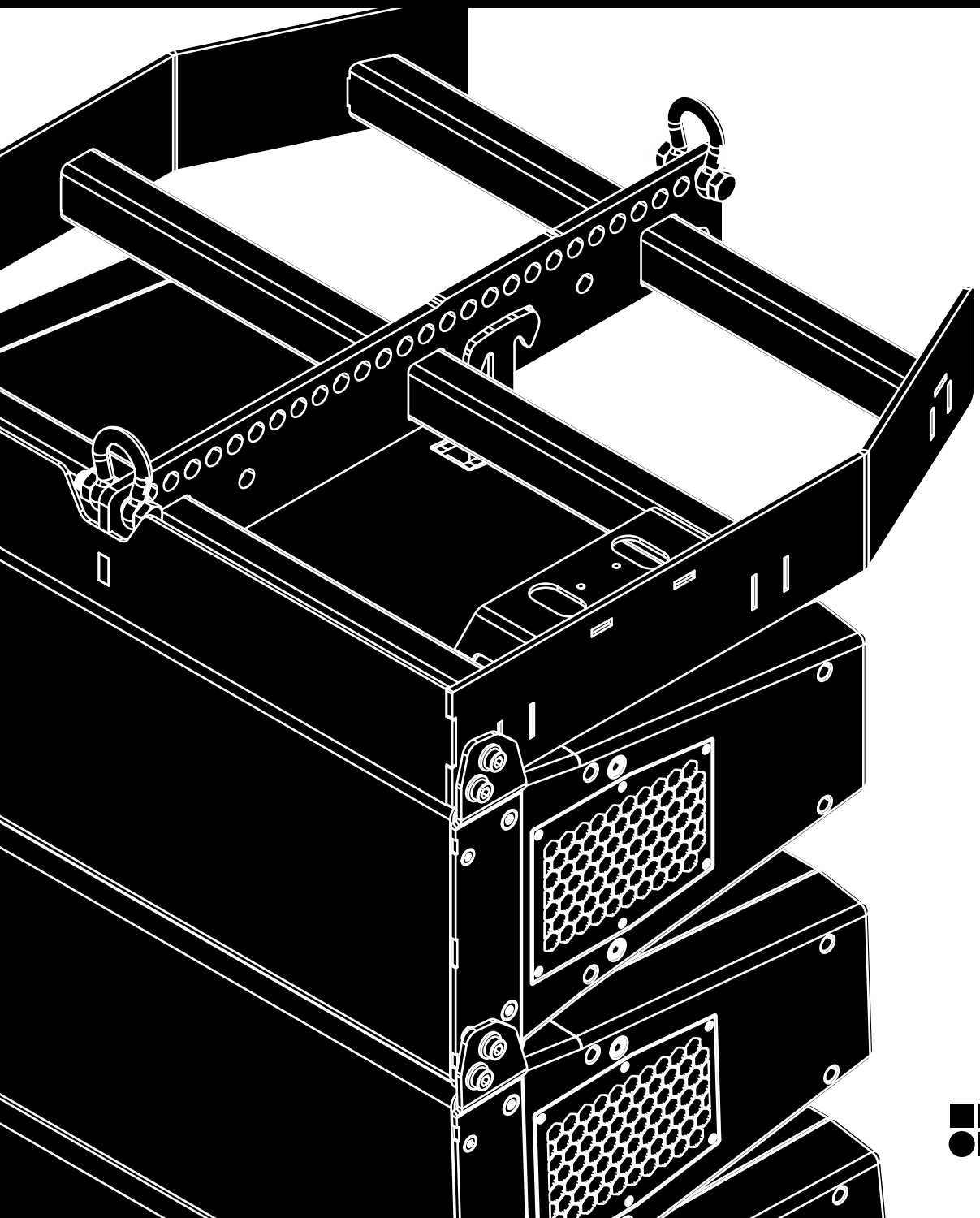
CL

CCLi
Rigging manual
1.2 en



d&b audiotechnik

Notes on document version
All previous versions of this document are hereby no longer valid.

Version 1.2:
Front rigging fixing screws: Torque changed to 20 N·m.

Please refer to:
⇒ Chapter 2.5.1 “Front rigging strands” on page 16.

General information

CCLi Rigging manual

Version: 1.2 en, 07/2026, D2787.EN .01

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1.1 Intended use

The CCLi rigging components must only be used in conjunction with d&b CCLi loudspeakers as described in this manual.

NOTICE!
Possible risk of water ingress!

When the system is deployed or installed in inclement weather with heavy rain, water ingress may occur.
While permanent damage is unlikely under normal conditions, water ingress can require cabinet disassembly for drainage to prevent damage to internal components.

Users must exercise caution and take special precautions during outdoor application in bad weather conditions with heavy rainfall. In such situations, the systems must be deployed underneath a roof or a roof overhang, whenever possible.
If direct exposure to severe precipitation cannot be avoided, the rear of the array must be protected using suitable means (custom rain covers, tarpaulins, or plastic wraps).

1.1.1 d&b ArrayCalc

For both safety and acoustic reasons, d&b line arrays must be designed using the d&b ArrayCalc simulation software. The software is available as a native stand-alone application for both Microsoft Windows and Mac OS X operating systems and can be downloaded at www.dbaudio.com.

Detailed information on how to use and operate ArrayCalc is provided by the Help system of the software. To access the Help system, press F1 or select the Help button () from the ArrayCalc toolbar. This will launch the HelpViewer which provides an overview of the program as well as a search function and direct access to the related topics.

In addition, ArrayCalc will provide you with typical array configurations within the permitted load limits and will help you get familiar with the mechanical load conditions and limitations.

d&b Seminar

We also recommend you to attend the regularly hosted d&b Line array training seminars. Further information regarding the d&b seminars and a seminar schedule can also be found on the d&b website at www.dbaudio.com.

d&b Video tutorials

In addition, d&b provides related video tutorials which can also be found on the d&b website at www.dbaudio.com.

1.2 General safety

- Installation and setup should only be carried out by qualified and authorized personnel observing the valid national Rules for the Prevention of Accidents (RPA).
- It is the responsibility of the person installing the assembly to ensure that the suspension/fixing points are suitable for the intended use.
- Always carry out a visual and functional inspection of the items before use. In case there is any doubt as to the proper functioning and safety of the items, these must be withdrawn from use immediately.

Please also refer to ⇒ Chapter 10 “Care and maintenance” on page 37.

1.3 Load capacity/Components and weights

Load capacity

NOTICE!

Z5826 CCLi Flying frame
The Z5826 CCLi Flying frame including Beam extension is designed to support a maximum total system weight of up to 500 kg (1100 lb) - SWL including all rigging components.

Z5827 CCLi-SUB Flying frame
The Z5827 CCLi-SUB Flying frame including Beam extension is designed to support a maximum total system weight of up to 500 kg (1100 lb) - SWL including all rigging components.

Components and weights

Loudspeaker

Z0890/Z0891 CCLi8/CCLi12 cabinets ..... 18.1 kg (40 lb)
Z0892 CCLi-SUB cabinet ..... 42.4 kg (93.5 lb)

Rigging components

Z5826 CCLi Flying frame ..... 12.5 kg (27.6 lb)
Z5827 CCLi-SUB Flying frame ..... 17 kg (37.5 lb)
Z5828 CCLi Beam extension ..... 4 kg (8.8 lb)

1.4 Secondary safety

General

All d&b rigging systems are inherently safe up to their uppermost suspension point. According to the "German regulation DGUV Information 215-313", hence they do not require a secondary safety device.

However, the user is solely responsible for ensuring that suspension devices which connect the uppermost suspension point of a d&b rigging system to a structure or building are properly dimensioned and single-fault safe.
If this additional equipment is not single-fault safe, a secondary safety device must be used.

Example
When the array is suspended with D8 Plus electric chain hoists only, it does not require a secondary safety device.

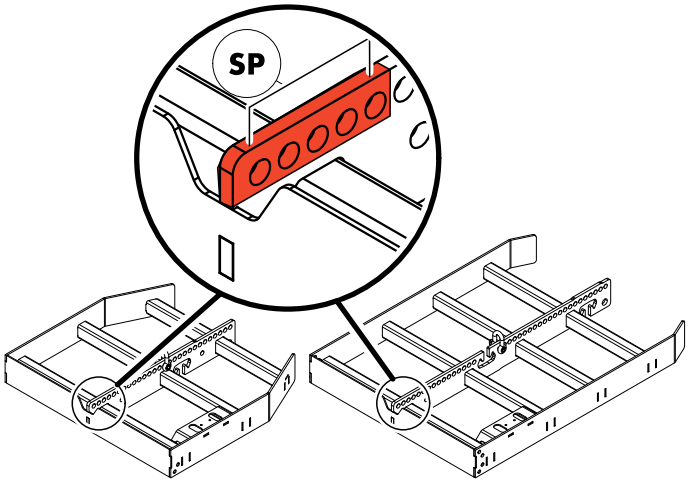
When using multiple electric chain hoists to suspend an array, each individual chain hoist must be capable of lifting the entire weight of the array.

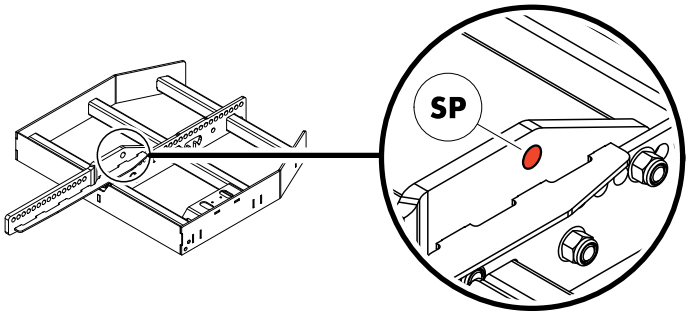
d&b rigging systems

d&b rigging systems offer dedicated safety connection points for a secondary safety device. These dedicated connection points must be used under all circumstances.
Any secondary safety devices must be dimensioned for the intended load.

Any secondary safety device must be mounted in a way that prevents the array from dropping and swinging should the primary suspension device fail.

Secondary safety devices must be suspended independently from the primary suspension device and must have a load capacity which is at least equal to the total weight of the entire system.





Assembly

1. With the CCLi Flying frames, the secondary safety device must be attached to the front of the frames using one of the first five holes **(Ⓢ - HOLE 1...5)**.

2. With the CCLi Beam extension attached to the front of the flying frames, If secondary safety is required the secondary safety device must be attached to the front of the safety point hole **(⇒ Ⓢ)** of the Beam extension.

