

OWNER MANUAL

HDL 6-A

ACTIVE
LINE ARRAY MODULE

HDL 12-AS

ACTIVE SUBWOOFER
ARRAY MODULE



INTRODUCTION

The demands of modern sound reinforcement systems are higher than ever before. Besides pure performance - high sound pressure levels, constant directivity and sound quality other aspects are important for rental and production companies such as reduced weight and ease of use to optimize transport and rigging time.

HDL 6-A is changing the concept of large format arrays, providing primary performances to an extended market of professional users.

GENERAL SAFETY INSTRUCTION AND WARNINGS

IMPORTANT NOTE

Before connecting using or rigging the system, please read this instruction manual carefully and keep it on hand for future reference. The manual is to be considered an integral part of the product and must accompany the system when it changes ownership as a reference for correct installation and use as well as for the safety precautions. RCF S.p.A. will not assume any responsibility for the incorrect installation and/or use of the product.

WARNING

- To prevent the risk of fire or electric shock, never expose this equipment to rain or humidity.
- The system HDL line arrays should be rigged and flown by professional riggers or trained personnel under professional riggers' supervision.
- Before rigging the system carefully read this manual.

SAFETY PRECAUTIONS

1. All the precautions, in particular the safety ones, must be read with special attention, as they provide important information.
2. Power supply from mains. The mains voltage is sufficiently high to involve a risk of electrocution; install and connect this product before plugging it in. Before powering up, make sure that all the connections have been made correctly and the voltage of your mains corresponds to the voltage shown on the rating plate on the unit, if not, please contact your RCF dealer. The metallic parts of the unit are earthed through the power cable. An apparatus with CLASS I construction shall be connected to a mains socket outlet with a protective earthing connection. Protect the power cable from damage; make sure it is positioned in a way that it cannot be stepped on or crushed by objects. To prevent the risk of electric shock, never open this product: there are no parts inside that the user needs to access.
3. Make sure that no objects or liquids can get into this product, as this may cause a short circuit. This apparatus shall not be exposed to dripping or splashing. No objects filled with liquid, such as vases, shall be placed on this apparatus. No naked sources (such as lighted candles) should be placed on this apparatus.
4. Never attempt to carry out any operations, modifications or repairs that are not expressly described in this manual. Contact your authorized service centre or qualified personnel should any of the following occur:
 - **the product does not function (or functions in an anomalous way).**
 - **the power cable has been damaged.**
 - **objects or liquids have got in the unit.**
 - **the product has been subject to a heavy impact.**
5. If this product is not used for a long period, disconnect the power cable.
6. If this product begins emitting any strange odours or smoke, switch it off immediately and disconnect the power cable.
7. Do not connect this product to any equipment or accessories not foreseen.
For suspended installation, only use the dedicated anchoring points and do not try to hang this product by using elements that are unsuitable or not specific for this purpose. Also check the suitability of the support surface to which the product is anchored (wall, ceiling, structure, etc.), and the components used for attachment (screw anchors, screws, brackets not supplied by RCF etc.), which must guarantee the security of the system / installation over time, also considering, for example, the mechanical vibrations normally generated by transducers. To prevent the risk of falling equipment, do not stack multiple units of this product unless this possibility is specified in the user manual.

8. RCF S.p.A. strongly recommends this product is only installed by professional qualified installers (or specialised firms) who can ensure correct installation and certify it according to the regulations in force.
The entire audio system must comply with the current standards and regulations regarding electrical systems.
9. Supports and trolleys.
The equipment should be only used on trolleys or supports, where necessary, that are recommended by the manufacturer. The equipment / support / trolley assembly must be moved with extreme caution. Sudden stops, excessive pushing force and uneven floors may cause the assembly to overturn.
10. There are numerous mechanical and electrical factors to be considered when installing a professional audio system (in addition to those which are strictly acoustic, such as sound pressure, angles of coverage, frequency response, etc.).
11. Hearing loss.
Exposure to high sound levels can cause permanent hearing loss. The acoustic pressure level that leads to hearing loss is different from person to person and depends on the duration of exposure. To prevent potentially dangerous exposure to high levels of acoustic pressure, anyone who is exposed to these levels should use adequate protection devices. When a transducer capable of producing high sound levels is being used, it is therefore necessary to wear ear plugs or protective earphones. See the manual technical specifications to know the maximum sound pressure level.

To prevent the occurrence of noise on line signal cables, use screened cables only and avoid putting them close to:

- **Equipment that produces high-intensity electromagnetic fields.**
- **Power cables**
- **Loudspeaker lines.**

OPERATING PRECAUTIONS

- **Place this product far from any heat sources and always ensure an adequate air circulation around it.**
- **Do not overload this product for a long time.**
- **Never force the control elements (keys, knobs, etc.).**
- **Do not use solvents, alcohol, benzene or other volatile substances for cleaning the external parts of this product.**

⚠ GENERAL OPERATING PRECAUTIONS

- Do not obstruct the ventilation grilles of the unit. Situate this product far from any heat sources and always ensure adequate air circulation around the ventilation grilles.
- Do not overload this product for extended periods of time.
- Never force the control elements (keys, knobs, etc.).
- Do not use solvents, alcohol, benzene or other volatile substances for cleaning the external parts of this product.

⚡ CAUTION

To prevent electric shock hazard, do not connect to mains power supply while grille is removed

THE HDL 6-A

The HDL 6-A is a true active high power ready to use touring system for small to medium size events, indoors and outdoors. Equipped with 2 x 6" woofers, and a 1.7" drivers, it offers excellent playback quality and high sound pressure levels with a built in 1400W powerful digital amplifier that delivers superior SPL, while reducing energy requirement. Each component, from the power supply to the input board with DSP, to the output stages to woofers and drivers, has been consistently and specially developed by RCF's experienced engineering teams for, with all components carefully matched to each other.

This complete integration of all components allows not only superior performance and maximum operational reliability, but also provides users easy handling and plug & play comfort.

Besides this important fact, active speakers offer valuable advantages: while passive speakers often need long cable runs, the energy loss due to the cable resistance is a huge factor. This effect is not seen in powered speakers where the amplifier is just a couple of centimeters away from the transducer.

Using advanced neodymium magnets and a groundbreaking new housing constructed from lightweight plywood and polypropylene, it has a remarkably low weight for easy handling and flying.

The HDL 6-A is the ideal choice when line array performance is needed and a fast and easy set-up a must. The system features state-of-the-art RCF transducers; the high-powered 1.7" voice coil compression driver mounted on a precise 100° x 10° waveguide delivers vocal clarity with high definition and an incredible dynamic.

THE HDL 12-AS

The HDL 12-AS is the companion subwoofer for HDL 6-A. Housing a 12" woofer, the HDL 12-AS, is a very compact active sub enclosure and features a 1400 W powerful digital amplifier. It is the ideal complement to create flown HDL 6-A clusters with outstanding performance. Thanks to its compact size it can easily be carried and is very quick and easy to start using the built-in digital stereo crossover (DSP) with adjustable crossover frequency to connect the line array module. It features a built-in digital stereo crossover (DSP) with adjustable crossover frequency to connect the HDL 6-A line array module or a satellite. The integrated mechanics are both fast and reliable. The heavy-duty front grille is power coated. A special transparent-to-sound foam backing inside helps the further protection of the transducers from dust.

POWER REQUIREMENTS AND SET-UP

WARNING

- The system is designed to operate in hostile and demanding situations. Nevertheless it is important to take extremely care of the AC power supply and set up a proper power distribution.
- The system is designed to be GROUNDED. Always use a grounded connection.
- PowerCon appliance coupler is a AC mains power disconnection device and must be readily accessible during and after the installation.

CURRENT

The following are the long term and peak current requirement for each HDL 6-A module:

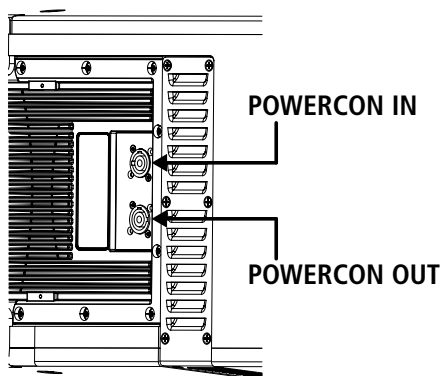
VOLTAGE	LONG TERM
230 Volt	3.15 A
115 Volt	6.3 A

The total current requirement is obtained multiplying the single current requirement by the number of modules. To obtain the best performances make sure that the total burst current requirement of the system doesn't create a significant voltage drop on the cables.

