg (550 lbs)																												
A	x						x												x	x	x	x	x	x				
B		x											x								x	x	x	x	x	x	x	
C			x														x						x	x	x	x		
GH3 – Max 300 kg (660 lbs)																												
A	x						x												x	x	x	x	x	x				
B		x											x								x	x	x	x	x	x	x	
C			x													x							x	x	x	x		
GH3 – Max 350 kg (770 lbs)																												
A	x						x												x	x	x	x	x	x				
B		x											x								x	x	x	x	x	x	x	
C			x												x								x	x	x	x		
GH3 – Max 500 kg (1100 lbs)																												
A	x						x												x	x	x	x	x	x				
B		x												x							x	x	x	x	x	x	x	
C			x												x								x	x	x	x		



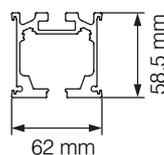
Rail A



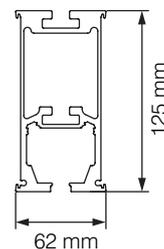
Rail B



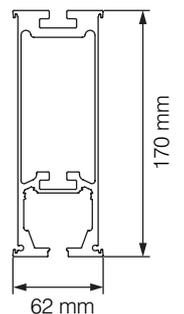
Rail C



Rail A



Rail B



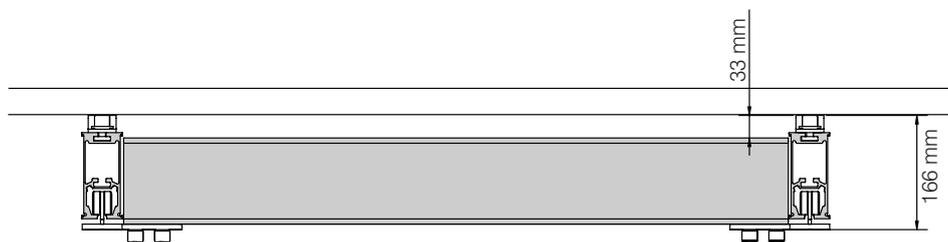
Rail C

A traverse rail mounted between the parallel rails is an aesthetically good solution, as the rail is installed close to the ceiling and takes up a minimum of space in the room.

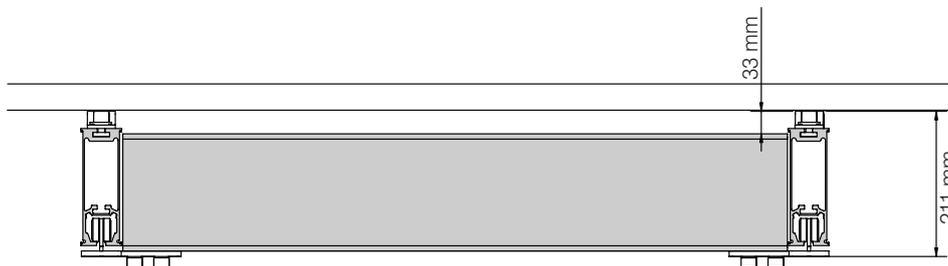
**A. Rail A traverse rail
mounted between
rail A parallel rails**



**B. Rail B traverse rail
mounted between
rail B parallel rails**



**C. Rail C traverse rail
mounted between
rail C parallel rails**



An underhanging traverse rail is used

- When it is impossible to mount the traverse rail between the parallel rails, because lamps, smoke alarms or similar equipment have been installed on the ceiling.
- When the traverse and parallel rails cannot be of equal height.

D. Rail A parallel rails with underhanging rail A traverse rail



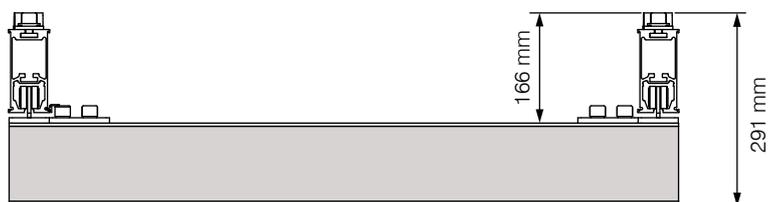
E. Rail A parallel rails with underhanging rail B traverse rail



F. Rail A parallel rails with underhanging rail C traverse rail



G. Rail B parallel rails with
underhanging rail B traverse rail



H. Rail B parallel rails with
underhanging rail C traverse rail

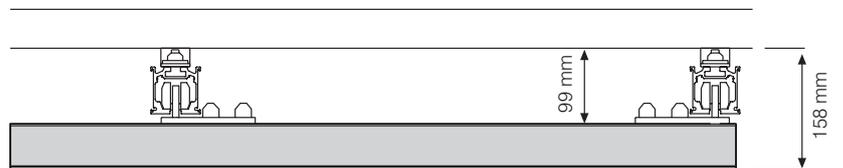


I. Rail C parallel rails with
underhanging rail C traverse rail



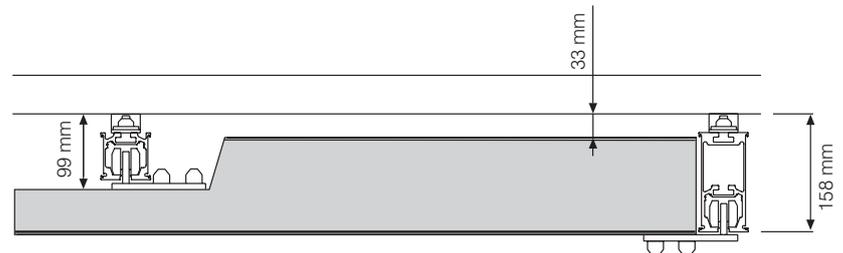
The rails can be cut to size so that room-covering and single track systems can be combined, even though different rail types are used in the two systems.

L. Rail A parallel rails with underhanging Rail A traverse rail, to a combination system

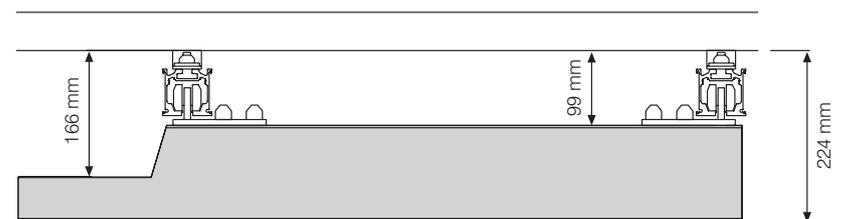


M. Rail A/Rail B parallel rails with underhanging Rail B traverse rail/intermediate suspension, cut-out for a combination system

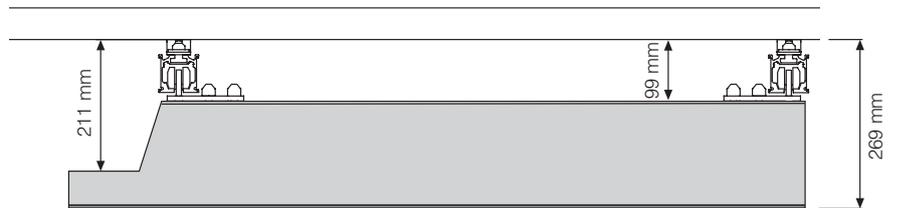
This solution is the most frequently used of the combination solutions and, thanks to the solution with intermediate suspension, it has a harmonious appearance. In addition the height of the combined system can be minimised with the help of a Rail A facing the combination side.



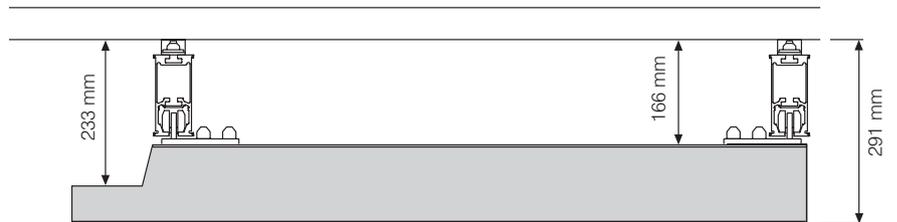
N. Rail A parallel rails with underhanging Rail B traverse rail cut-out for a combination system



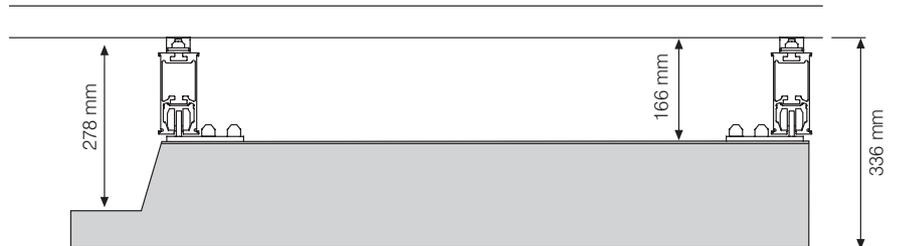
**O. Rail A parallel rails
with underhanging Rail C
traverse rail cut-out for a
combination system**



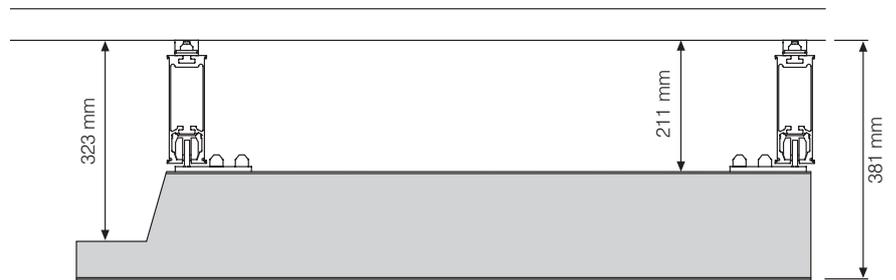
**P. Rail B parallel rails
with underhanging Rail B
traverse rail cut-out for a
combination system**



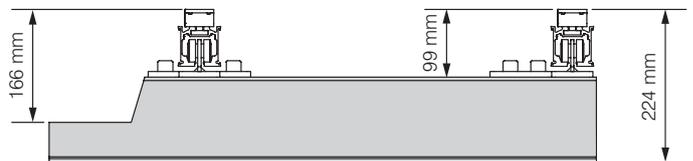
**Q. Rail B parallel rails
with underhanging Rail C
traverse rail cut-out for a
combination system**



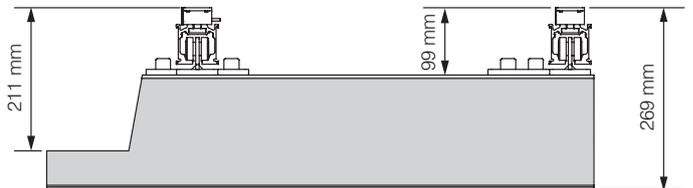
**R. Rail C parallel rails
with underhanging Rail C
traverse rail cut-out for a
combination system**



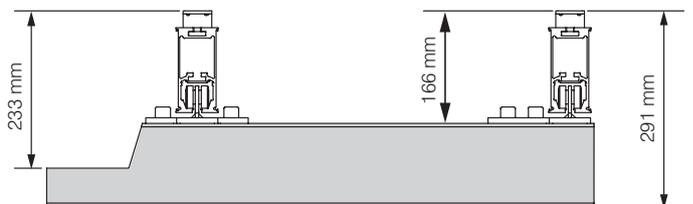
**S. Rail A parallel rails
with underhanging Rail B
traverse rail cut-out for a
combination system**



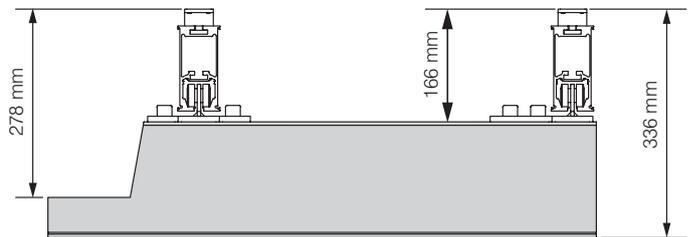
**T. Rail A parallel rails
with underhanging Rail C
traverse rail cut-out for a
combination system**



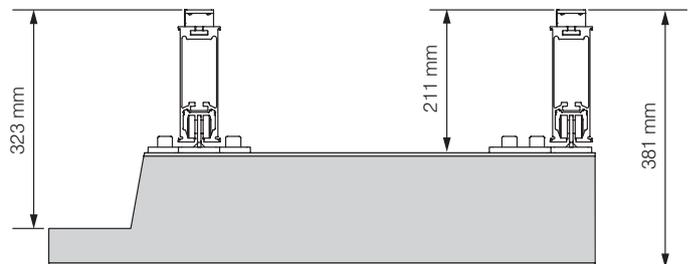
**U. Rail B parallel rails
with underhanging Rail B
traverse rail cut-out for a
combination system**



