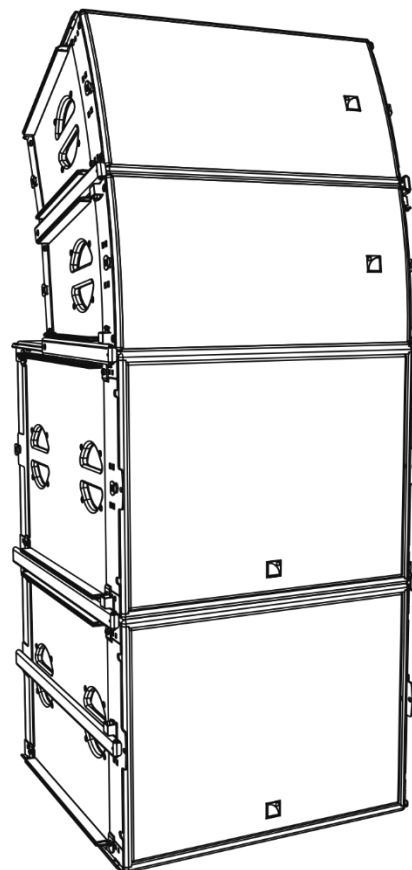
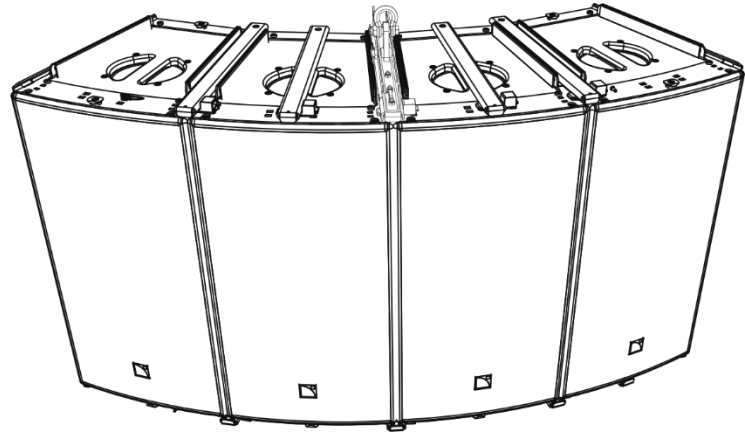
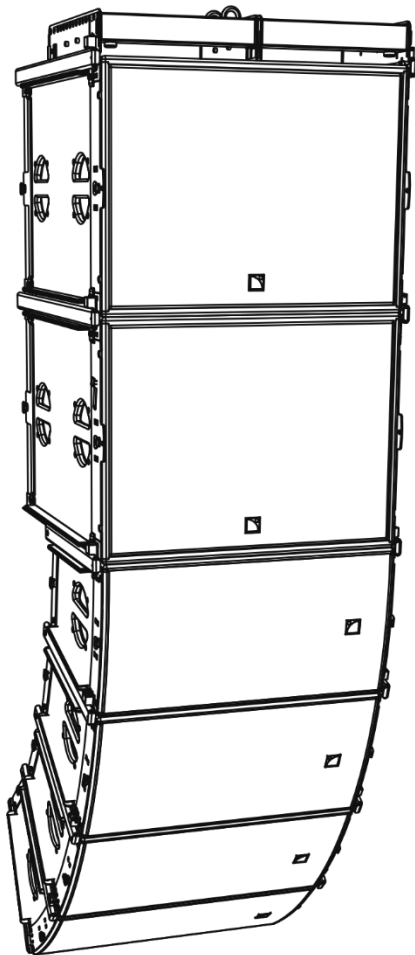


ARCS Wide/Focus



rigging manual (EN)



Document reference: ARCSWIFO_RM_EN_9.0
Distribution date: December 15, 2021

© 2021 L-ACOUSTICS®. All rights reserved.

**No part of this publication may be reproduced or transmitted in any form
or by any means without the express written consent of the publisher.**



SAFETY INSTRUCTIONS

1. **Read this manual**
2. **Follow all SAFETY INSTRUCTIONS as well as DANGER and OBLIGATION warnings**
3. **Never incorporate equipment or accessories not approved by L-ACOUSTICS®**
4. **Read all the related PRODUCT INFORMATION documents before exploiting the system**
The product information document is included in the shipping carton of the related system component.
5. **Inspect the system before any deployment.**
Perform safety related checks and inspections before any deployment.
Perform preventive maintenance at least once a year.
Insufficient upkeep of the product can void the warranty.
If any safety issue is detected during inspection, do not use the product before performing corrective maintenance.
Check for issues. A rigging system part or fastener is missing or loose. A rigging system part exhibits: bends, breaks, broken parts, corrosion, cracks, cracks in welded joints, deformation, denting, wear, holes. A safety cue or label is missing.
6. **Work with qualified personnel for rigging the system**
Installation should only be carried out by qualified personnel that are familiar with the rigging techniques and safety recommendations outlined in this manual.
7. **Ensure personnel health and safety**
During installation and set-up personnel must wear protective headgear and footwear at all times. Under no circumstances personnel is allowed to climb on a loudspeaker assembly.
8. **Respect the Working Load Limit (WLL) of third party equipment**
L-ACOUSTICS® is not responsible for any rigging equipment and accessories provided by third party manufacturers. Verify that the Working Load Limit (WLL) of the suspension points, chain hoists and all additional hardware rigging accessories is respected.
9. **Respect the maximum configurations and the recommended safety level**
For safety issue, respect the maximum configurations outlined in this manual. To check the conformity of any configuration in regards with the safety level recommended by L-ACOUSTICS®, model the system in SOUNDVISION and refer to the warnings in **Mechanical Data** section.
10. **Be cautious when flying a loudspeaker array**
Always verify that no one is standing underneath the loudspeaker array when it is being raised. As the array is being raised, check each individual element to make sure that it is securely fastened to the adjacent element. Never leave the array unattended during the installation process. As a general rule, L-ACOUSTICS® recommends the use of safety slings at all times.
11. **Be cautious when ground-stacking a loudspeaker array**
Do not stack the loudspeaker array on unstable ground or surface. If the array is stacked on a structure, platform, or stage, always check that the latter can support the total weight of the array. As a general rule, L-ACOUSTICS® recommends the use of safety straps at all times.
12. **Take into account the wind effects on dynamic load**
When a loudspeaker assembly is deployed in an open air environment, wind can produce dynamic stress to the rigging components and suspension points. If the wind force exceeds 6 bft (Beaufort scale), lower down and/or secure the loudspeaker array.

SYMBOLS

The following symbols are used in this document:



DANGER

This symbol indicates a potential risk of harm to an individual or damage to the product. It can also notify the user about instructions that must be strictly followed to ensure safe installation or operation of the product.



OBLIGATION

This symbol notifies the user about instructions that must be strictly followed to ensure proper installation or operation of the product.



EQUIPMENT

This symbol indicates the equipment, tools, and spare parts required to perform a procedure.



INFORMATION

This symbol notifies the user about complementary information or optional instructions.



WELCOME TO L-ACOUSTICS®

Thank you for choosing the L-ACOUSTICS® ARCS® WIDE SYSTEM or ARCS® FOCUS SYSTEM.

This document contains essential information on rigging the system properly. Carefully read this document in order to become familiar with this procedures.

As part of a continuous evolution of techniques and standards, L-ACOUSTICS® reserves the right to change the specifications of its products and the content of its documents without prior notice.

Please check the L-ACOUSTICS® web site on a regular basis to download the latest documents: www.l-acoustics.com.

CONTENTS

1	RIGGING SYSTEM COMPONENTS	6
1.1	Loudspeaker enclosures	6
1.2	Rigging elements	6
1.3	Software application	6
2	MECHANICAL SAFETY	8
2.1	Maximum configurations	8
2.2	Assessing mechanical safety	9
3	TECHNICAL DESCRIPTION	10
3.1	Flying.....	10
3.1.1	WIFOLIFT	10
3.1.2	WIFOLIFTBAR.....	11
4	SYSTEM SETUP	12
4.1	Ground-stacking	12
	Horizontal	12
	Horizontal stacked on SB18m	12
	Vertical stacked on SB18m	12
4.2	Flying.....	13
	Horizontal 2 or 4 enclosure	13
	Horizontal 3, 5 or 6 enclosure.....	13
	Vertical 14	
4.3	Pole-mounting	15
	On feet or on top of SB18m	15
5	SUBSET PROCEDURES	16
PROCEDURE A	Locking a rigging bar (WIFORIG, SB18MRIG or WIFOLIFT).....	16
PROCEDURE B	Using WIFOTILT to adjust ARCS WIDE/FOCUS site angle	17
PROCEDURE C	Attaching a WIFOLIFTBAR	19
5.1.1	Description	19
5.1.2	Tilt angle definition and rigging holes choice.....	19
5.1.3	Procedure	21
PROCEDURE D	Attaching a shackle or CLAMP250.....	23
PROCEDURE E	Mounting the WIFOSOCK.....	25
APPENDIX A	PULLBACK IMPLEMENTATION	26
A.	Vertical Array.....	26
B.	Horizontal array.....	27
APPENDIX B	TILT ANGLE REFERENCE CHARTS	28
APPENDIX C	INCLINOMETER MOUNTING	32
APPENDIX D	RECOMMENDED FLIGHT-CASE	33
APPENDIX E	SPECIFICATIONS	34
ARCS® FOCUS.....		34
ARCS® WIDE.....		35
SB18m		36
CLAMP250		37
WIFOBUMP		37
WIFOLIFT		37
WIFOLIFTBAR		38
WIFOSOCK.....		38
WIFOTILT		38

ARCS® WIDE SYSTEM / ARCS® FOCUS SYSTEM

RIGGING MANUAL

VERSION 9.0

1 RIGGING SYSTEM COMPONENTS

The system approach developed by L-ACOUSTICS® consists in providing packaged solutions for loudspeaker system in order to guarantee the highest and most predictable level of performance at any step: modeling, installation, and operation. An L-ACOUSTICS® loudspeaker system is the set of components available to form any loudspeaker system based on one of the full-range loudspeaker enclosure afforded by L-ACOUSTICS®. It includes enclosures, rigging accessories, loudspeaker cables, amplified controllers, and software applications.

The main components involved in the rigging process of an **ARCS® WIDE SYSTEM** or **ARCS® FOCUS SYSTEM** are the following:

1.1 Loudspeaker enclosures

ARCS® WIDE Full range enclosure, arrayable in a constant curvature line, provided with 2 WIFORIG coupling bars.

ARCS® FOCUS Full range enclosure, arrayable in a constant curvature line, provided with 2 WIFORIG coupling bars.

SB18m Subwoofer enclosure provided with 2 SB18MRIG coupling bars.

1.2 Rigging elements

WIFOBUMP Frame for flying ARCS® WIDE/FOCUS or SB18m enclosures as a vertical array. Provided with two bow shackles WLL 1 t.

WIFORIG Coupling bars dedicated to ARCS® WIDE and ARCS® FOCUS. Equipped with the LOCKTAB locking tab. Delivered with the enclosures.

SB18MRIG Coupling bars dedicated to SB18m. Equipped with the LOCKTAB locking tab. Delivered with the enclosure.

WIFOLIFT Bar for flying two, four, six or eight ARCS® WIDE/FOCUS enclosures as a horizontal array. Provided with one bow shackle WLL 1 t and one connecting rod.

WIFOLIFTBAR Bar for flying three, five or six ARCS® WIDE/FOCUS enclosures as a horizontal array. Provided with one bow shackle WLL 1 t.

WIFOSOCK Pole mount socket for an ARCS® WIDE/FOCUS enclosure.

CLAMP250 Truss clamp.

WIFOTILT Rigging accessory for stacking and tilting up to 4 ARCS WIFO on SB18m.

1.3 Software application

SOUNDVISION Proprietary 3D acoustical and mechanical modeling software.



Mechanical safety

Before any installation, model the system in SOUNDVISION and check the **Mechanical Data** section for any *stress warnings*.



Other ARCS® WIDE/FOCUS SYSTEM components

All the other components of the system are presented in the **ARCS® WIDE/FOCUS SYSTEM user manual**, document in which the loudspeaker configurations and connection are described.



ARCS® WIDE



ARCS® FOCUS



SBI8m



WIFOBUMP



WIFOLIFT



WIFOLIFTBAR



WIFOSOCK



WIFOTILT



CLAMP250



WIFORIG



SBI8MRIG



SOUNDVISION



SBI8PLA



SBI8COV

Components involved in the rigging process of ARCS® WIDE SYSTEM / ARCS® FOCUS SYSTEM

ARCS® WIDE SYSTEM / ARCS® FOCUS SYSTEM

RIGGING MANUAL

VERSION 9.0

2 MECHANICAL SAFETY

2.1 Maximum configurations

The ARCS® WIDE/FOCUS rigging system complies with 2006/42/EC: Machinery Directive. It has been designed following the guidelines of BGV-C1.

2006/42/EC: Machinery Directive specifies a safety factor of 4 against the rupture. The limits specified in the tables below correspond to deployments with a safety factor of **4 or higher** for flown deployments.

Refer to Soundvision for the safety factor of a specific deployment.

The **safe limit** gives the maximum number of elements for which the safety factor is always compliant with the 2006/42/EC: Machinery Directive, regardless of the other deployment parameters (site angles, inter-enclosure angles, etc.)

The **maximum limit** gives the maximum number of elements for which the safety factor can be compliant with the 2006/42/EC: Machinery Directive, when the other deployment parameters provide the best mechanical conditions.

For mixed arrays refer to your Soundvision model.

Configuration	Rigging accessory	Safe limit	Maximum limit
Flown	WIFOLIFTBAR	5 ARCS® WIDE/FOCUS	6 ARCS® WIDE or 5 ARCS® FOCUS
	WIFOLIFTBAR + CLAMP250	5 ARCS® WIDE/FOCUS	6 ARCS® WIDE or 5 ARCS® FOCUS
	WIFOLIFT	4 ARCS® WIDE/FOCUS per WIFOLIFT	
	WIFOLIFT + CLAMP250		
	WIFOBUMP	8 ARCS® WIDE/FOCUS or 4 SB18m	
	WIFOBUMP + CLAMP250	6 ARCS® WIDE/FOCUS or 3 SB18m	



6 ARCS® WIDE with WIFOLIFTBAR

When flying 6 ARCS® WIDE enclosures with the WIFOLIFTBAR, only use holes n° 2,3,4,5,6 of the WIFOLIFTBAR.

Other configurations

For other configurations, respect the recommended maximum limit for optimal stability.

Configuration	Rigging accessory	Safe / Maximum limit
Ground-stacked	on ground	2 ARCS® WIDE/FOCUS
	on SB18m	4 ARCS® WIDE/FOCUS
	WIFOTILT	
Pole-mounted	WIFOSOCK	1 ARCS® WIDE/FOCUS



Maximum 4 ARCS® WIDE/FOCUS under SB18m

In a flown hybrid vertical configuration never attach more than four ARCS® WIDE/FOCUS enclosures under the SB18m subwoofers.



Mechanical safety of the rigging system

Before any installation, always model the system in SOUNDVISION and check the **Mechanical Data** section for any *stress warning* or *stability warning*.