GROUNDING

Make sure that all the system is properly grounded. All the grounding points shall be connected to the same ground node. This will improve reducing hums in the audio system.

AC CABLES DAISY CHAINS



Each HDL 6-A/HDL12-AS module is provided with a Powercon outlet to daisy chain other modules. The maximum number of modules that is possible to daisy chain is:

230 VOLT: 6 modules total

115 VOLT: 3 modules total

⚠ WARNING - RISK OF FIRE

A superior number of modules in daisy chain will exceed the Powercon connector maximum ratings and create a potentially dangerous situation.

POWERING FROM THREE PHASE

When the system is powered from a three phase power distribution it is very important to keep a good balance in the load of each phase of the AC power. It is very important to include subwoofers and satellites in power distribution calculation: both subwoofers and satellites shall be distributed between the three phases.

RIGGING THE SYSTEM

RCF has developed a complete procedure to set up and hang an HDL 6-A line array system starting from software data, enclosures, rigging, accessories, cables, until the final installation.

⚠ GENERAL RIGGING WARNINGS AND SAFETY PRECAUTIONS

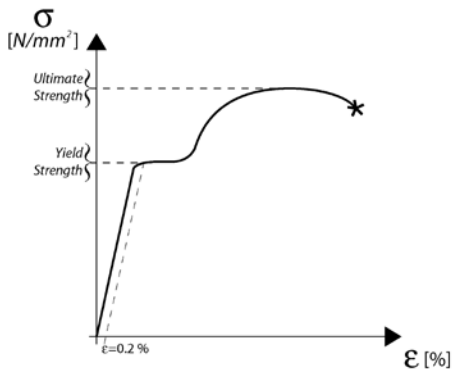
- Suspending loads should be done with extreme caution.
- When deploying a system always wear protective helmets and footwear.
- Never allow people to pass under the system during the installation process.
- Never leave the system unattended during the installation process.
- Never install the system over areas of public access.
- Never attach other loads to the array system.
- Never climb the system during or after the installation
- Never expose the system to extra loads created from the wind or snow.

⚠ WARNING

- The system must be rigged in accordance with the laws and regulations of the Country where the system is used. It is responsibility of the owner or rigger to make sure that the system is properly rigged in accordance with Country and local laws and regulations.
- Always check that all the parts of the rigging system that are not provided from RCF are:
 - appropriate for the application
 - approved, certified and marked
 - properly rated
 - in perfect condition
- Each cabinet support the full load of the part of the system below. It is very important that each single cabinet of the system is properly checked

“RCF SHAPE DESIGNER” SOFTWARE AND SAFETY FACTOR

The suspension system is designed to have a proper safety factor (configuration dependent). Using the “RCF Easy Shape Designer” software it is very easy to understand safety factors and limits for each specific configuration. To better comprehend in which safety range the mechanics are working a simple introduction is needed: HDL 6-A arrays’ mechanics are built with certified UNI EN 10025 Steel. RCF prediction software calculates forces on every single stressed part of the assembly and shows the minimum safety factor for every link. Structural steel has a stress-strain (or equivalent Force-Deformation) curve as in the following:

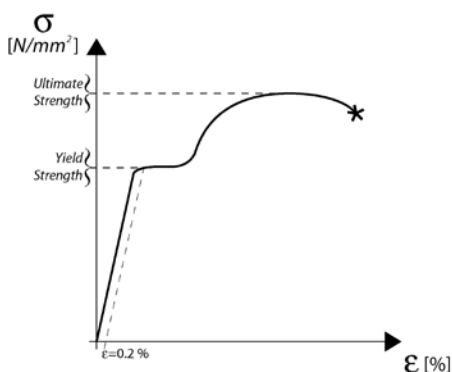


The curve is characterized by two critical points: the **Break Point** and the **Yield Point**. The tensile ultimate stress is simply the maximum stress attained. Ultimate tensile stress is commonly used as a criterion of the strength of the material for structural design, but it should be recognized that other strength properties may often be more important. One of these is certainly the Yield Strength. Stress-strain diagram of structural steel exhibit a sharp break at a stress below the ultimate strength. At this critical stress, the material elongates considerably with no apparent change in stress. The stress at which this occurs is referred to as the Yield Point. Permanent deformation may be detrimental, and the industry adopted 0.2% plastic strain as an arbitrary limit that is considered acceptable by all regulatory agencies. For tension and compression, the corresponding stress at this offset strain is defined as the yield.

In our prediction software the **Safety Factors** are calculated considering the **Maximum Stress Limit** equal to the **Yield Strength**, according with many international standards and rules.

The resulting Safety Factor is the minimum of all the calculated safety factors, for each link or pin.

This is where you are working with a **SF=7**



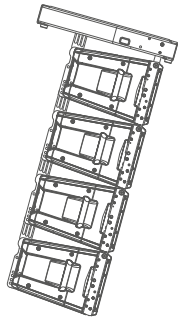
Depending on local safety regulations and on the situation, the required safety factor can vary. It is responsibility of the owner or rigger to make sure that the system is properly rigged in accordance with Country and local laws and regulations.

The “RCF Shape Designer” software gives detailed information of the safety factor for each specific configuration. The results are classified in four classes:

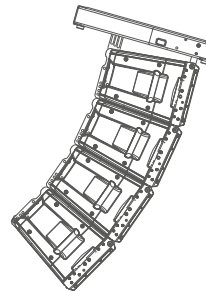
GREEN		SAFETY FACTOR	> 7	SUGGESTED
YELLOW	4 >	SAFETY FACTOR	> 7	
ORANGE	1.5 >	SAFETY FACTOR	> 4	
RED		SAFETY FACTOR	> 1.5	NEVER ADMITTED

⚠ WARNING

- The safety factor is the result of the forces acting on fly bar's and system's front and rear links and pins and depends on many variables:
 - number of cabinets
 - fly bar angles
 - angles from cabinets to cabinets. If one of the cited variables change the safety factor **MUST BE** recalculated using the software before rigging the system.
- In case the fly bar is picked up from 2 motors make sure that the fly bar angle is correct. An angle different from the angle used in the prediction software can be potentially dangerous. Never allow persons to stay or pass under the system during the installation process.
- When the fly bar is particularly tilted or the array is very curved the centre of gravity can move out from the rear links. In this case the front links are in compression and the rear links are supporting the total weight of the system plus the front compression. Always check very carefully with the "RCF Easy Shape Designer" software all this kind of situations (even with a small number of cabinets).



System particularly tilted



System very curved

PREDICTION SOFTWARE – SHAPE DESIGNER

RCF Easy Shape Designer is a temporary software, useful for the setup of the array, for mechanics and for proper preset suggestions.

The optimal setting of a loudspeaker array cannot ignore the basics of acoustics and the awareness that many factors contribute to a sonic result that matches expectations. RCF provides the user with simple instruments that help the setting of the system in an easy and reliable way.

This software will soon be replaced by a more complete software for multiple arrays and complex venue simulation with maps and graphs of the results.