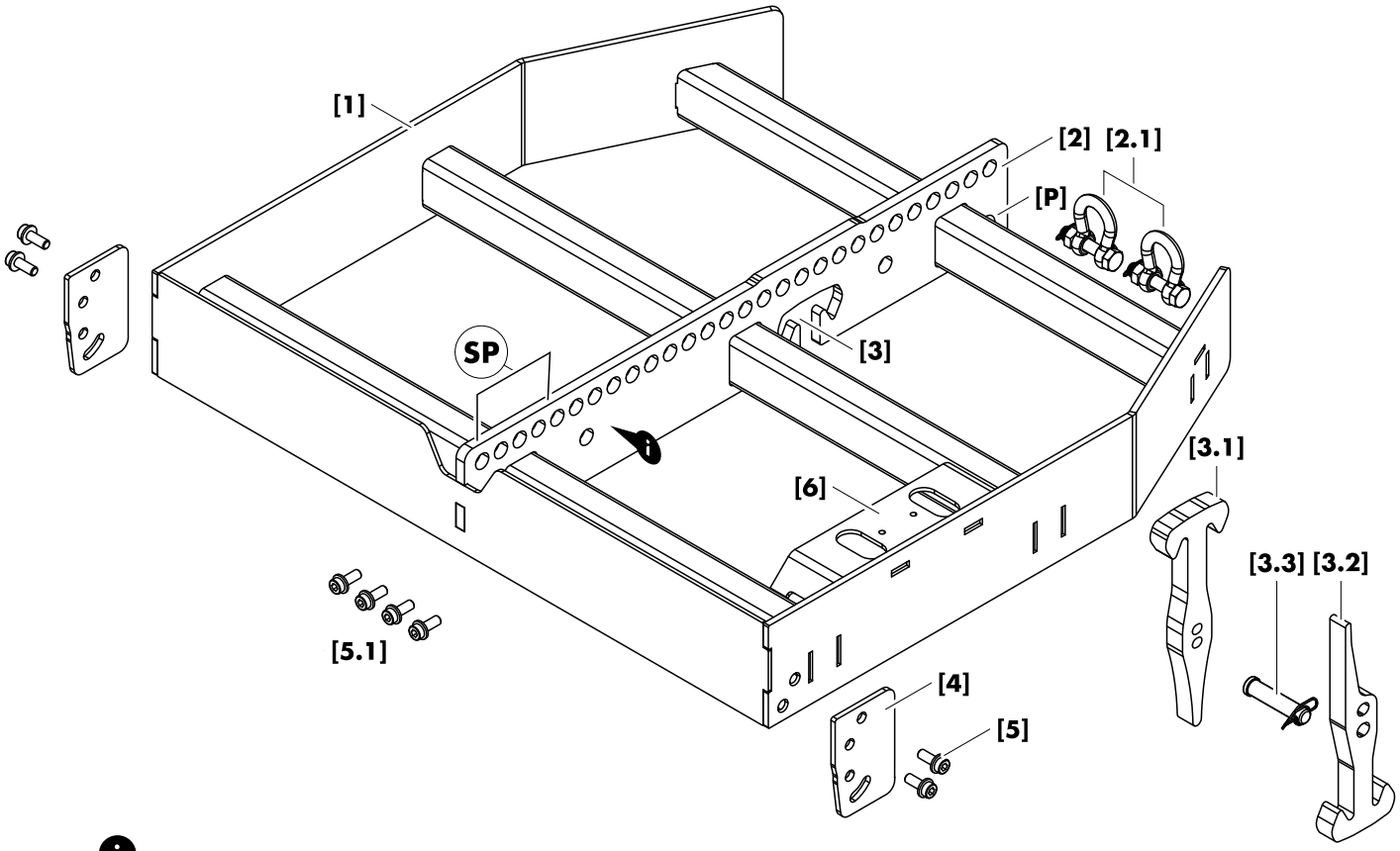


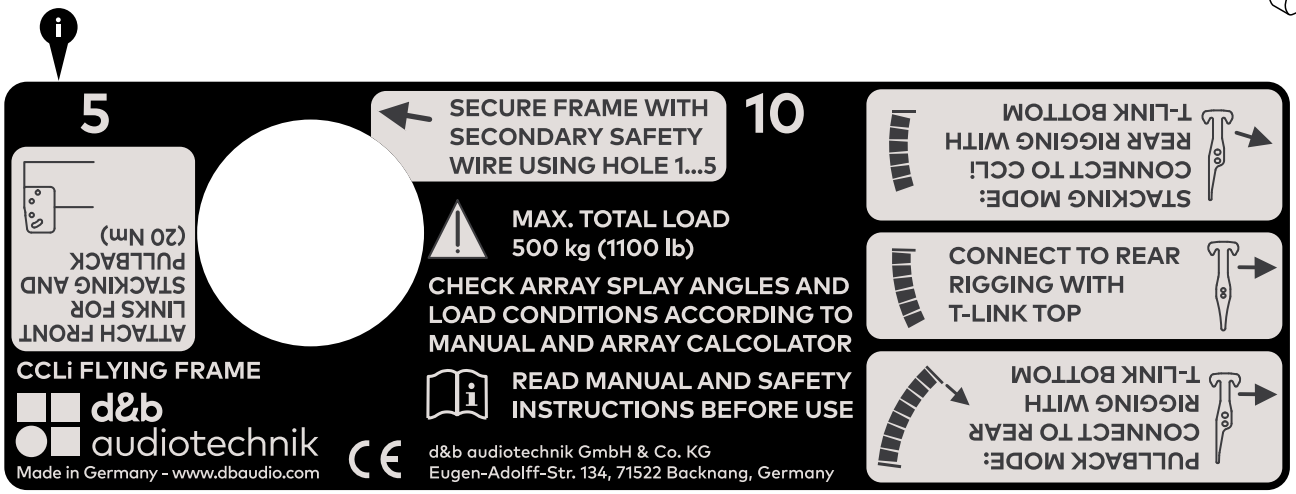
1.5 Operational safety

- The assembly should always be carried out by two persons.
- During assembly, pay attention to the possible risk of crushing. Wear suitable protective clothing.
- Observe all instructions given on the respective instruction labels of the rigging components and loudspeaker cabinets.
- When chain hoists are in operation, ensure that there is nobody directly underneath or in the vicinity of the load.

2.1 Z5826 CCLi Flying frame

Please verify the shipment for completeness and proper condition of the items.

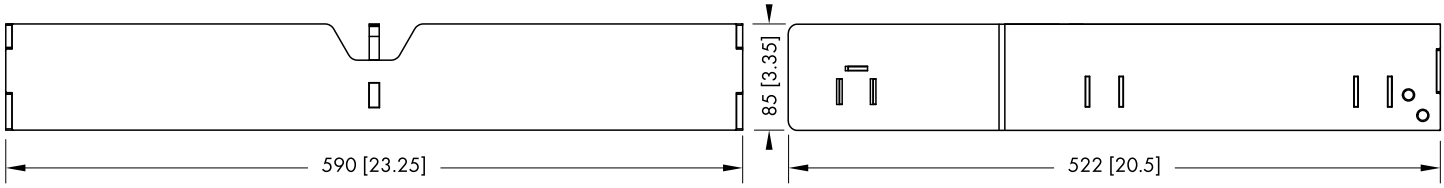




Pos.	Component	Description
[1]	Z5826 CCLi Flying frame	The **CCLi Flying frame** (12.5 kg/27.6 lb) is designed to support CCLi arrays (columns) consisting of: ▪ Pure CCLi-TOP (CCLi8/CCLi12) arrays with a maximum total system weight of up to 500 kg (1100 lb) - SWL including all rigging components. ▪ CCLi-TOP arrays in pullback mode setup.
[2] **[2.1]** **[P]**	Center beam 1 to. shackles Pick point pullback	Center beam of the frame with a total number of 28 holes allowing either dual or single pick point suspension of the frame (⇒ Chapter 2.4 "Suspension of the Flying frames" on page 15) using the enclosed 1 to. shackles (**[2.1]**). On the rear bottom of the center beam the additional hole **[P]** is used as pick point for the pullback device in pullback mode setup.

[3]
[3.1]
[3.2]
[3.3]
	T-Link slot
	T-LINK TOP
	T-LINK BOTTOM
	Additional fixing bolt
		The T-Link slot allows the attachment of the two enclosed T-Links (**[3.1]**/**[3.2]**).
		Depending of the type of setup the T-Links are used as follows:
		▪ **T-LINK TOP [3.1]**:
		  ▪ CCLi-TOP arrays with the CCLi Flying frame as suspension device.
		▪ **T-LINK BOTTOM [3.2]**:
		  ▪ CCLi-TOP array in pullback mode setup with a second CCLi Flying frame as pullback device at the bottom of the array.
		▪ **Additional fixing bolt [3.3]**:
		  The additional fixing bolt is required for pullback mode setup to connect the corresponding CCLi-TOP cabinet to the second flying frame (pullback frame).

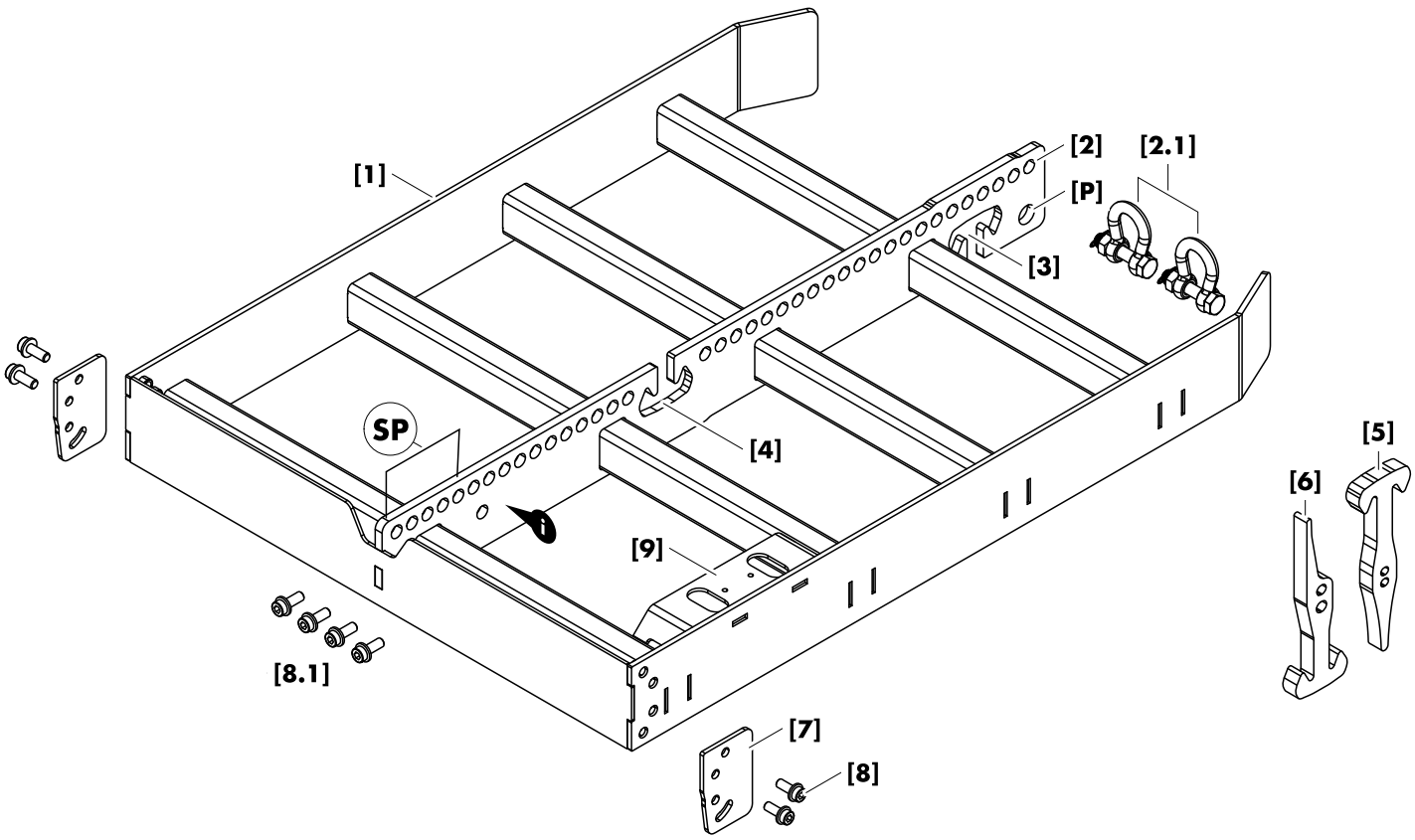
[4] **[5]** **[5.1]**	Front link (Frame) Fixing screws Fixing screws	Two additional Front links **[4]** together with a pair of dedicated fixing screws **[5]** each are supplied with the Flying frame. They are used for the following types of setups: ▪ Pullback mode setup with a second CCLi Flying frame as pullback device at the bottom of the array. In addition another four fixing screws **[5.1]** are enclosed which are used to cover the threaded inserts of the last cabinet when setting up a pure CCLi-TOP array.
[6]	Mounting plate inclinometer	Mounting plate for the attachment of a compatible inclinometer device such as the d&b ArraySight.
SP	Safety point(s)	If secondary safety is required the secondary safety device must be attached to the front of the frame using one of the first five holes (**SP - HOLE 1...5)**. Please also refer to ⇒ Chapter 1.4 "Secondary safety" on page 6.
i		Instruction labels providing vital safety and rigging instructions.

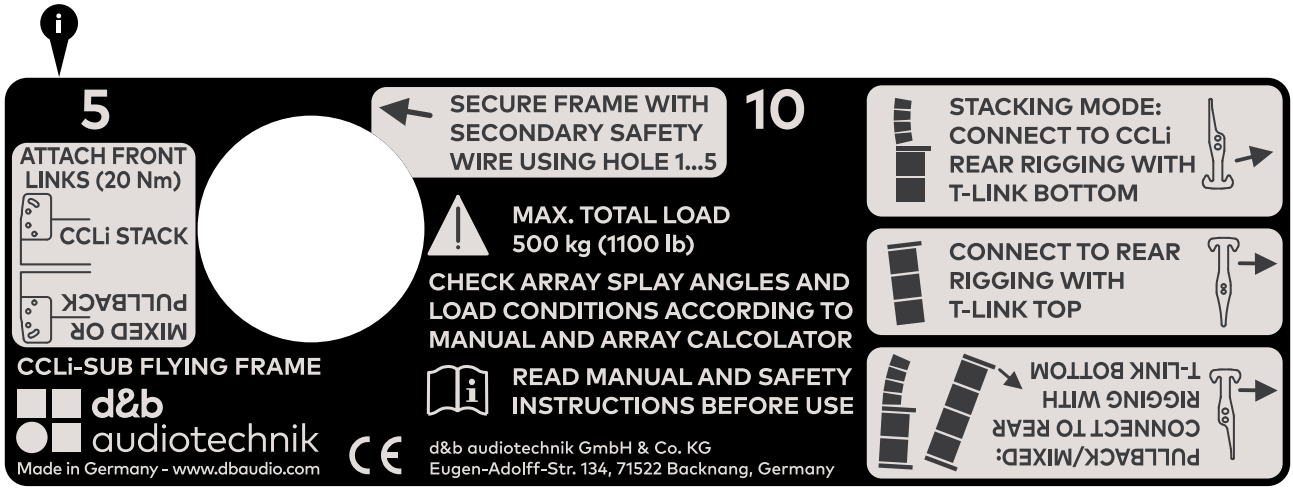


Z5826 CCLi Flying frame dimensions in mm [inch]

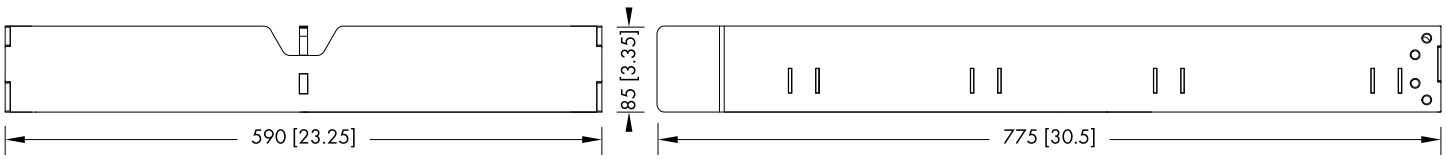
2.2 Z5827 CCLi-SUB Flying frame

Please verify the shipment for completeness and proper condition of the items.