**V. Rail B parallel rails
with underhanging Rail C
traverse rail cut-out for a
combination system**



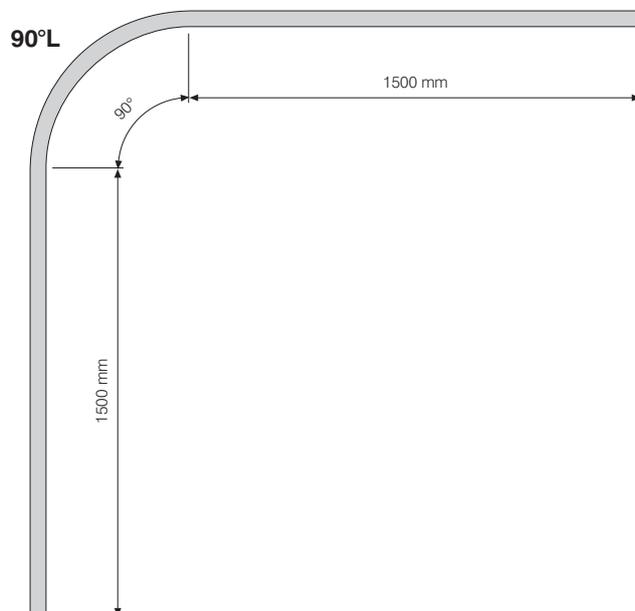
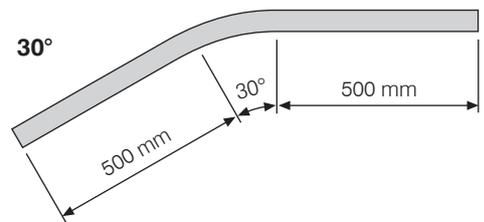
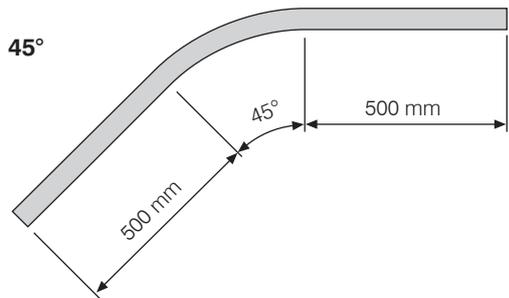
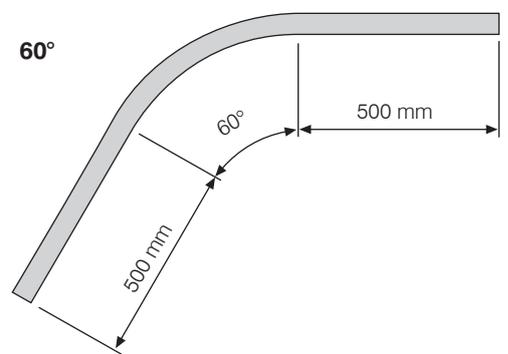
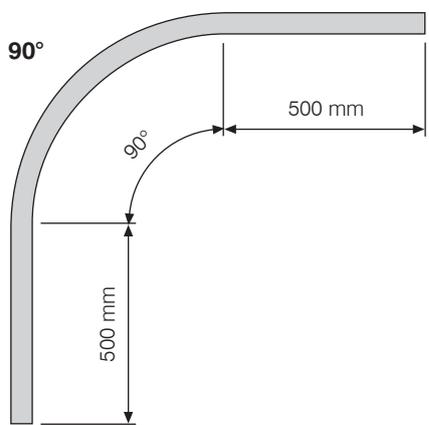
**X. Rail C parallel rails
with underhanging Rail C
traverse rail cut-out for a
combination system**



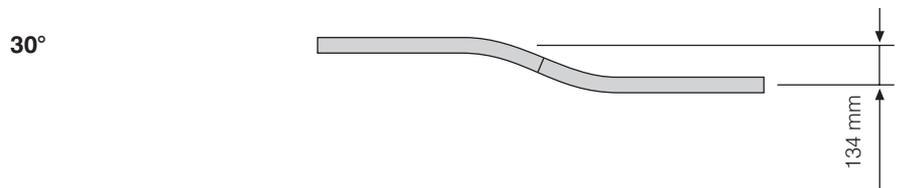
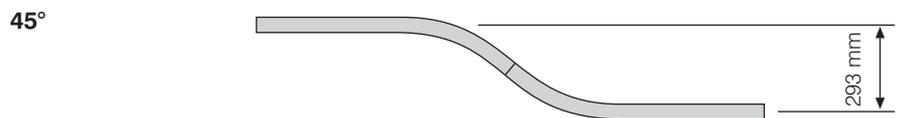
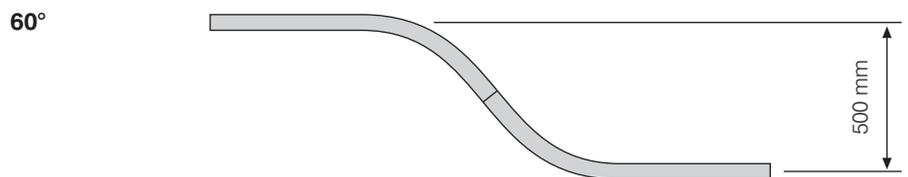
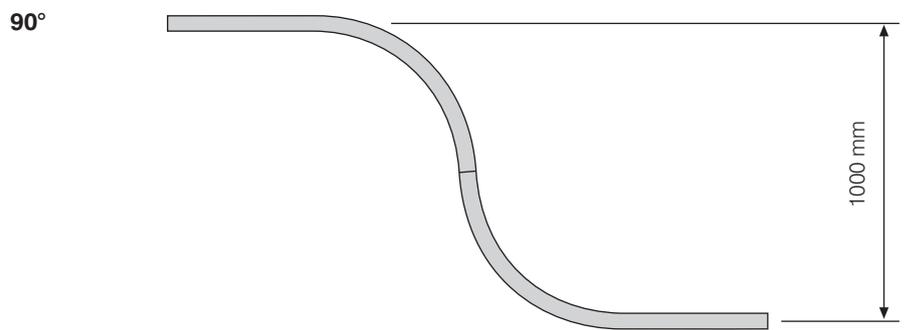
Rail curves are used where it is necessary to change the direction of the rail in a single rail system.

Rail curves are available in angles of 30°, 45°, 60° and 90°. All the curves have a centre radius of 500 mm.

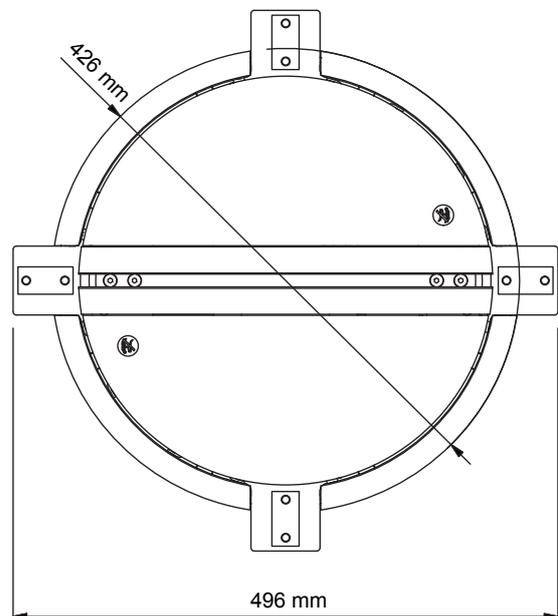
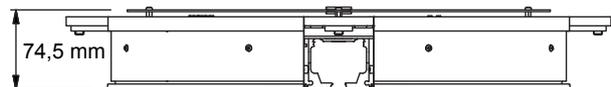
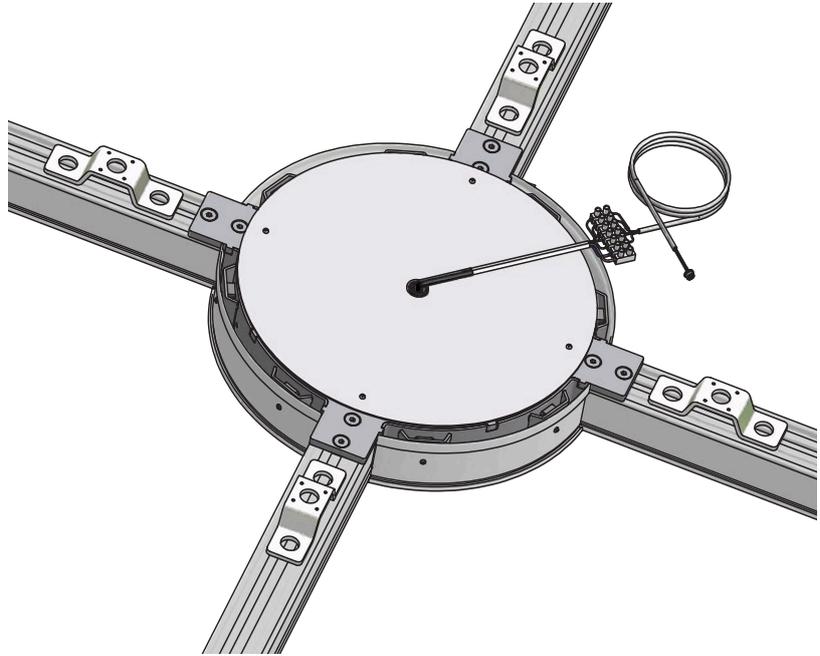
As a minimum three brackets must be used to mount all rail curves – one of the brackets must always be placed in the centre of the curve.



There are many possible combinations of rail curves.
 All standard curves end in a 500 mm straight rail.
 The dimensions given are absolutely minimum dimensions.

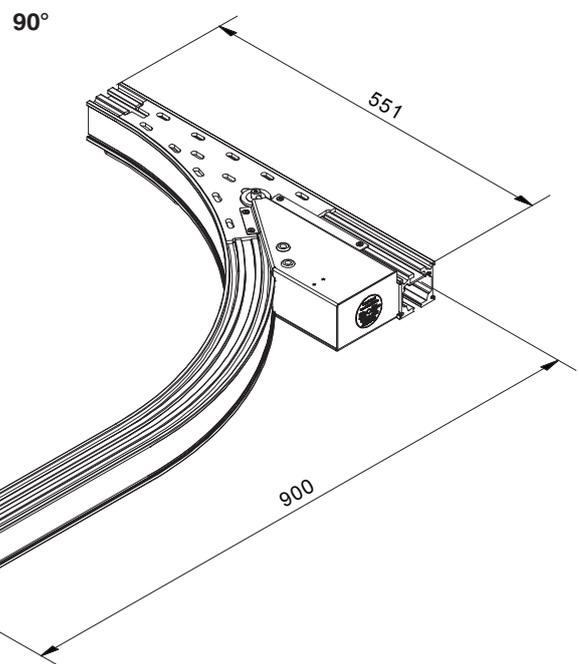
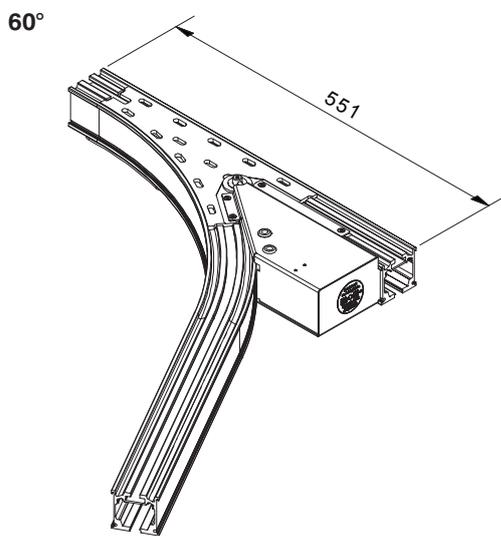


A turntable must be installed in places where two rails cross each other. The turntable is electrically operated. The ceiling brackets must be installed as close as possible to the turntable. Maximum distance from the turntable is 300 mm.



Switch tracks are used where there is a need to lead the rail in several directions. The switch track is operated electrically.

As a minimum a bracket must be mounted at each rail end of the switch track.



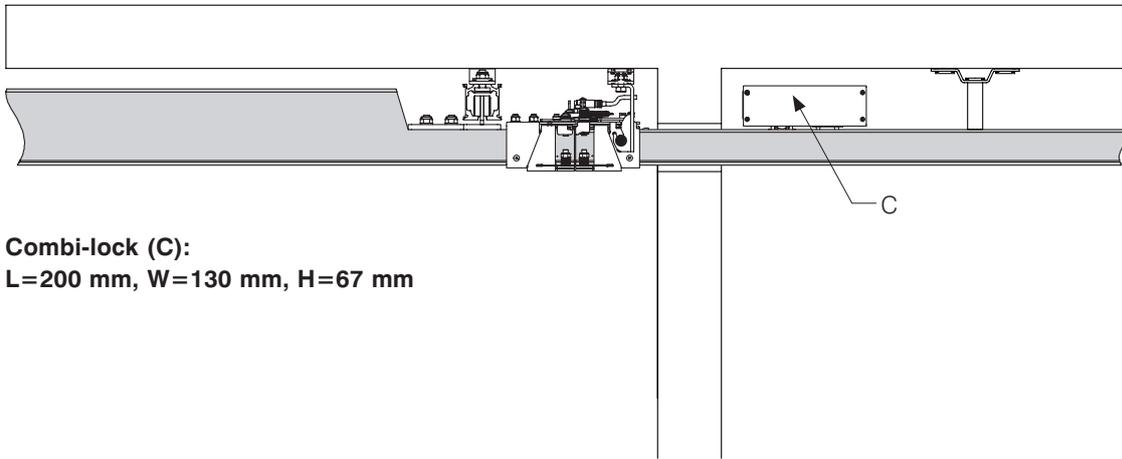
Combi-lock - max 250 kg/550 lbs

A Combi-lock is used to lock the rails together when two rail systems are linked. The Combi-lock is always used together with two safety locks to prevent the hoist running out of the rail.