2.2 Assessing mechanical safety

In order to assess the actual safety of any array configuration before implementation, refer to the following warnings:



Rated working load limit (WLL) is not enough

The rated WLL is an indication of the element resistance to tensile stress. For complex mechanical systems such as loudspeaker arrays, WLLs cannot be used per se to determine the maximum number of enclosures within an array or to assess the safety of a specific array configuration.



Mechanical modeling with SOUNDVISION

The working load applied to each linking point, along with the corresponding safety factor, will depend on numerous variables linked to the composition of the array (type and number of enclosures, splay angles) and the implementation of the flying or stacking structure (number and location of flying points, site angle). This cannot be determined without the complex mechanical modeling and calculation offered by SOUNDVISION.



Assessing the safety with SOUNDVISION

The overall safety factor of a specific mechanical configuration always corresponds to the lowest safety factor among all the linking points. Always model the system configuration with the SOUNDVISION software and check the **Mechanical Data** section to identify the weakest link and its corresponding working load. By default, a *stress warning* will appear when the mechanical safety goes beyond the recommended safety level.



Safety of ground-stacked arrays in SOUNDVISION

For ground-stacked arrays, a distinct *stability warning* is implemented in SOUNDVISION. It indicates a tipping hazard when the array is not secured to the ground, stage or platform. It is user responsibility to achieve full anchorage and to ignore this warning.



Consideration must be given to unusual conditions

SOUNDVISION calculations are based upon usual environmental conditions. A higher safety factor is recommended with factors such as extreme high or low temperatures, strong wind, prolonged exposition to salt water, etc. Always consult a rigging specialist to adopt safety practices adapted to such a situation.

3 TECHNICAL DESCRIPTION

3.1 Flying

The ARCS WIDE/FOCUS system can use WIFOLIFT or WIFOLIFTBAR depending on two factors:

- number of load-bearing lines,
- number of enclosures.

Follow the indications in this table to know which accessories to use:

1 load-bearing line			2 load-bearing lines
2 or 4 ARCS WIDE / FOCUS	3 or 5 ARCS WIDE / FOCUS	6 ARCS WIDE	6 or 8 ARCS WIDE / FOCUS
1 WIFOLIFT	2 WIFOLIFT + 1 WIFOLIFTBAR		2 WIFOLIFT

3.1.1 WIFOLIFT



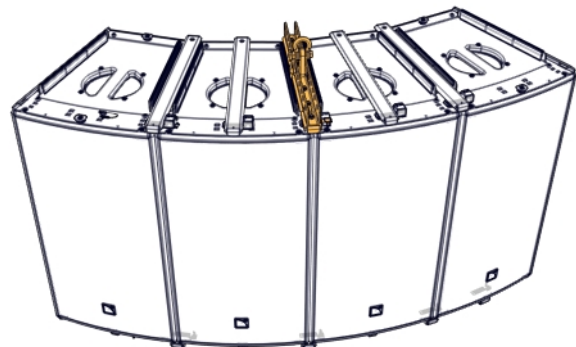
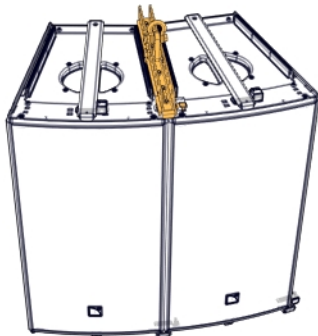
Maximum of four enclosures per WIFOLIFT.

Always use 1 load-bearing line per pick-up point.

Only lift symmetrical arrays.

Each side of the array must mirror the other.

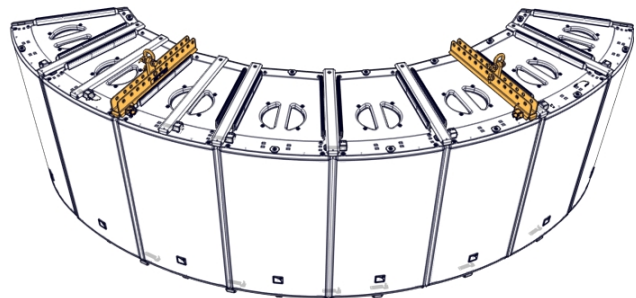
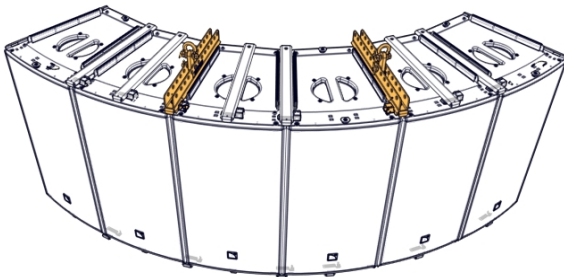
1 WIFOLIFT



No bridled suspension on two WIFOLIFT bars.

Always use 1 load-bearing line per pick-up point.

2 WIFOLIFT

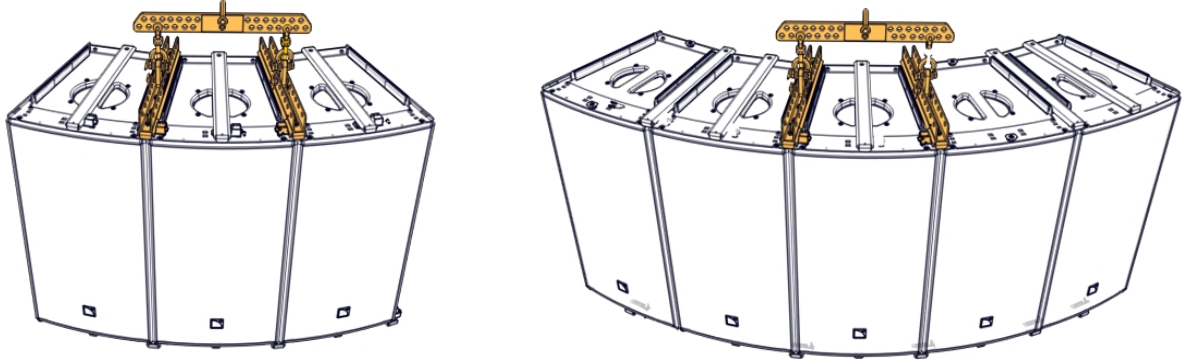


3.1.2 WIFOLIFTBAR



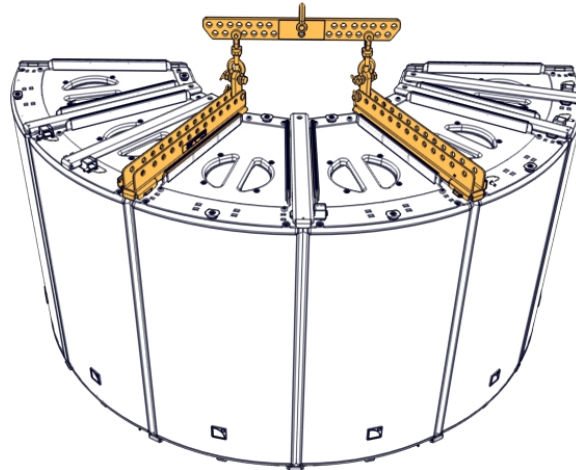
Only lift symmetrical arrays.
Each side of the array must mirror the other.

2 WIFOLIFT and 1 WIFOLIFTBAR



ARCS® WIDE only

When used with 6 enclosures, the WIFOLIFTBAR is only compatible with ARCS® WIDE.



ARCS® WIDE SYSTEM / ARCS® FOCUS SYSTEM

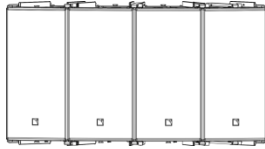
RIGGING MANUAL

VERSION 9.0

4 SYSTEM SETUP

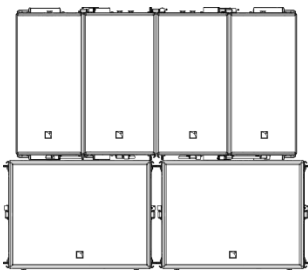
4.1 Ground-stacking

Horizontal



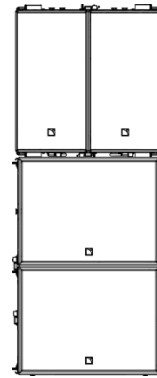
- ▶ Place the enclosures side-by-side, logo down, with their rails aligned.
- ▶ Slide and lock the bars into all top adjacent rails.
- ❗ Refer to **PROCEDURE A**.

Horizontal stacked on SB18m



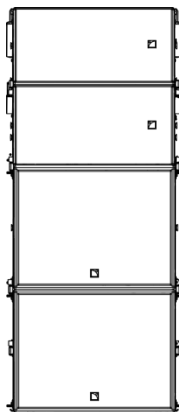
Use safety straps at all times.

Anchor the array since the ARCS WIDE / FOCUS enclosures are not secured to the SB18m.



- ▶ Stack SB18m horizontally or vertically, logo down.
- ❗ If SB18m enclosures are vertically stacked, attach them: refer to **PROCEDURE A**.
- ▶ Place the ARCS® WIDE/FOCUS enclosures on top of the subwoofers, side-by-side with rails aligned.
- ▶ Slide and lock the WIFORIG bars on the top adjacent ARCS® WIDE/FOCUS rails.
- ❗ Refer to **PROCEDURE A**.

Vertical stacked on SB18m



- ▶ Stack and attach as many SB18m enclosures as necessary (logo down).
- ❗ Refer to **PROCEDURE A**.

- ▶ To adjust the ARCS WIDE/FOCUS site angle, use a WIFOTILT.
- ❗ Refer to **PROCEDURE B**.

- ▶ Otherwise, place the ARCS WIDE/FOCUS enclosures with rails aligned on top of the subwoofer(s).
- ▶ Attach ARCS WIDE/FOCUS to SB18m.
- ❗ Refer to **PROCEDURE A**.

- ▶ Attach up to three more ARCS WIDE/FOCUS on top.
- ❗ Refer to **PROCEDURE A**.

4.2 Flying



No bridled suspension on two WIFOLIFT bars.

Always use 1 load-bearing line per pick-up point.

Pullback implementation

By using rigging points at the rear of the installed coupling bars, an ARCS® WIDE/FOCUS horizontal or vertical array can be implemented in pullback configuration. Refer to **APPENDIX A PULLBACK IMPLEMENTATION**.

Final check before flying the system

Coupling bars: All lugs of locking tabs must be secured, as indicated in **PROCEDURE A**.

Shackles: All safety pins must be secured as indicated in **PROCEDURE D**.

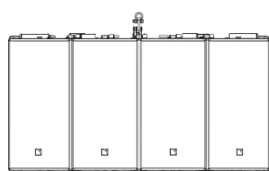


Truss clamping

By installing a CLAMP250 instead of a shackle, an array can be attached to a truss.

Refer to **PROCEDURE D Attaching a shackle or CLAMP250**.

Horizontal 2 or 4 enclosure



- ▶ Place the enclosures in vertical position, side-by-side, logo down and rails aligned.
- ▶ Remove all top WIFORIG bars from their storage location.
- ▶ Install the WIFOLIFT bar(s).
See **WIFOLIFT** p 10-9.
- ❗ Refer to **PROCEDURE A**.
- ▶ Slide and lock the WIFORIG bars into all top remaining adjacent rails.
- ❗ Refer to **PROCEDURE A**.
- ▶ Attach a shackle on each of the WIFOLIFT bars.
- ❗ Refer to **PROCEDURE D**.
- ▶ Slightly raise the array.
- ▶ Remove all bottom WIFORIG bars from their storage location.
- ▶ Slide and lock WIFORIG bars into all bottom adjacent rails.
- ❗ Refer to **PROCEDURE A**.



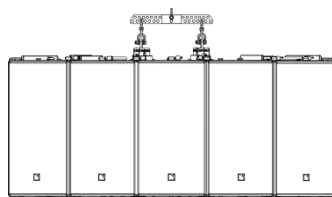
WIFOLIFTBAR positioning

Refer to **WIFOLIFT** on page 10-9.

Hybrid arrays

If you are implementing a hybrid configuration carefully follow the verification procedure outlined in **PROCEDURE C Attaching a WIFOLIFTBAR**

Horizontal 3, 5 or 6 enclosure



- ▶ Place the enclosures in vertical position, side-by-side, logo down and rails aligned.
- ▶ Remove all top WIFORIG bars from their storage location.
- ▶ Install the WIFOLIFT bar(s).
See **WIFOLIFT** p 10-9 at the beginning of this section.
- ❗ Refer to **PROCEDURE A**.
- ▶ Slide and lock the WIFORIG bars into all top remaining adjacent rails.
- ❗ Refer to **PROCEDURE A**.
- ▶ Attach a WIFOLIFTBAR to the two WIFOLIFT.
- ❗ Refer to **PROCEDURE C**.
- ▶ Attach a shackle or a CLAMP250 to the WIFOLIFTBAR.
- ❗ Refer to **PROCEDURE D**.
- ▶ Slightly raise the array.
- ▶ Remove all bottom WIFORIG bars from their storage location.
- ▶ Slide and lock WIFORIG bars into all bottom adjacent rails.
- ❗ Refer to **PROCEDURE A**.

ARCS® WIDE SYSTEM / ARCS® FOCUS SYSTEM

RIGGING MANUAL

VERSION 9.0



No bridled suspension on the WIFOBUMP frame

Always use 1 load-bearing line per pick-up point.

Pullback implementation

By using rigging points at the rear of the installed coupling bars, an ARCS® WIDE/FOCUS horizontal or vertical array can be implemented in pullback configuration. Refer to **APPENDIX A PULLBACK IMPLEMENTATION**.

Final check before flying the system

Coupling bars: All lugs of locking tabs must be secured, as indicated in **PROCEDURE A**.

Shackles: All safety pins must be secured as indicated in **PROCEDURE D**.

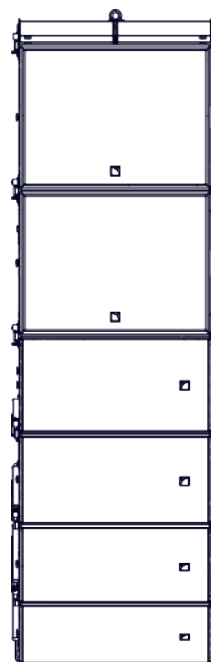
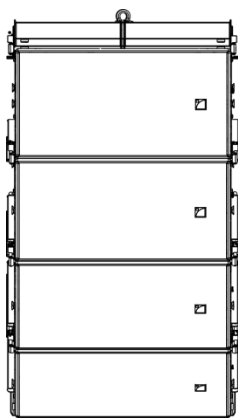


Truss clamping

By installing a CLAMP250 instead of a shackle, an array can be attached to a truss.

Refer to **PROCEDURE D**.