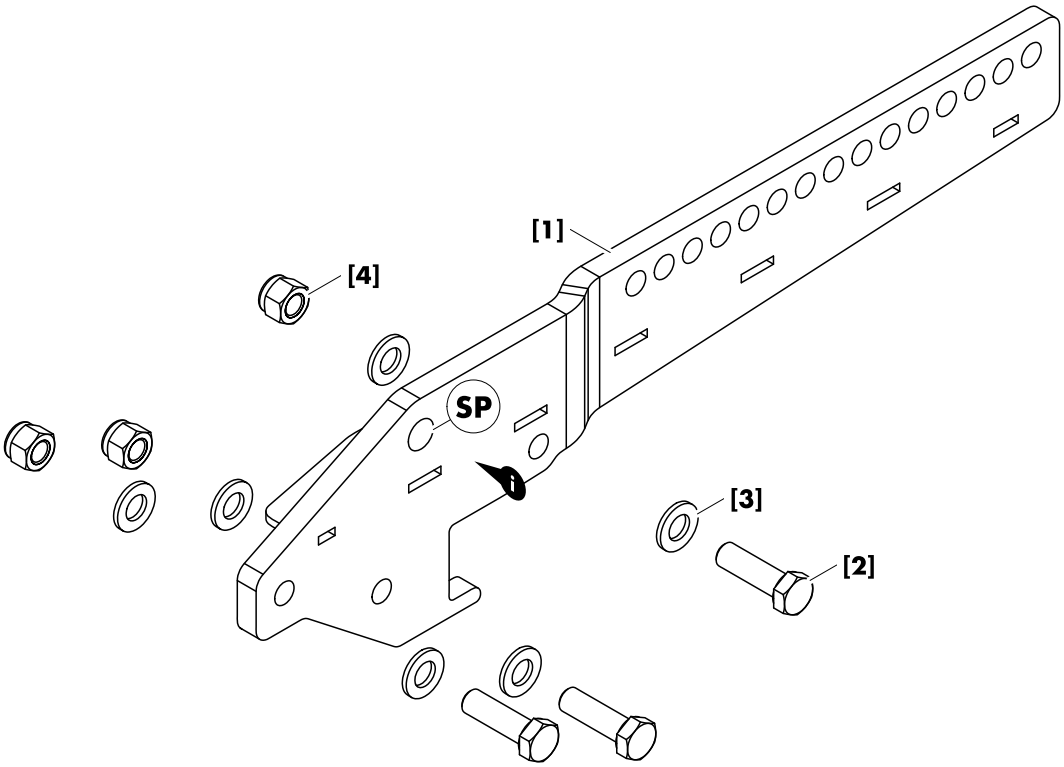
Pos.	Component	Description
[1]	Z5827 CCLi-SUB Flying frame	The **CCLi-SUB Flying frame** (17 kg/37.5 lb) is designed to support CCLi arrays (columns) consisting of: ▪ Pure CCLi-SUB columns with a maximum total system weight of up to 500 kg (1100 lb) - SWL including all rigging components. ▪ Mixed CCLi array configurations with CCLi-SUB cabinets at the top of the array and a total system weight of 500 kg (1100 lb) - SWL. ▪ CCLi-SUB columns in pullback mode setup.
[2] **[2.1]** **[P]**	Center beam 1 to. shackles Pick point pullback	Center beam **[2]** of the frame with a total number of 38 holes allowing either dual or single pick point suspension of the frame (⇒ Chapter 2.4 "Suspension of the Flying frames" on page 15) using the enclosed 1 to. shackles (**[2.1]**). On the rear bottom of the center beam the additional hole **[P]** is used as pick point for the pullback device in pullback mode setup.
[3] **[4]** **[5]** **[6]**	Rear T-Link slot Center T-Link slot T-LINK TOP T-LINK BOTTOM	The T-Link slot **[3]** on the rear of the center beam is used in connection with the enclosed T-LINK TOP **[5]** or T-LINK BOTTOM **[6]** for the following types of setups: ▪ **T-LINK TOP [5]:** CCLi-SUB columns either as pure SUB column or in pullback mode setup with the CCLi-SUB Flying frame as suspension device. ▪ **T-LINK BOTTOM [6]:**CCLi-SUB columns in pullback mode setup with a second CCLi-SUB Flying frame used as pullback device. ▪ **T-LINK TOP [5]:** Mixed CCLi array configuration with CCLi-SUB cabinets at the top of the array with the CCLi-SUB Flying frame as suspension device. ▪ **T-LINK BOTTOM [6]:** Mixed CCLi array configuration with CCLi-SUB cabinets at the top of the array with a second CCLi-SUB Flying frame as adapter frame to allow the attachment of CCLi-TOP cabinets underneath. The T-Link slot **[4]** in the center of the beam is used in connection with the enclosed T-LINK TOP **[5]** or T-LINK BOTTOM **[6]** for the following types of setups: ▪ **T-LINK TOP [5]:** Mixed CCLi array configuration with CCLi-SUB cabinets at the top of the array with a second CCLi-SUB Flying frame as adapter frame to connect the first CCLi-TOP cabinet underneath. ▪ **T-LINK BOTTOM [6]:** Mixed CCLi ground stack with the CCLi-SUB Flying frame as adapter frame (support frame) on top of CCLi-SUB cabinets.
[7] **[8]** **[8.1]**	Front link (Frame) Fixing screws Fixing screws	Two additional Front links **[7]** together with a pair of dedicated fixing screws **[8]** each are supplied with the CCLi-SUB Flying frame. They are used to mount CCLi-TOP cabinets for the following types of setups: ▪ Pullback mode setup with a second CCLi-SUB Flying frame as pullback device at the bottom of the CCLi-SUB column. ▪ Mixed CCLi array configurations with CCLi-SUB cabinets at the top of the array with a second CCLi-SUB Flying frame as adapter frame at the bottom of the CCLi-SUB column. In addition another four fixing screws **[8.1]** are enclosed which are used to cover the threaded inserts of the last cabinet when setting up a pure CCLi-SUB column.
[9]	Mounting plate inclinometer	Mounting plate for the attachment of a compatible inclinometer device such as the d&b ArraySight.
SP	Safety point(s)	If secondary safety is required the secondary safety device must be attached to the front of the frame using one of the first five holes (SP **- HOLE 1...5** ⇒ Chapter 1.4 "Secondary safety" on page 6).
i		Instruction labels providing vital safety and rigging instructions.

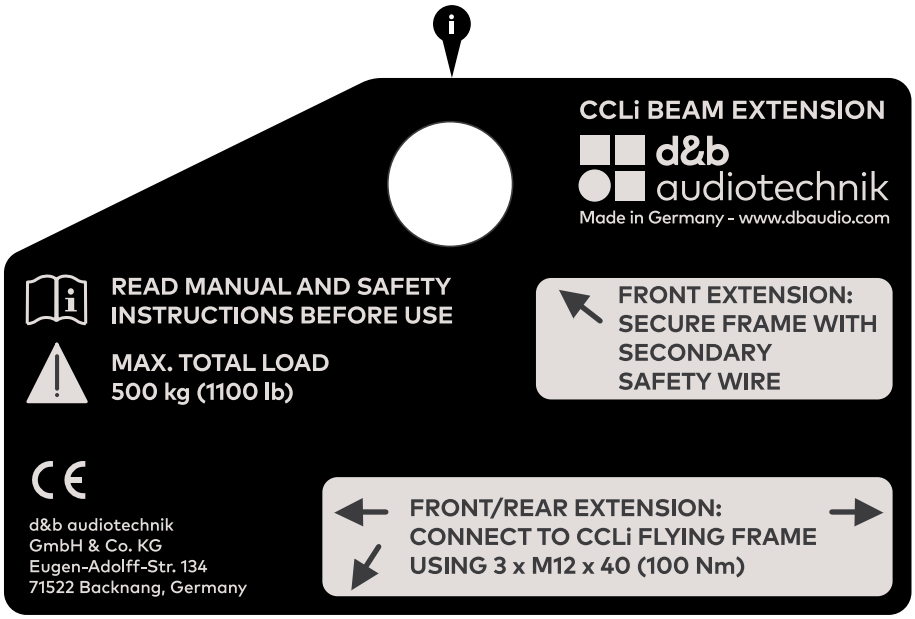


Z5827 CCLi-SUB Flying frame dimensions in mm [inch]

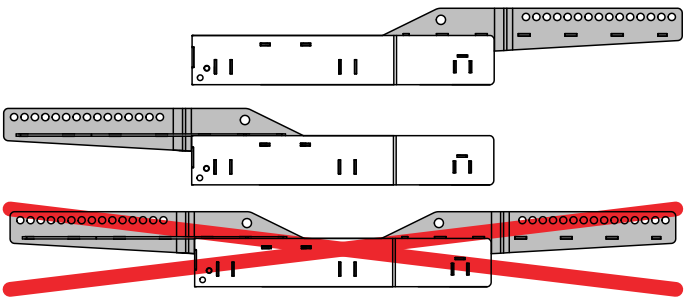
2.3 Z5828 CCLi Beam extension

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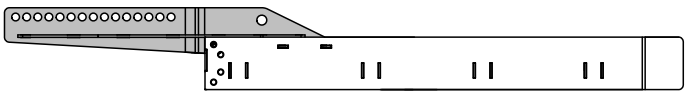




Pos.	Component	Description
[1] **[2]** **[3]** **[4]**	Z5828 CCLi Beam extension	**Beam extension** (4 kg/8.8 lb) including dedicated fixing screws M12x40 **[2]** with U-washers 13 mm **[3]** and self securing nuts M12 **[4]**. The Beam extension can be attached either: ▪ To the rear of the Z5826 CCLi Flying frame serving as an extension of the hole grid to allow an increased downtilt of the entire array. ▪ To the front of either the Z5826 CCLi Flying frame or the Z5827 CCLi-SUB Flying frame serving as an extension of the hole grid to allow an increased uptilt of the entire array assembly.
SP	Safety point	With the Beam extension attached to the front of the flying frames, if secondary safety is required the secondary safety device must be attached to the front safety point hole of the extension **(⇒ SP)**. Please also refer to ⇒ Chapter 1.4 “Secondary safety” on page 6.
i		Instruction labels providing vital safety and rigging instructions.



Beam extension: REAR or FRONT EXTENSION



CCLi Beam extension application

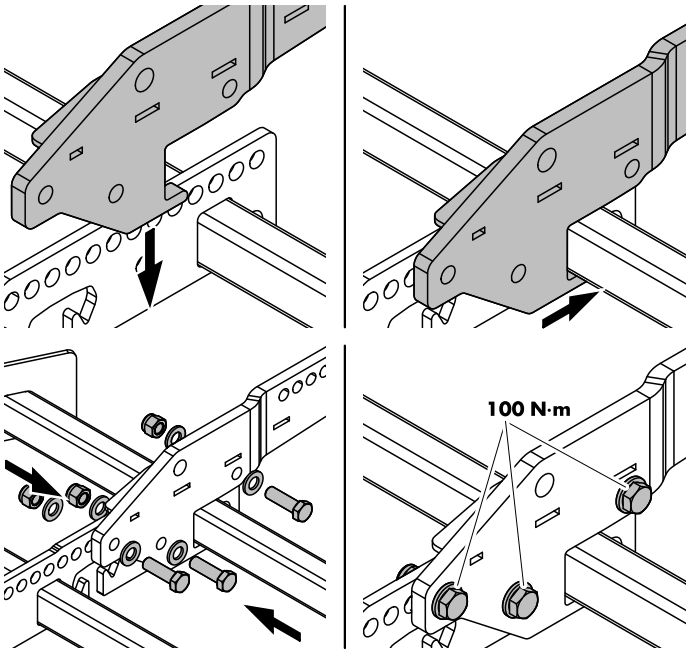
With the CCLi Flying frame the Beam extension can be attached either to the rear (REAR EXTENSION) or to the front (FRONT EXTENSION).

WARNING!
Potential risk of personal injury and damage to the rigging components!

The Beam extension must only be attached to the **top frame** which acts as the **suspension device**.

- Do not, under any circumstances, attach two Beam extensions to the frame.
- Do not, under any circumstances, attach a Beam extension to the bottom frame in pullback mode setup.

With the CCLi-SUB Flying frame the Beam extension can only be attached to the front (FRONT EXTENSION).



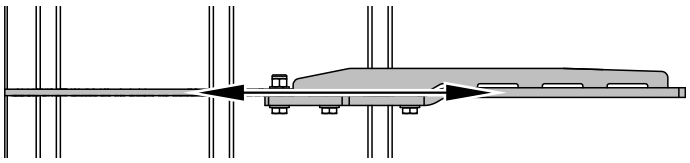
CCLi Beam extension assembly
Shown: CCLi Flying frame - REAR EXTENSION

Assembly

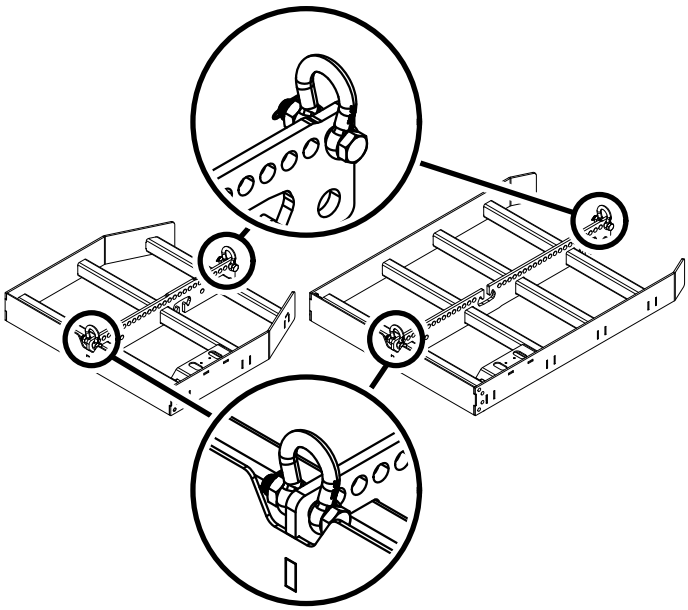
The following assembly procedure applies to both, rear or front extension.

Tools required: Torque wrench #19.

1. Attach the extender to the center beam of the flying frame as shown in the graphic opposite.
   ↳ Observe the direction of attachment and ensure the hole grid of the Beam extension builds a straight line with the hole grid of the frame's center beam as shown in the graphic below.



2. Slight the extender towards the back (front) until it fits to tie bar of frame and the fixing holes of the extender are aligned with the respective fixing holes on the center beam.
3. Fix the extender in place using the enclosed fixing M12x40 **[2]** with U-washers 13 mm **[3]** and self securing nuts M12 **[4]** as shown in the graphic opposite.
4. Finally tighten all screws to the required torque of 100 N·m.



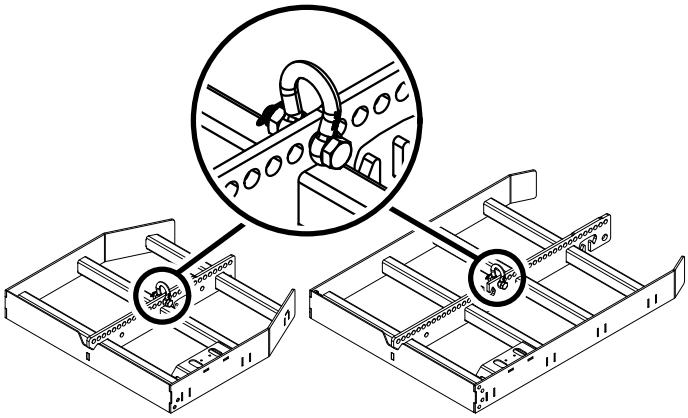
2.4 Suspension of the Flying frames

The suspension of the CCLi Flying frames is performed using the center beam hole grid. This allows for either Single or Dual pick point operation. For this purpose, the corresponding enclosed 1 to. shackles are used.

2.4.1 Dual pick point operation

With "Dual pick point operation", the vertical aiming of the array is set by trimming the lifting devices such as hoist motors after the array has been fully assembled and lifted to its operating position.

The corresponding hole positions are selected according to ArrayCalc.