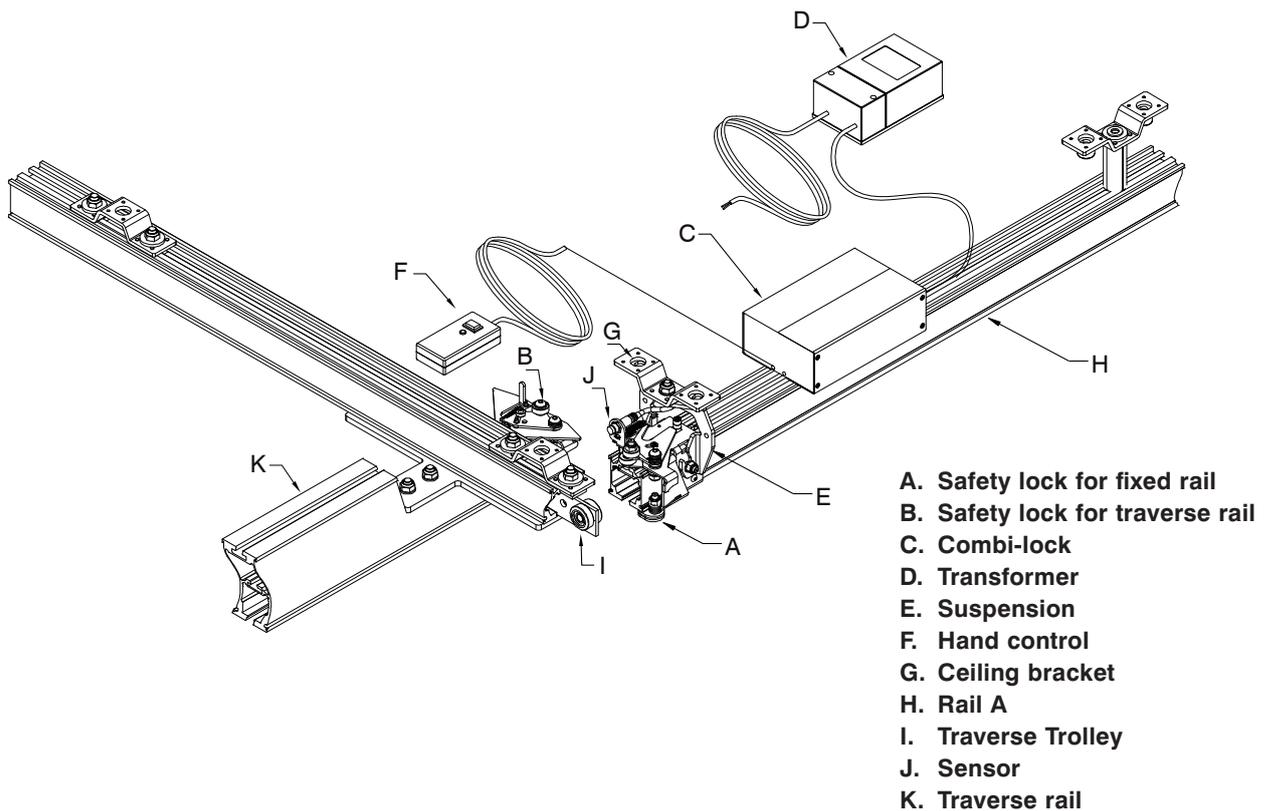
The Combi-lock and the two safety locks cannot be installed in the door opening due to insufficient space. In the room where the room-covering system is installed, the parallel rail closest to the adjacent room with the single track system, must be installed at a sufficient distance from the wall to leave space for the two safety locks.

The Combi-lock is available with electric or manual operation. In new buildings, for instance, the switch can be built into the wall.

When a room-covering system is linked to a single track system, the single track system must be suspended in order for the two systems to be at the same height.



Combi-lock (C):
L=200 mm, W=130 mm, H=67 mm

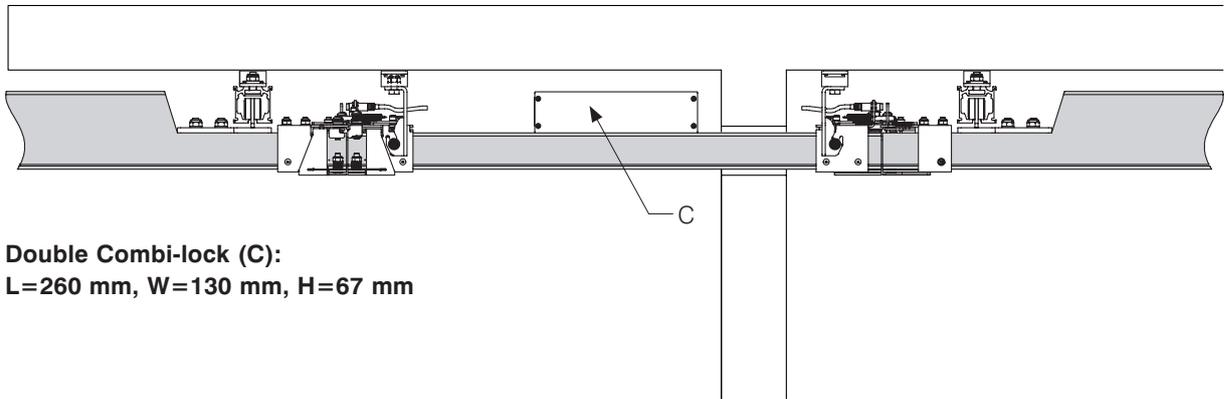


A double Combi-lock is used to lock the rails together when two room-covering systems are linked. The double Combi-lock is always used together with safety locks to prevent the hoist running out of the rail.

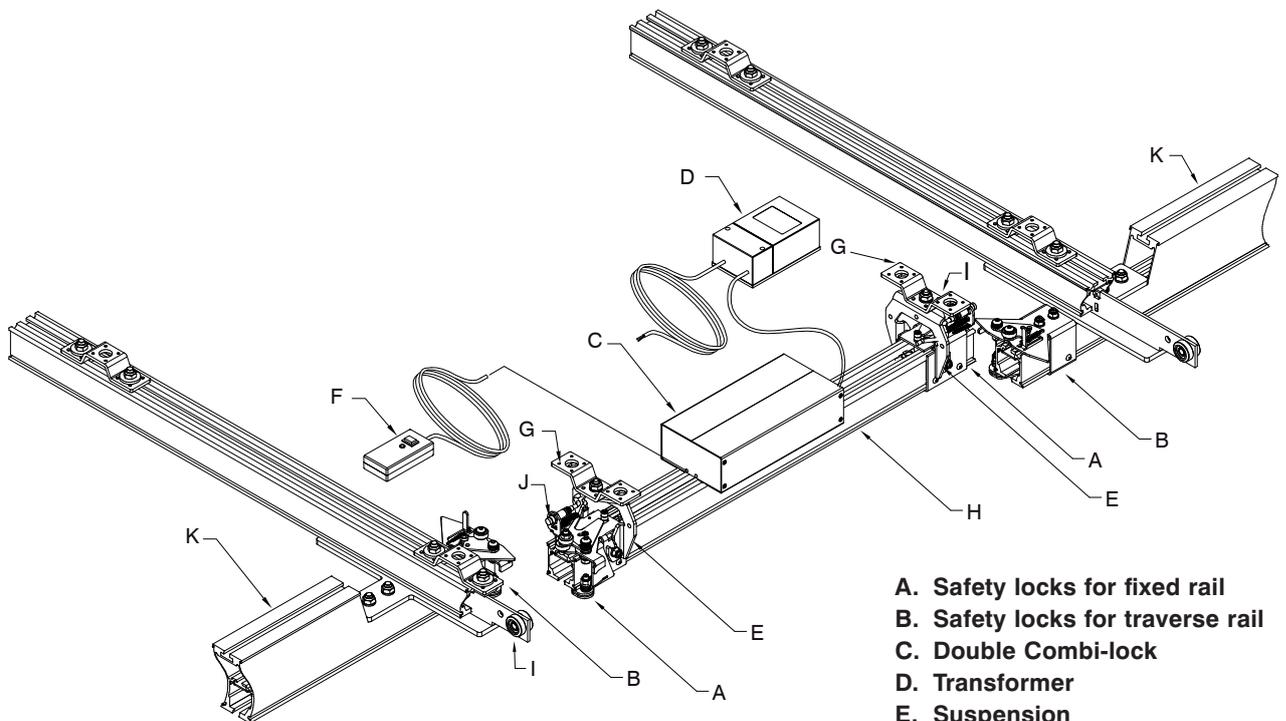
The two room-covering systems are joined by means of a A rail on which the double Combi-lock is mounted. The double Combi-lock cannot be installed in the door opening due to insufficient space. Therefore it is installed in one of the two rooms with the room-covering systems.

The double Combi-lock is **always** electric. In new buildings, for instance, the switch can be built into the wall.

When two room-covering systems are joined, the rail that locks them together must be suspended in order for the two systems to be at the same height.

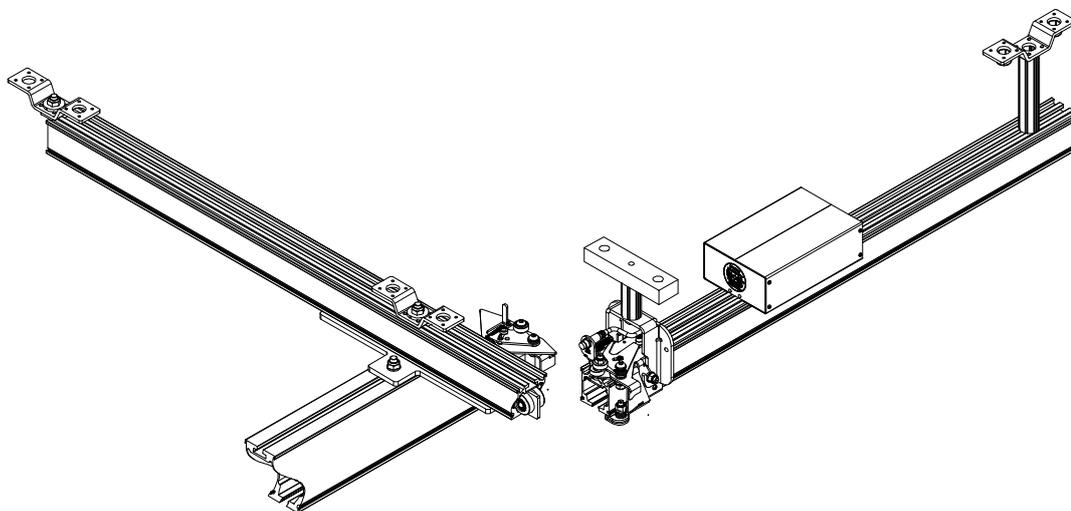


Double Combi-lock (C):
L=260 mm, W=130 mm, H=67 mm

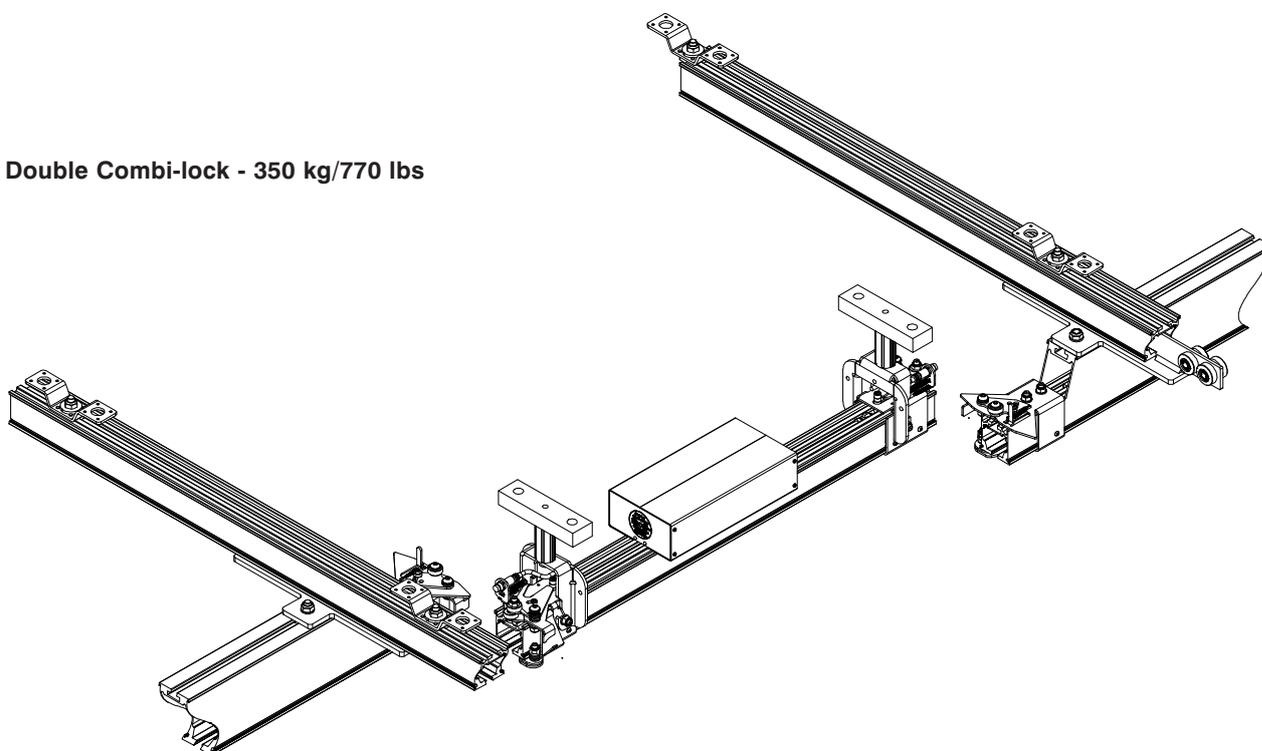


- A. Safety locks for fixed rail
- B. Safety locks for traverse rail
- C. Double Combi-lock
- D. Transformer
- E. Suspension
- F. Hand control
- G. Ceiling bracket
- H. Rail A
- I. Traverse Trolley
- J. Sensor
- K. Traverse rail