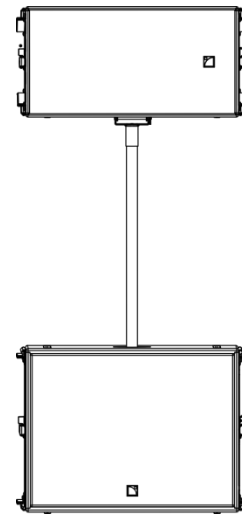
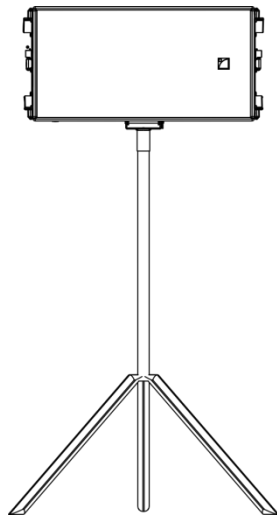
Vertical



- ▶ Place the first enclosure (WIDE, FOCUS or SB18m) on the floor.
- ▶ For an array with 2 SB18m, place and lock a second SB18m on top of the first one.
- ❗ Refer to **PROCEDURE A** to lock the SB18MRIG bars.
- ▶ Remove the top coupling bars from their storage location.
- ▶ Place the WIFOBUMP frame on the top enclosure and lock the coupling bars.
With an SB18m on top, refer to SOUNDVISION for the frame position (front or rear).
- ❗ Refer to **PROCEDURE A** to lock the coupling bars.
- ▶ Attach a shackle on the WIFOBUMP.
- ❗ Refer to **PROCEDURE D**.
- ▶ Raise the array so you are comfortable lifting and attaching the next enclosure.
- ▶ Bring the next enclosure and remove the bars from their storage location.
- ▶ With the rigging bar in hand, lift the next enclosure and attach it under the array.
- ❗ Refer to **PROCEDURE A** to lock the coupling bars.
- ▶ To add more enclosures, repeat the previous 3 steps until the array is completed.

4.3 Pole-mounting

On feet or on top of SB18m



- ▶ Install a WIFOSOCK on an ARCS® WIDE/FOCUS enclosure.
- ❗ Refer to **PROCEDURE E**.
- ▶ Insert the pole into the WIFOSOCK socket.
- ▶ If needed, insert the other extremity of the pole into an SB18m socket.
- ▶ Tip the assembly to a vertical position.



Dismantling the system

Identify the array to dismount and apply the associated System setup procedure in reversed order.

ARCS® WIDE SYSTEM / ARCS® FOCUS SYSTEM

RIGGING MANUAL

VERSION 9.0

5 SUBSET PROCEDURES

PROCEDURE A Locking a rigging bar (WIFORIG, SB18MRIG or WIFOLIFT)

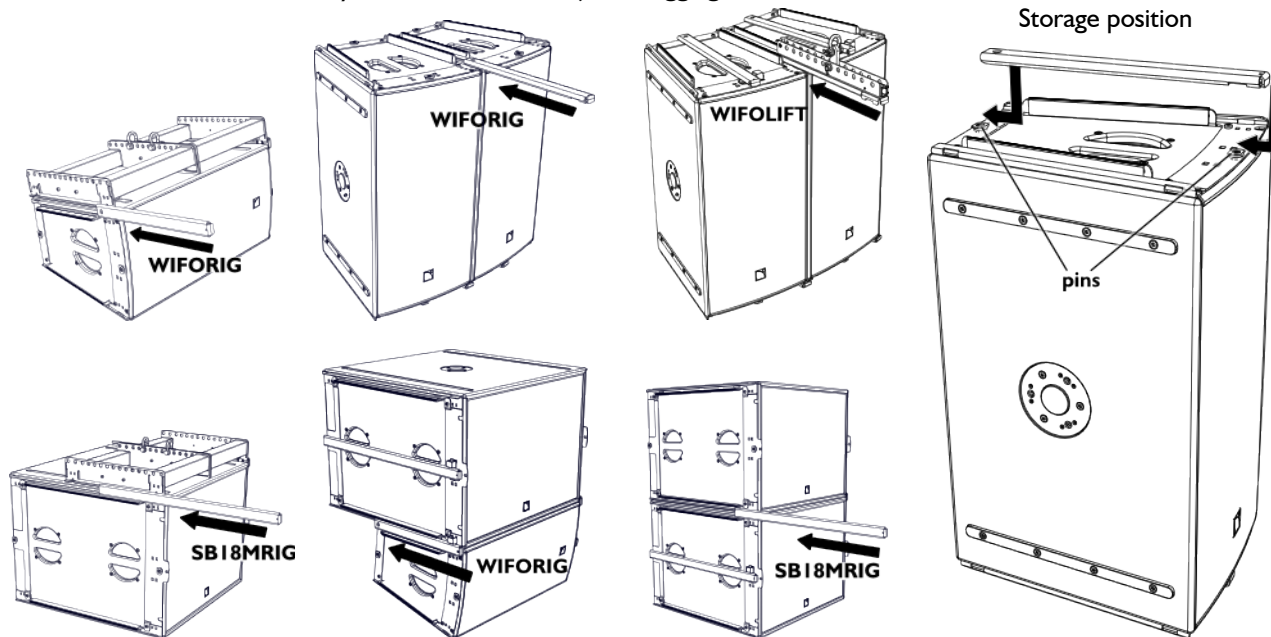


Coupling bars and SB18m

Only use the longer SB18MRIG bars stored on the SB18m subwoofers to attach SB18m to another SB18m or to a WIFOBUMP.

The shorter WIFORIG bars do not ensure the mechanical safety of these connections.

1. Remove the bar from its storage location.
2. From the front of the array, slide the bar into adjacent rigging rails.

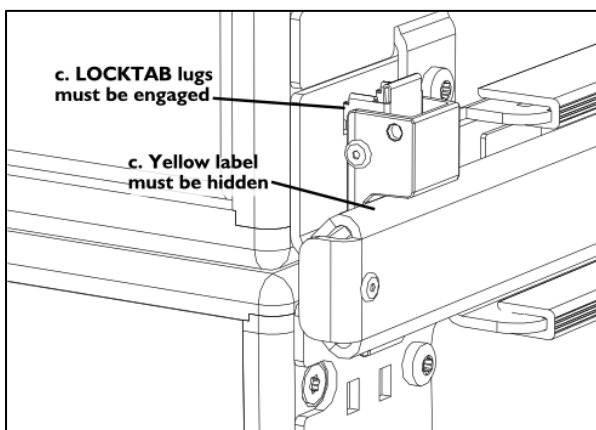
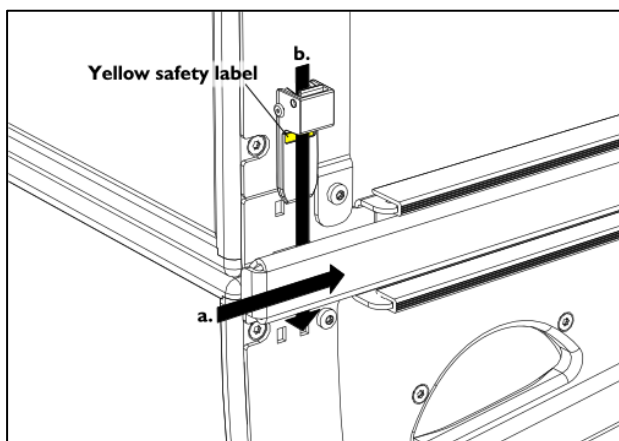


3. Secure the bar with the locking tab.

Accurately position the bar by pushing it into place.

Pinch the spring tongue and slide the locking tab until it snaps into place.

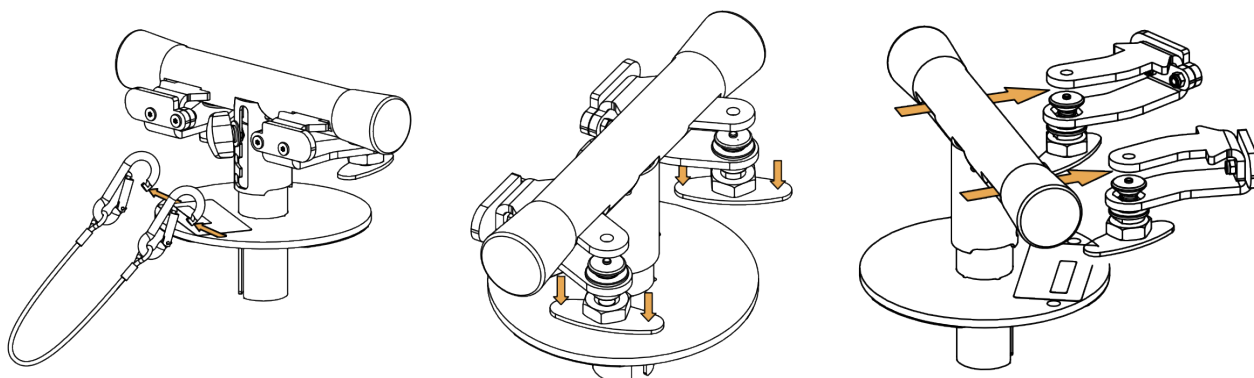
When encountering difficulty, try to slide the tab from the other side.



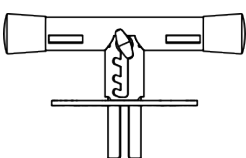
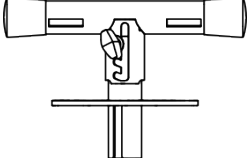
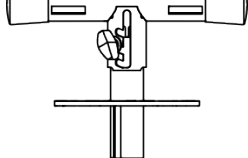
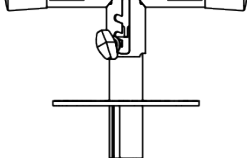
Always check that the yellow label is fully covered to ensure the locking tabs are fully engaged.

PROCEDURE B **Using WIFOTILT to adjust ARCS WIDE/FOCUS site angle**

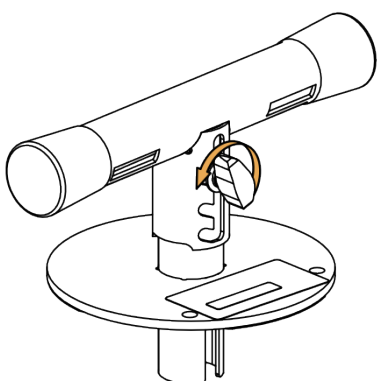
Remove the locking tabs and sling from WIFOTILT.



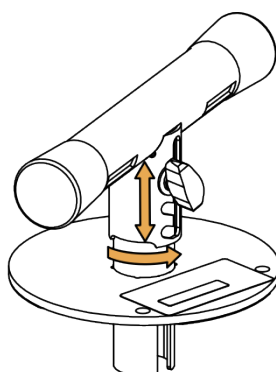
Adjust WIFOTILT angle.

							
WIDE 0°	FOCUS -7.5°	WIDE -2.5°	FOCUS -10°	WIDE -5°	FOCUS -12.5°	WIDE -7.5°	FOCUS -15°

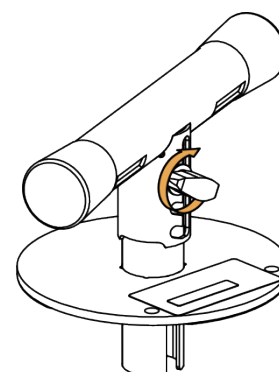
Loosen the knob.



Select the angle and notch the corresponding slit on the knob screw.



Turn the T-shape support and tighten the knob.



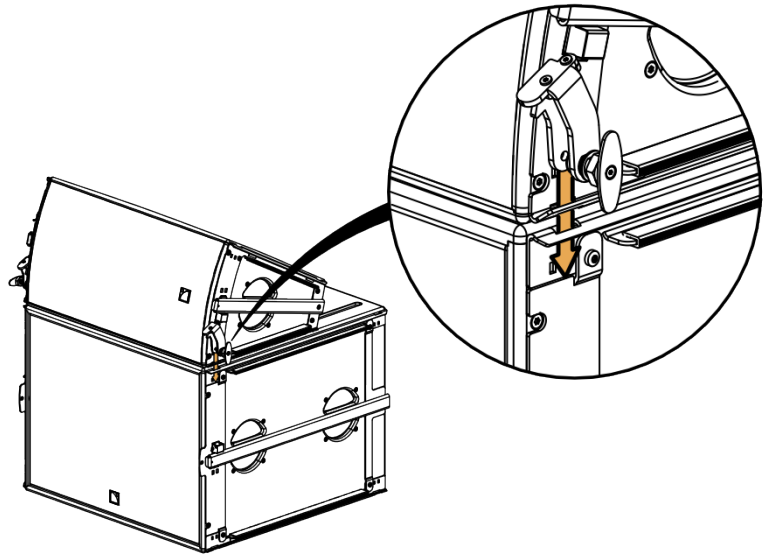
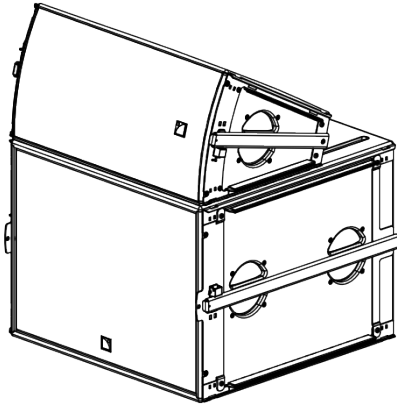
ARCS® WIDE SYSTEM / ARCS® FOCUS SYSTEM

RIGGING MANUAL

VERSION 9.0

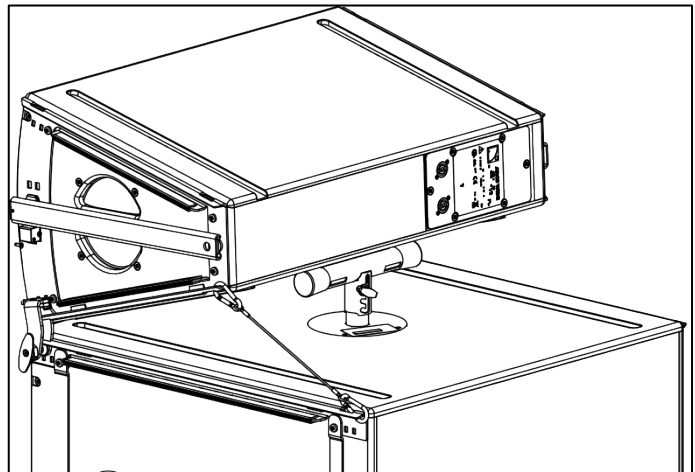
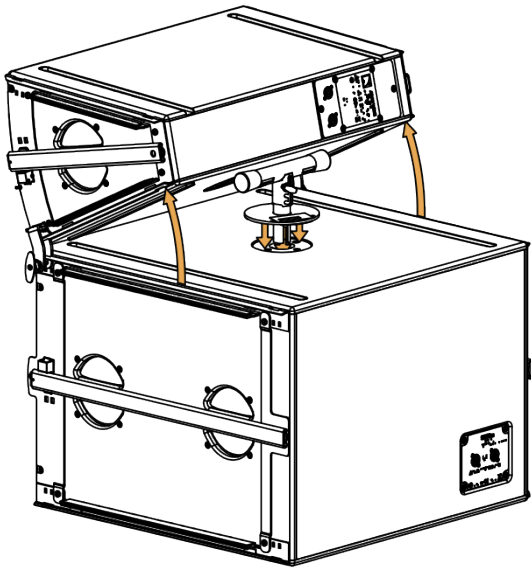
Position the first ARCS WIDE / FOCUS on the SB18m with rails aligned.

Slide the WIFOTILT tabs through the holes at the front of both enclosures rails.



Lift the back of ARCS WIDE / FOCUS and place the WIFOTILT in the SB18m pole socket.

Attach the sling to the back holes of each enclosure rail on one side of the assembly.