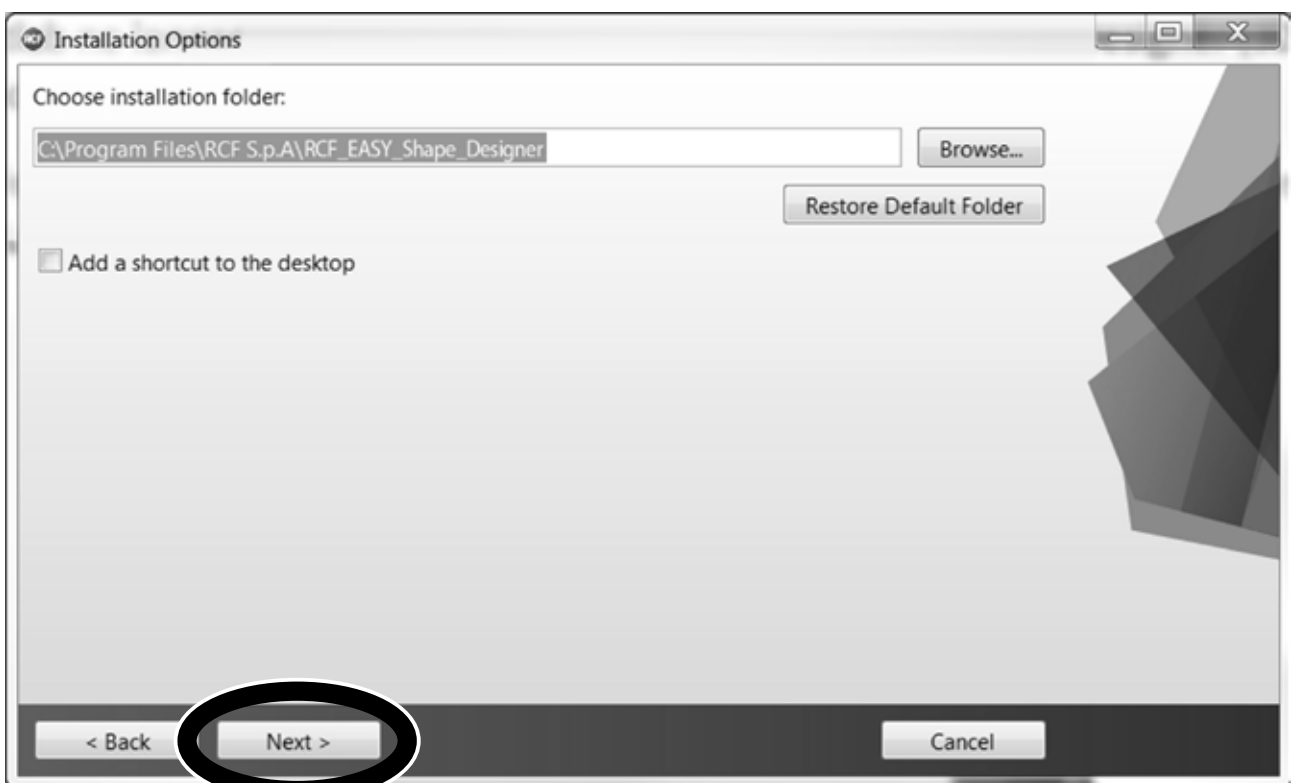
RCF recommends this software to be used for each type of HDL 6-A configuration.

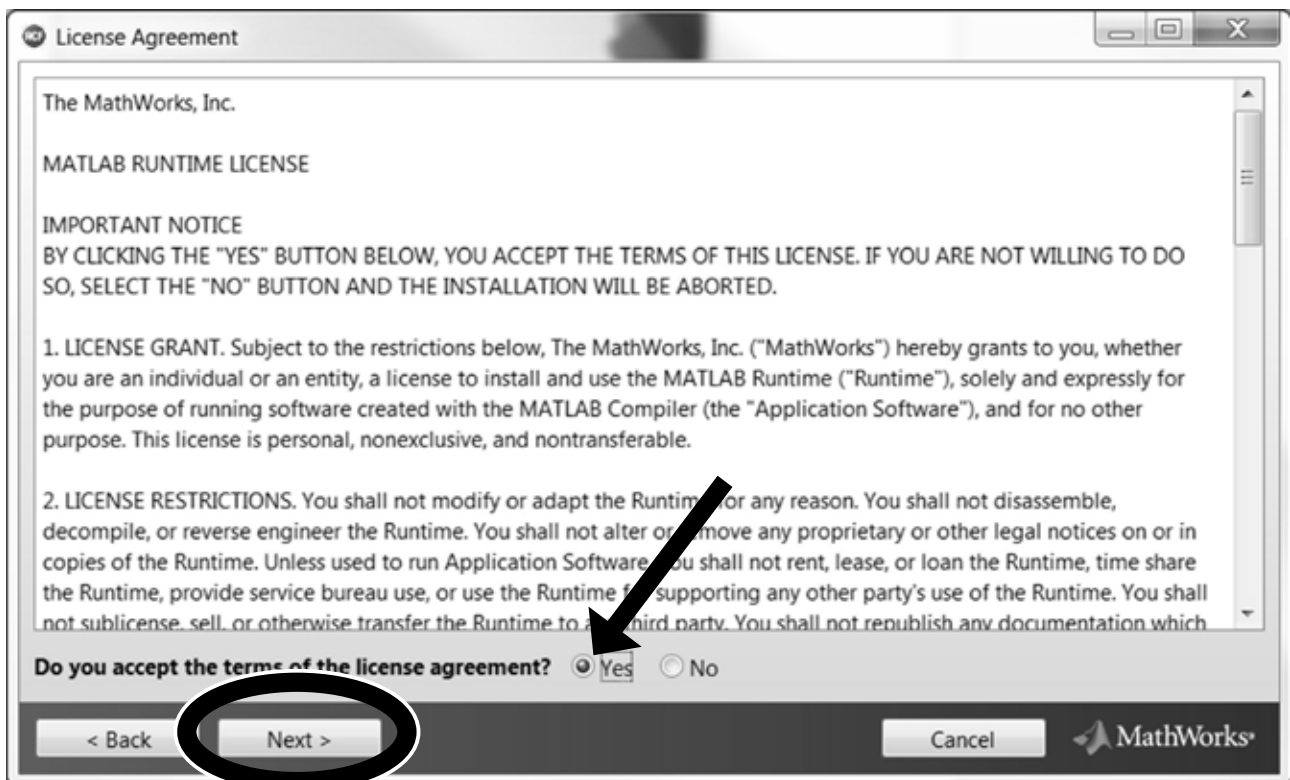
SOFTWARE INSTALLATION

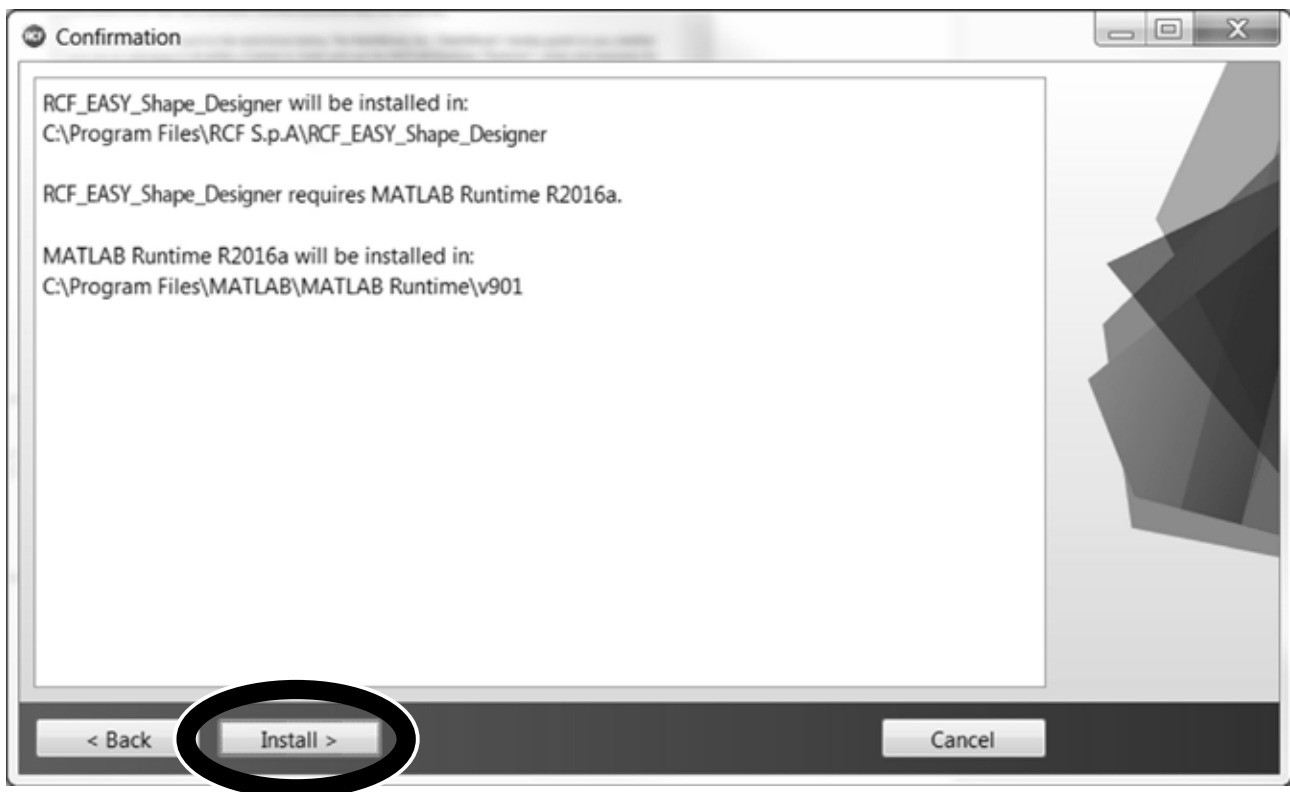
The software was developed with Matlab 2015b and requires Matlab programming libraries. At the very first installation user should refer to the installation package, available from the RCF website, containing the Matlab Runtime (ver. 9) or the installation package that will download the Runtime from the web. Once the libraries are correctly installed, for all the following version of the software the user can directly download the application without the Runtime. Two versions, 32-bit and 64-bit, are available for the download.