Single Combi-lock - 350 kg/770 lbs



Double Combi-lock - 350 kg/770 lbs

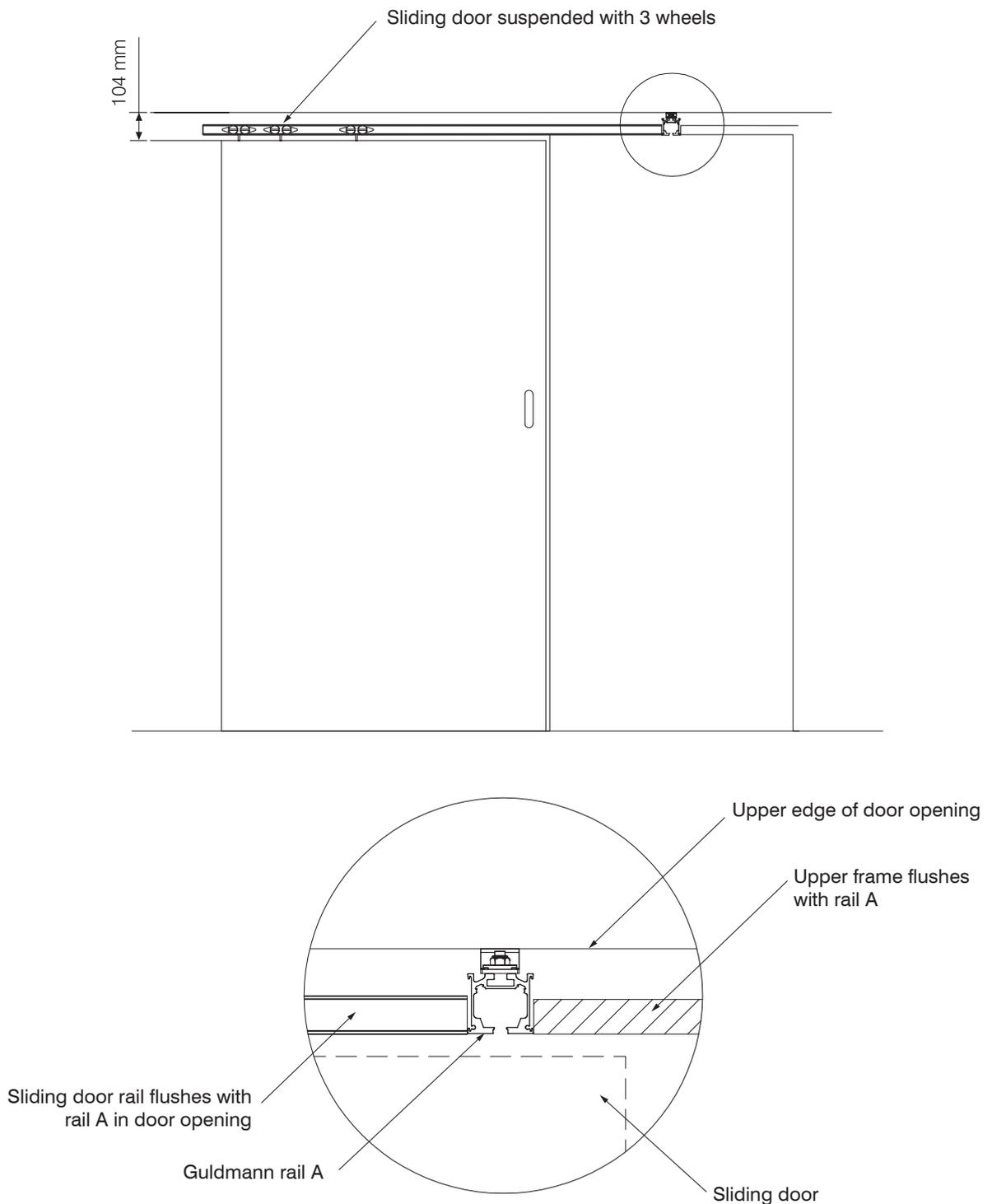


The following measurements are valid for sliding door:

- In connection with a single rail system (A-rail) the height of the door plate is calculated as the height of the ceiling in mm minus 112 mm.

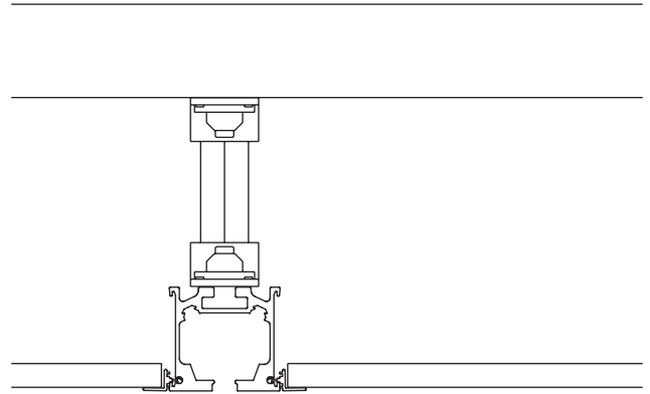
This example illustrates the most frequently used methods when linking rails in two rooms. If other requirements arise in connection with a project, Guldmann will be pleased to help find the best solution.

If a coping board is to be used to conceal a sliding door rail, this board must hang at a maximum of 8 mm below the lowest edge of the hoist rail, as a wider board could hinder the free passage of the hoist through the door opening.



Single rail systems

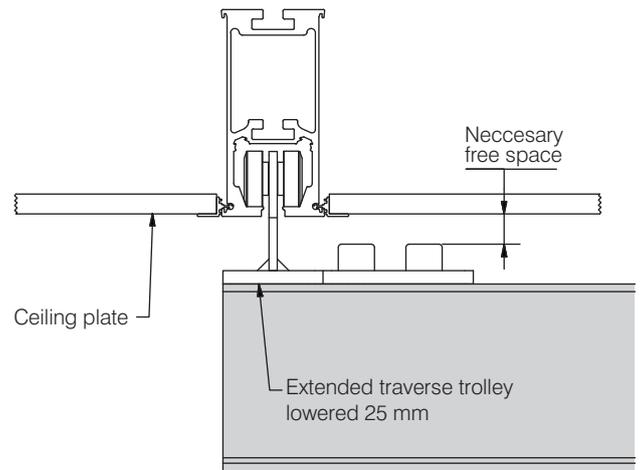
Single rail systems can be built into the ceiling, so that only the lower edge of the rail is visible by using the profile for suspended ceiling.



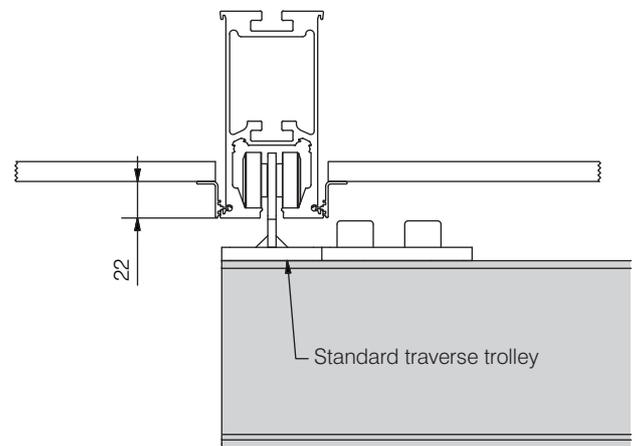
Room-covering systems

In a room-covering system it will be possible to build in the parallel rails flush with the ceiling or to raise the ceiling 22 mm from lower edge of parallel rails.

Parallel rail flushes with ceiling



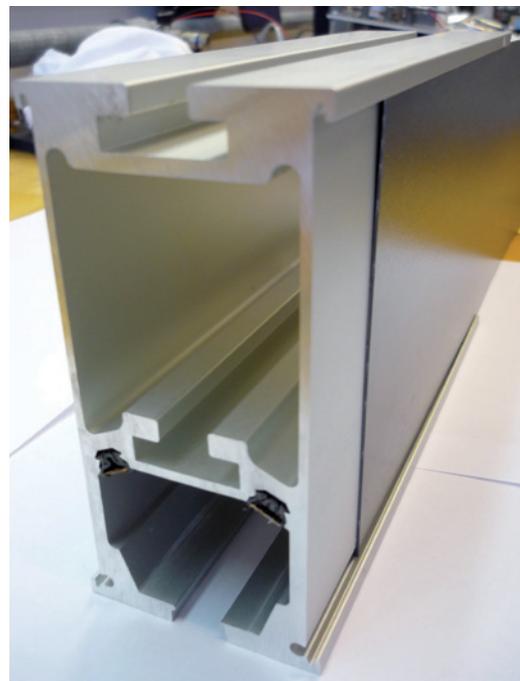
Parallel rail with 22 mm raised ceiling



Inserting side cover on rails

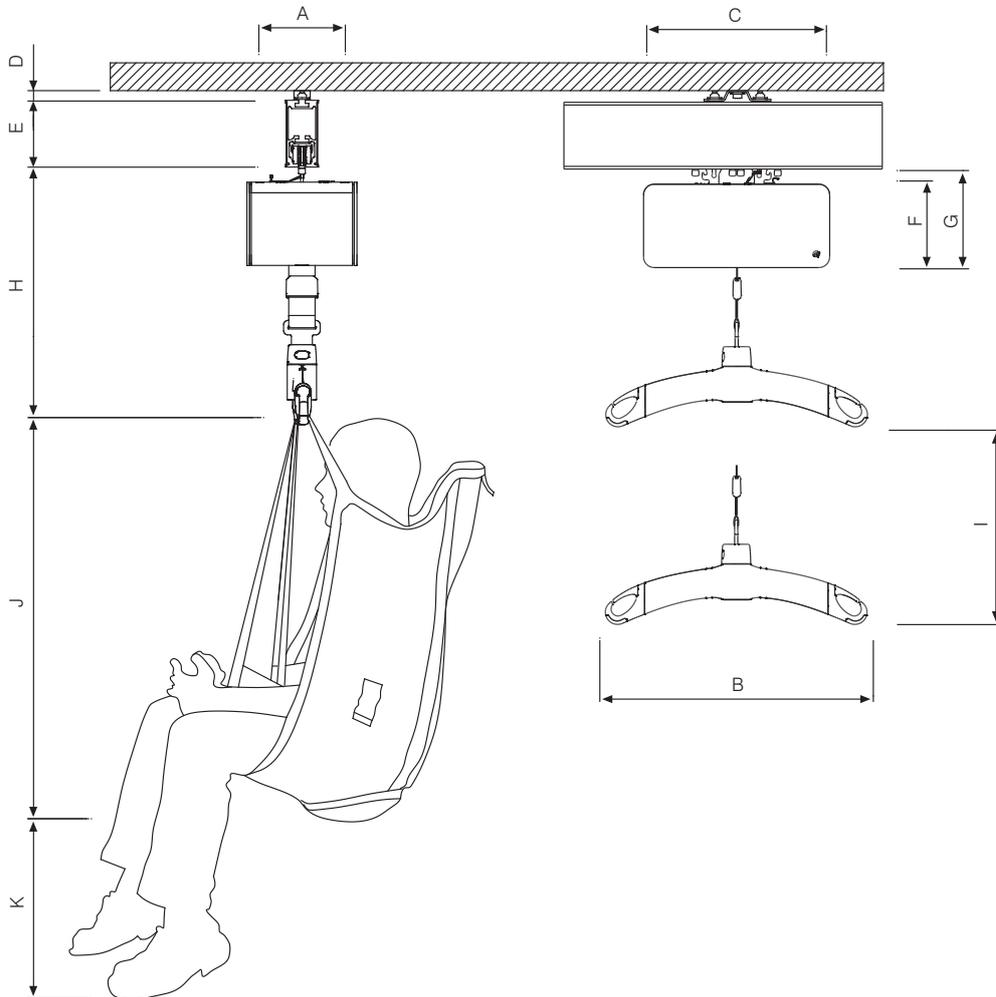
The cover is placed in the top and bottom groove on the side of the rail.