PROCEDURE C Attaching a WIFOLIFTBAR

5.1.1 Description

The WIFOLIFTBAR is a rigging accessory used to fly 3 or 5 ARCS® WIDE/FOCUS or 6 ARCS® WIDE.

It is used with two WIFOLIFT that are positioned on the array depending on the number of enclosures, **WIFOLIFT p 10-9**.

The WIFOLIFTBAR is composed of a metal bar with two rows of 15 holes and 2 swivel shackles. It can be used with a bow shackle WLL 1 t or a CLAMP250 attached to one of the two central holes. The swivel shackles can be attached the other 28 holes to connect the WIFOLIFTBAR to the two WIFOLIFT.

5.1.2 Tilt angle definition and rigging holes choice

The tilt angle of an array is defined by the holes selected on the WIFOLIFT.

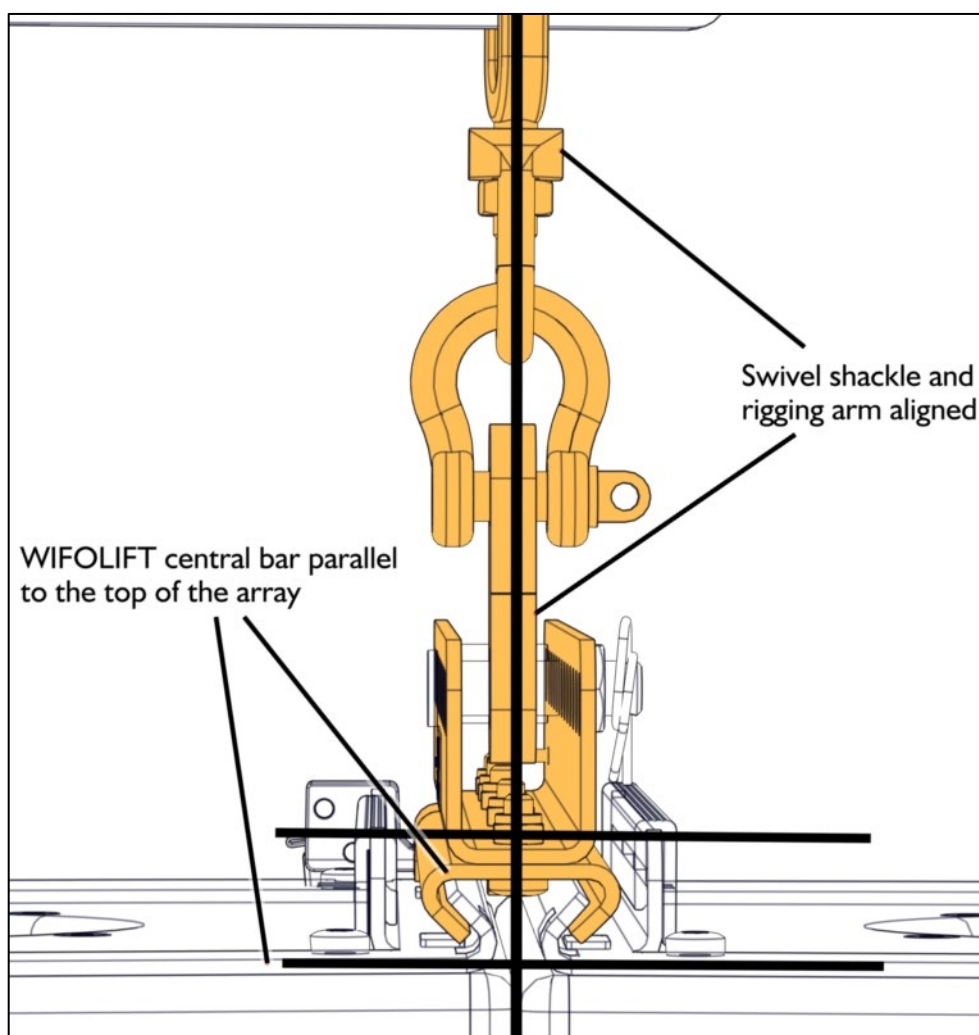
For homogeneous arrays (ARCS® WIDE or FOCUS), refer to the **Tilt angle reference chart** on the next page to define which WIFOLIFT holes correspond to your target tilt angle and which WIFOLIFTBAR holes to use.

For example, rigging a three ARCS® FOCUS array on holes n° 1 on the WIFOLIFT yield a 26.5° positive angle and requires attaching the swivel shackles to holes n° 2 on the WIFOLIFTBAR.

For hybrid arrays (ARCS® WIDE and FOCUS), a trial-and-error process must be applied to define the appropriate WIFOLIFT and WIFOLIFTBAR holes.

The goal is to reduce the stress on the WIFOLIFT to a minimum:

- the rigging arm and the swivel shackle must be aligned
- the WIFOLIFT bar must remain parallel to the top of the array.



5.1.3 Procedure

If you are raising a hybrid array (ARCS® WIDE and FOCUS), follow these steps:

1. Select the WIFOLIFT and WIFOLIFTBAR holes to define a starting point.
The values given in the Tilt angle reference chart can be used as a guideline.
Select the array which composition is the closest to your hybrid array and use the indicated WIFOLIFT and WIFOLIFTBAR.
For example, to reach a 0,2° tilt angle with an array of 2 ARCS® WIDE and 1 ARCS® FOCUS, refer to the 3 ARCS® WIDE array and use WIFOLIFT hole n° 7 and WIFOLIFTBAR hole n° 8.
2. Attach two swivel shackles to the indicated holes on a WIFOLIFTBAR.
3. Attach the WIFOLIFTBAR to the indicated hole on the two WIFOLIFT.
 - a. Attach a rigging arm to the selected hole on each WIFOLIFT by driving and securing the pierced bolt.
 - b. Pass the U-shaped part of the shackle through the swivel shackle loop.
 - c. Attach the bow shackle to the arm.
 - d. Secure the shackle.
4. Raise the array so you can measure the angle.
If you are not satisfied, lower the array to the ground and adjust the angle by picking another hole.
If you are satisfied with the angle, continue.



Risk of fall.

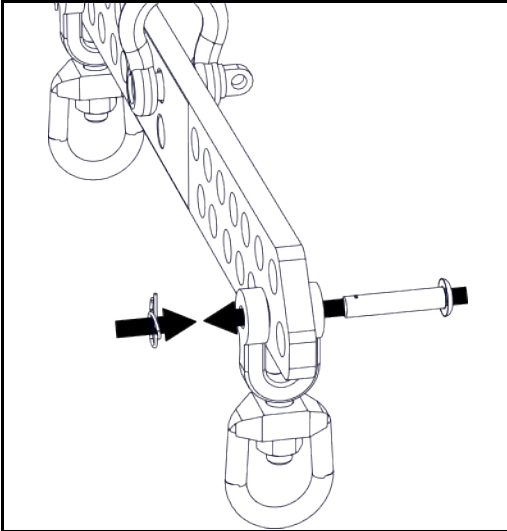
The WIFOLIFT must be parallel to the top of the array. Any other situation creates mechanical stress and can cause the WIFOLIFT to pop out.

5. Verify that the central bar of the two WIFOLIFT is parallel to the top of the array.
If it is parallel, the array is ready.
If it is not parallel, follow these steps:
 - a. Lower the array to the ground.
 - b. Change the swivel shackles rigging holes on the WIFOLIFTBAR so that the rigging arm and the swivel shackle form a straight line.
 - c. Repeat step 5 until the central bar of the WIFOLIFT is parallel to the top of the array.

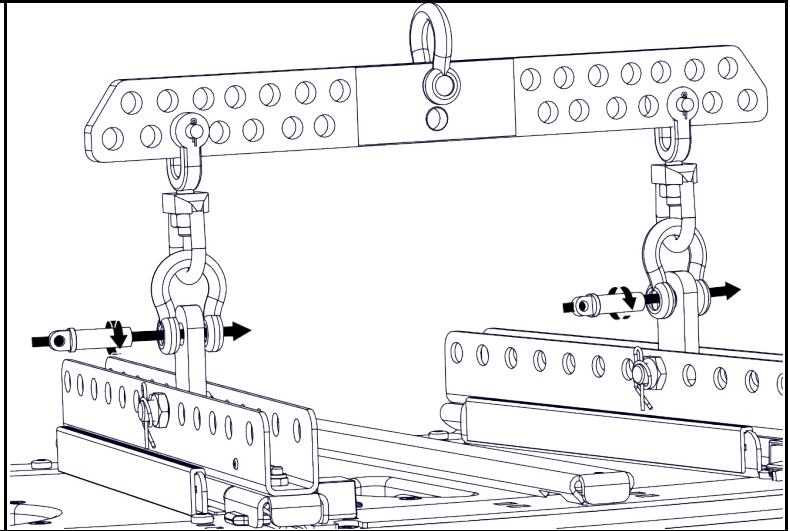
If you are raising an homogeneous array,

1. Select the appropriate WIFOLIFT and WIFOLIFTBAR holes using the Tilt angle reference chart on the previous page
2. Attach two swivel shackles to the indicated holes on a WIFOLIFTBAR.
3. Attach the WIFOLIFTBAR to the indicated hole on the two WIFOLIFT.
 - a. Attach a rigging arm to the WIFOLIFT hole by driving and securing the pierced bolt.
 - b. Pass the U-shaped part of the shackle through the swivel shackle loop.
 - c. Attach the bow shackle to the arm.
 - d. Secure the shackle.

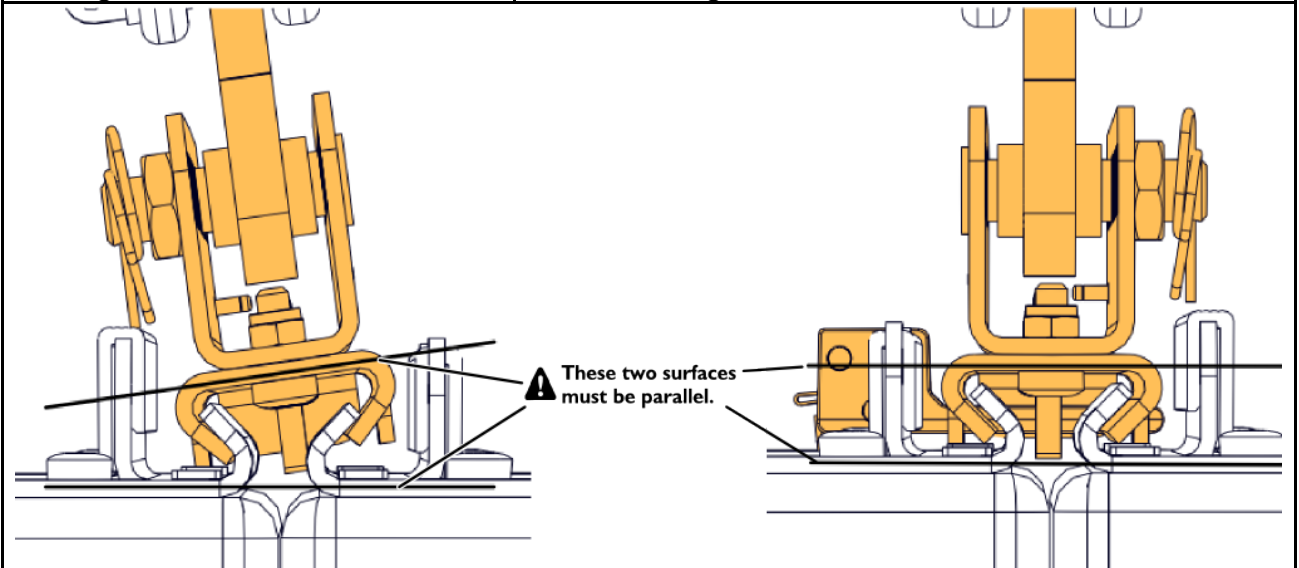
► PROCEDURE D: Attaching a WIFOLIFTBAR



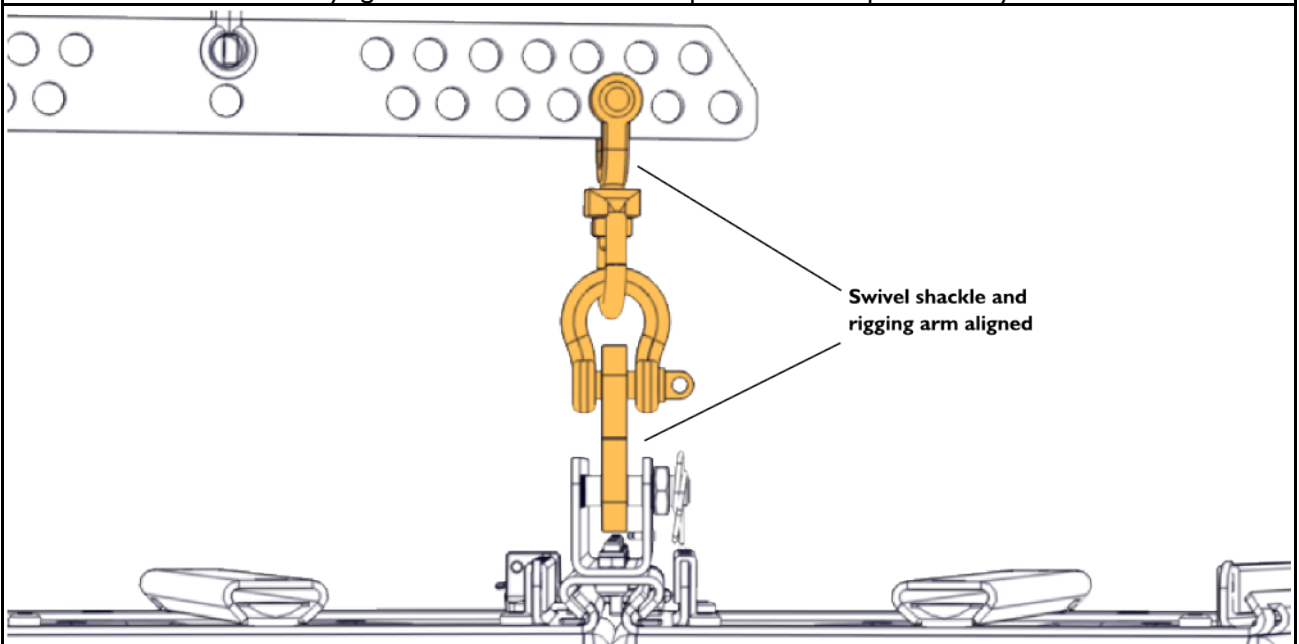
Securing a swivel shackle on WIFOLIFTBAR.



Securing the WIFOLIFTBAR to the two WIFOLIFT.



Verifying the WIFOLIFT central bar is parallel to the top of the array.

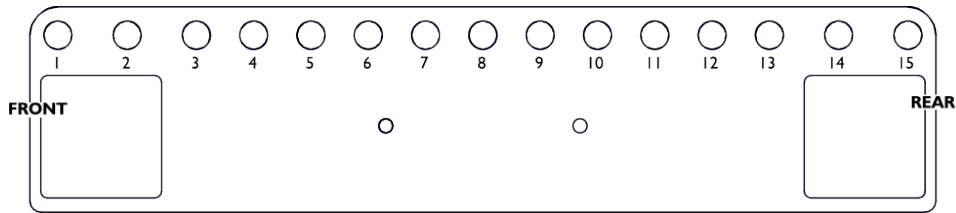


Verifying the alignment of the swivel shackle and the rigging arm.