IMPORTANT: Matlab no longer supports Windows XP and hence RCF EASY Shape Designer (32 bit) doesn't work with this OS version.

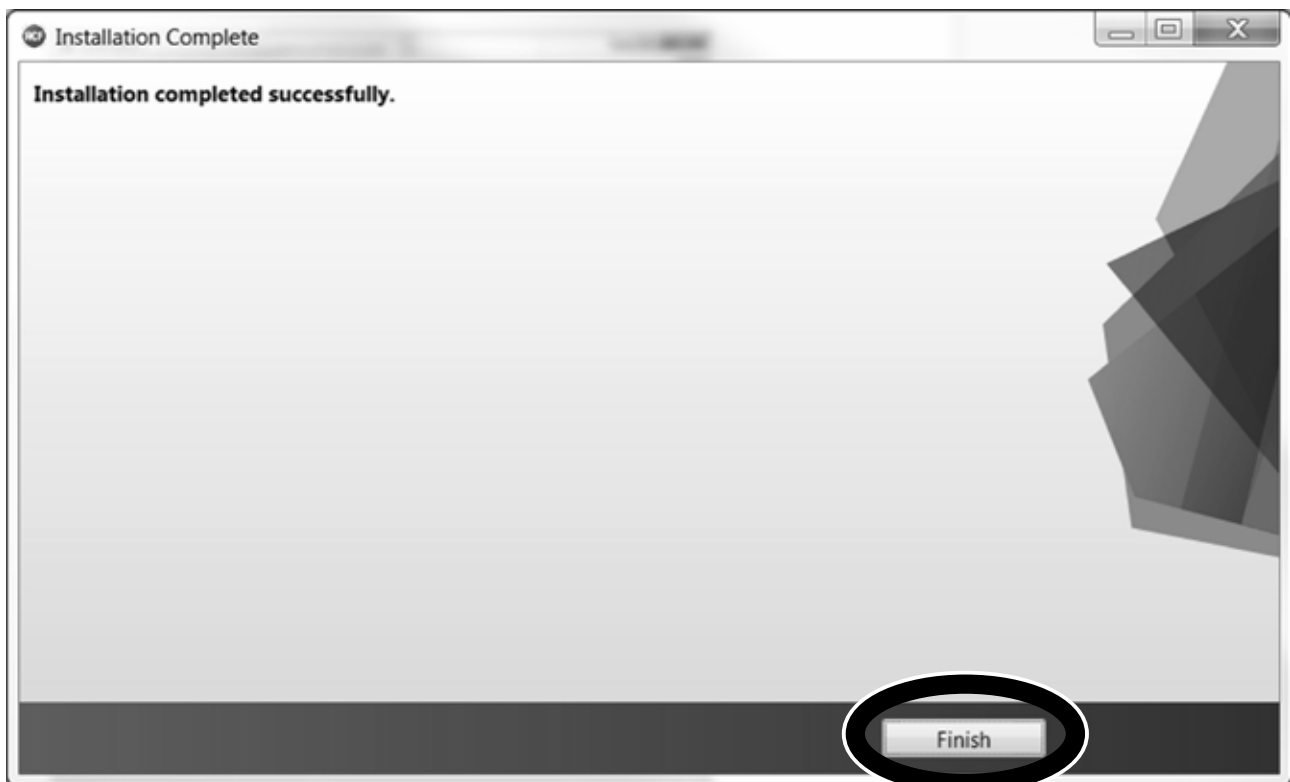
You may wait a few seconds after the double click on the installer because the software checks if Matlab Libraries are available. After this step the installation begins. Double-click the last installer (check for the last release in the download section of our website) and follow the next steps.







After the choice of folders for HDL 6 Shape Designer software (Figure 2) and Matlab Libraries Runtime the installer takes a couple of minutes for the installation procedure.



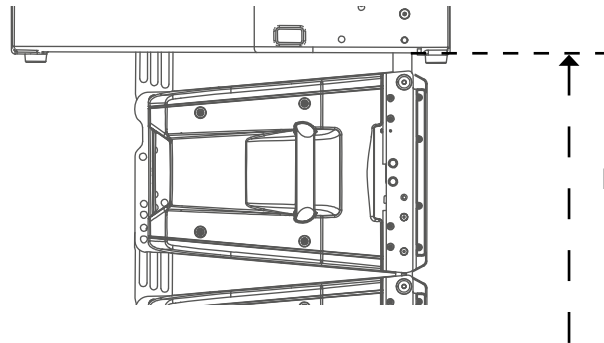
DESIGNING THE SYSTEM

The RCF Easy Shape Designer software is divided into two macro sections: the left part of the interface is dedicated to project variables and data (size of audiences to cover, height, number of modules, etc.), the right part shows the processing results.

At first the user should introduce the audience data choosing the proper pop-up menu depending on the size of the audience and introducing the geometrical data. It is also possible to define the height of the listener.

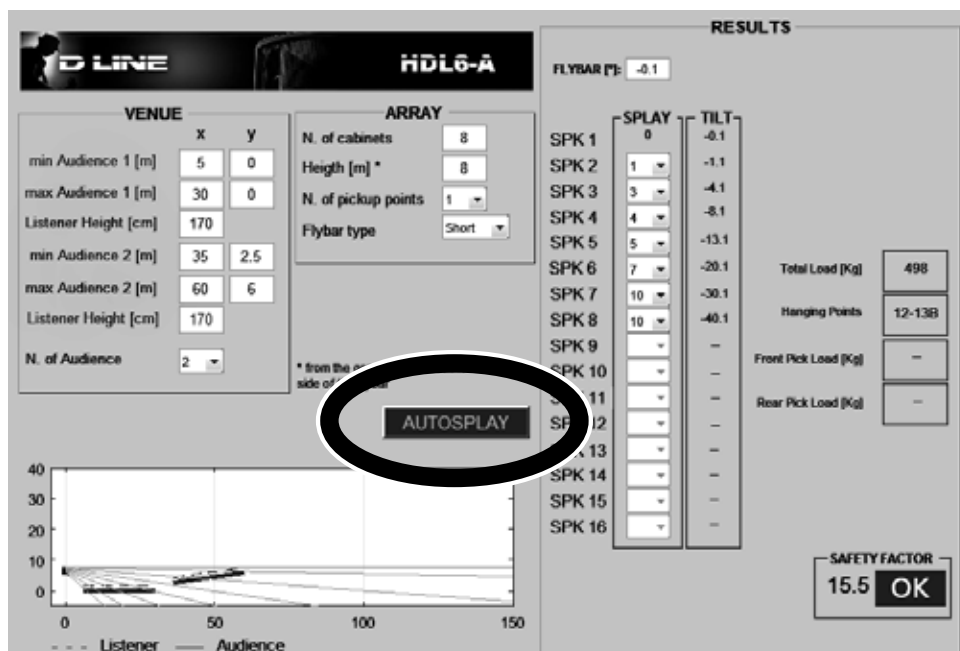
The second step is the array definition selecting the number of cabinets in the array, the hanging height, the number of hanging points and the kind of available flybars. When selecting two hanging points consider those points positioned at the flybar extremes.