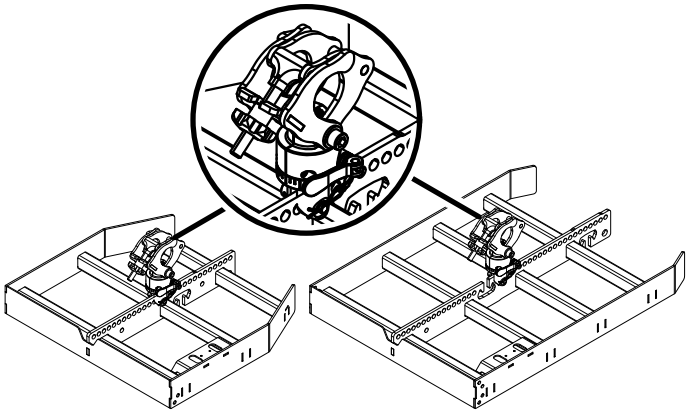


2.4.2 Single pick point operation

With "Single pick point operation", the position of the Load adapter defines the vertical aiming of the entire array.

The corresponding hole position (one hole detent) is calculated using ArrayCalc.

> **Note:** The target angle of the entire array is achieved when the array is fully set up, hoisted, and secured as intended.

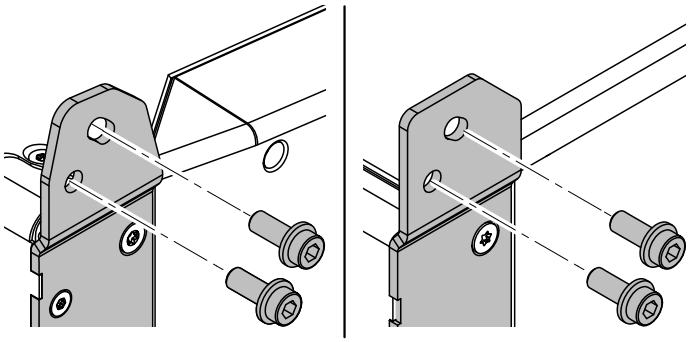


2.4.3 Z5147 Rota clamp option

The **Rota clamp option** is **not applicable** in connection **with** the **Beam extension!**

Alternatively, a CCLi array with a total system weight of up to 500 kg (1100 lb) can be suspended and horizontally aligned from a single pick point using the d&b Z5147 Rota clamp. The clamp allows the load to be attached to overhead bars or truss with a tube diameter of up to 50 mm (2”).
The corresponding hole position is calculated using ArrayCalc.

> **Note:** For assembly instructions and operation, please refer to the d&b Z5147 mounting instructions which are enclosed with the Rota clamp.



2.5 Cabinet rigging mechanism

CCLi cabinets are mechanically connected to the flying frames and subsequent cabinets by their rigging strands on both sides of the cabinet front and the central Splay/Rear link at the rear of the cabinets.

2.5.1 Front rigging strands

The front rigging strands are an integral part of the cabinet's front grill.

The cabinets are mechanically connected and fixed to the flying frames and subsequent cabinets by dedicated fixing screws.

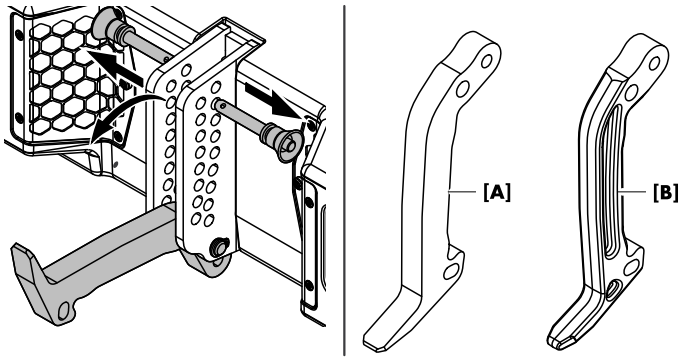
Fixing screw specifications

NOTICE!

Only the supplied (original) and specified screws must be used.

We also recommend you to additionally secure the screws using an appropriate "medium-firm" thread-locking medium (e.g. Loctide 243).

Screw type	Flange head cap screw with AllanHex drive
Screw size	M8 x 20 mm
Tool required	AllanHex torque wrench 6 mm
Required torque	20 N·m

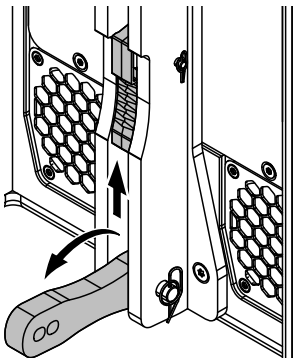


2.5.2 Splay/Rear link mechanism

TOP cabinets

On CCLi-TOP cabinets, release the respective Locking pins and fold out the Splay link.

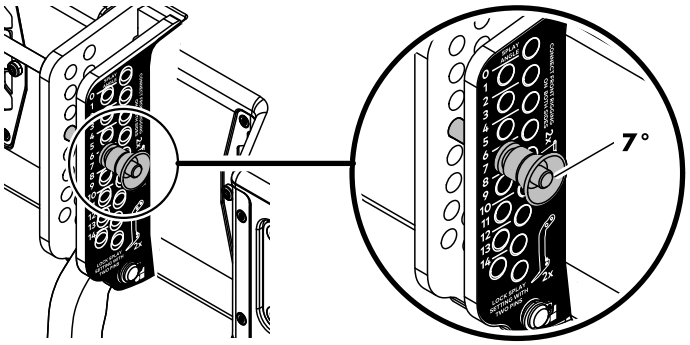
> **Note:** For CCLi-TOP speakers of the first series batch, the Splay link is cut from solid steel **[A]** (high pressure water jet cut), while for the following series batches, the Splay link will be a forged variant **[B]**.
>
> As function and handling of both variants are identical, the Splay link is shown in its solid metal variant throughout this manual.**[A]**.



SUB cabinets

The Rear link of the CCLi-SUB cabinets is fixed in its park position by a spring loaded slider mechanism.

To release the link, simply push the slider upwards.



Preset splay angle (for example 7°)

2.5.3 Preset splay angles on CCLi8/CCLi12 cabinets

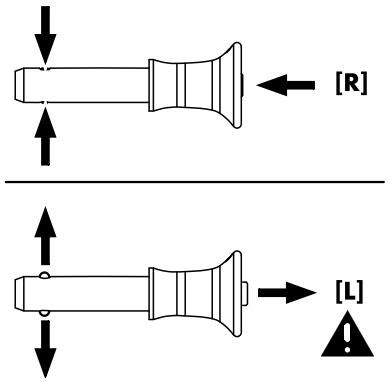
The splay angles are set on the central rear rigging strands of the cabinets and can be set in the range from 0° to 14° in 1° detends.

⇒ Insert and lock the Locking pin to the respective hole.

2.6 Locking pins

On the central rear rigging strand of the CCLi-TOP and CCLi-SUB cabinets, the interconnection to the frames and subsequent cabinets is applied by dedicated Locking pins:

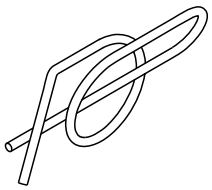
- Locking pins 7 x 32 on CCLi-TOP cabinets
- Locking pins 7 x 40 on CCLi-SUB cabinets



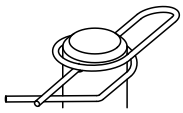
Functionality (Quick lock mechanism)

The quick lock mechanism applies to all types of Locking pins. Proceed as follows:

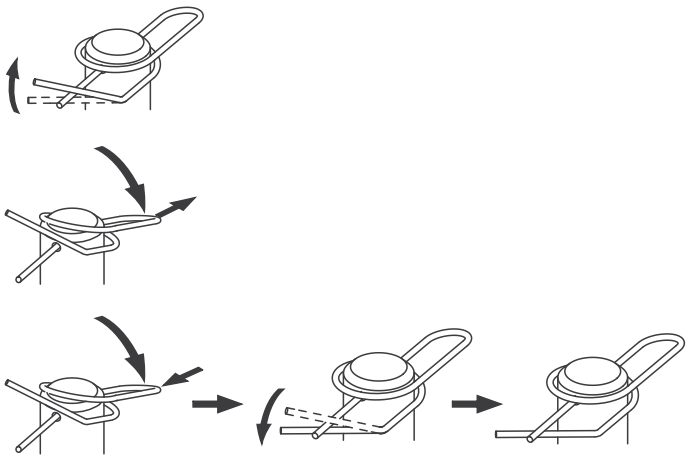
1. Press the button to **R**elease the locking mechanism (◀ **[R]**).
2. Remove the Locking pin through the respective link or socket.
3. Insert the Locking pin through the respective link or socket until it is fixed in place.
4. Release the button to **L**ock the pin (▶ **[L]**).
5. ⚠ Recheck the Locking pin is securely locked by briefly pulling the Locking pin towards you.



Ring cotter



Ring cotter locked



2.7 Ring cotters

In connection with the CL-Series rigging systems (CCL/CCLi), ring cotters are used ring cotters are used for the following items to prevent the respective item from slackening and/or loosening:

- Fixing bolt of the shackles **[2.1]** attached to the Flying frame(s).
- Fixing bolt of the Splay link on CCLi-TOP cabinets and the Rear link mechanism on CCLi-SUB cabinets.

Function of the ring cotter

By default, the ring cotters are "locked" to prevent them from loosening.

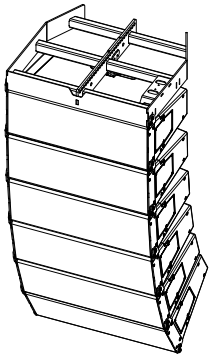
For modification reasons such as altering a position or exchanging a rigging component, it may be necessary to temporarily remove the ring cotter and reattach it afterwards.

For this purpose, proceed as follows:

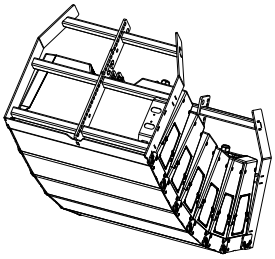
1. **Unlock**
   Unlock the ring cotter by pushing up the front wire loop over the straight wire shaft.

2. **Release and remove**
   Push down the rear wire loop until the ring cotter snaps over the edge of the bolt and remove the ring cotter.

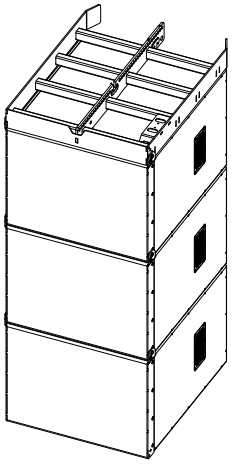
3. **Refit and lock**
   Refit the ring cotter by pushing the straight wire shaft through the hole and pressing the front wire loop underneath the straight wire shaft.



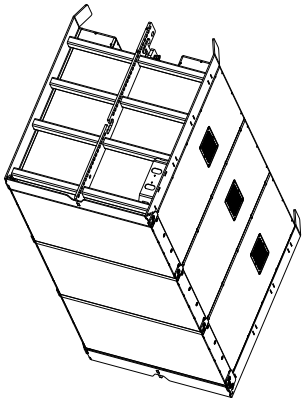
CCLi8/CCLi12 Line array
Refer to:
⇒ Chapter 5 “CCLi8/CCLi12 array assembly” on page 21.



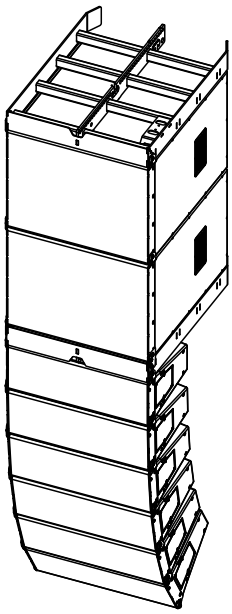
CCLi8/CCLi12 Line array, Pullback mode setup
Refer to:
⇒ Chapter 6 “CCLi8/CCLi12 Pullback mode setup” on page 24.



CCLi-SUB Column
Refer to:
⇒ Chapter 7 “ CCLi-SUB Column” on page 27.



CCLi-SUB Column, Pullback mode setup
Refer to:
⇒ Chapter 8 “CCLi-SUB Pullback mode setup” on page 29.



Mixed array setup
Refer to:
⇒ Chapter 9 “ Mixed array setup” on page 32.

Check the acoustical and mechanical setup using ArrayCalc and prepare enough printouts for each array. Alternatively, the ArrayCalc Viewer App can be used for this purpose.

The plan enables the riggers to set up the suspension points, the securing points and the chain hoists.

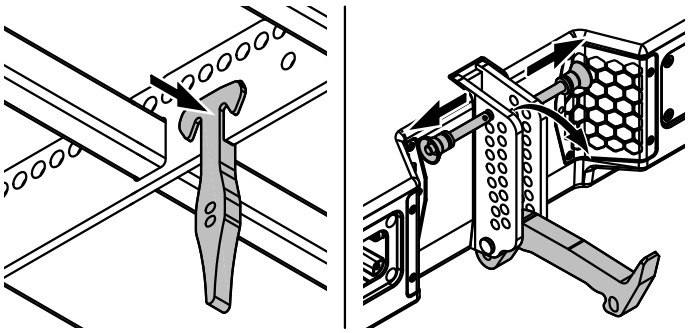
When on site first:

- Always carry out the assembly with a second person.
- Clear the working areas and ensure there is enough space to set up and lift the array.
- Check that the hoists are exactly in the specified position.
- Ensure the chains are not twisted.

Inspections before setup

Before setting up the array, carry out a visual inspection of all system components for faults. This also includes the loudspeakers and in particular the rigging parts of the cabinets (Front and Splay/Rear links).
Damaged components must be withdrawn from use immediately.

Please also follow the instructions given in ⇒ Chapter 10 “Care and maintenance” on page 37.



Tools required
AllanHex torque wrench 6 mm.

Suspend the Flying frame

1. Suspend the Flying frame according to your onsite requirements.
2. Lift the frame to a suitable working height.

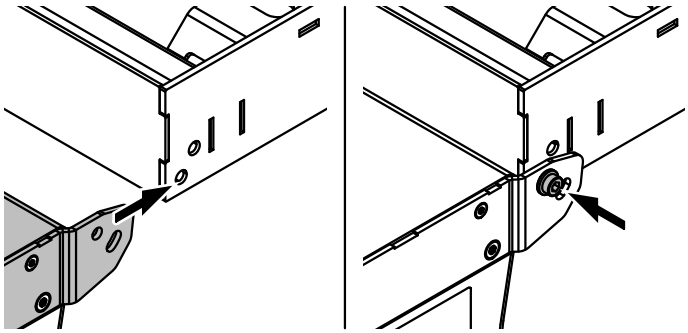
Prepare the Flying frame

⇒ On the Flying frame, insert the T-LINK TOP **[3.1]** to the rear T-Link slot **[3]** of the center beam.