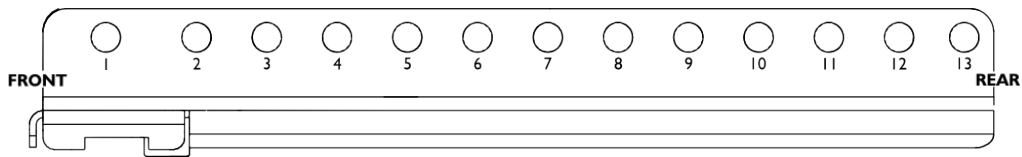
PROCEDURE D Attaching a shackle or CLAMP250

1. Refer to **SOUNDVISION** modeling or to the table in **APPENDIX B TILT ANGLE REFERENCE CHART** to identify the hole that corresponds to the targeted tilt angle.

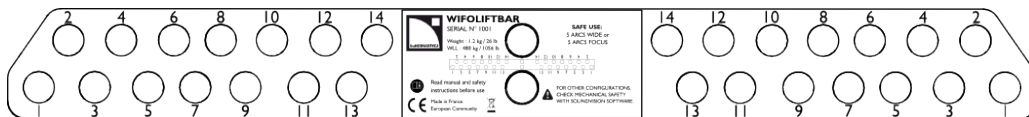
WIFOBUMB HOLES



WIFOLIFT HOLES



WIFOLIFTBAR HOLES

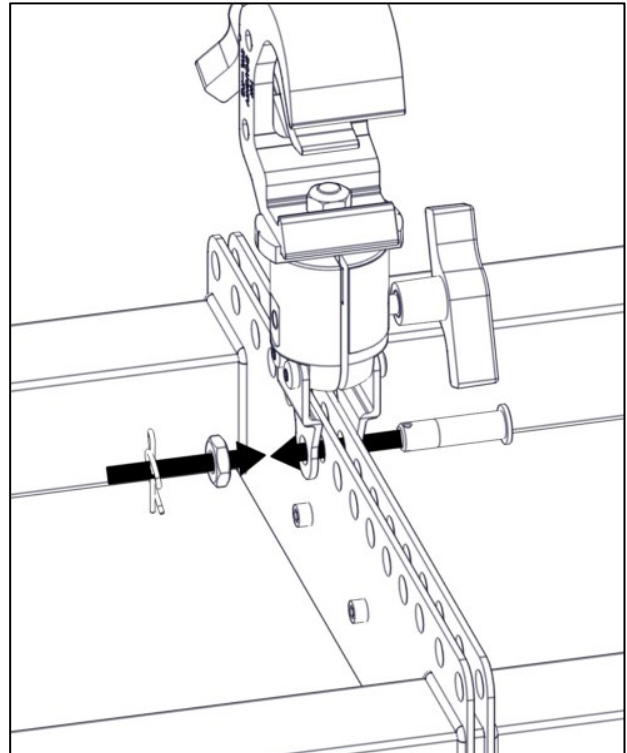
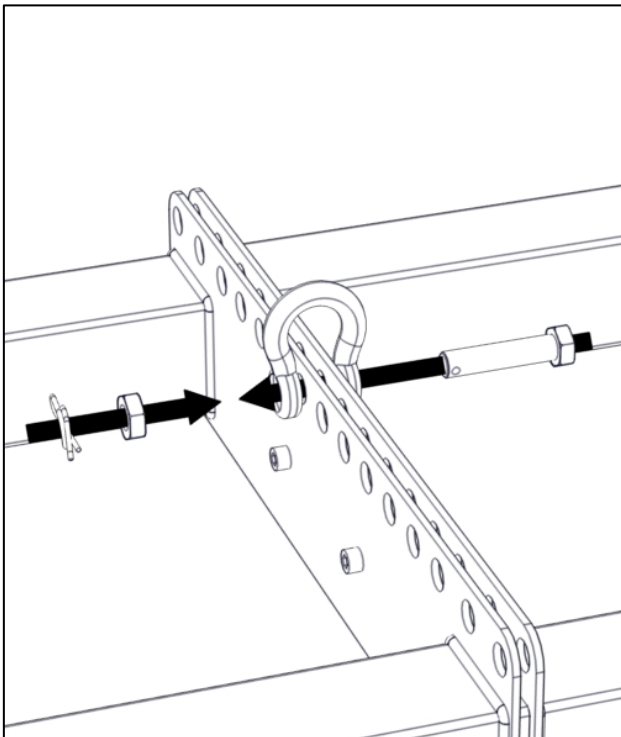


About site angle

Since many variables can affect the actual site angle, it is recommended to use an inclinometer.

Attach and secure a shackle or a CLAMP250 to the identified hole, by driving the pierced bolt.

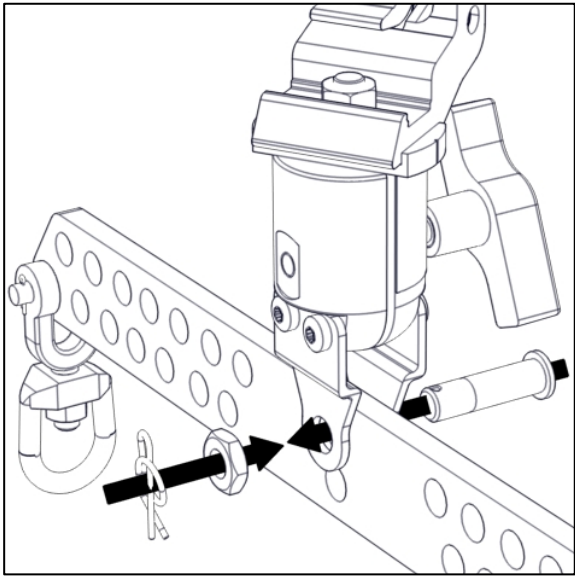
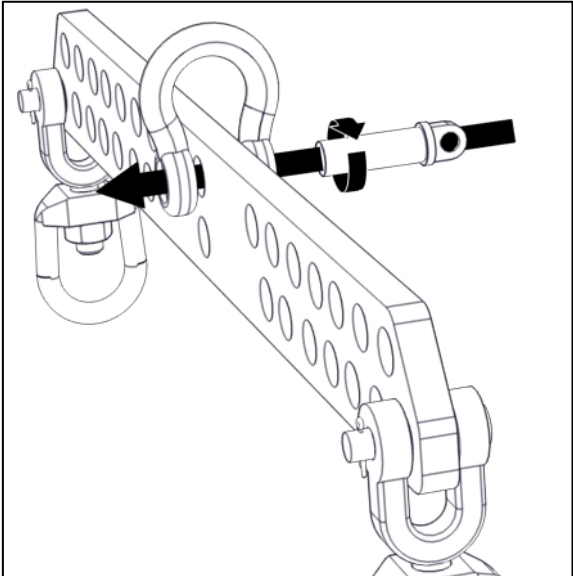
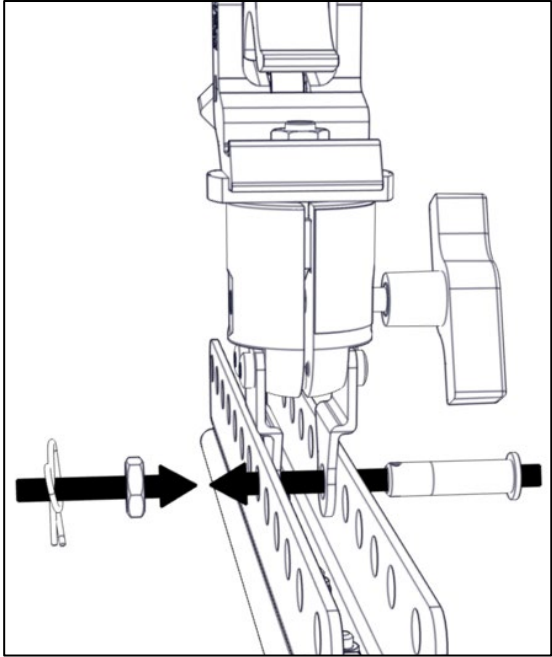
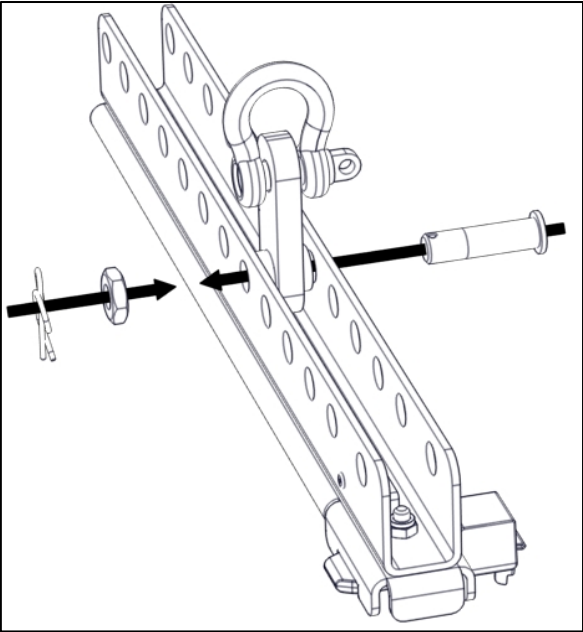
With a CLAMP250, install safety slings between the KIBU-SB and the truss.



ARCS® WIDE SYSTEM / ARCS® FOCUS SYSTEM

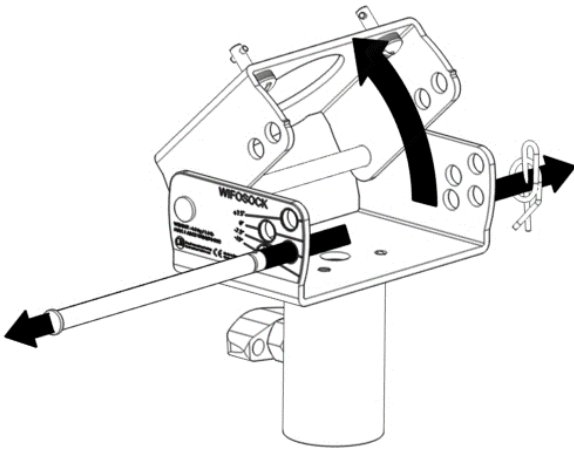
RIGGING MANUAL

VERSION 9.0

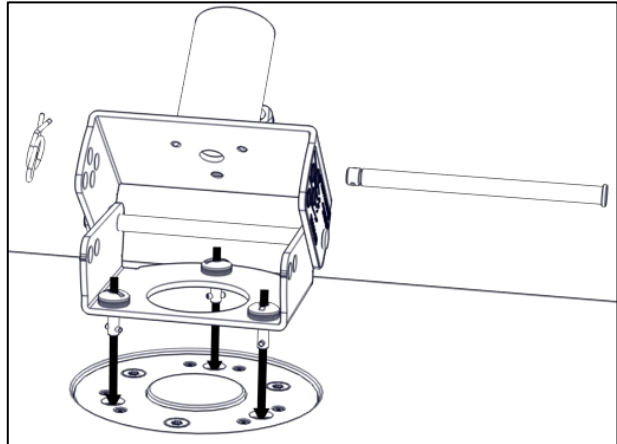


PROCEDURE E Mounting the WIFOSOCK

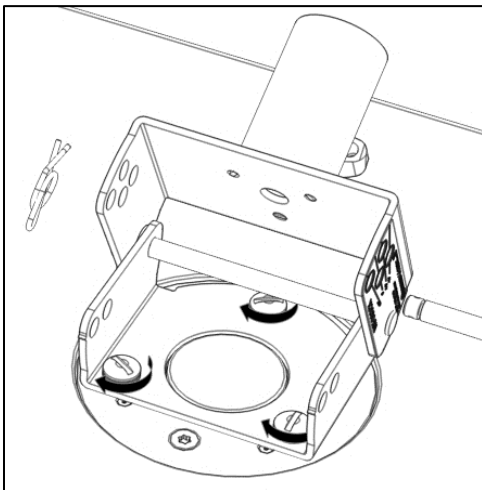
Remove the pin from the angle hole.



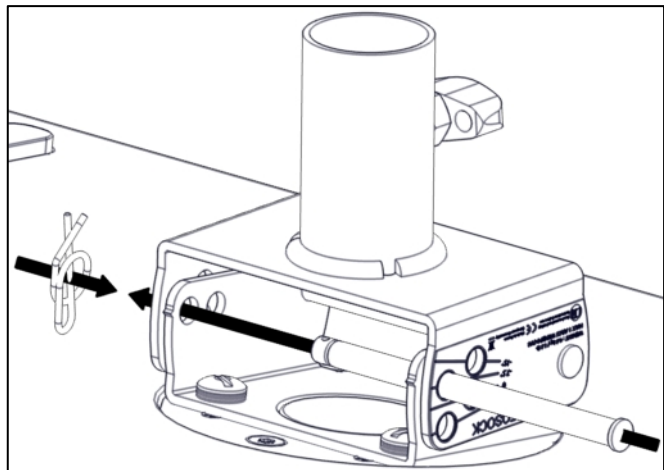
Place the WIFOSOCK onto the socket receptacle of the enclosure.



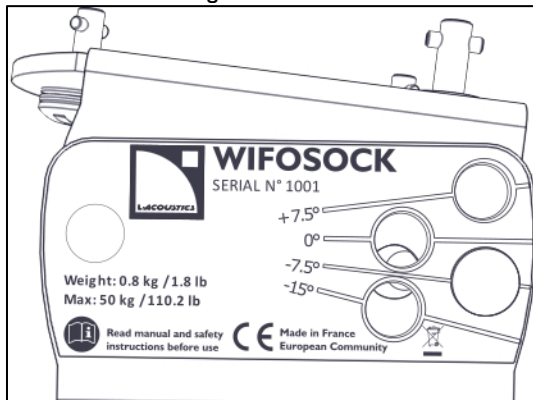
Secure the WIFOSOCK by applying a quarter-turn rotation to the three screws, with a coin or a screwdriver.



Insert the pin into the appropriate angle hole.



Possible angles on the WIFOSOCK



Selected angle on WIFOSOCK	Realized site angle	
	ARCS® WIDE	ARCS® FOCUS
-15,0°	0,0°	-7,5°
-7,5°	7,5°	0,0°
0,0°	15,0°	7,5°
7,5°	22,5°	15,0°

APPENDIX A PULLBACK IMPLEMENTATION

A. Vertical Array



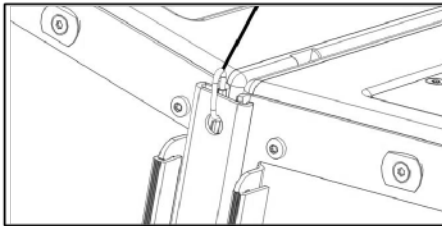
Maximum configurations.

2 or 4 ARCS® WIDE/FOCUS enclosures array for 1 WIFOBUMP frame.

6 or 8 ARCS® WIDE/FOCUS enclosures array for 2 WIFOBUMP frames.