The height of the array should be considered referred to the bottom side of the flybar, as shown in the picture below.



After entering all the data input in the left part of the user interface, by pressing the AUTOSPLAY button the software will perform:

- Hanging point for the shackle with A or B position indicated if a single pickup point is selected, rear and front load if two pickup points are selected.
- Flybar tilt angle and cabinet splays (angles that we have to set to each cabinet before lifting operations).
- Inclination that each cabinet will take (in case of one pick up point) or will have to take if we were to tilt the cluster with the use of two engines. (two pick up points).
- Total load and Safety Factor calculation: if the selected setup doesn't give Safety Factor > 1.5 the text message shows in red color the failure to meet the minimum conditions of mechanical safety.



The autoplay algorithm was developed for optimum coverage of the audience size. The use of this function is recommended for the optimization of the array aiming. A recursive algorithm chooses for every cabinet the best angle available in the mechanics.

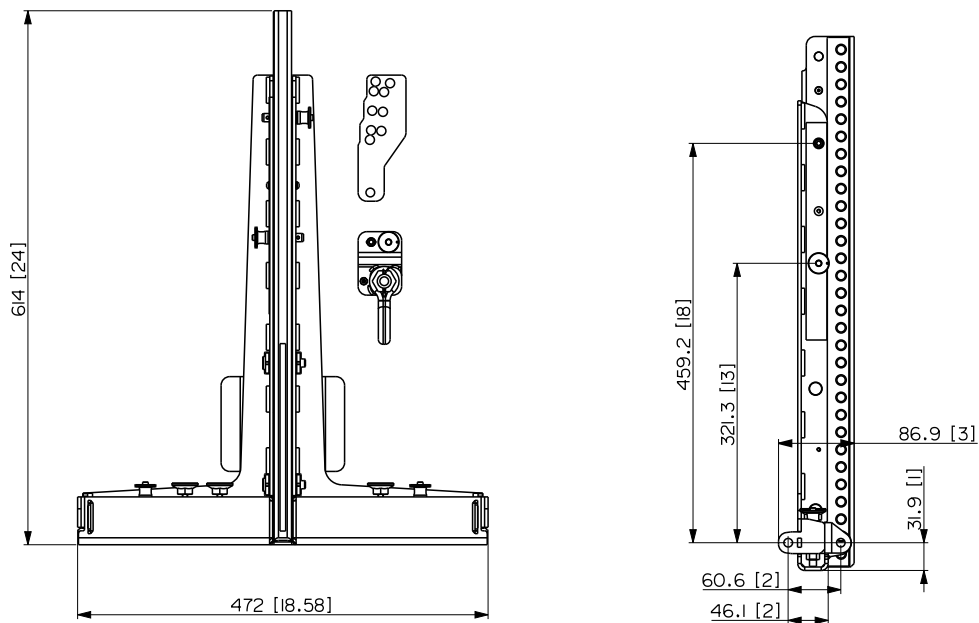
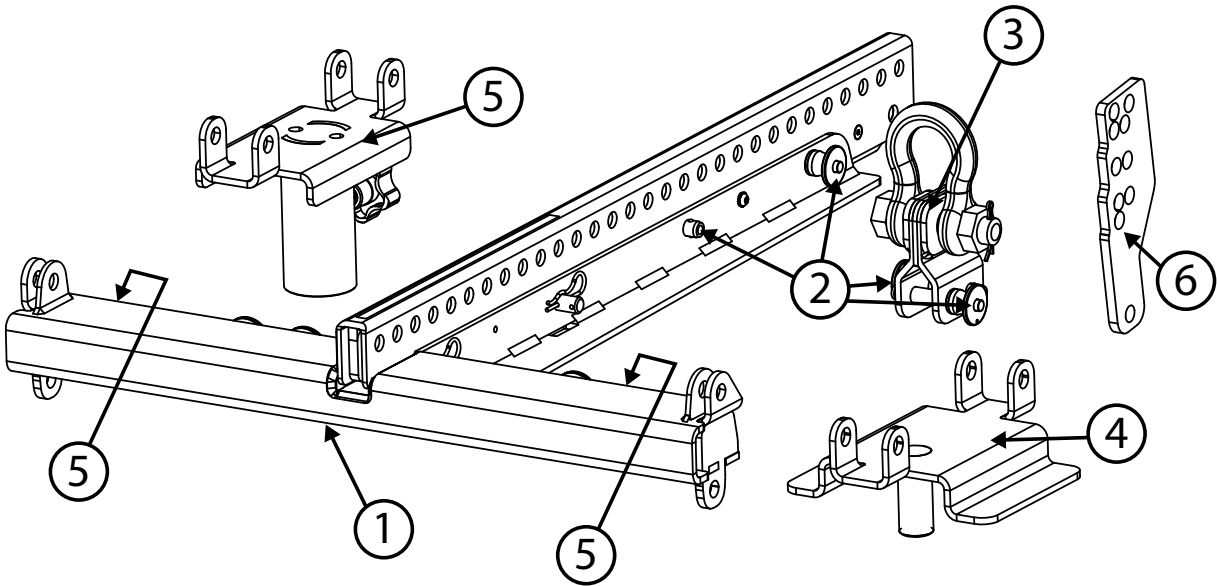
RECOMMENDED WORKFLOW

Pending the official and definitive simulation software, RCF recommends the use of HDL6 Shape Designer together with Ease Focus 3. Because of the need of interaction between different software, the recommended workflow assumes the following steps for every array in the final project:

- Shape Designer: audience and array setup. Calculation in "autoplay" mode of flybar tilt, cabinet and splays.
- Focus 3: reports here the angles, tilt of flybar and presets generated by Shape Designer.
- Shape Designer: manual modify of splay angles if the simulation in Focus 3 does not give satisfactory results in order to check the safety factor.
- Focus 3: reports here the new angles and tilt of flybar generated by Shape Designer. Repeat the procedure until good results are achieved.

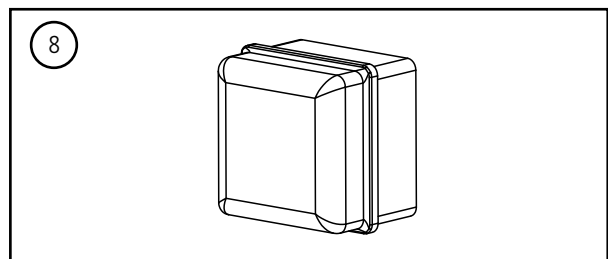
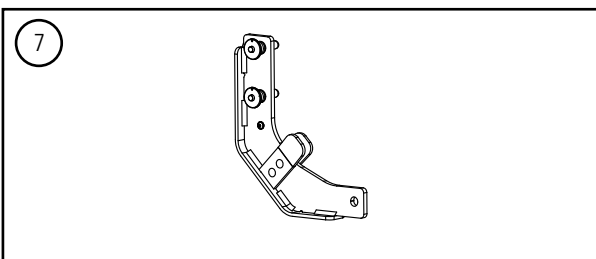
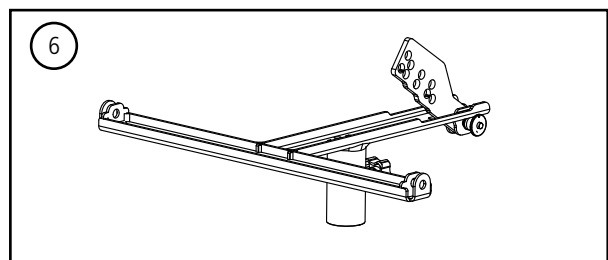
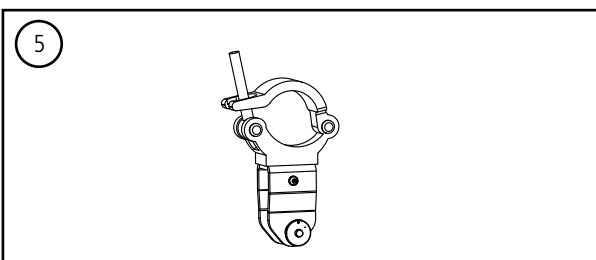
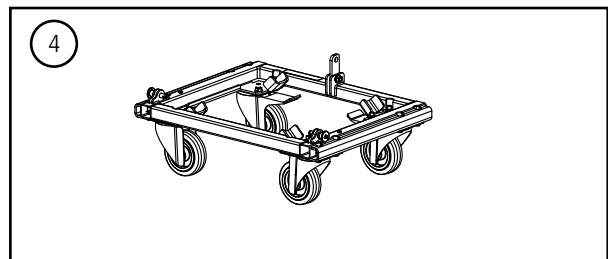
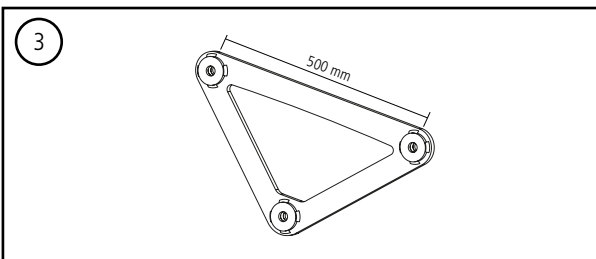
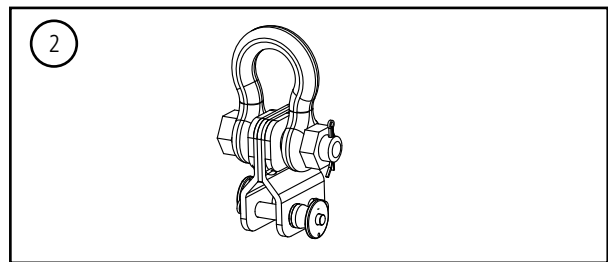
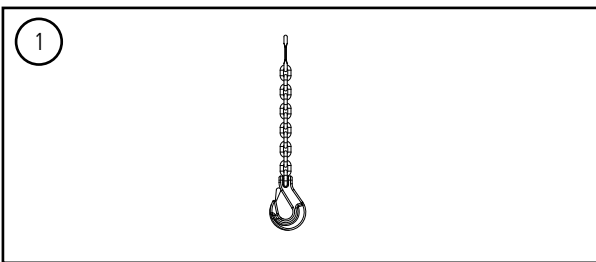
RIGGING COMPONENTS