The covers can have different colors, the standard colors are white and grey. But other colors or patterns can be provided.



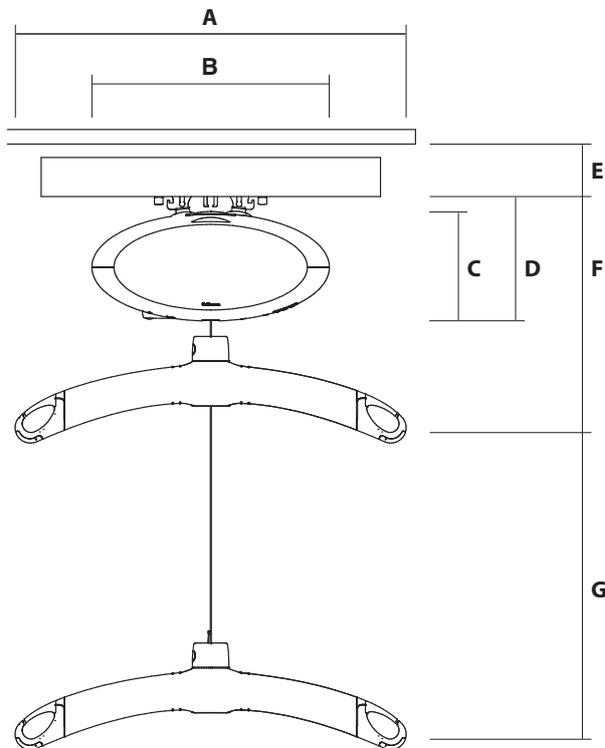
Dimensions

A	205 mm
B	580 mm
C	345 mm
D, Ceiling bracket standard	24 mm
E, A/B/C	58,5/125/170 mm
F	156 mm
G	184 mm
H,	415 mm
I	2500 mm
J, Basic High M	970 mm
K, Basic High M	340 mm



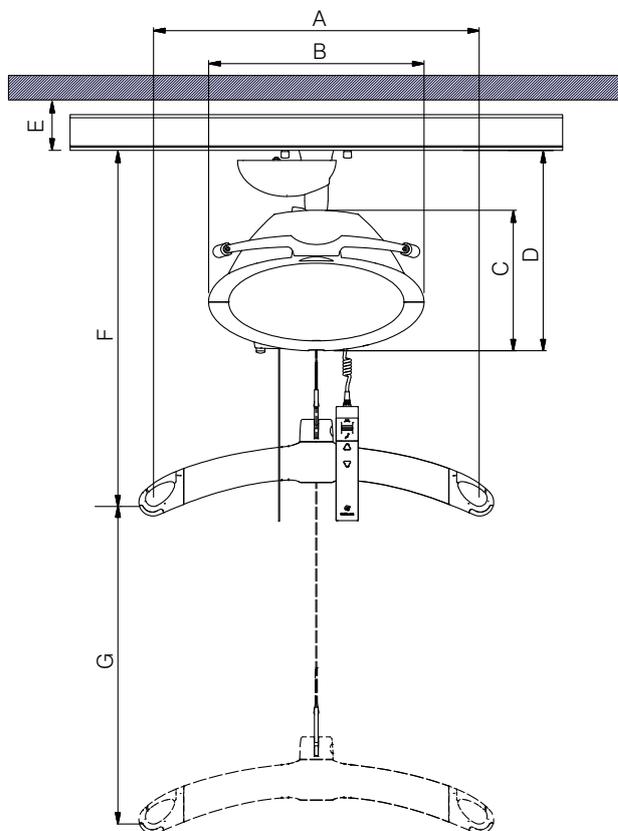
Dimensions

A	580 mm
B	350 mm
C	156 mm
D	184 mm
E, min.	83 mm
F, min.	415 mm
G	2500 mm
Depth of hoist	194 mm



Dimensions

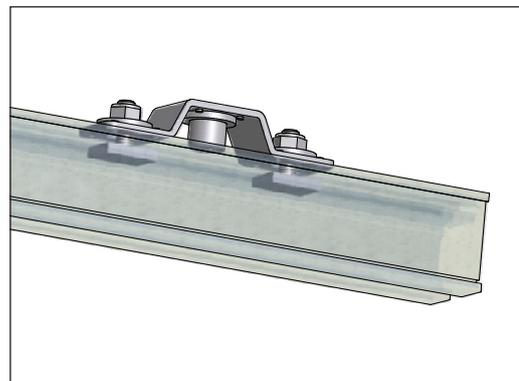
A	530 mm
B	350 mm
C	230 mm
D	330 mm
E, min.	83 mm
F, min.	580 mm
G	2500 mm
Depth of hoist	194 mm



GH ceiling bracket standard

Use: The GH ceiling bracket standard is used for single rail and room-covering systems. The distance between the upper edge of the rail and the ceiling must be 25 mm.

Installation: Depending on the underlying surface or/and the lifting capacity, the GH ceiling bracket standard should be secured to the ceiling with one or two fittings. The bracket can be used on concrete and wooden ceilings.



GH ceiling bracket lowered standard for straight rails and rail curves

Use: The GH ceiling bracket lowered standard is used for single rail systems or room-covering systems.

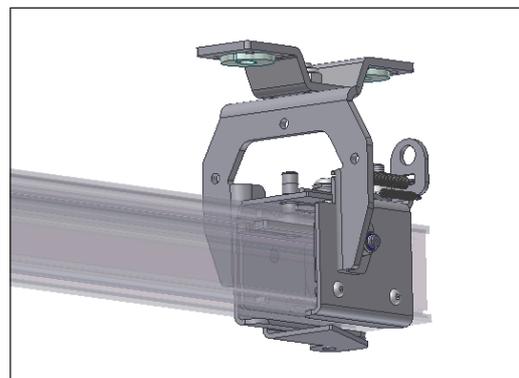
Installation: The GH ceiling bracket lowered standard should be secured to the ceiling with two fittings.



GH ceiling bracket standard for Combi-lock

Use: The GH ceiling bracket standard is used together with the suspension bracket when a Combi-lock is used in combination systems.

Installation: The GH ceiling bracket standard is mounted with 2 fittings in the ceiling.

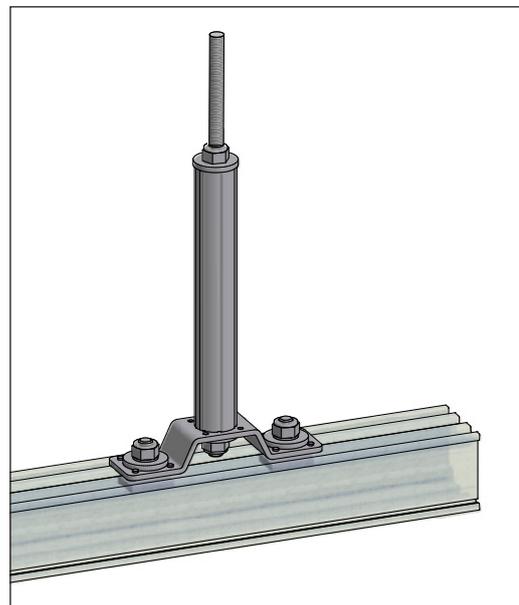


GH ceiling bracket lowered rod

Use: The GH ceiling bracket lowered rod (with aluminium profile) is used in connection with suspended ceiling constructions. The bracket is primarily used in rooms with high ceilings in order to be able to install the rail system beneath the suspended ceiling at an ordinary installation and users' height.

Installation: The GH ceiling bracket lowered rod is joined by cutting the aluminium tube to the required length.

Note: There is no limitation with regard to the length of the GH ceiling bracket lowered rod. But in connection with longer lengths the bracket should be anchored to the wall or ceiling with a stabilizing bracket to stabilize the rail system and ensure that the construction is solid even with a long suspension.



GH ceiling bracket slope lowered

Use: An adjustable GH ceiling bracket slope lowered (with aluminium profile) is used in rooms with high, sloping ceilings. The bracket makes it possible to install the rail system at an ordinary installation and users' height.

Installation: An adjustable GH ceiling bracket slope lowered, is connected by cutting the aluminium tube to the required length. The aluminium tube is first mounted on the U profile of the bracket. The bracket is then installed on the ceiling in the same way as with the other suspended ceiling brackets - but the angle can be adjusted on this type.

Exception: Must not be used in systems with a maximum load over 200 kg (440 lbs).

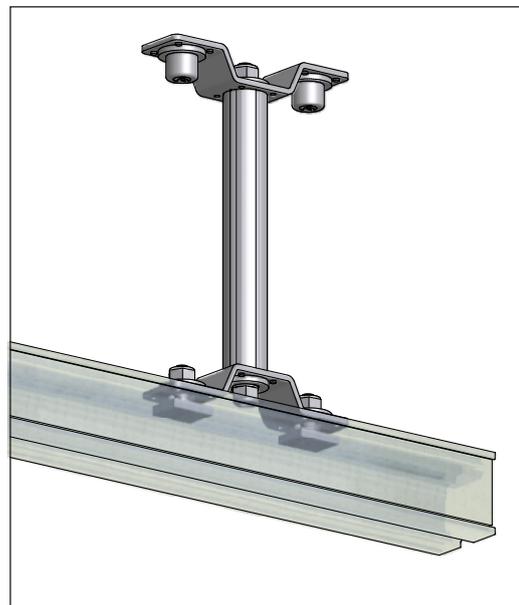


GH ceiling bracket straight lowered

Use: The GH ceiling bracket straight lowered (with aluminium profile) is used in connection with suspended ceiling constructions. The bracket is primarily used in rooms with high ceilings in order to be able to install the rail system beneath the suspended ceiling at an ordinary installation and users' height.

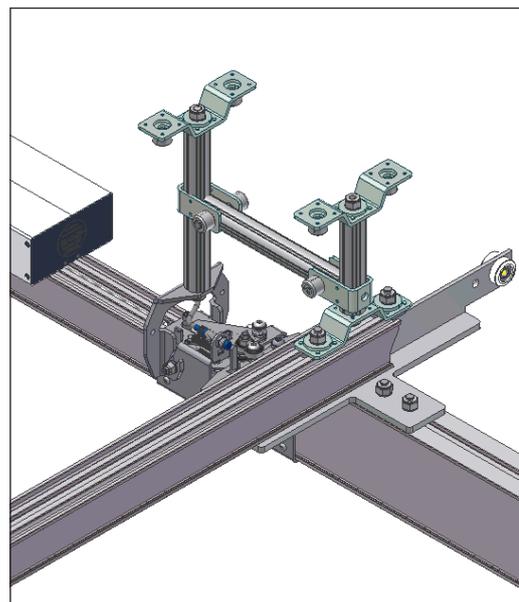
Installation: The GH ceiling bracket straight lowered is joined by cutting the aluminium tube to the required length. Remember to allow for the space required by the upper and the lower ceiling brackets.

Note: There is no limitation with regard to the length of the GH ceiling bracket straight lowered. In connection with the bracket it could be necessary to use a stabilizing bracket to stabilize the rail system and ensure that the construction is stable.



GH stabilizer bracket for Combi-lock

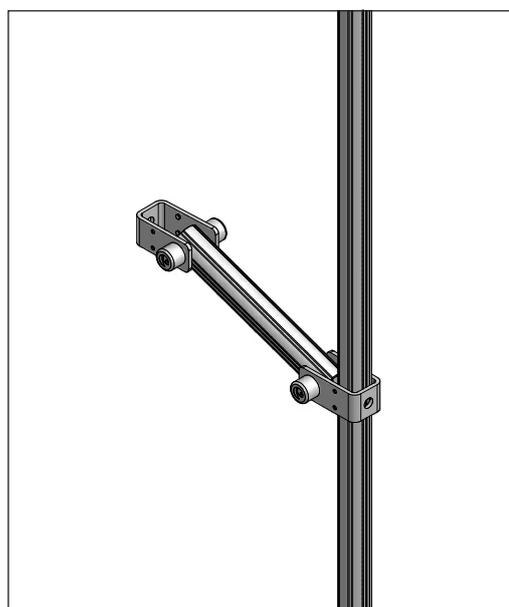
Is installed between room-covering rail system and single track rail system to stabilise connection of rails.



GH stabilizing bracket

Use: The GH stabilizing bracket is installed as a side support for a suspended GH ceiling bracket in cases where the rail system has been lowered considerably relative to the ceiling. Even in connection with long suspension lengths this makes the construction very stable.

Installation: A holder is mounted around the aluminium tube on the GH ceiling bracket. The aluminium tube on the stabilizing bracket is cut to length relative to the distance to the wall or ceiling and secured to the holder on the ceiling bracket.



Reinforcement

In cases where the ceiling construction consists of wooden rafters, it is necessary to install a reinforcement between the rafters in order to be able to install the ceiling bracket.

For reinforcement use timber minimum 4"x 4" – 100 x 100 mm, with appropriate fittings of the type BMF 3224 – 100 x 90 mm.

It is important to fasten the fittings with nails in the marked holes only, as illustrated, or else the timber may split.