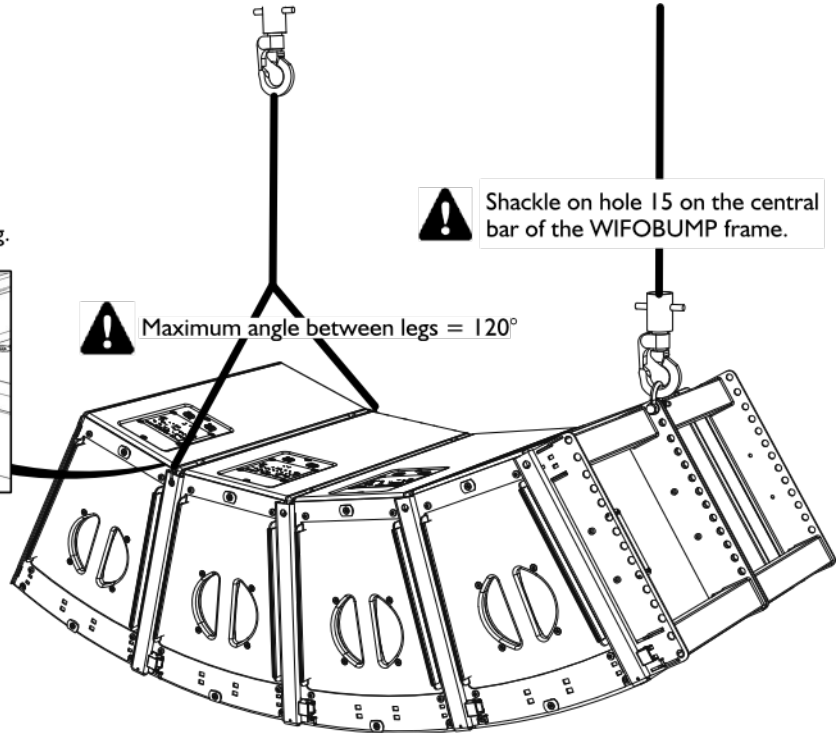
Quick-link DIN 56926 B WLL 140 kg attached to the hole of the last two WIFORIG bars with a bridled hang.



Shackle on hole 15 on the central bar of the WIFOBUMP frame.



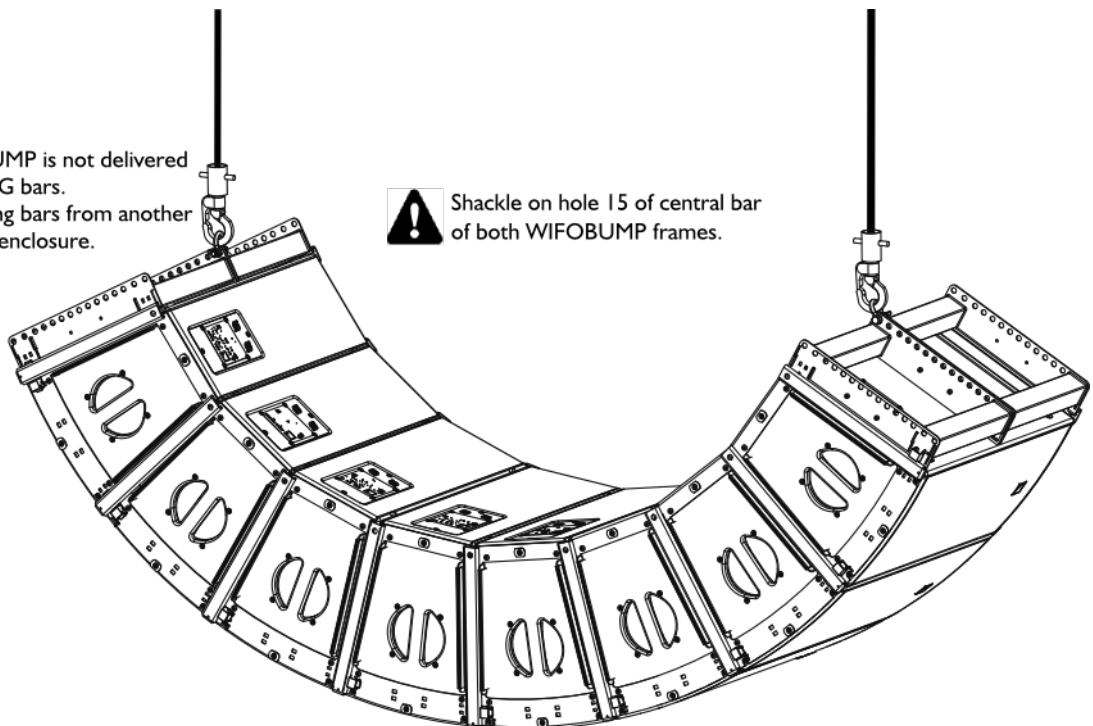
Maximum angle between legs = 120°



The WIFOBUMP is not delivered with WIFORIG bars. Borrow rigging bars from another ARCS WIFO enclosure.



Shackle on hole 15 of central bar of both WIFOBUMP frames.



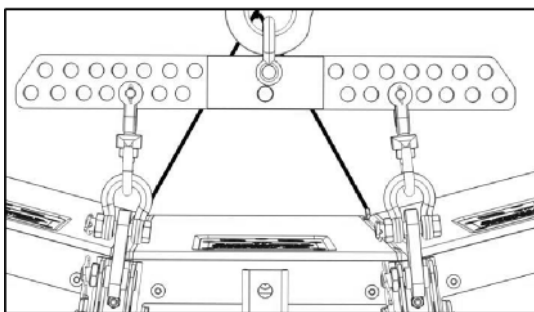
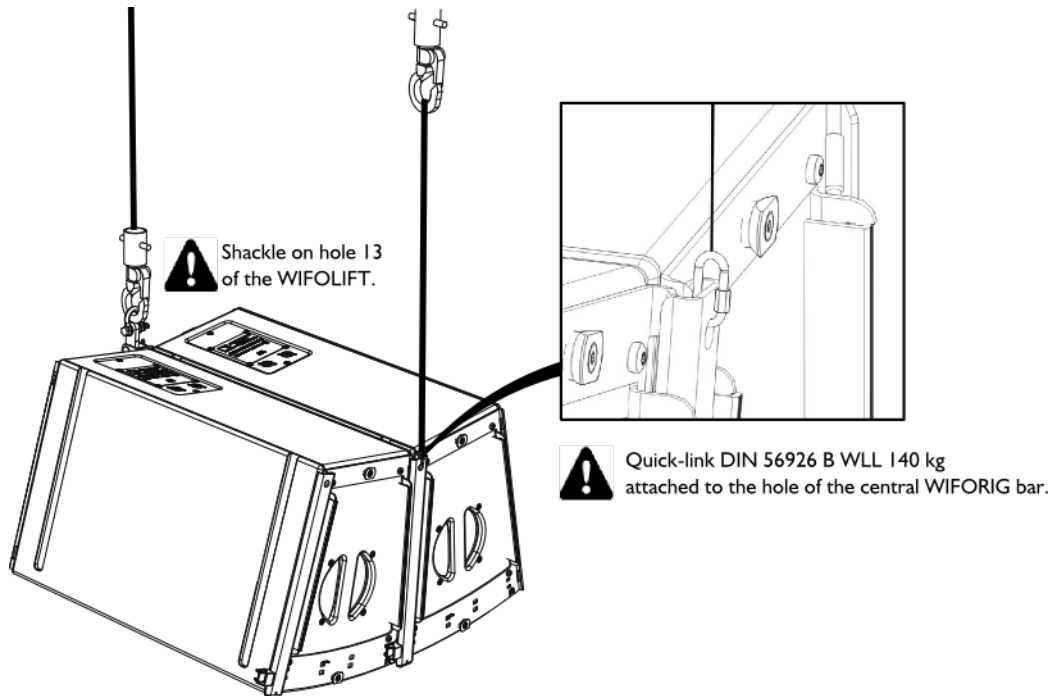
B. Horizontal array



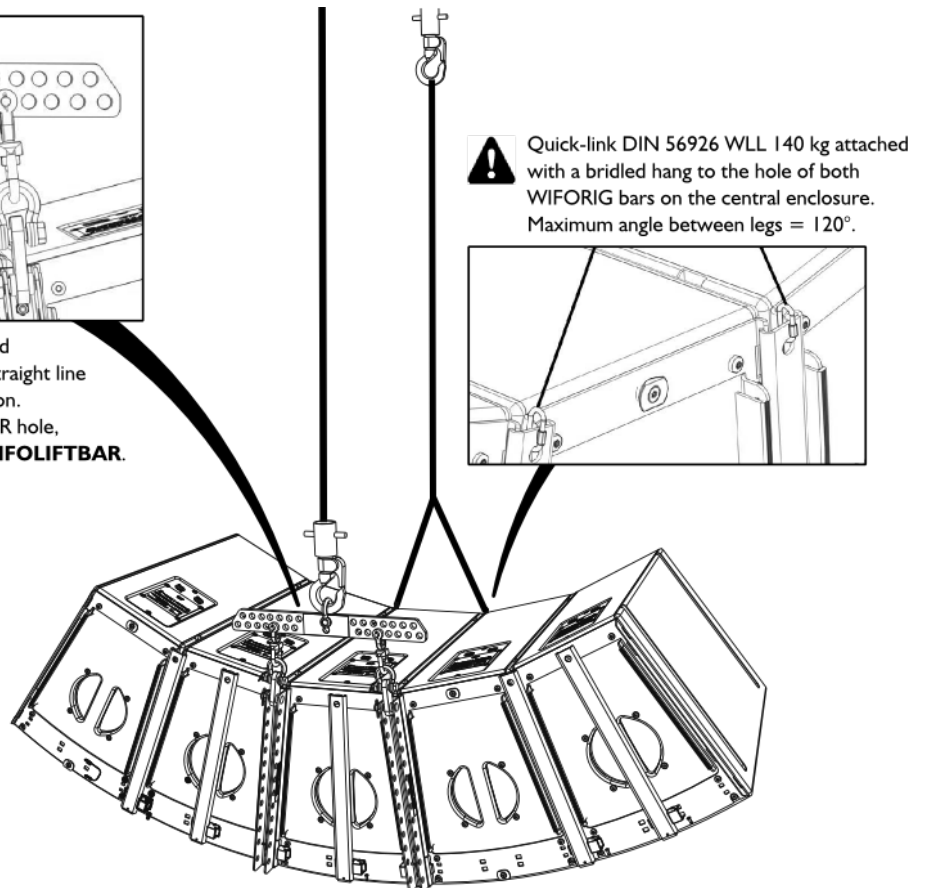
Maximum configurations.

2 or 4 ARCS® WIDE/FOCUS enclosures array for 1 WIFOLIFT.

3 or 5 ARCS® WIDE/FOCUS enclosures array for 2 WIFOLIFT and 1 WIFOLIFTBAR.

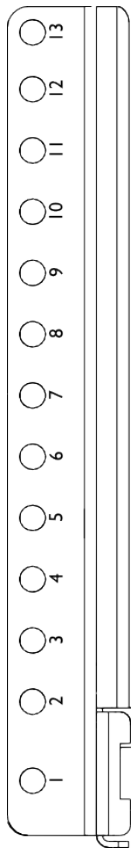


The WIFOLIFTBAR swivel shackles and WIFOLIFT rigging arms must form a straight line when the enclosure is in its final position. Choose the appropriate WIFOLIFTBAR hole, see **PROCEDURE B Attaching a WIFOLIFTBAR**.



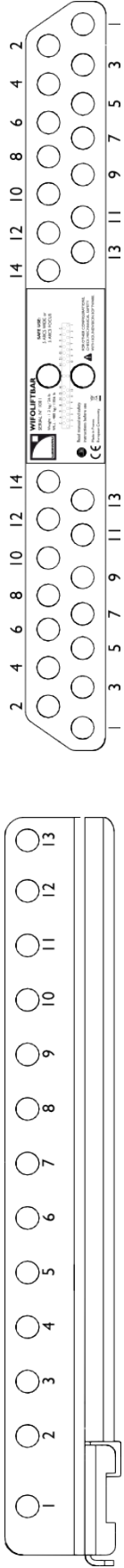
APPENDIX B TILT ANGLE REFERENCE CHARTS

Tilt angle reference chart WIFOLIFT



WIFOLIFT hole	2 ARCS® FOCUS	2 ARCS® WIDE	4 ARCS® FOCUS	4 ARCS® WIDE	6 ARCS® FOCUS	6 ARCS® WIDE	8 ARCS® FOCUS	8 ARCS® WIDE
1	26,4°	26,6°	30,7°	33,4°	37,3	33,1	27,0°	18,1°
2	21,3°	21,6°	26,1°	29,1°	33,7	29,5	22,8°	15,4°
3	17,2°	17,5°	22,3°	25,5°	30,6	26,5	19,3°	13,2°
4	12,9°	13,1°	18,2°	21,6°	27,3	23,4	15,7°	11,0°
5	8,4°	8,7°	14,0°	17,6°	23,8	20,0	12,0°	8,8°
6	3,8°	4,1°	9,6°	13,3°	20,1	16,6	8,2°	6,5°
7	-0,9°	-0,5°	5,1°	8,9°	16,2	13,0	4,2°	4,2°
8	-5,5°	-5,2°	0,5°	4,4°	12,2	9,3	0,3°	1,9°
9	-10,1°	-9,7°	-4,1°	-0,2°	8,1	5,5	-3,7°	-0,4°
10	-14,5°	-14,2°	-8,6°	-4,7°	3,8	1,7	-7,6°	-2,7°
11	-18,8°	-18,4°	-13,1°	-9,3°	-0,5	-2,2	-11,4°	-5,0°
12	-22,9°	-22,5°	-17,4°	-13,7°	-4,8	-6,0	-15,2°	-7,3°
13	-26,4°	-26,1°	-21,2°	-17,6°	-8,7	-9,5	-18,5°	-9,3°

Tilt angle reference chart WIFOLIFTBAR



WIFOLIFT hole	3 ARCS® FOCUS		3 ARCS® WIDE		5 ARCS® FOCUS		5 ARCS® WIDE		6 ARCS® WIDE	
	WIFOLIFTBAR HOLE	Tilt angle	WIFOLIFTBAR HOLE	Tilt angle	WIFOLIFTBAR HOLE	Tilt angle	WIFOLIFTBAR HOLE	Tilt angle	WIFOLIFTBAR HOLE	Tilt angle
1	2	26,5°	2	26,0°	2	32,3°	1	34,7°		
2	3	21,6°	3	21,8°	3	28,0°	2	30,9°		
3	3	17,6°	4	17,9°	3	24,4°	3	27,5°		
4	4	13,4°	5	13,8°	4	20,4°	4	23,9°		
5	5	9,0°	6	9,5°	4	16,4°	5	20,2°		
6	5	4,8°	7	4,4°	5	12,1°	6	16,3°		
7	6	0,2°	8	1,1°	5	7,8°	7	12,4°		
8	6	-4,4°	9	-3,2°	6	3,3°	9	8,2°		
9	7	-8,9°	10	-7,4°	6	-1,3°	10	4,0°	2	5,1°
10	7	-13,1°	11	-11,7°	7	-5,7°	11	-0,1°	3	1,4°
11	8	-17,3°	12	-15,7°	7	-10,0°	12	-4,3°	4	-2,2°
12	8	-21,4°	13	-19,7°	8	-14,4°	13	-8,8°	5	-5,7°
13	9	-25,0°	14	-23,1°	8	-18,2°	14	-12,5°	6	-9,3°