	Accessory p/n	Description
1	13360360	BARRA SOSPENSIONE HDL6-A E HDL12-AS - up to 16 HDL6-A - up to 8 HDL12-AS - up to 4 HDL12-AS + 8 HDL6-A
2	13360022	QUICK LOCK PIN
3	13360372	FLY BAR PICK UP HDL6-A
4		CONNECTION BRACKET FOR SECURELY LOCKING THE STACKING CLUSTER ON A SUBWOOFER
5		POLE MOUNT BRACKET



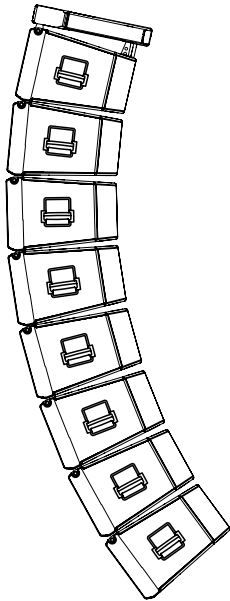
ACCESSORIES

1	13360129	HOIST SPACING CHAIN. It allows enough space for the hang of most 2 motor chain containers and avoids any impact on the vertical balance of the array when it is suspended from a single pick-up point.
2	13360372	FLY BAR PICK UP HDL6-A + 2 QUICK LOCK PIN (SPARE PART P/N 13360022)
3	13360351	AC 2X AZIMUT PLATE. It allows the horizontal aim control of the cluster. The system must be hooked with 3 motors. 1 frontal and 2 attached to the azimuth plate.
4	13360366	KART WITH WHEELS AC KART HDL6 + 2 QUICK LOCK PIN (SPARE PART 13360219)
5	13360371	AC TRUSS CLAMP HDL6 + 1 QUICK LOCK PIN (SPARE PART P/N 13360022)
6	13360377	POLE MOUNT 3X HDL 6-A + 1 QUICK LOCK PIN (SPARE PART 13360219)
7	13360375	LINKBAR HDL12 TO HDL6 + 2 QUICK LOCK PIN (SPARE PART 13360219)
8	13360381	RAIN COVER 06-01



BEFORE INSTALLATION - SAFETY - PARTS INSPECTION

INSPECTION OF MECHANICS, ACCESSORIES AND LINE ARRAY SAFETY DEVICES



Since this product has been designed to be lifted above objects and people, it is essential to dedicate particular care and attention to the inspection of the product's mechanics, accessories and safety devices in order to guarantee maximum reliability during use.

Before lifting the Line Array, carefully examine all mechanics involved in lifting including hooks, quick lock pins, chains and anchor points. Make sure they are intact, with no missing parts, fully functional, with no signs of damage, excessive wear or corrosion that could compromise safety during use.

Verify that all accessories supplied are compatible with the Line Array and that they are installed correctly according to the instructions provided in the manual. Make sure they perform their function perfectly and are able to support the weight of the device safely.

If you have any doubts about the safety of the lifting mechanisms or accessories, do not lift the Line Array and contact our service department immediately. The use of a damaged device or with unsuitable accessories can cause serious injury to you or other people.

When inspecting the mechanics and accessories, pay maximum attention to every detail, this will help ensure safe and accident-free use.

Before lifting the system, have all parts and components inspected by trained and experienced personnel.

Our company is not responsible for incorrect use of this product caused by failure to comply with inspection and maintenance procedures or any other failure.

BEFORE INSTALLATION - SAFETY - PARTS INSPECTION



INSPECTION OF MECHANICAL ELEMENTS AND ACCESSORIES



- Visually inspect all mechanics to ensure there are no desoldered or bent parts, cracks or corrosion.
- Inspect all the holes on the mechanics; check that they are not deformed and that there are no cracks or corrosion.
- Check all cotter pins and shackles and make sure they perform their function correctly; replace these components if it is not possible to fit them and lock them correctly on the fixing points.
- Inspect any lifting chains and cables; check that there are no deformations, corroded or damaged parts.



INSPECTION OF QUICK LOCK PINS



- Check that the pins are intact and have no deformities
- Test the operation of the pin making sure the button and spring work properly
- Check the presence of both spheres; make sure they are in their correct position and that they retract and exit correctly when the button is pressed and released.

RIGGING PROCEDURE

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 the event of any doubt as to the proper functioning and safety of the items, these must be withdrawn from use immediately.

WARNING - The steel wires between the locking pins of the cabinets and rigging components are not intended to carry any load. The cabinet's weight must only be carried by the Front and Splay/Rear links in conjunction with the front and rear rigging strands of the loudspeaker cabinets and the Flying frame. Ensure all Locking pins are fully inserted and securely locked before lifting any load.

In the first instance use HDL 6-A Shape Designer software to calculate the proper set up of the system and to check the safety factor parameter.