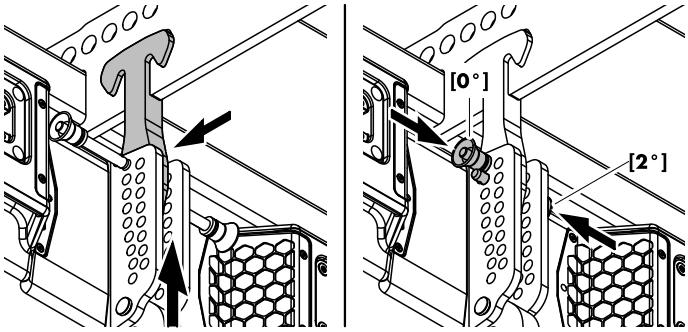
Prepare the first cabinet

⇒ On the rear of the cabinet release both Locking pins and fold out the Splay link.

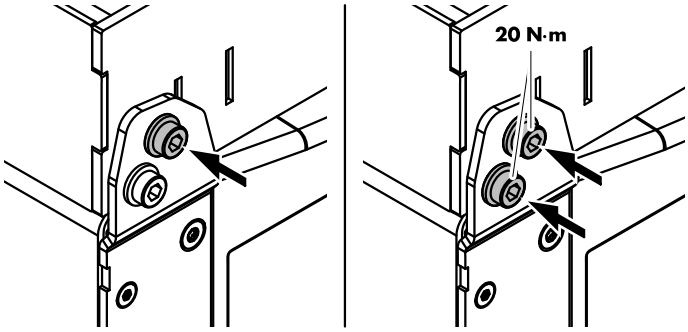
Attach the first cabinet to the Flying frame
To attach the frame to the first cabinet, proceed as follows:



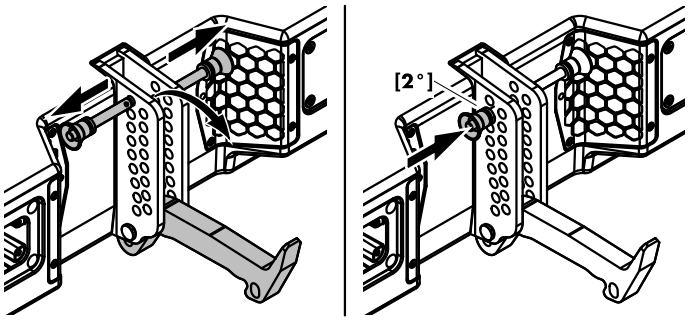
1. With the front grill facing upwards, attach the front links of the cabinet to the front of the frame on both sides as shown in the graphic opposite.
2. Insert one fixing screw to the bottom hole of the cabinet's front rigging strand on both sides until they just starting to tighten.



3. Raise the back of the cabinet until the T-LINK TOP fits into the rear rigging strand and its holes are in line with the **[0°]** and **[2°]** hole.
4. Reinsert both Locking pins into the **[0°]** and **[2°]** hole and ensure both pins are fully inserted and locked.

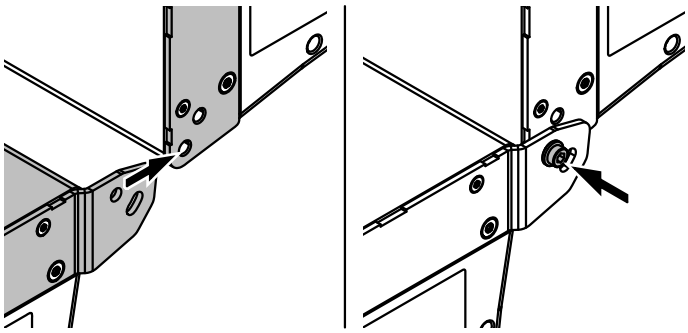


5. At the front insert the second (upper) fixing screw on both sides.
6. Finally tighten the screws to the required torque of 20 N·m on both sides.

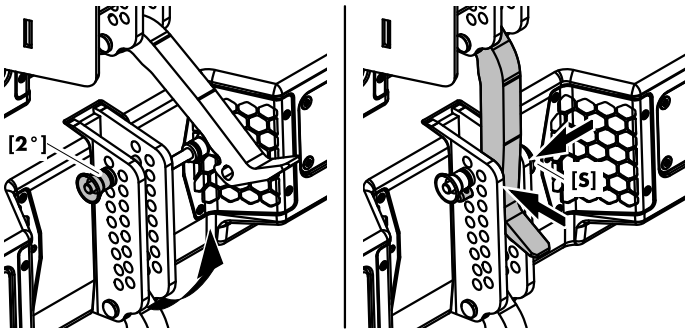


Add the next cabinet

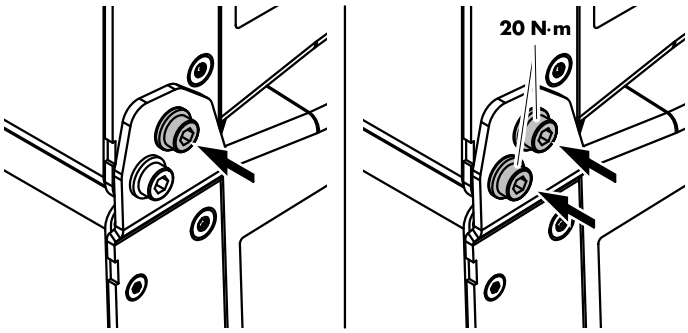
1. On the rear of the cabinet release both Locking pins and fold out the Splay link.
2. Preset the desired splay angle (e.g. **[2°]**) with one Locking pin.



3. With the front grill facing upwards, attach the front links of the cabinet to the front of the frame on both sides as shown in the graphic opposite.
4. Insert one fixing screw to the bottom hole of the cabinet's front rigging strand on both sides until they just starting to tighten.



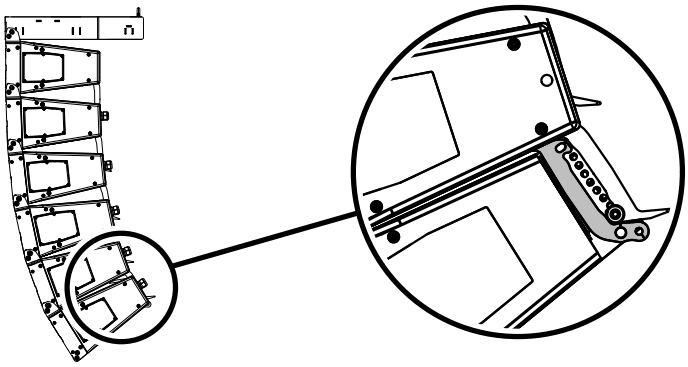
5. Raise the back of the cabinet until the Splay link of the upper cabinet has engaged into the preset Locking pin of the bottom cabinet.
6. Insert the second Locking pin (Safety pin **[S]**) and ensure both pins are fully inserted and locked.



7. At the front insert the second (upper) fixing screw on both sides.
8. Finally tighten the screws to the required torque of 20 N·m on both sides.

Add further cabinets

To add further cabinets, proceed in the same manner until the assembly is completed.

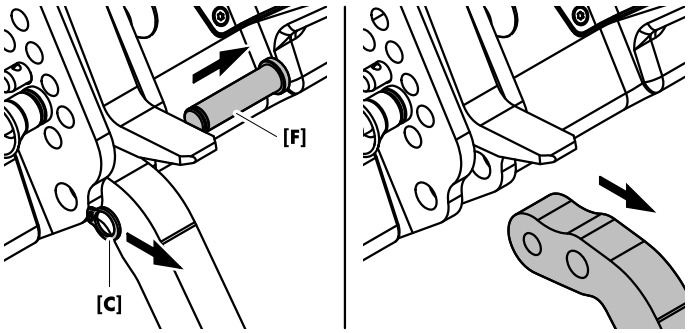


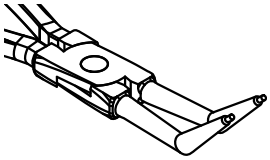
Splay link of the last cabinet
The Splay link of the last cabinet of an array can be kept in its park position.

> **Note:** In this case, splay angles of 0...3° for the cabinet above are not applicable.

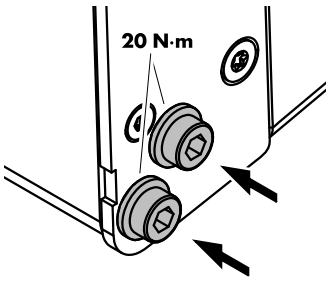
Alternatively remove the Splay link
Alternatively the Splay link can be removed. For this purpose, proceed as follows:

Tools required:
Angled (45°) circlip pliers.



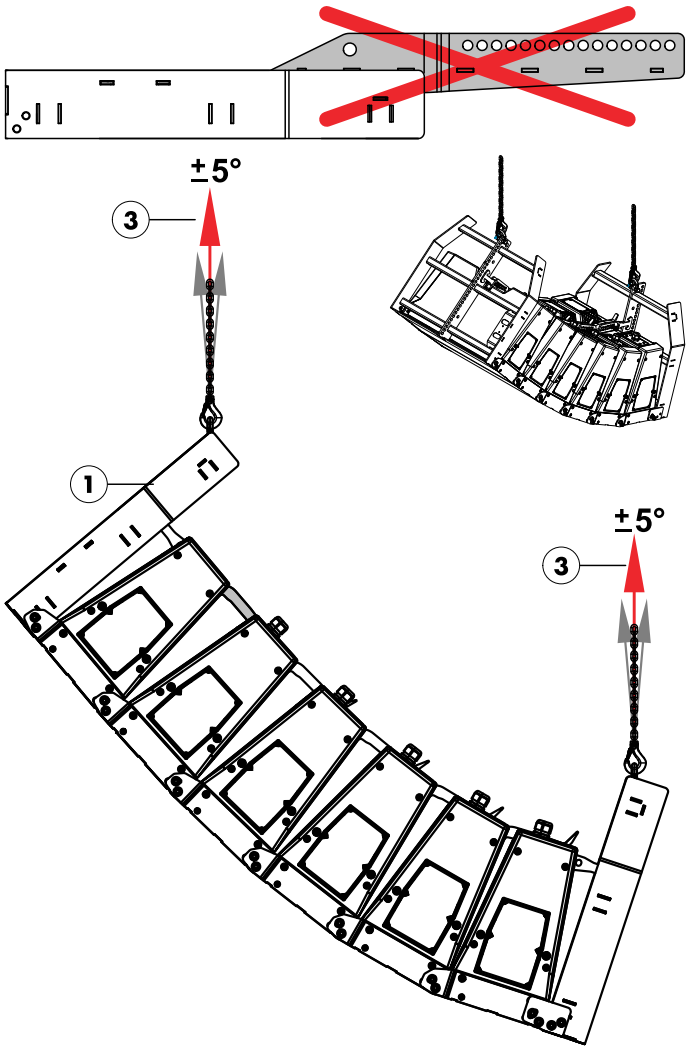


1. Release the circlip **[C]** using an appropriate circlip pliers.
2. Remove the fixing bolt **[F]** and take off the Splay link.



Front rigging strand of the last cabinet
On the front rigging strand of the last cabinet insert both fixing screws on both sides and tighten all screws to the required torque of 20 N·m.

Recheck your work
Recheck the entire assembly and ensure all screws are properly tightened to the required torque of 20 N · m.



6.1 Specifications and recommendations

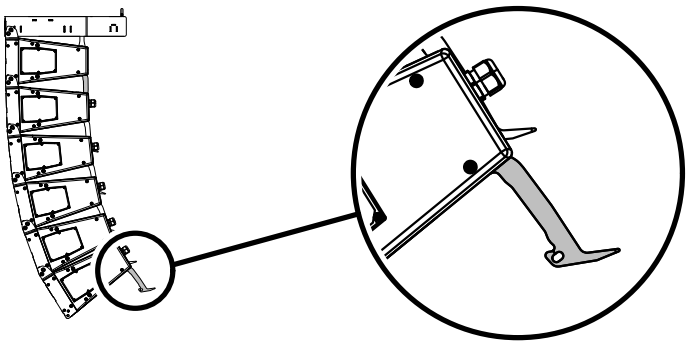
NOTICE!
Load safety information

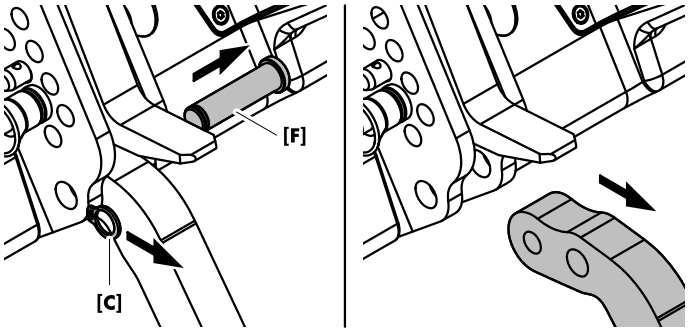
Only CCLi-TOP cabinets can be deployed with any splay angle combination and any total vertical inclination of the entire array using an additional pullback point at the bottom of the array, as long as the conditions described below are met.

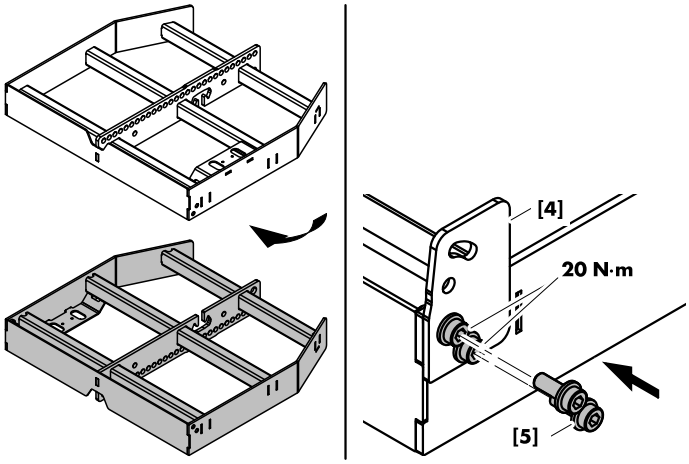
For this purpose, a second Z5826 CCLi Flying frame is used.