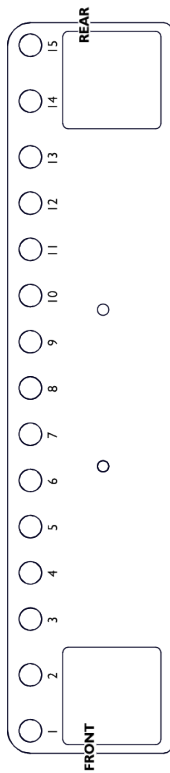
☐ = not applicable

ARCS® WIDE SYSTEM / ARCS® FOCUS SYSTEM

RIGGING MANUAL

VERSION 9.0

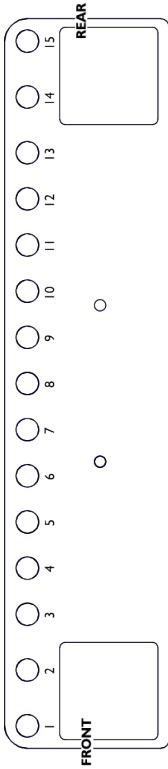
Tilt angle reference chart WIFOBUMP (homogeneous arrays)



WIFOBUMP hole	1 ARCS® FOCUS	1 ARCS® WIDE	2 ARCS® FOCUS	2 ARCS® WIDE	4 ARCS® FOCUS	4 ARCS® WIDE	6 ARCS® FOCUS	6 ARCS® WIDE	8 ARCS® FOCUS	8 ARCS® WIDE
1	47,9°	51,4°	35,4°	43,0°	32,3°	48,1°	60,0°	60,0°	43,8°	71,8°
2	43,0°	46,6°	31,6°	39,3°	30,1°	46,0°	58,7°	58,7°	42,7°	71,1°
3	37,1°	40,7°	27,4°	35,2°	27,8°	43,8°	57,4°	57,4°	41,6°	70,3°
4	31,5°	34,9°	23,8°	31,4°	25,8°	41,8°	56,2°	56,2°	40,6°	69,6°
5	25,1°	28,2°	19,9°	27,2°	23,7°	39,7°	54,9°	54,9°	39,6°	68,8°
6	17,9°	20,5°	15,8°	22,8°	21,6°	37,5°	53,6°	53,6°	38,6°	68,0°
7	10,2°	11,9°	11,5°	18,0°	19,4°	35,1°	52,2°	52,2°	37,6°	67,2°
8	2,0°	2,8°	7,1°	12,9°	17,1°	32,5°	50,6°	50,6°	36,5°	66,2°
9	-6,2°	-6,5°	2,6°	7,7°	14,8°	29,8°	49,0°	49,0°	35,4°	65,2°
10	-14,2°	-15,4°	-1,9°	2,3°	12,4°	27,0°	47,2°	47,2°	34,3°	64,1°
11	-21,7°	-23,7°	-6,4°	-3,2°	10,0°	23,9°	45,3°	45,3°	33,1°	62,9°
12	-28,4°	-31,0°	-10,8°	-8,5°	7,6°	20,8°	43,3°	43,3°	32,0°	61,7°
13	-34,5°	-37,3°	-15,1°	-13,8°	5,1°	17,5°	41,1°	41,1°	30,7°	60,2°
14	-40,7°	-43,8°	-20,1°	-19,8°	2,1°	13,4°	38,3°	38,3°	29,2°	58,4°
15	-46,0°	-49,1°	-24,7°	-25,4°	-1,0°	9,1°	35,3°	35,3°	27,6°	56,3°

= not applicable with the CLAMP250

Tilt angle reference chart WIFOBUMP (hybrid arrays)



WIFOBUMP hole	2 SBI18m and 4 ARCS® FOCUS		2 SBI18m and 4 ARCS® WIDE		1 SBI18m and 2 ARCS® FOCUS		1 SBI18m and 2 ARCS® WIDE	
	Front position	Rear position	Front position	Rear position	Front position	Rear position	Front position	Rear position
1	16,8°	4,5°	20,7°	7,3°	24,1°	0,9°	26,6°	2,4°
2	15,4°	3,0°	19,1°	5,6°	21,5°	-2,1°	24,0°	-0,8°
3	14,0°	1,4°	17,6°	3,9°	18,9°	-5,0°	21,3°	-3,9°
4	12,8°	0,1°	16,3°	2,4°	16,7°	-7,5°	19,0°	-6,6°
5	11,5°	-1,1°	15,0°	1,0°	14,4°	-9,9°	16,6°	-9,1°
6	10,3°	-2,4°	13,6°	-0,4°	12,1°	-12,2°	14,2°	-11,7°
7	9,0°	-3,7°	12,3°	-1,8°	9,7°	-14,6°	11,7°	-14,2°
8	7,8°	-5,0°	10,9°	-3,3°	7,3°	-16,9°	9,1°	-16,6°
9	6,5°	-6,3°	9,5°	-4,7°	4,8°	-19,1°	6,5°	-19,0°
10	5,3°	-7,5°	8,1°	-6,1°	2,4°	-21,3°	3,9°	-21,3°
11	4,0°	-8,8°	6,7°	-7,5°	-0,1°	-23,4°	1,3°	-23,6°
12	2,7°	-10,0°	5,3°	-8,9°	-2,6°	-25,4°	-1,3°	-25,8°
13	1,4°	-11,3°	3,9°	-10,3°	-5,0°	-27,4°	-3,9°	-27,9°
14	-0,1°	-12,7°	2,1°	-12,0°	-8,0°	-29,7°	-7,1°	-30,3°
15	-1,7°	-14,2°	0,4°	-13,6°	-10,9°	-31,9°	-10,2°	-32,6°

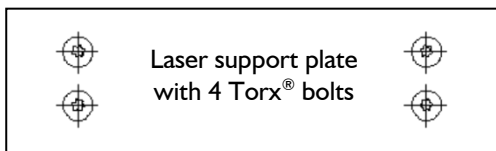
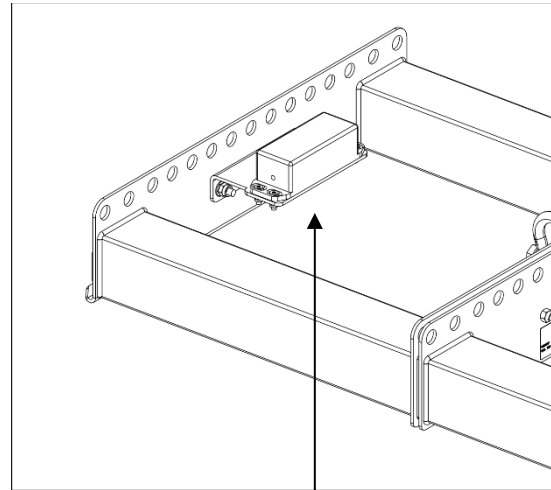
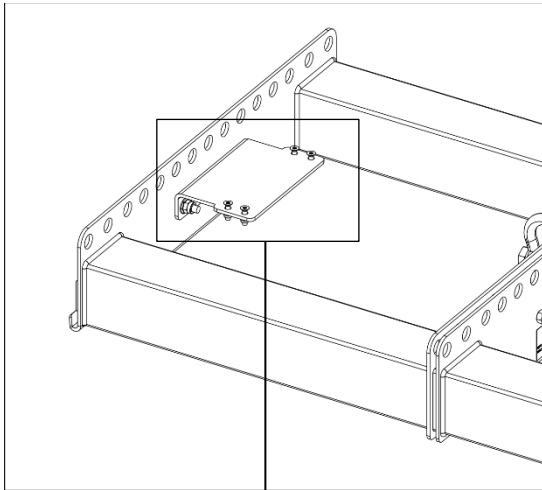
APPENDIX C INCLINOMETER MOUNTING

A **laser support plate** has been integrated inside the WIFOBUMP for optional inclinometer/laser device mounting. It is compatible with three inclinometer models: TEQSAS® LAP-TEQ PLUS (part of the **L-ACOUSTICS® TECH TOOLCASE** - refer to the TECH TOOLCASE Product spec sheet), TEQSAS® LAP-TEQ (legacy model) and KSG® RECLINE Compact.



LAP-TEQ / LAP-TEQ PLUS sensor and display compatibility

The legacy LAP-TEQ sensors are compatible with the new TEQSAS® LAP-TEQ PLUS displays. Conversely, the new sensors are **not** compatible with the legacy displays.



Inclinometer mounted to the laser support

Laser support plate with LAP-TEQ inclinometer

Sensor mounting procedure

Required tools

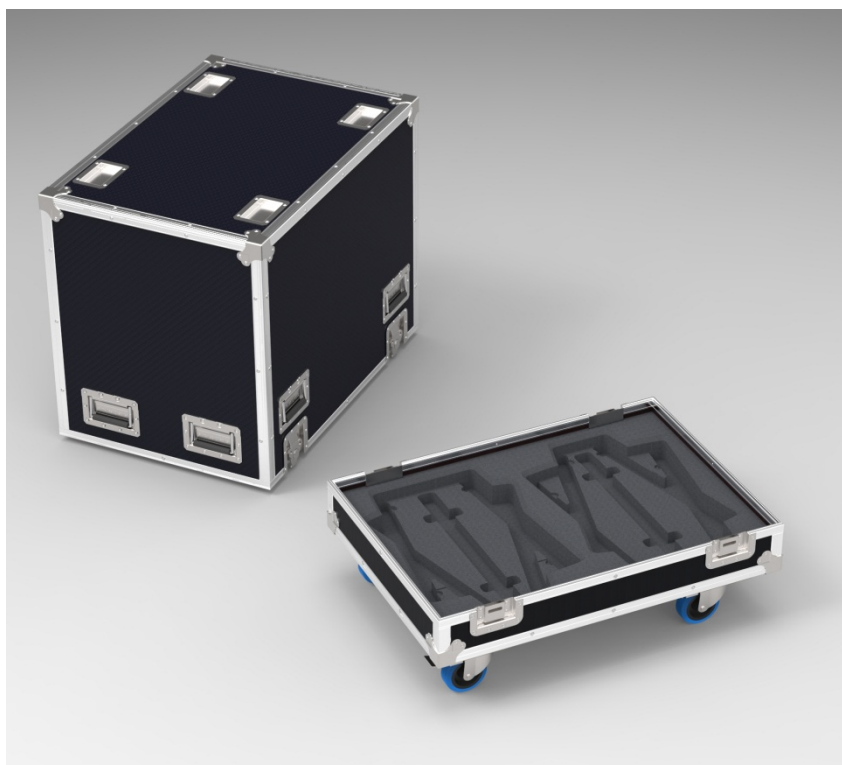
- handheld inclinometer (available in the TECH TOOLCASE)
- electric screwdriver with torque selector (N.m or in.lbf)
- T20 Torx® bit
- 7 mm hex key
- XLR cable

Procedure

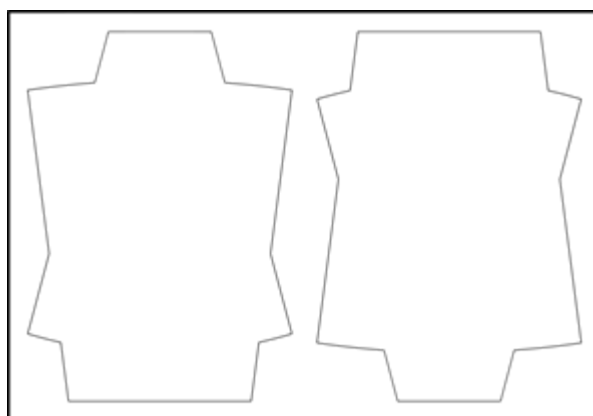
- 1 Place the WIFOBUMP on a flat horizontal surface (use the handheld inclinometer).
- 2 Unscrew the four Torx® bolts from the laser support plate (T20 bit, 7 mm hex key).
- 3 Mount the sensor on the laser support plate with laser lens towards the M-BUMP slits.
- 4 Screw the 4 Torx® bolts to the sensor and plate (T20 bit, 7 mm hex key, 3 N.m / 27 in.lbf).
- 5 Connect an XLR cable to the sensor.
- 6 Calibrate the sensor by following the manufacturer's recommendations.

APPENDIX D RECOMMENDED FLIGHT-CASE

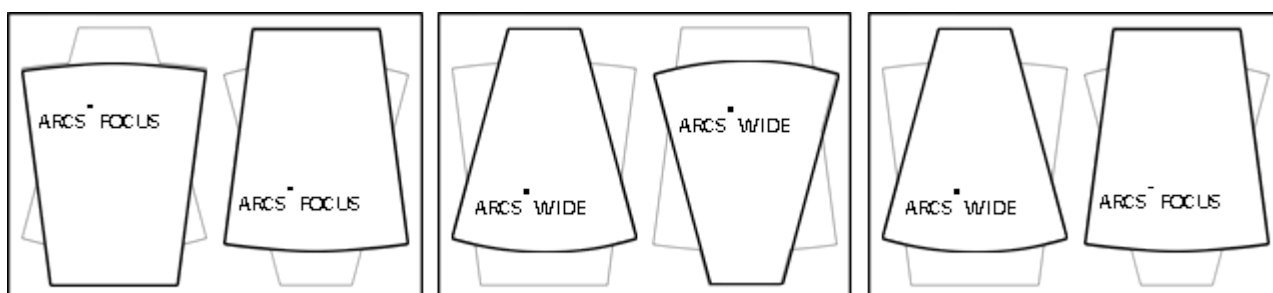
It is recommended to use a dedicated flight-case capable to fit 2 ARCS® WIDE/FOCUS enclosures in vertical position. Both the tray and cap should feature a foam insert cut according to the pattern illustrated below. This one allows for the different enclosure combinations: 2 ARCS® WIDE, 2 ARCS® FOCUS or 1 ARCS® WIDE / 1 ARCS® FOCUS.



Cap and tray of the flight-case



Pattern of the foam insert for the cap and the tray



Storage options

ARCS® WIDE SYSTEM / ARCS® FOCUS SYSTEM

RIGGING MANUAL

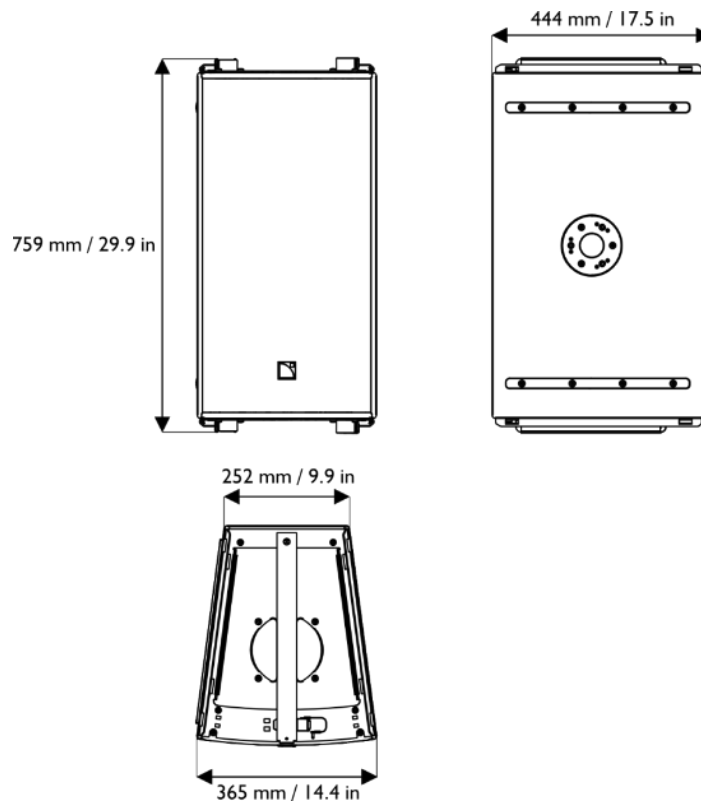
VERSION 9.0

APPENDIX E SPECIFICATIONS

ARCS® FOCUS

Description	2-way passive enclosure, amplified by LA4 / LA4X / LA8 / LA12X
Usable bandwidth (-10 dB)	55 Hz - 20 kHz ([ARCS_WIFO] preset)
Maximum SPL¹	139 dB ([ARCS_WIFO] preset)
Coverage angle (-6 dB)	15° × 90°
Transducers	LF 1 × 3" diaphragm compression driver, DOSC® waveguide.
	HF 1 × 12", weather-resistant, bass-reflex.
Nominal impedance	LF = 8 Ω
RMS power handling	450 W
Connectors	IN: 1 × 4-point SpeakOn® LINK: 1 × 4-point SpeakOn®
Rigging components	Rigging rails and WIFORIG rigging bars.