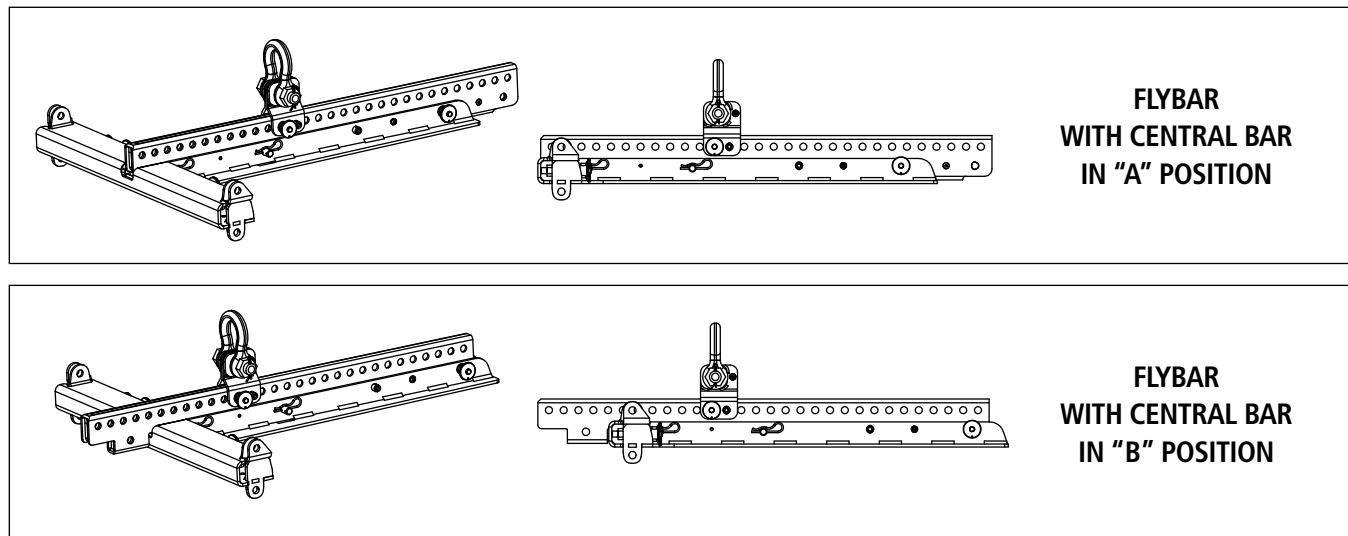


The HDL6 flybar allows the suspension of HDL6-A and HDL12-AS

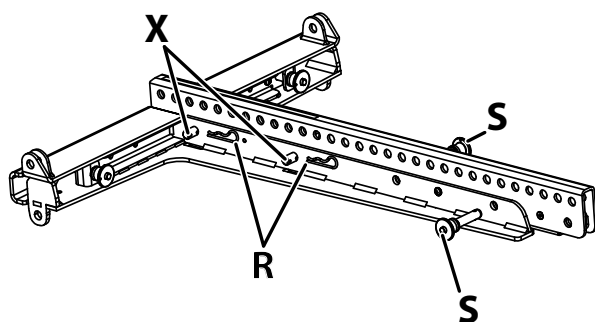
1. FLYBAR SETUP

The HDL6 flybar allows to set the central bar in two different configurations "A" e "B".

Configuration "B" allows a better upper inclination of the cluster.



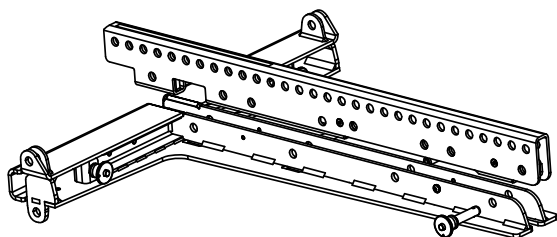
1.1 SET THE CENTRAL BAR IN "B" POSITION



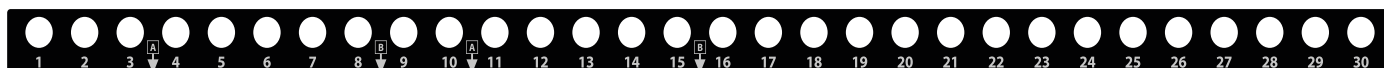
This accessory is provided in "A" configuration.

To set it in "B" configuration:

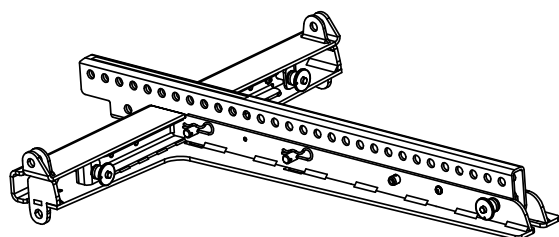
1. Remove the cotter pins "R", pull out the linchpins "X" and the quick lock pins "S"