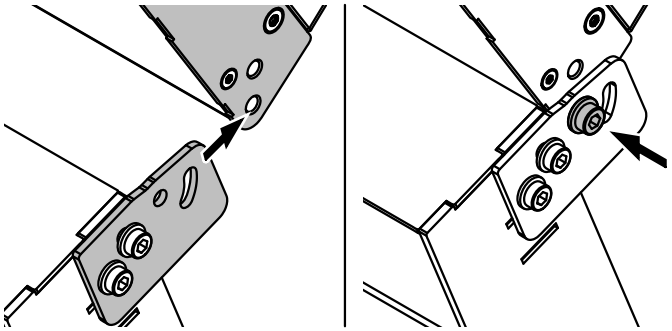
On the Flying frame, the **Beam extension must not be used** in Pullback mode setup.

1. The array is suspended directly from the center beam of the CCLi Flying frame using one of the frame's shackles.
   Any hole of the hole grid may be used for this purpose.
   The graphic shows an example of the suspension directly from the rear pick point of the frame.
   ↳ This ensures a maximum angle range between the array and the hoist chain without any hooks or shackles touching the frame, something which could cause unsafe load conditions for these components.
2. In ArrayCalc, select the «**flown pullback**» mounting method.
   ↳ ArrayCalc calculates the load conditions and force direction of each individual connection. Based on these results, the actual resulting angles are chosen depending on the force direction of each interconnection.
3. The hoist connector and pullback chain must always lift the array straight upwards (⇒ max. diagonal pull: **±5°**).









6.2 CCLi Flying frame as pullback device

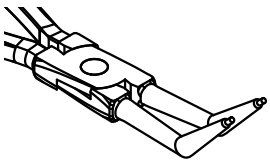
In pullback mode setup a second CCLi Flying frame is required as pullback device and is attached upside down to the bottom (last) cabinet using the enclosed T-LINK BOTTOM **[3.2]** together with the additional Front links (fixing plates) **[4]**.

The assembly of the array is mainly performed in the same manner as described in ⇒ Chapter 5 "CCLi8/CCLi12 array assembly" on page 21, while the Splay link of the last cabinet must not be kept in its park position.

To allow the T-LINK BOTTOM **[3.2]** of the frame to be connected to the last cabinet of the array, the Splay link of this cabinet must be removed beforehand.
For this purpose, proceed as follows:

Remove the Splay link

Tools required:
Angled (45°) circlip pliers.



1. Release the circlip **[C]** using an appropriate circlip pliers.
2. Remove the fixing bolt **[F]** and take off the Splay link.

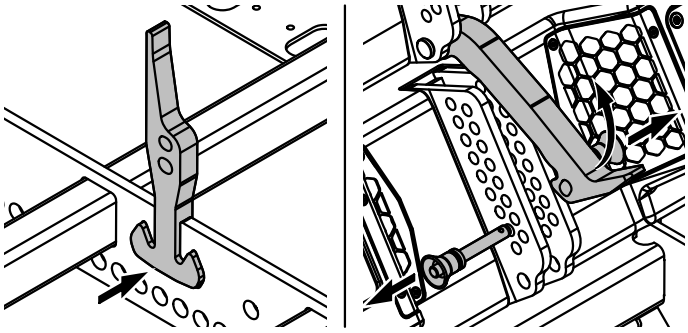
Prepare the second Flying frame

Tools required:
AllanHex wrench #6 mm.

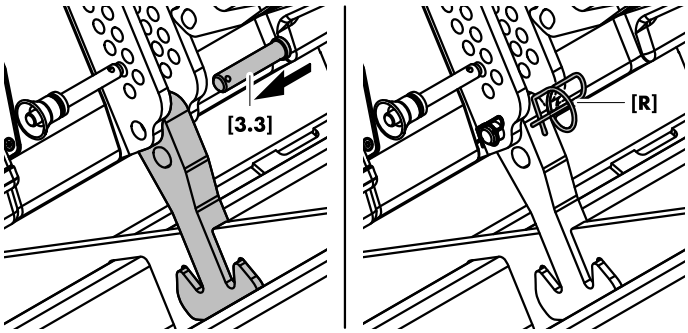
1. With the second **Flying frame** turned **upside down**, first attache the enclosed, additional Front links (fixing plates) **[4]** together with the fixing screws **[5]** to the frame on both sides.
2. Tighten all screws to the required torque of 20 N·m.

Attach the second Flying frame

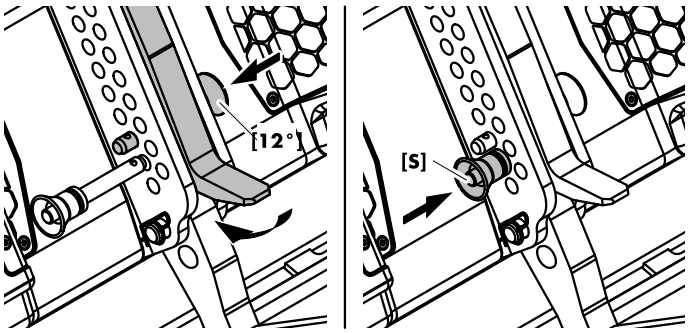
1. Attach the front links of the frame to the front rigging strands of the cabinet on both sides as shown in the graphic opposite.
2. Insert one fixing screw to the bottom hole of the frame's Front links on both sides until they just starting to tighten.



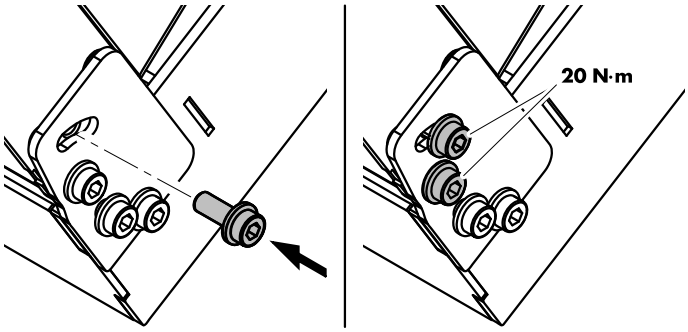
3. Raise the back of the and attache the T-LINK BOTTOM to the T-Link slot of the frame.
   ↳ Observe the direction of attachment, as shown in the graphic below.
4. On the last cabinet release the Splay link of the upper cabinet.
   ↳ This allows the T-LINK BOTTOM to be slide into the rear rigging strand of the cabinet in the following steps.



5. Raise the back of the until the T-LINK BOTTOM fits into the rear rigging strand of the cabinet.
6. Insert the enclosed, additional fixing bolt **[3.3]** and ensure the bolt is fully inserted.
7. Insert and lock the enclosed ring cotter **[R]** to secure the bolt.



8. On the cabinet, first reinsert one Locking pin into the respective hole for the formerly preset splay angle (e.g. 12°) and ensure the pin is fully inserted an locked.
9. Fold in the Splay link and ensure the link has properly engaged to the Locking pin.
10. Reinsert the second Locking pin (Safety pin **[S]**) and ensure the pin is fully inserted an locked.



11. At the front insert the second (upper) fixing screw on both sides.
12. Finally tighten the screws to the required torque of 20 N · m on both sides.

Recheck your work

Recheck the entire assembly and ensure all screws are properly tightened to the required torque of 20 N · m.

7.1 Limitations

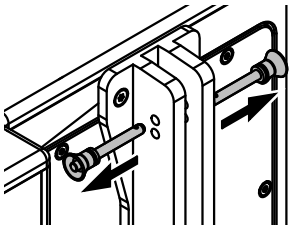
NOTICE!

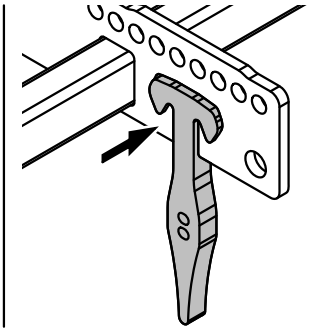
A maximum of 10 x CCLi-SUB cabinets is allowed to be suspended, including all rigging components.

7.2 SUB column setup

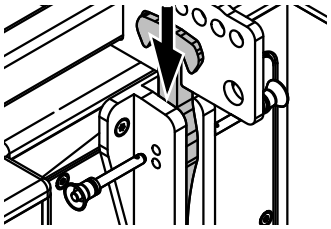
Attach the Flying frame to the first SUB cabinet

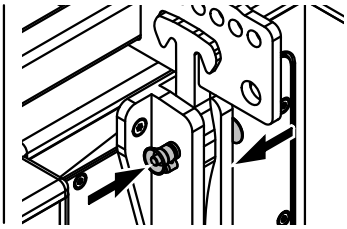
To attach the frame onto the first cabinet, proceed as follows:



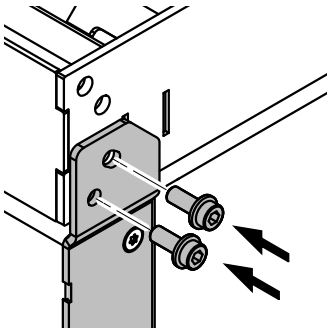


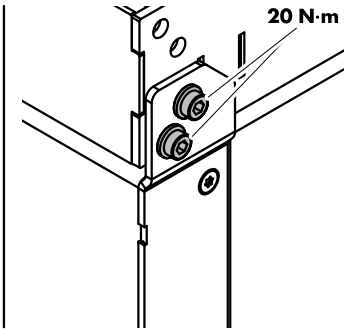
1. Position the cabinet to the desired operation position.
2. On the center rear rigging strand of the cabinet first release both Locking pins.
3. On the frame attache the T-LINK TOP to the T-Link slot at the rear of the frame's center beam.





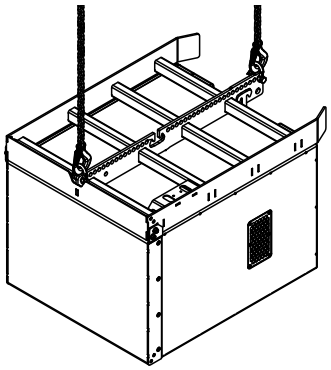
4. Attach the frame onto the cabinet until the T-LINK TOP is fully inserted into the center rear rigging strand of the cabinet.
5. Reinsert the Locking pins of the and ensure both pins are fully inserted and locked.



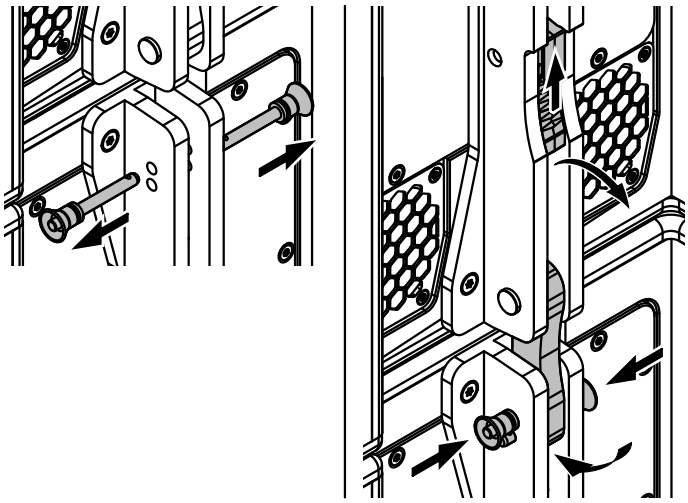


6. At the front, insert the fixing screws on both sides.
7. Finally tighten the screws to the required torque of 20 N·m on both sides.

Suspend the Flying frame

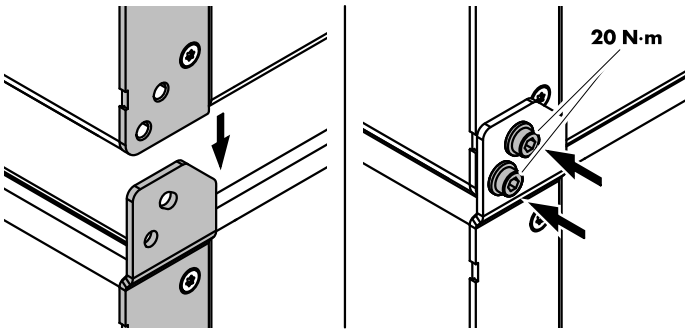


1. Suspend the Flying frame according to your onsite requirements.
2. Lift the assembly to a suitable working height.



Add next cabinet

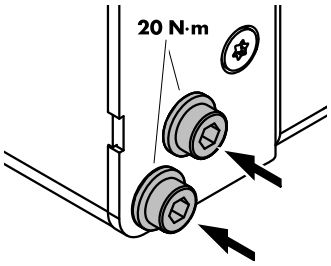
1. Position the next cabinet underneath the suspended first cabinet.
2. Lower the upper cabinet onto the next cabinet on the ground.
3. On the center rear rigging strand of the next cabinet release both Locking pins.
4. On the upper cabinet, release the Rear link and insert the Rear into the rear rigging strand of the bottom cabinet.
5. Reinsert the Locking pins and ensure both pins are fully inserted and locked.



6. At the front insert the fixing screws on both sides.
7. Finally tighten the screws to the required torque of 20 N · m on both sides.

Add further cabinets

To add further cabinets, proceed in the same manner until the assembly is completed.

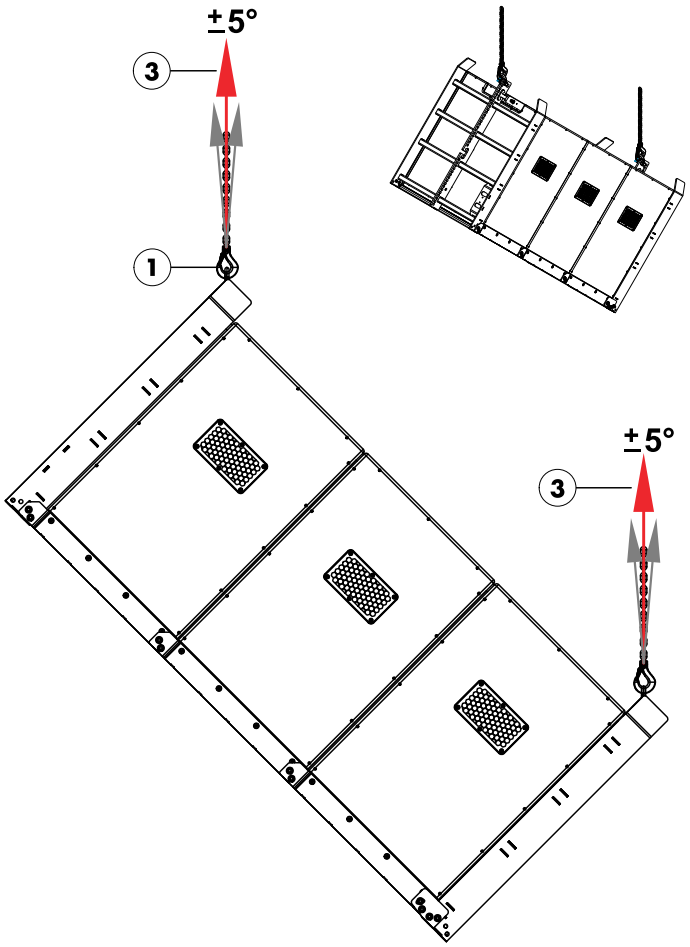


Front rigging strand of the last cabinet

On the front rigging strand of the last cabinet insert both fixing screws on both sides and tighten all screws to the required torque of 20 N·m.