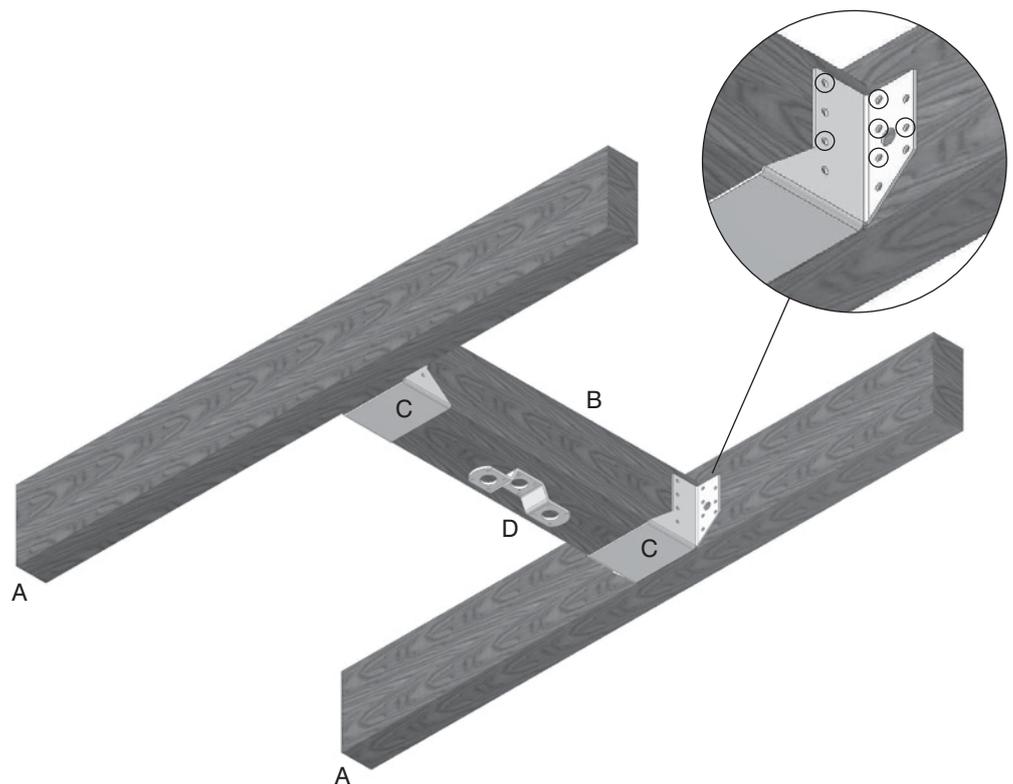
Lower edge of reinforcement shall be level with lower edge of rafters.

Shutter boards must be mounted direct under the reinforcement.

When mounting the Guldmann ceiling brackets in wood, it is important first to drill a hole with a 4 mm drill before fastening the bracket with screws.

Nail the fittings to the marked holes only.

- A. Rafters**
- B. Timber 4"x 4" – 100 x 100 mm**
- C. Fittings BMF 3224 – 100 x 90 mm**
- D. Guldmann ceiling bracket**



Reinforcement, Combi-lock

In cases where the ceiling construction consists of wooden rafters, it is necessary to install a reinforcement between the rafters in order to be able to install the ceiling bracket.

For combination systems it is important that the reinforcement is executed in such a way that any buckling of the system is aligned - i.e. fittings for parallel rail and fittings for combi-lock must be fixed to the same beam/reinforcement.

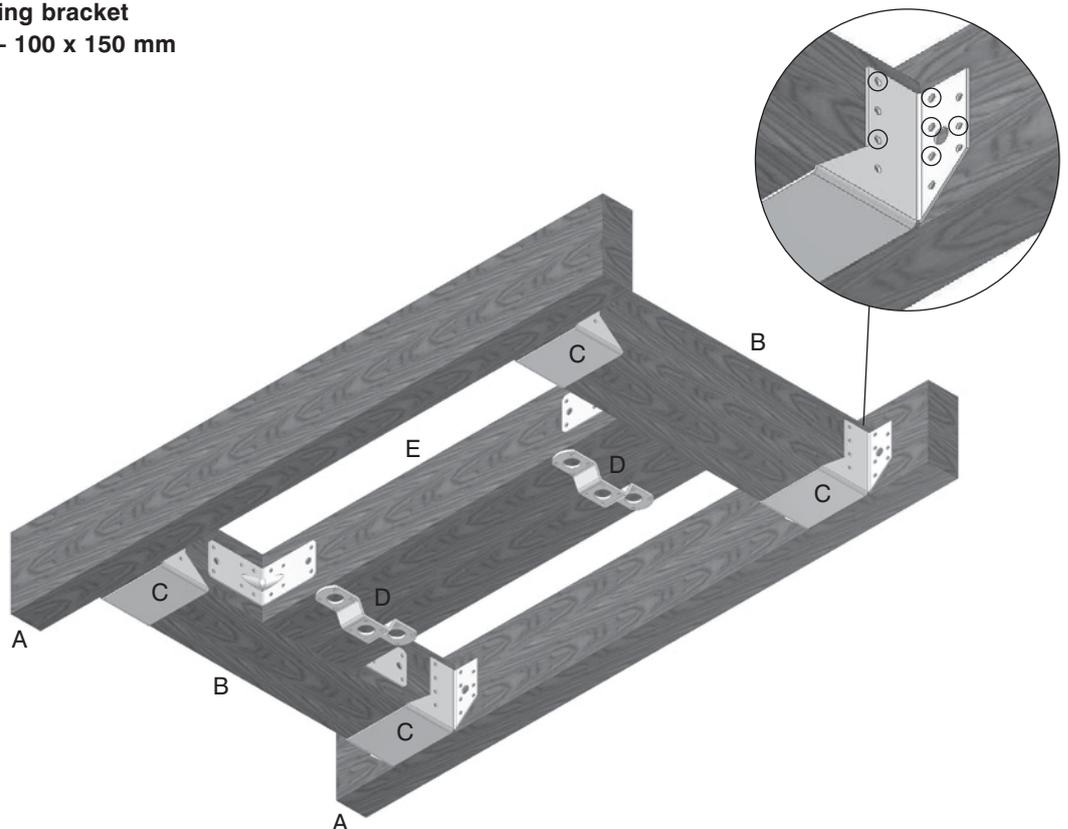
In the centre of the door opening fix timber 100 x 150 mm (4"x 6") on the side of timber 100 x 100 mm (4"x 4") with 4 angle brackets with ribs of type BMF 99.

It is important to fasten the fittings with nails in the marked holes only, as illustrated, or else the timber may split. Lower edge of reinforcement shall be level with lower edge of rafters.

Shutter boards must be mounted direct under the reinforcement.

Nail the fittings to the marked holes only.

- A. Rafters
- B. Timber 4"x 4" – 100 x 100 mm
- C. Fittings BMF 3224 – 100 x 90 mm
- D. Guldmann ceiling bracket
- E. Timber 4"x 6" – 100 x 150 mm

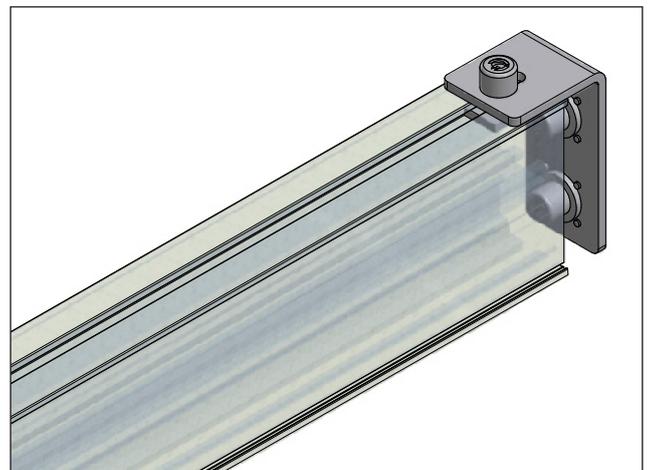


GH wall bracket end

Use: The GH wall bracket end is used to install all types of rail between vertical surfaces. The bracket can be used, e.g. in connection with installing room-covering rail systems in rooms where the ceiling is inaccessible or sloping.

The GH wall bracket can be installed on all types of wall – both brick and concrete, lightweight concrete, wood and plasterboard. But the GH wall bracket end must be combined with a GH plasterboard bracket on plasterboard walls without wall reinforcement.

Installation: The GH wall bracket must be secured to the wall with two fittings.



GH plasterboard bracket

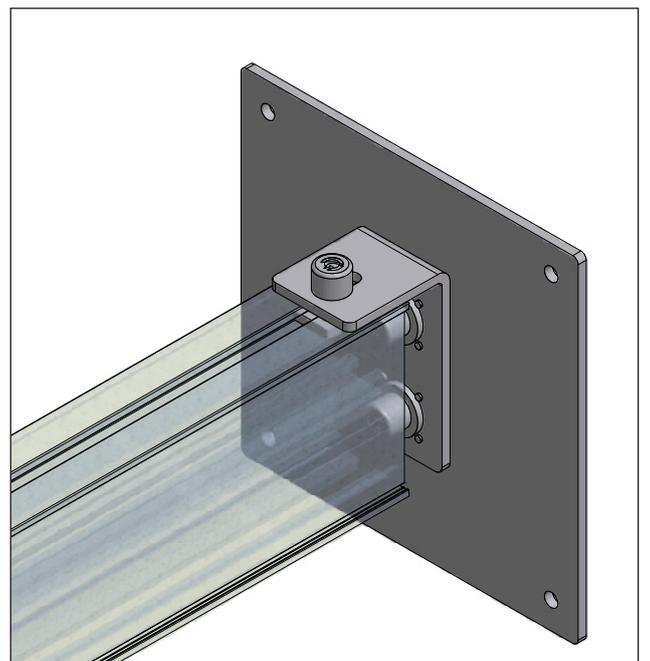
Use: The GH plasterboard bracket is used as an adapter for the GH wall bracket in connection with installations on plasterboard walls or other types of light wall.

A GH plasterboard bracket provides the necessary high stability and strength to install rail systems on plasterboard walls. But it is a requirement that these are double plasterboard walls at least 24 mm thick.

Installation surface (WxH) 303x303 mm.

Installation: The GH plasterboard bracket can be secured direct to the plasterboard wall with four Fischer HM 5x65 S. The GH wall bracket end must then be secured to the two threaded rods on the GH plasterboard bracket with 10 mm lock nuts.

Exception: Must not be used in systems with a maximum load over 200 kg (440 lbs).

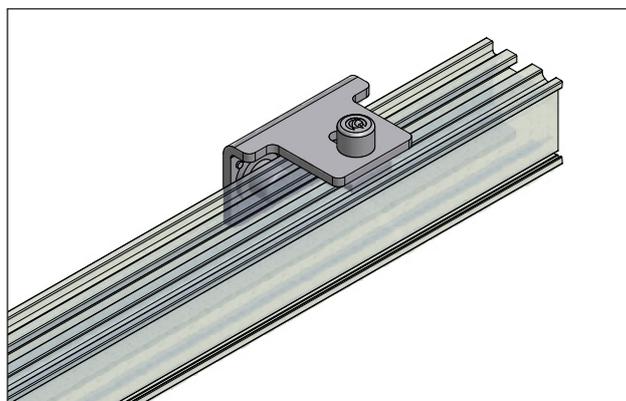


GH wall bracket side

Use: The GH wall bracket side, is used as side-hung brackets at the parallel rails in a room-covering system. The GH wall bracket can be installed on all types of wall – both brick and concrete, lightweight concrete, wood and plasterboard. But the GH wall bracket end must be combined with a GH plasterboard bracket on plasterboard walls without wall reinforcement.

Installation: The GH wall bracket for side-hung rails must be secured to the wall with two fittings.

Note: The GH wall bracket for side-hung rails can also be used as an end bracket.



Mounting of brackets in plasterboard walls requires wall reinforcements.