Dimensions



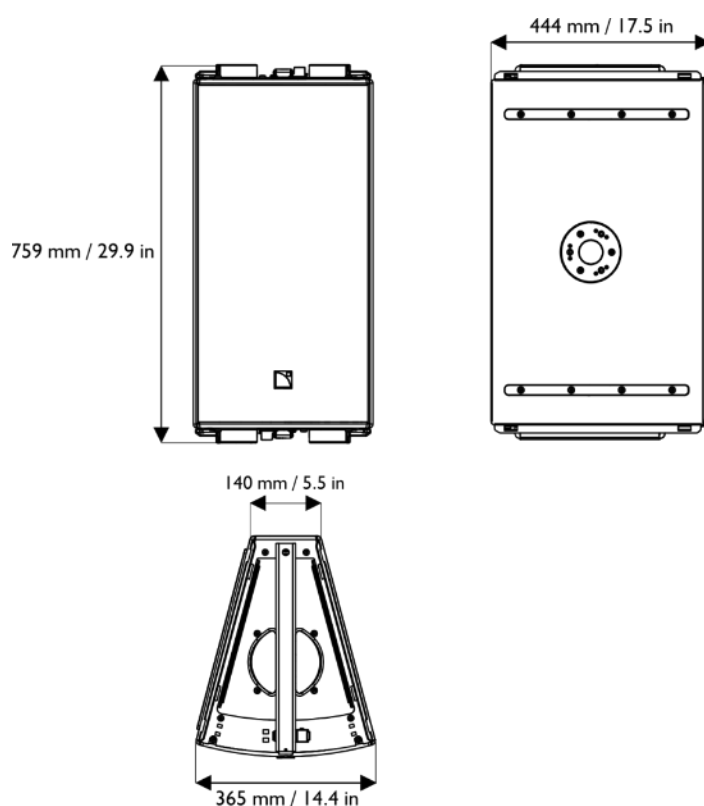
Physical data	Weight (net):	38 kg / 84 lb
	Cabinet:	Baltic birch plywood.
	Finish:	Grey brown RAL 8019® or Pure white RAL 9010®
	Front:	Steel grill with anti-corrosion coating, Airtel® fabric
	Protection Rating:	IP45
	Rigging component:	High strength steel with anti-corrosion coating

¹ Peak level measured at 1 m under free field conditions using pink noise with crest factor 4 (preset specified in brackets).

ARCS® WIDE

Description	2-way passive enclosure, amplified by LA4 / LA4X / LA8 / LA12X
Usable bandwidth (-10 dB)	55 Hz - 20 kHz ([ARCS_WIFO] preset)
Maximum SPL¹	137 dB ([ARCS_WIFO] preset)
Coverage angle (-6 dB)	30° × 90°
Transducers	LF 1 × 3" diaphragm compression driver, DOSC® waveguide.
	HF 1 × 12", weather-resistant, bass-reflex.
Nominal impedance	8 Ω
RMS power handling	450 W
Connectors	IN: 1 × 4-point SpeakOn® LINK: 1 × 4-point SpeakOn®
Rigging components	Rigging rails and WIFORIG rigging bars.

Dimensions



Physical data	Weight (net):	38 kg / 84 lb
	Cabinet:	Baltic birch plywood.
	Finish:	Grey brown RAL 8019® or Pure white RAL 9010®
	Front:	Steel grill with anti-corrosion coating, Airnet® fabric
	Protection Rating:	IP45
	Rigging component:	High strength steel with anti-corrosion coating

¹ Peak level measured at 1 m under free field conditions using pink noise with crest factor 4 (preset specified in brackets).

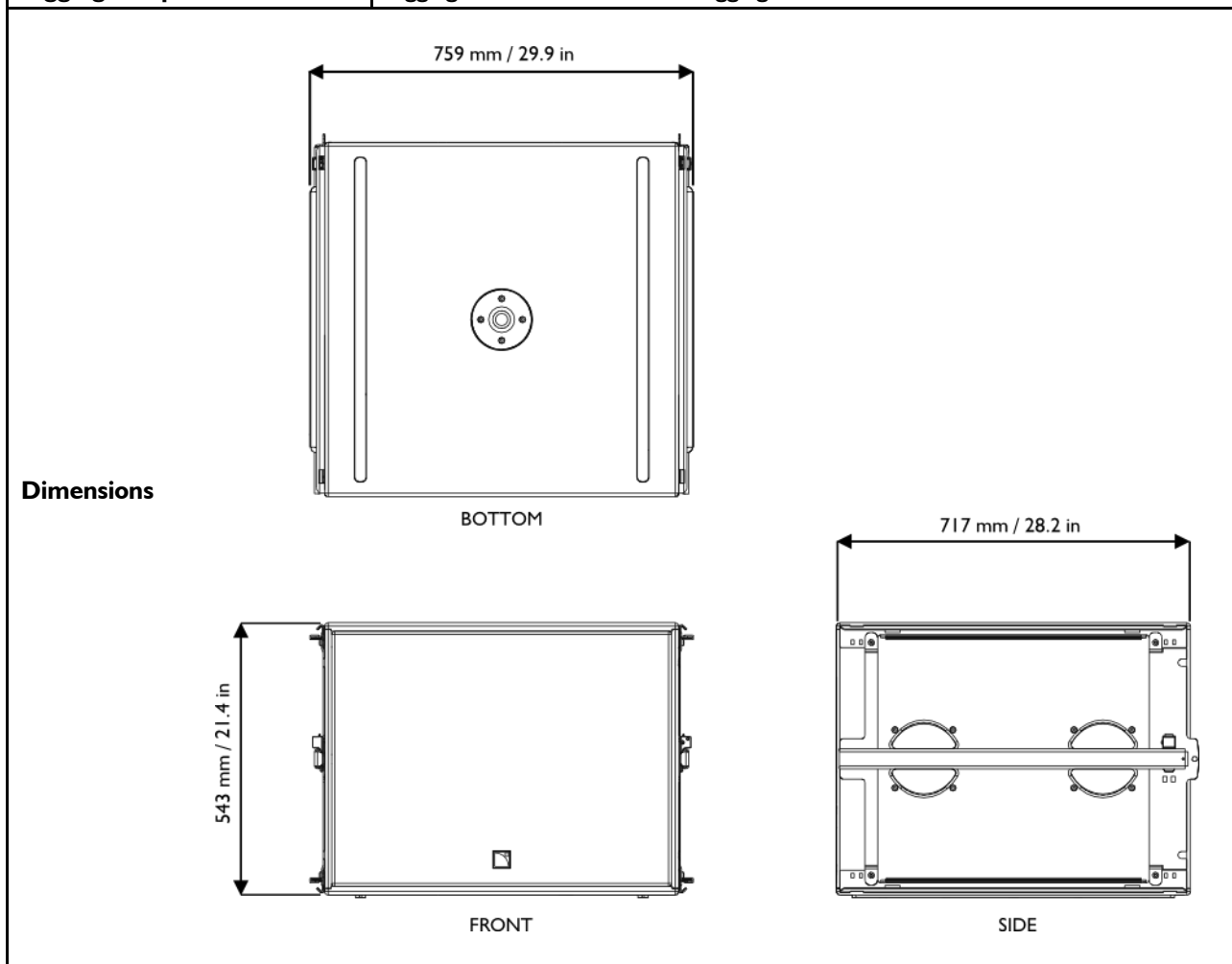
ARCS® WIDE SYSTEM / ARCS® FOCUS SYSTEM

RIGGING MANUAL

VERSION 9.0

SBI8m

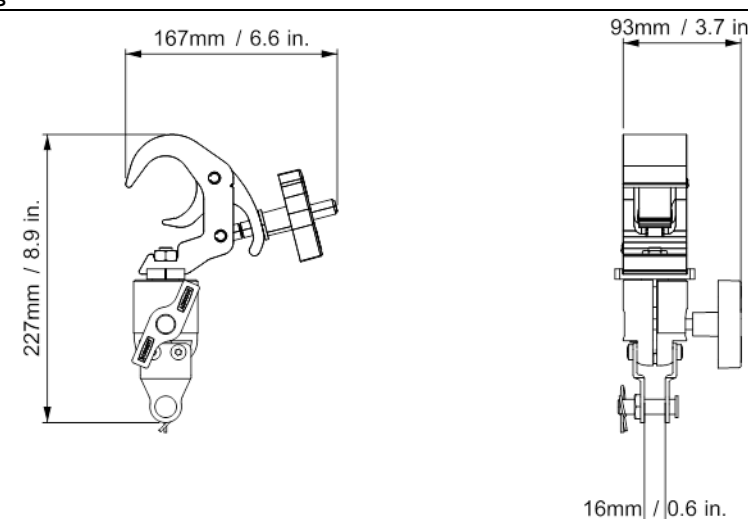
Description	Subwoofer enclosure, amplified by LA4 / LA4X / LA8 / LA12X
Low frequency limit (-10 dB)	32 Hz ([SB18_100] preset)
Maximum SPL¹	138 dB ([SB18] preset)
RMS power handling	700 W
Transducers	1 × 18" weather resistant, dual bass-reflex
Nominal impedance	8 Ω
Connectors	IN: 1 × 4-point SpeakOn® LINK: 1 × 4-point SpeakOn®
Rigging components	Rigging rails and two SB18RIG rigging bars.



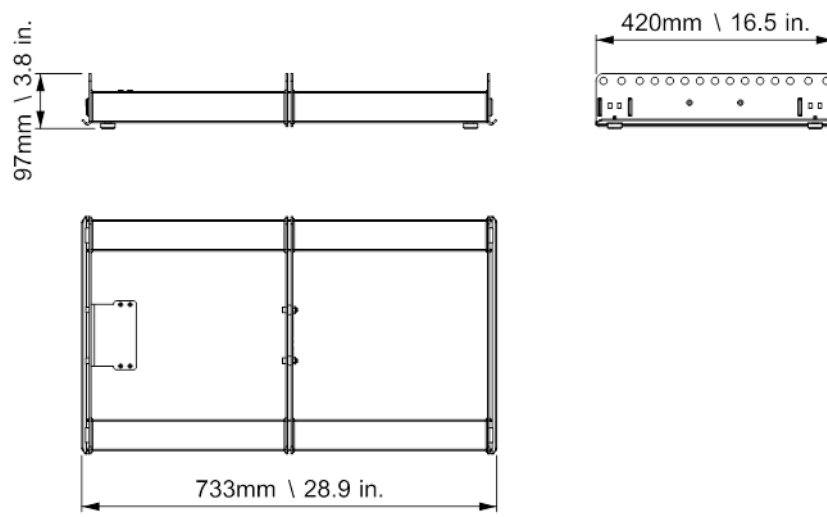
Physical data	Weight (net):	62 kg/137 lbs
	Cabinet:	Baltic birch plywood
	Finish:	Grey brown, RAL 8019® or Pure white, RAL 9010® RAL code on special order
	Front:	Steel grill with anti-corrosion coating Airnet® acoustically neutral fabric
	Protection Rating:	IP45
	Rigging component:	High strength steel

¹ Peak level measured at 1 m under free field conditions using pink noise with crest factor 4 (preset specified in brackets).

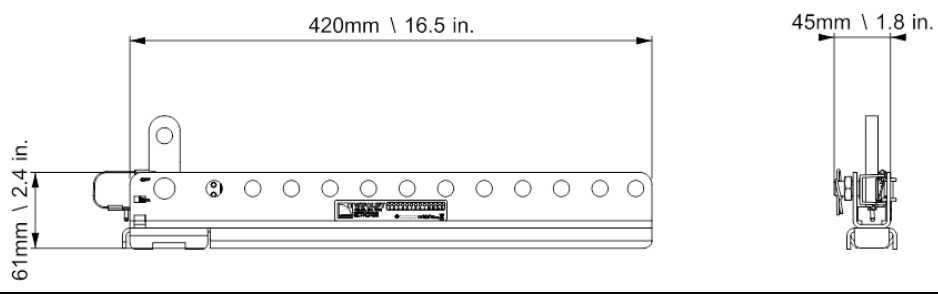
CLAMP250

Description	Rigging element		
Dimensions			
Weight	1,8 kg / 4 lb	Material	Steel with anti-corrosion coating

WIFOBUMP

Description	Rigging element for the ARCS® WIDE SYSTEM and the ARCS® FOCUS SYSTEM		
Dimensions			
Weight	10,5 kg / 23.1 lb	Material	Steel with anti-corrosion coating

WIFOLIFT

Description	Rigging element for the ARCS® WIDE SYSTEM and the ARCS® FOCUS SYSTEM		
Dimensions			
Weight	2 kg / 4.4 lb	Material	Steel with anti-corrosion coating

ARCS® WIDE SYSTEM / ARCS® FOCUS SYSTEM

RIGGING MANUAL

VERSION 9.0

WIFOLIFTBAR

Description	Rigging element for the ARCS® WIDE and ARCS® FOCUS enclosure		
Dimensions	<p>429 mm / 16.9 in</p> <p>45.5 mm / 1.8 in</p> <p>FRONT</p>		<p>10 mm / 39 in</p> <p>SIDE</p>
Weight	1.6 kg	Material	High-grade steel with anti-corrosion coating

WIFOSOCK

Description	Rigging element for the ARCS® WIDE SYSTEM and the ARCS® FOCUS SYSTEM		
Dimensions	<p>90mm / 3.5 in.</p> <p>127mm / 5 in.</p>		<p>122mm / 4.8 in.</p>
Weight	0,8 kg / 1.8 lb	Material	Steel with anti-corrosion coating

WIFOTILT

Description	Accessory used to stack up to 4 ARCS WIFO on SBI8m and set their site angle.		
Dimensions	<p>248 mm / 9.8 in</p> <p>148 mm / 5.8 in</p>		<p>150 mm / 5.9 in</p>
Weight	2.1 kg / 4.6 lb	Material	Steel with anti-corrosion coating



L-Acoustics

13 rue Levacher Cintrat - 91460 Marcoussis - France
+33 1 69 63 69 63 - info@l-acoustics.com
www.l-acoustics.com



 **L-ACOUSTICS**
GROUP