Recheck your work

Recheck the entire assembly and ensure all screws are properly tightened to the required torque of 20 N · m.



8.1 Specifications and recommendations

NOTICE!
Load safety information

Only CCLi-SUB cabinets can be deployed with any splay angle combination and any total vertical inclination of the entire array using an additional pullback point at the bottom of the array, as long as the conditions described below are met.

For this purpose, a second Z5827 CCLi-SUB Flying frame is used.

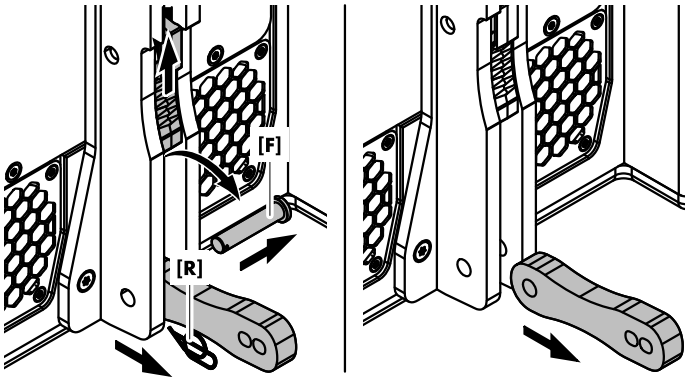
1. The array is suspended directly from the center beam of the CCLi-SUB Flying frame using one of the frame's shackles. Any hole of the hole grid may be used for this purpose. The graphic shows an example of the suspension directly from the rear pick point of the frame.
   ↳ This ensures a maximum angle range between the array and the hoist chain without any hooks or shackles touching the frame, something which could cause unsafe load conditions for these components.
2. In ArrayCalc, select the «**flown pullback**» mounting method.
   ↳ ArrayCalc calculates the load conditions and force direction of each individual connection. Based on these results, the actual resulting angles are chosen depending on the force direction of each interconnection.
3. The hoist connector and pullback chain must always lift the array straight upwards (⇒ max. diagonal pull: **±5°**).

8.2 CCLi-SUB Flying frame as pullback device

In pullback mode setup a second CCLi-SUB Flying frame is required as pullback device and is attached upside down to the bottom (last) SUB cabinet using the enclosed T-LINK BOTTOM **[6]** together with the additional Front links (fixing plates) **[7]**.

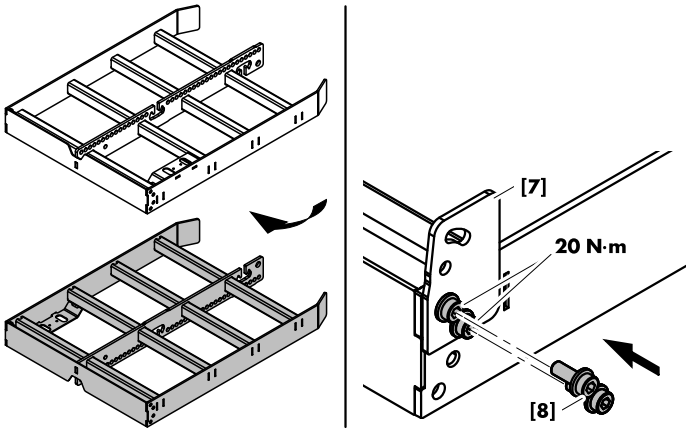
The assembly of the column is mainly performed in the same manner as described in ⇒ Chapter 7 " CCLi-SUB Column" on page 27.

To allow the T-LINK BOTTOM **[6]** of the frame to be connected to the last SUB cabinet of the column, the Rear link of this cabinet must be removed beforehand. For this purpose, proceed as follows:



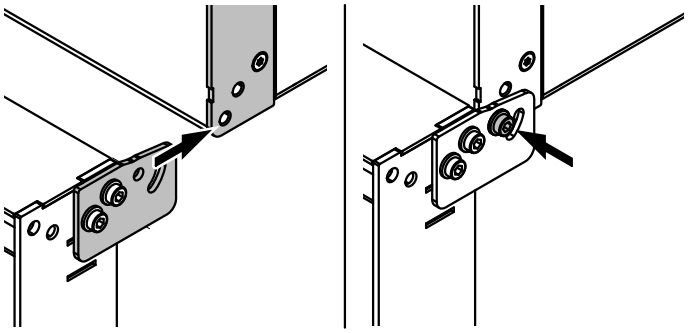
Remove the Rear link

1. Lift the assembly to a suitable working height.
2. Unlock and remove the ring cotter **[R]**.
3. Remove the fixing bolt **[F]** and take off the Rear link.



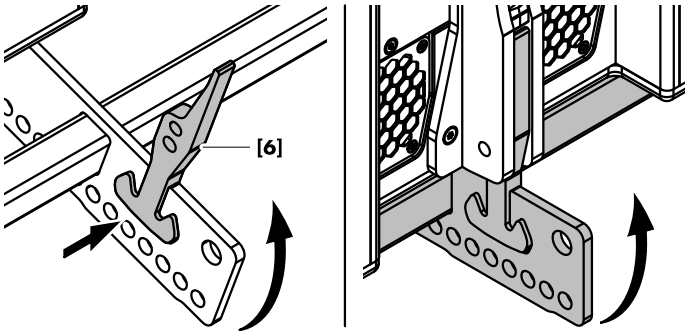
Prepare the second Flying frame
Tools required:
AllanHex wrench #6 mm.

1. With the second **Flying frame** turned **upside down**, first attache the enclosed, additional Front links (fixing plates) **[7]** together with the fixing screws **[8]** to the frame on both sides.
2. Tighten all screws to the required torque of 20 N·m.

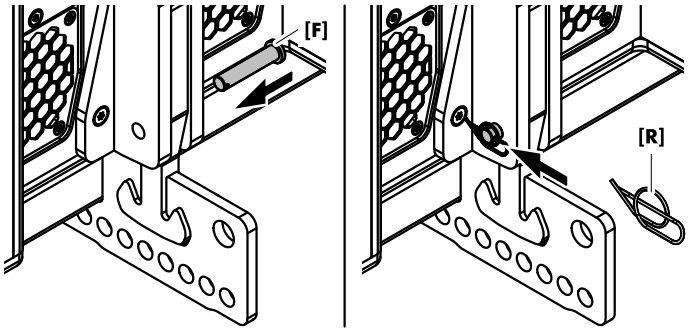


Attach the second Flying frame to the SUB cabinet

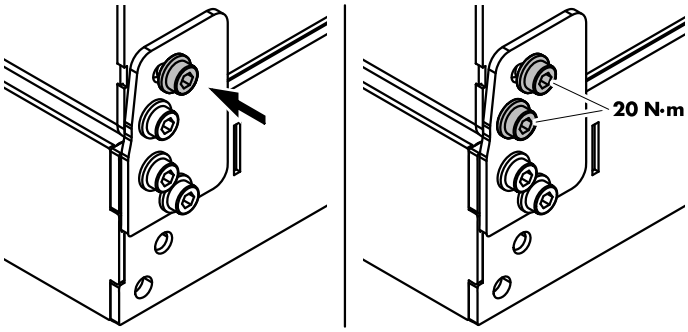
1. Attach the front links of the frame to the front rigging strands of the cabinet on both sides as shown in the graphic opposite.
2. Insert one fixing screw to the bottom hole of the frame's Front links on both sides until they just starting to tighten.



3. Raise the back of the and attache the T-LINK BOTTOM **[6]** to the rear T-Link slot of the frame.
   ↳ Observe the direction of attachment, as shown in the graphic opposite.



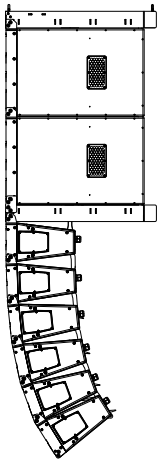
4. Reinsert the fixing bolt **[F]**.
5. Reinsert and lock the enclosed ring cotter **[R]** to secure the bolt.



6. At the front insert the second (upper) fixing screw on both sides.
7. Finally tighten the screws to the required torque of 20 N · m on both sides.

Recheck your work

Recheck the entire assembly and ensure all screws are properly tightened to the required torque of 20 N · m.



9.1 Remarks and limitations

NOTICE!

For a mixed setup, the Z5827 CCLi-SUB Flying frame is used as a suspension device while a second CCLi-SUB Flying frame is additionally required as adapter frame between SUB and TOP cabinets.

The CCLi-SUB Flying frame allows mixed array configurations with a maximum total system weight of 500 kg (1100 lb) - SWL including all rigging components.

9.2 Order of assembly

The assembly of a mixed array configuration is divided into the following three main procedures:

1. Suspending the desired number of SUB cabinets.
2. Attaching the second flying frame (adapter frame).
3. Attaching the TOP cabinets.

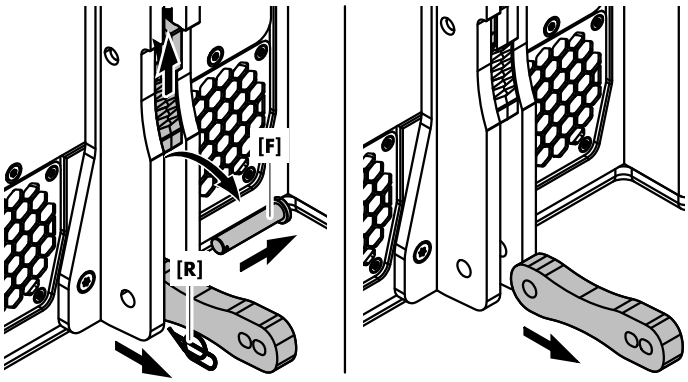
Set up the SUB assembly

Setting up the SUB assembly is performed in the same manner as described in ⇒ Chapter 7 " CCLi-SUB Column" on page 27.

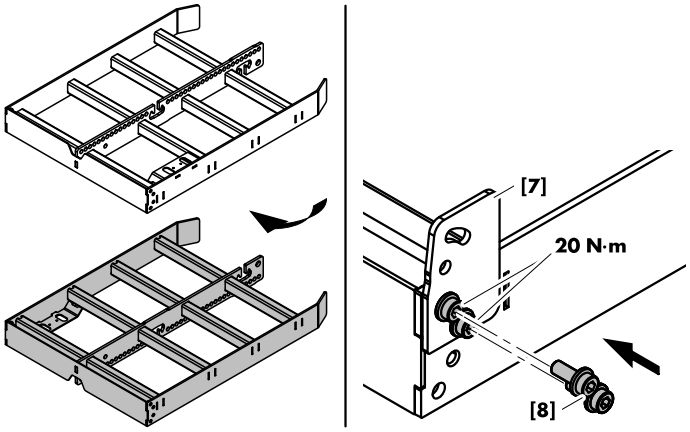
Attach the second Flying frame (adapter frame)

To allow the T-LINK BOTTOM **[6]** of the frame to be connected to the last SUB cabinet of the column, the Rear link of this cabinet must be removed beforehand. For this purpose, proceed as follows:

Remove the Rear link

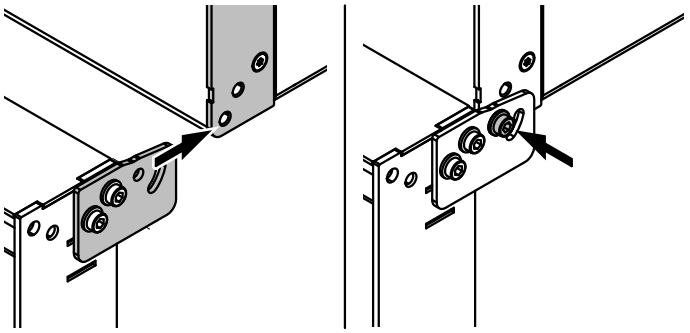


1. Lift the assembly to a suitable working height.
2. Unlock and remove the ring cotter **[R]**.
3. Remove the fixing bolt **[F]** and take off the Rear link.



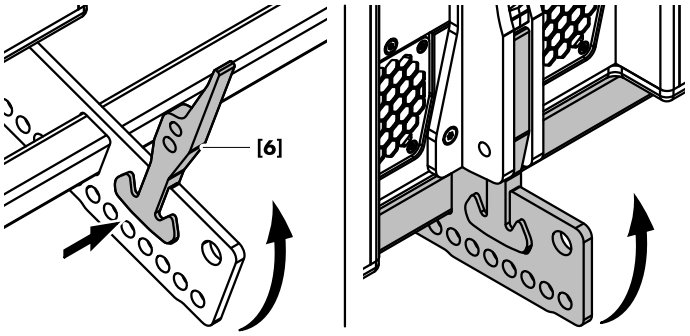
Prepare the Flying frame
Tools required:
AllanHex wrench #6 mm.

1. With the **Flying frame** positioned **upside down**, first attache the enclosed, additional Front links (fixing plates) **[7]** to the frame on both sides.
2. Insert the fixing screws **[8]** and tighten the screws to a maximum torque of 20 N·m.