Each reinforcement must consist of :

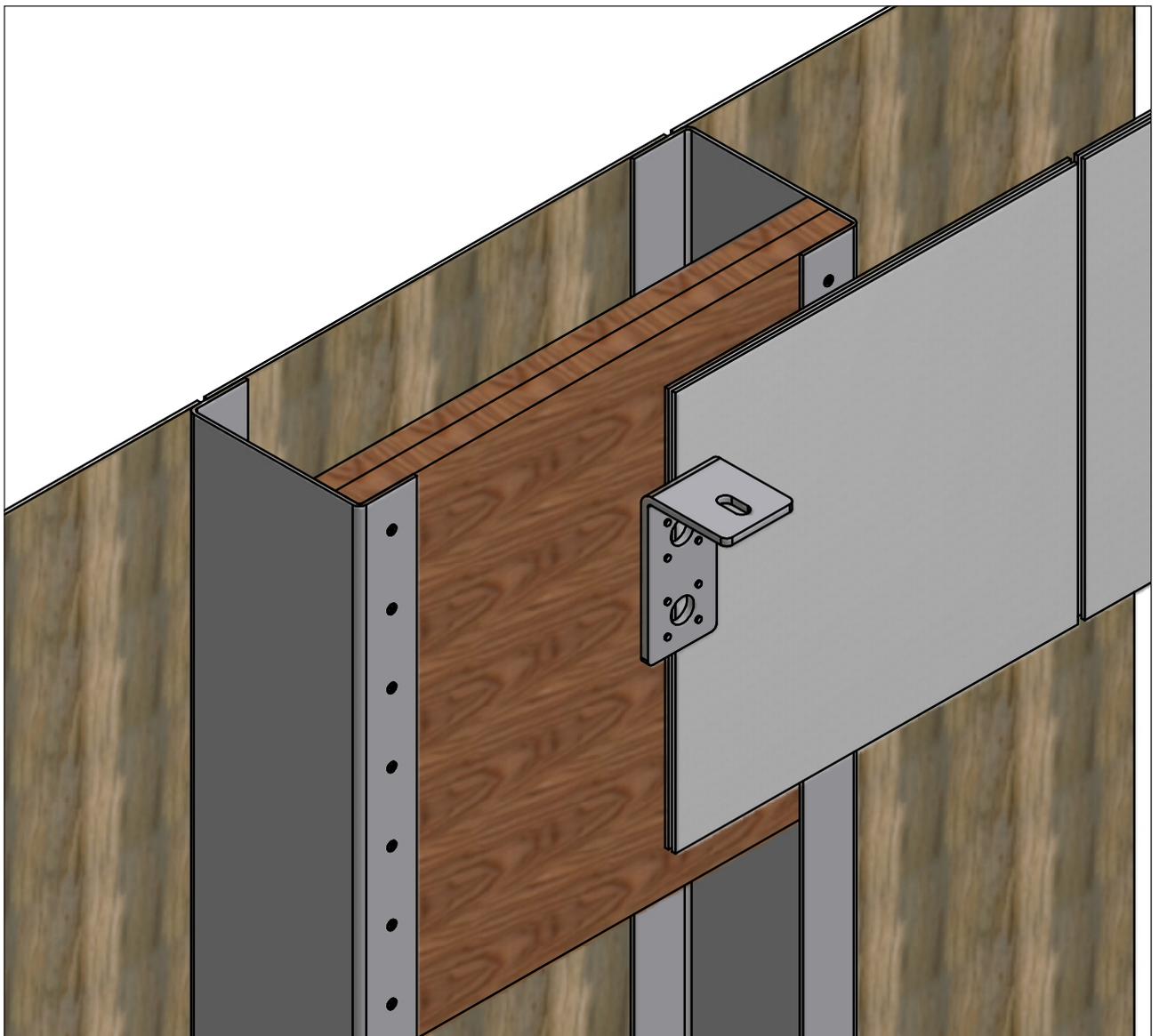
2 pcs of 21 mm plywood sheets of Finnish beech.

Height: 400 mm.

Width: distance between vertical steel latches according to Guldmann layout for placing of rails.

The plywood sheets are mounted with 7 pcs of flat-headed screws 4x32 mm on each of the vertical steel latches.

As standard the plywood sheets shall be placed as close to the ceiling as possible.



GH upright support bracket

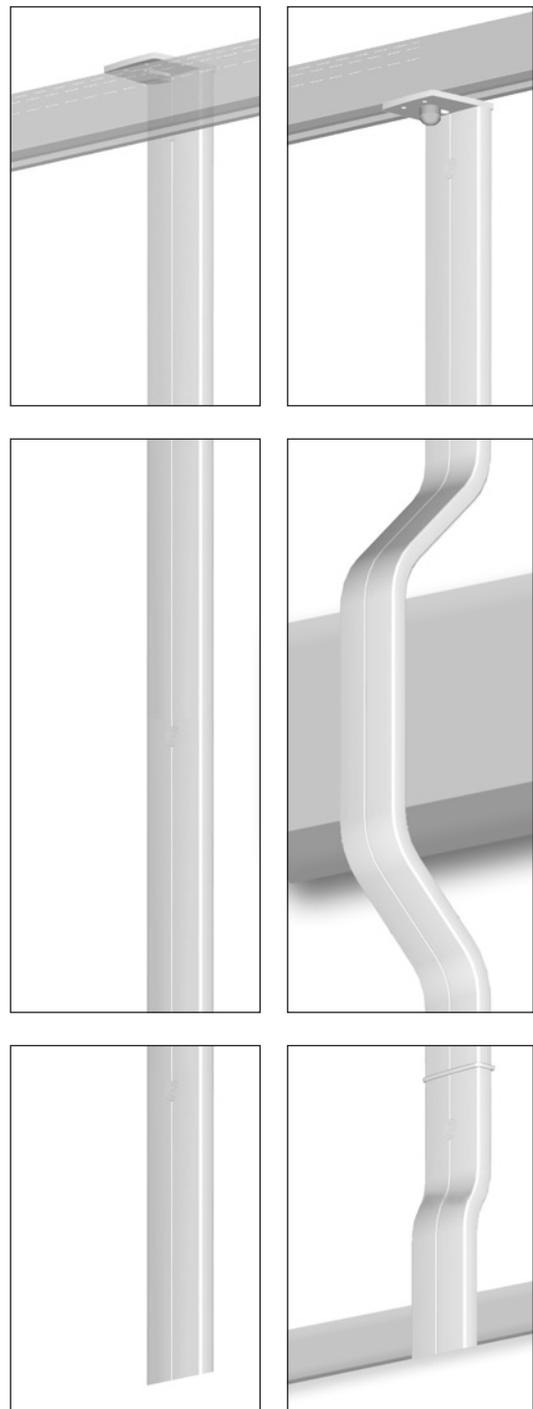
Use: The GH upright support bracket is used in rooms where it is impossible to secure brackets to the ceiling or the wall. These could be rooms with extensive window areas, for example.

The GH upright support bracket can be supplied with various types of adapter that make it possible to lead studs around such obstacles as cable and installation panels or skirting boards.

The GH upright support bracket and adapter can be used e.g. at institutions or hospitals, where it is difficult to fasten brackets to the ceiling due to various pipe systems.

Installation: The GH upright support bracket is installed on the floor, but the brackets must also be fastened to the wall in order to guide them.

Can be mounted on single plasterboard.

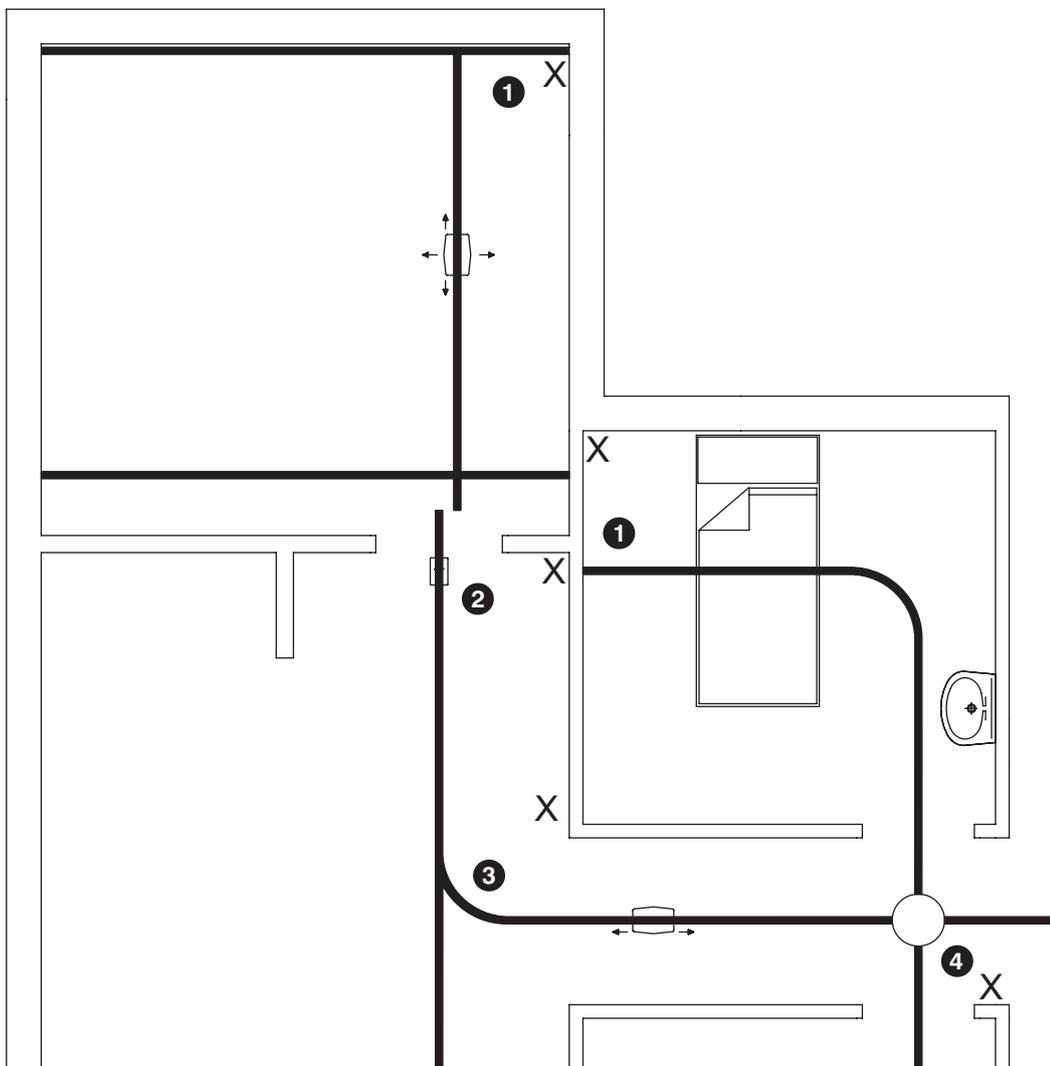


The transformer must be connected to the power supply when a ceiling hoist system is installed:

- 1 Transformer for charging of hoist
- 2 The Combi-lock
- 3 The switch track
- 4 The turntable

Transformer

A transformer must be used in connection with the Combi-lock and turntable.

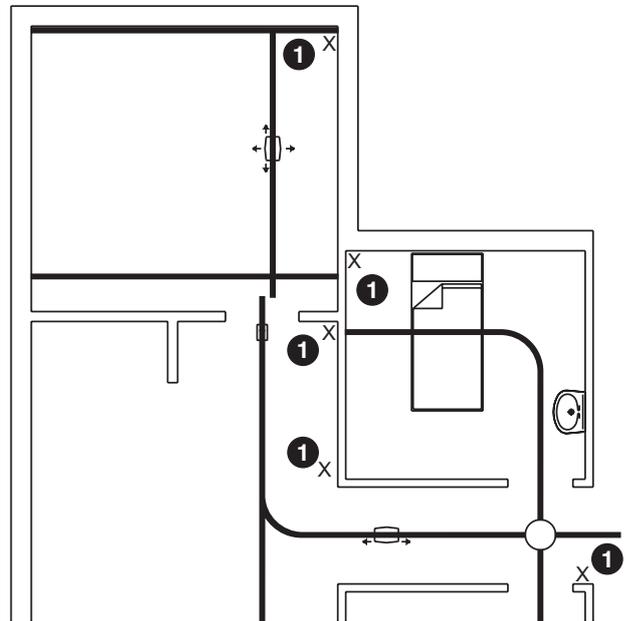
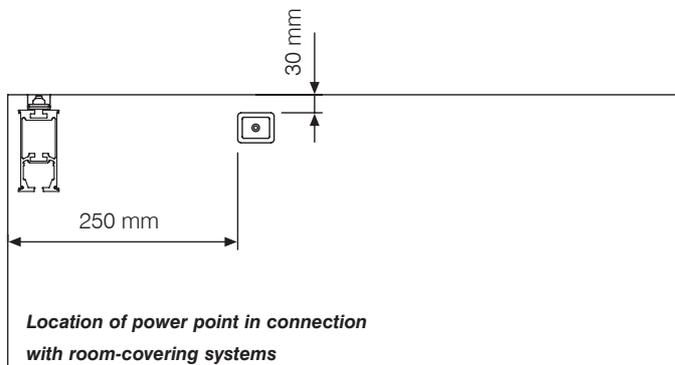


1 Location of transformer

The transformer must be connected to the power supply when a ceiling hoist system is installed:

In connection with single rail systems the power point should be located in the closest corner (2).

In connection with room-covering systems the transformer should be located in the corner with regard to accessibility and furnishings (1).



**2 The Combi-lock
(the linking rail between two rail systems)**

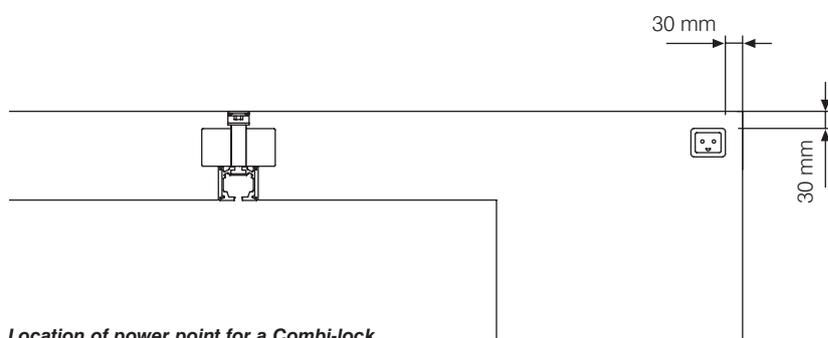
A 110/220 V electrical point (a plug without a switch) must be used for the Combi-lock. The transformer should be plugged into the power point.