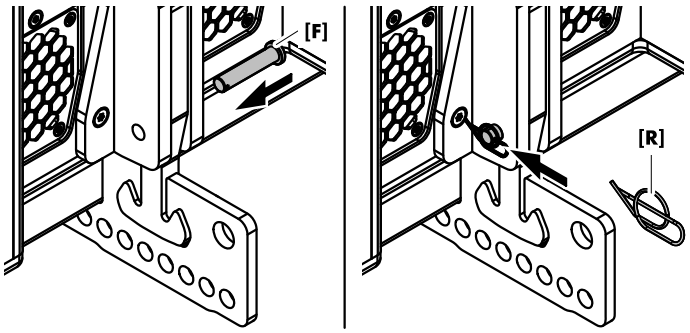


Attach the Flying frame to the SUB cabinet

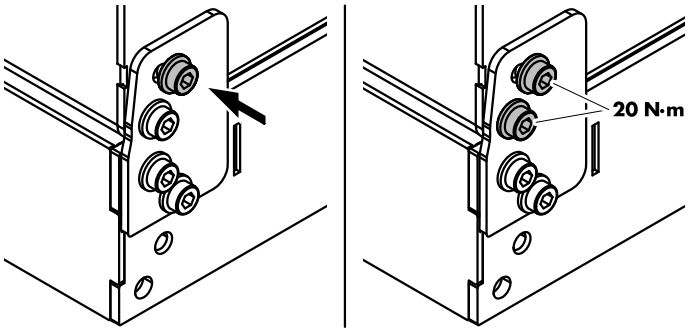
1. Attach the front links of the frame to the front rigging strands of the cabinet on both sides as shown in the graphic opposite.
2. Insert one fixing screw to the bottom hole of the frame's Front links on both sides until they just starting to tighten.



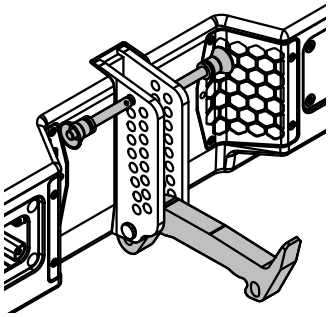
3. Raise the back of the and attache the T-LINK BOTTOM **[6]** to the rear T-Link slot of the frame.
   ↳ Observe the direction of attachment, as shown in the graphic opposite.



4. Reinsert the fixing bolt **[F]**.
5. Reinsert and lock the enclosed ring cotter **[R]** to secure the bolt.

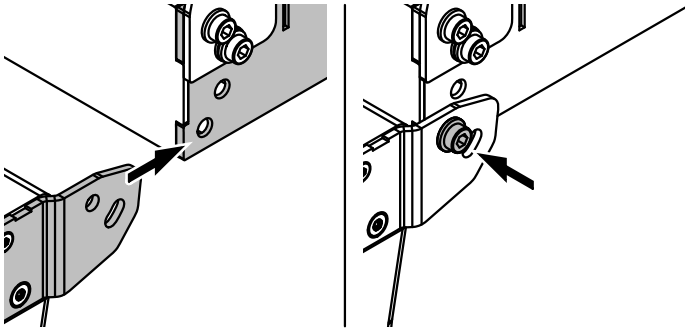


6. At the front insert the second (upper) fixing screw on both sides.
7. Finally tighten the screws to the required torque of 20 N·m on both sides.



Prepare the first TOP cabinet

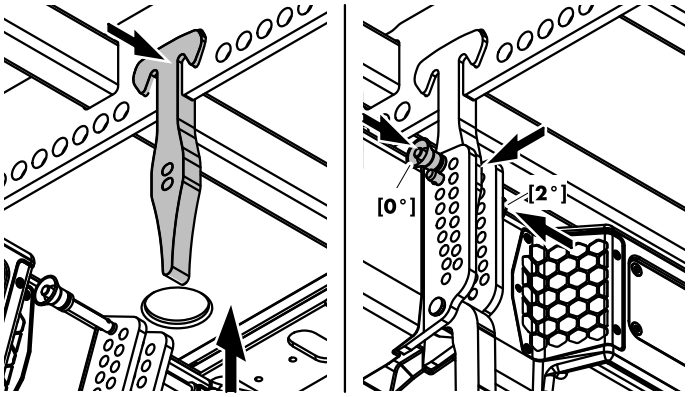
⇒ On the rear of the cabinet release both Locking pins and fold out the Splay link.



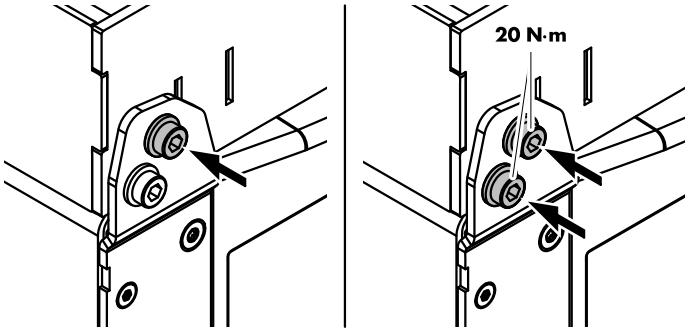
Attach the first cabinet to the Flying frame

To attach the frame to the first cabinet, proceed as follows:

1. With the front grill facing upwards, attach the front links of the cabinet to the front of the frame on both sides as shown in the graphic opposite.
2. Insert one fixing screw to the bottom hole of the cabinet's front rigging strand on both sides until they just starting to tighten.

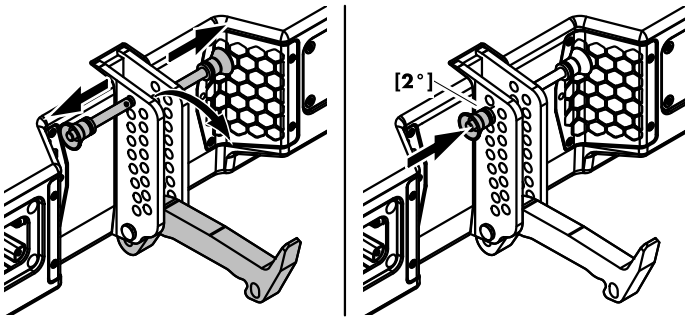


3. Swing the cabinet towards the back and attach the T-LINK TOP into the T-Link slot of the frame.
4. Raise the back of the cabinet until the T-LINK TOP into the rear rigging strand and its holes are in line with the **[0°]** and **[2°]** hole.
5. Reinsert both Locking pins into the **[0°]** and **[2°]** hole and ensure both pins are fully inserted and locked.

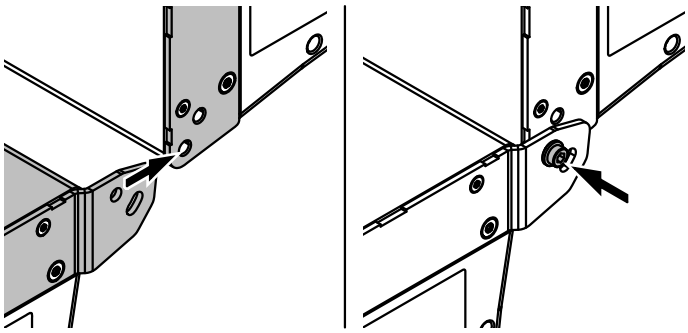


6. At the front insert the second (upper) fixing screw on both sides.
7. Finally tighten the screws to the required torque of 20 N·m on both sides.

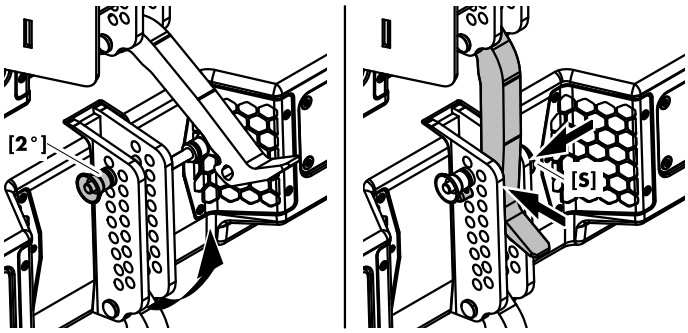
Add the next cabinet



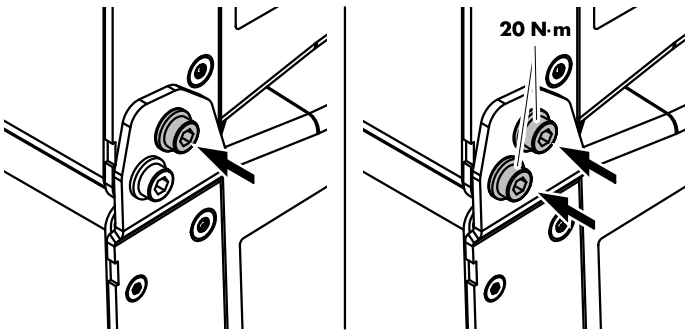
1. On the rear of the cabinet release both Locking pins and fold out the Splay link.
2. Preset the desired splay angle (e.g. **[2°]**) with one Locking pin.



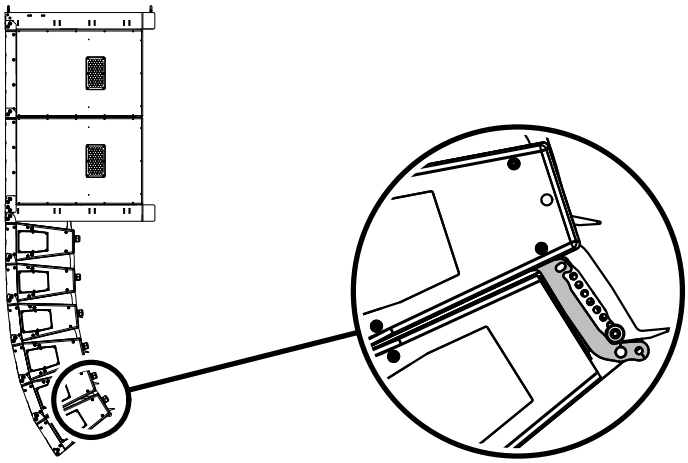
3. With the front grill facing upwards, attach the front links of the cabinet to the front of the frame on both sides as shown in the graphic opposite.
4. Insert one fixing screw to the bottom hole of the cabinet's front rigging strand on both sides until they just starting to tighten.



5. Raise the back of the cabinet until the Splay link of the upper cabinet has engaged into the preset Locking pin of the bottom cabinet.
6. Insert the second Locking pin (Safety pin **[S]**) and ensure both pins are fully inserted and locked.



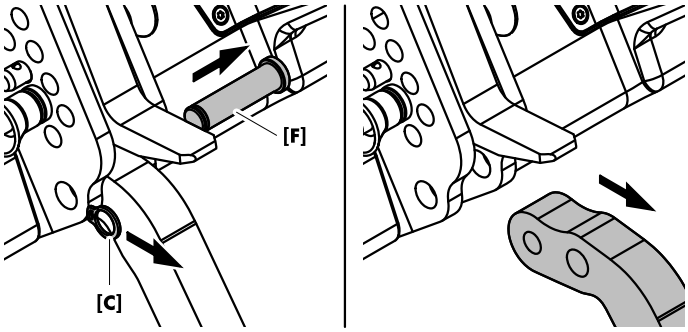
7. At the front insert the second (upper) fixing screw on both sides.
8. Finally tighten the screws to the required torque of 20 N·m on both sides.



Add further cabinets
To add further cabinets, proceed in the same manner until the assembly is completed.

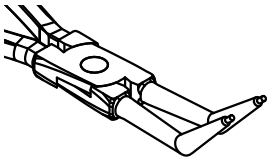
Splay link of the last TOP cabinet
The Splay link of the last cabinet of an array can be kept in its park position.

> **Note:** In this case, splay angles of 0...3° for the cabinet above are not applicable.

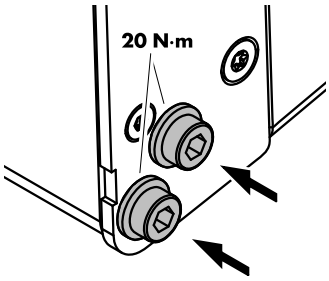


Alternatively remove the Splay link
Alternatively the Splay link can be removed. For this purpose, proceed as follows:

Tools required:
Angled (45°) circlip pliers.

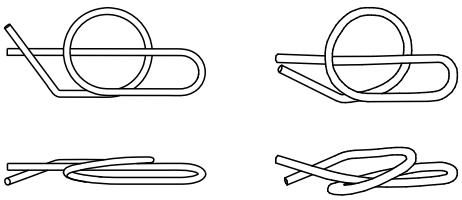


1. Release the circlip **[C]** using an appropriate circlip pliers.
2. Remove the fixing bolt **[F]** and take off the Splay link.



Front rigging strand of the last cabinet
On the front rigging strand of the last cabinet insert both fixing screws on both sides and tighten all screws to the required torque of 20 N·m.

Recheck your work
Recheck the entire assembly and ensure all screws are properly tightened to the required torque of 20 N · m.



[a] **[b]**

Condition of the ring cotter
[a]: Ring cotter OK
[b]: Exchange the ring cotter

10.1 Visual and functional inspections

WARNING!
Potential risk of personal injury and/or damage to material.

To eliminate the risk of accident due to malfunctioning of a component, regularly inspect all system components.

Cabinet enclosure

- Visual inspection of all fitting plates for obvious damage (e.g. cracks or corrosion).
- Visual inspection of the rear rigging strand for obvious damage (e.g. cracks, deformation or corrosion) including all drilled holes of the component.
- Inspection of all fitting plates including front grills to ensure they are securely attached.

Flying frames

Visual inspection regarding deformation and damage (e.g. cracks and corrosion) including all drilled holes of the component.

Front and Splay (Rear) links

Visual inspection regarding deformation and damage (e.g. cracks and corrosion) including all drilled holes of the component.

Fixing bolts

Visual inspection for deformation, cracks, and corrosion of the component.

Ring cotters

- Visual inspection for obvious damage and deformation.
- Functional test of the locking mechanism as described in ⇒ Chapter 2.7 “Ring cotters” on page 18.
  If a ring cotter can no longer be properly fitted to the fixing bolt and locked, it must be exchanged.

11.1 Conformity of rigging components

This declaration applies to:

d&b CCLi loudspeaker cabinets
(with integrated rigging components.)

- Z0890 CCLi8
- Z0891 CCLi12
- Z0892 CCLi-SUB

d&b CCLi rigging components
(including all additional components)

- Z5826 CCLi Flying frame
- Z5827 CCLi-SUB Flying frame
- Z5828 CCLi Beam extension

by d&b audiotechnik GmbH & Co. KG.

All product variants are included, provided they correspond to the original technical version and have not been subject to any later design or electromechanical modifications.

We herewith declare that said products are in conformity with the provisions of the respective directives including all applicable amendments.

Detailed and applicable declarations are available on request and can be ordered from d&b or downloaded from the d&b website at www.dbaudio.com.

11.2 Disposal

WEEE-Reg.-Nr. DE: 13421928

When out of use, the rigging components must be disposed of in accordance with the national environmental regulations.

Ensure that damaged rigging components are disposed of in a way that they cannot be used again.

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d&b audiotechnik