Where possible the power point should be installed on the ceiling – on a truss for example above a suspended ceiling, where applicable. If this is not possible the power point should be installed on the wall near the ceiling in the corner closest to the Combi-lock.

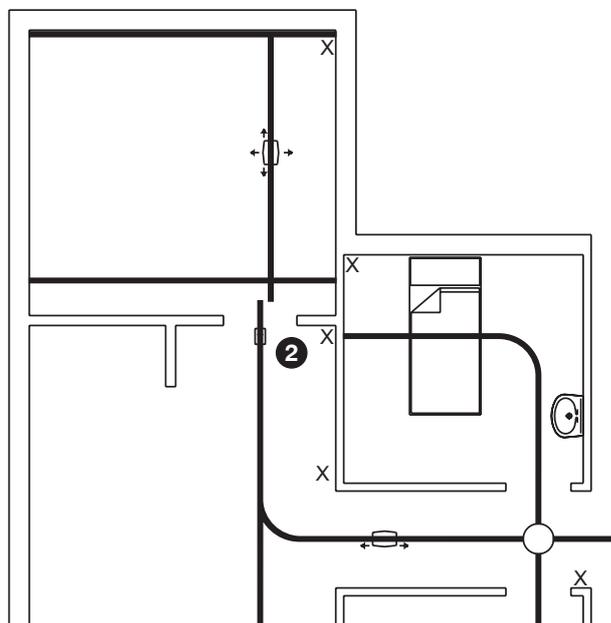
Hand control for the Combi-lock

When the hoist is run from one rail system to another the Combi-lock is activated with the help of a hand control. The hand control (illustration A) should be placed at an ordinary height next to the door opening.

The hand control for the Combi-lock can also be integrated into a wall switch (illustration B).



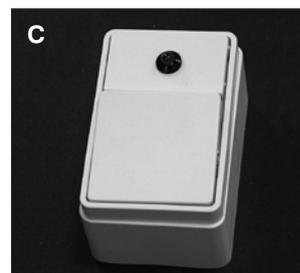
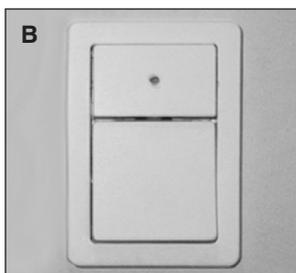
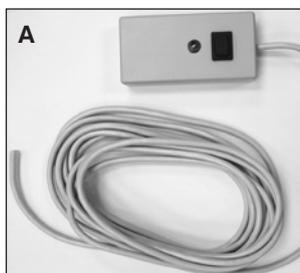
Location of power point for a Combi-lock



A. Hand control for Combi-lock

B. It is possible to integrate the hand control for Combi-lock into a wall switch (1,5 module FUGA).

C. Direct fixed handcontrol at wall



3 Switch tracks

A 110/220 V electric point (a plug without a switch) must be used for the switch tracks. The transformer should be plugged into the power point.

Where possible the power point should be installed on the ceiling - on a truss for example above a suspended ceiling, where applicable. If this is not possible the power point should be installed on the wall near the ceiling right next to the rail.

Hand control for the switch tracks

The same procedure should be carried out in connection with installing the hand control for the switch track as when installing a hand control for the Combi-lock, however, the former does not have a light diode.

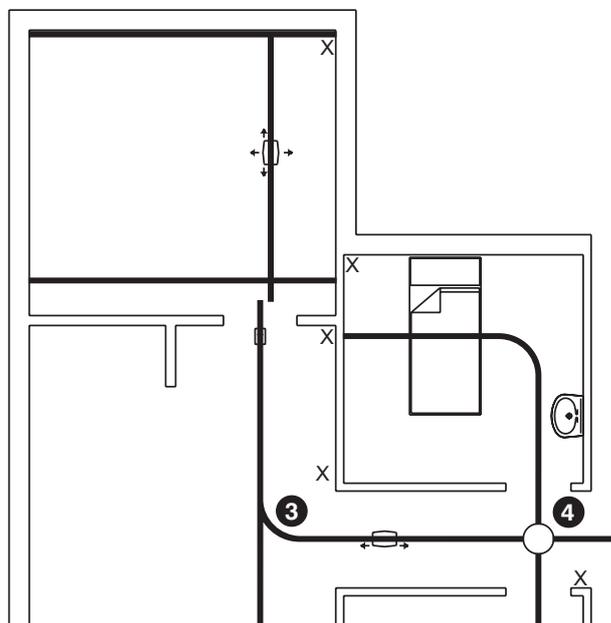
4 Turntable

A 110/220 V electric point (a plug without a switch) must be used for the turntable. The transformer should be plugged into the power point.

Where possible the power point should be installed on the ceiling - on a truss for example above a suspended ceiling, where applicable. If this is not possible the power point should be installed on the wall near the ceiling right next to the rail.

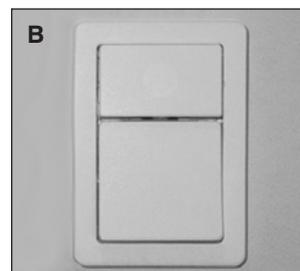
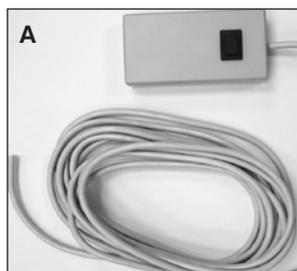
Hand control for the turntable

The same procedure should be carried out in connection with installing the hand control for the turntable as when installing a hand control for the Combi-lock, however, the former does not have a light diode.



A. Hand control for switch track and turntable

B. It is possible to integrate the hand control for turntable into a wall switch.
(1,5 module FUGA).



These precautions apply to installations made in Denmark. Local requirements may differ.

Guldmann ceiling hoist and rail systems are manufactured and installed in accordance with the rules on Electro-Medical Equipment IEC 60601-1.

Guldmann has a UL/DEMKO approval of its products which confirms that they meet the requirements contained in IEC 60601-1.

This regulation defines how medical equipment must be classified and also how it must be protected so that danger of electric shock does not arise when handling the products.

Guldmann ceiling hoist and related rail system are classified as equipment in Class I – High Voltage Regulation, Electro-Medical Equipment, Chapter 14.

Reference is made to Fig. 701A – Area Division 0 to 3.

Installation of the rail system is carried out with safety voltage – designated SELV. The safety transformer with a nominal voltage of 33 V AC voltage.

In accordance with the High Voltage Regulation, Chapter 701 – AREAS WITH BATHTUBS OR SHOWERS

Chapter 701.4 Protection for safety reasons

When SELV is used (safety voltage), protection against direct contact must be in place regardless of the size of the voltage, i.e. to min IP2X.

The geometry of the live rails meet the requirements for protection against contact.

Chapter 701.413.1.6 Additional equalizer

Note

Metallic pipes and ducts (Guldmann aluminium rails) which are only found in these four areas and are not conductive when in contact with earth or parts outside the areas do not have to be connected to the equalizers.

Regarding installation of Guldmann rail systems in bathroom environments

Guldmann power supply (transformer) must **not** be installed and charging of hoist must **not** be carried out in Areas 0, 1 and 2. Power supply and charging area **must** be located outside Area 2, but hoist and rails may be used inside the area.

If e.g. cleaning by hosing, the power supply and charging area must be located completely separate from the area in which splashing with water may occur.

If the rail system is only installed in the bathroom and not in other rooms outside the bathroom, the rails do **not** need grounding.

Grounding **MUST** be done if the rails continue outside the bathroom **and** the lower edge of the rail is **less than** 3.0 m above the floor.

Excepted are:

Single rails hanging higher than 2.25 m above the floor and **not** continuing into Area 0, 1 and 2.

For single rails the grounding may be located as required either in the bathroom or in the adjacent room.

The parallel rails do not need to be grounded.

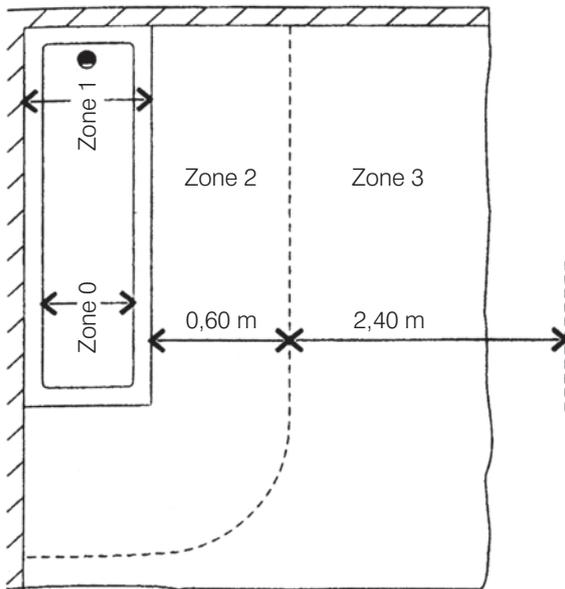
Note

These rules have been issued by the Electricity Council and form part of the High Voltage Regulation.

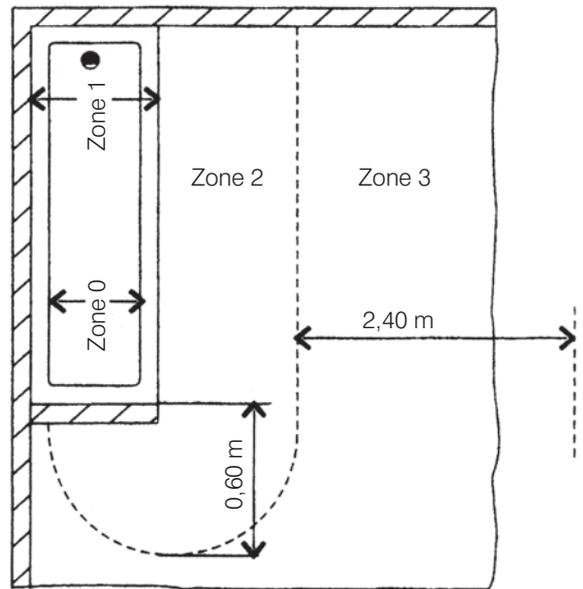
There **may** be special local requirements for the installation of rail systems in medical treatment areas.

Any special requirements carried out without the participation of Guldmann are at the purchaser's own risk.

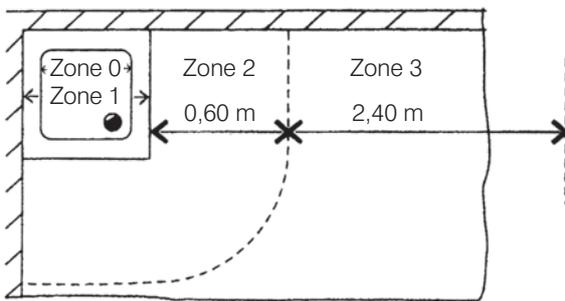
a) Baignoires



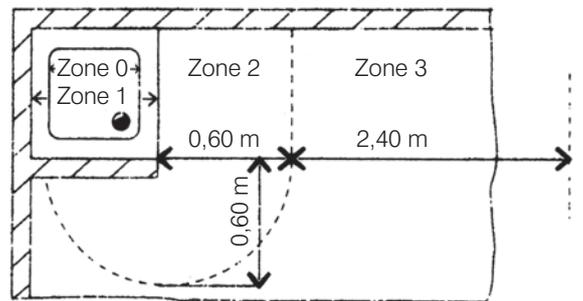
b) Baignoires avec cloison fixe



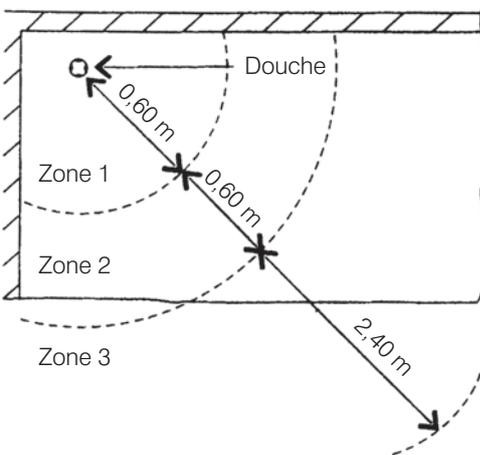
c) Douche



d) Douche avec cloison fixe



e) Douche sans bac



f) Douche sans bac mais une cloison fixe

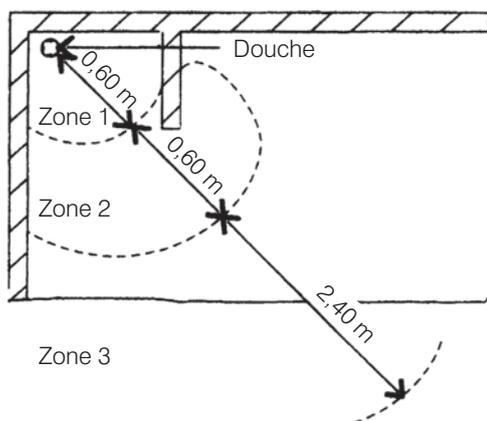


Figure 701 A – Area distribution (plan)