2. Lift the central bar then re-position it making the "B" indication on the label and the holes "S" match together.

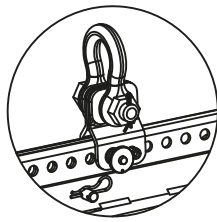


CENTRAL BRACKET LABEL



3. Re-assemble the flybar repositioning the pins "S", the linchpins "X" and the cotter pins "R".

1.2 PICK UP POINT POSITION



PICK UP POINT
POSITION

PICK UP POINT
"A" POSITION

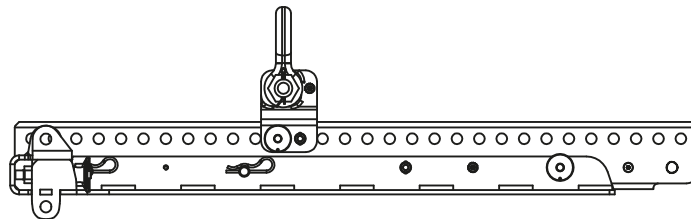


PICK UP POINT
"B" POSITION



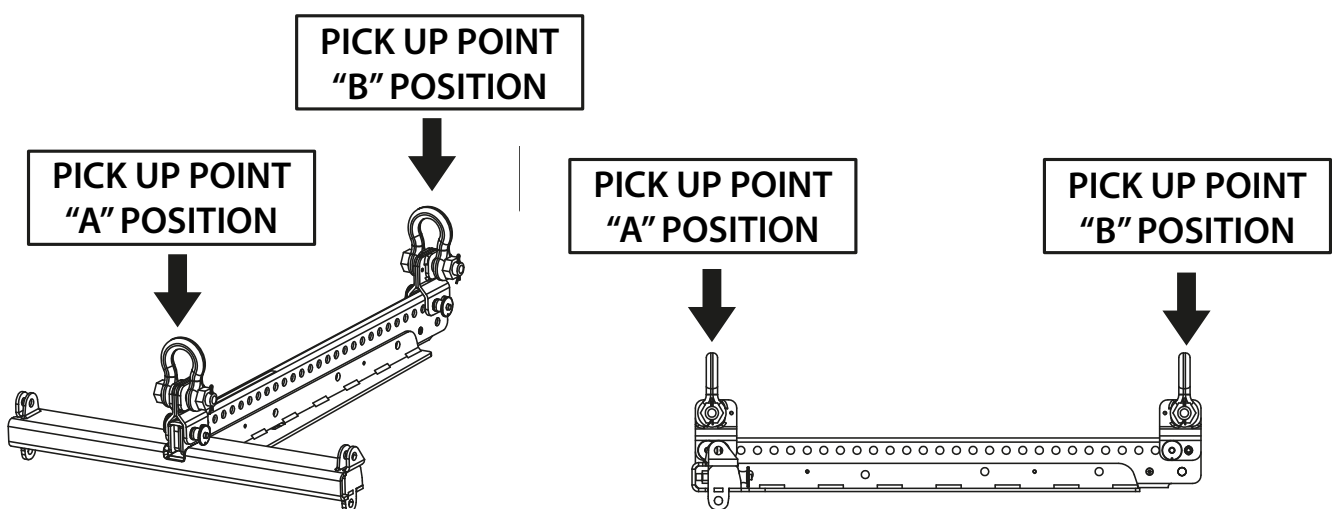
2. SYSTEM SUSPENSION PROCEDURE

SINGLE PICK UP POINT



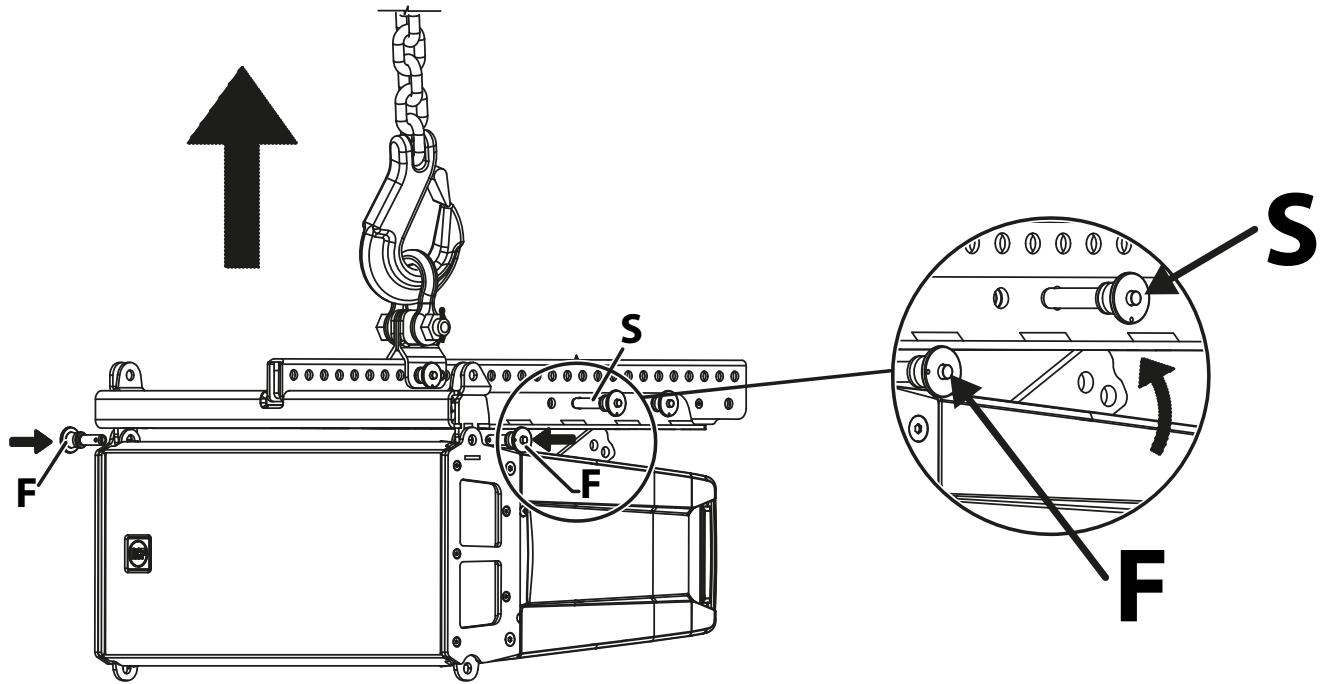
Position the flybar pick-up point as shown in the software, respecting the position "A" or "B".

DUAL PICK UP POINT



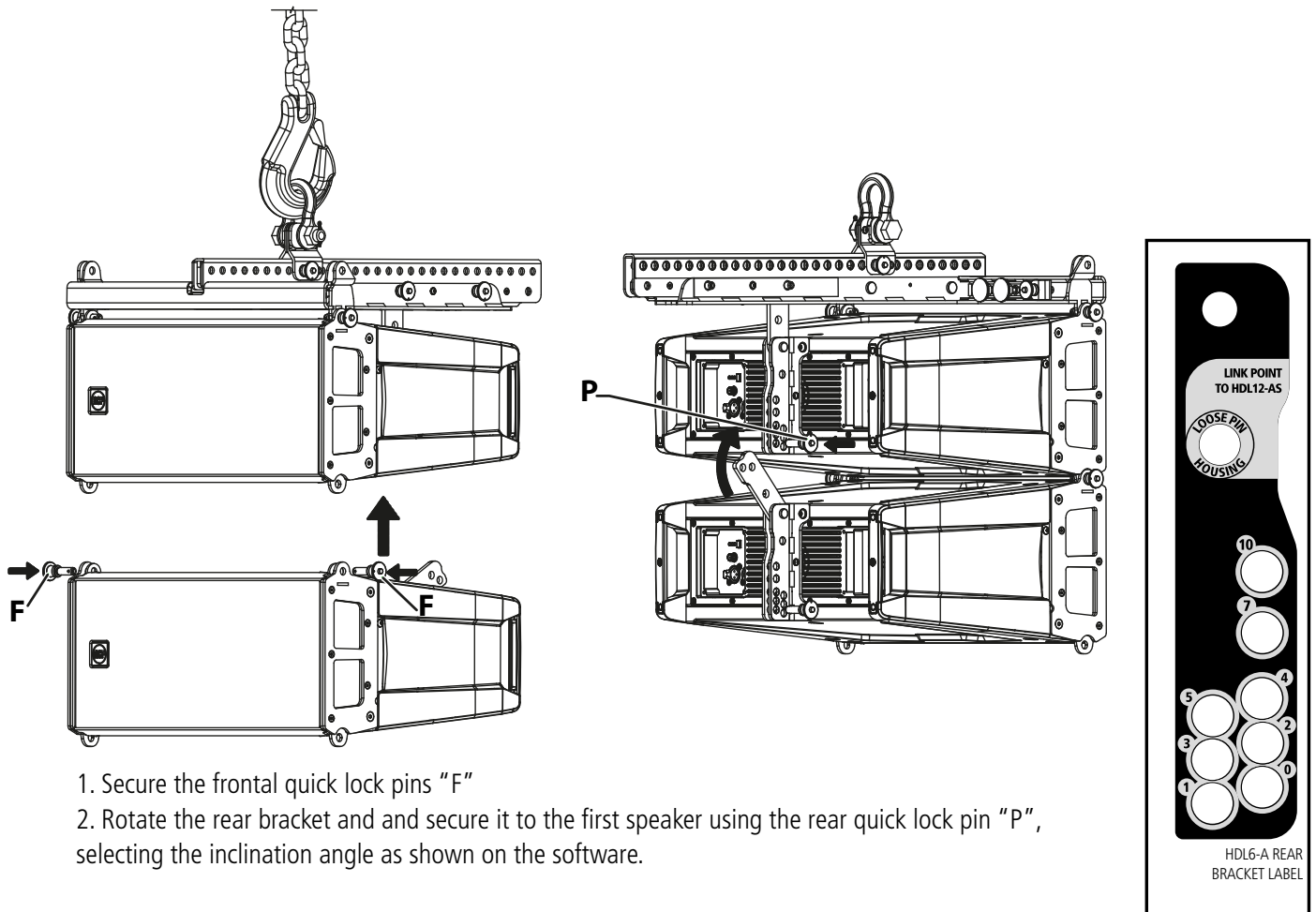
Allows to lift the cluster with two pulleys adding an optional pick up point (pn 13360372).

2.1 SECURING THE FLYBAR TO THE FIRST HDL6-A SPEAKER

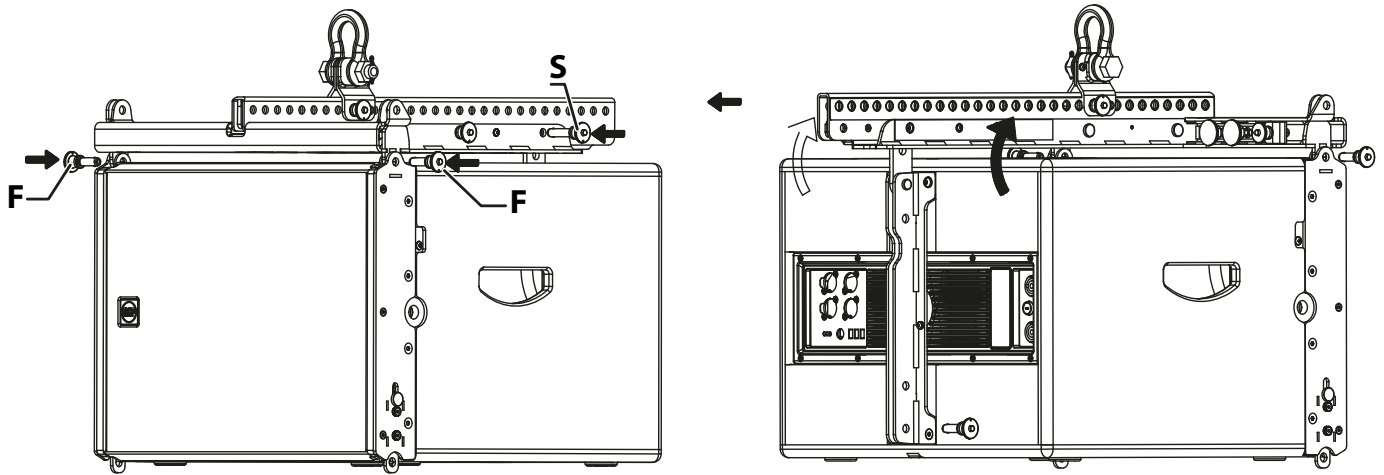


1. Insert the frontal quick lock pins "F"
2. Rotate the rear bracket and secure it to the flybar with the rear quick lock pin "S" to the HDL6 Link Point hole

2.2 SECURING THE SECOND HDL6-A SPEAKER TO THE FIRST (AND CONSECUTIVE)

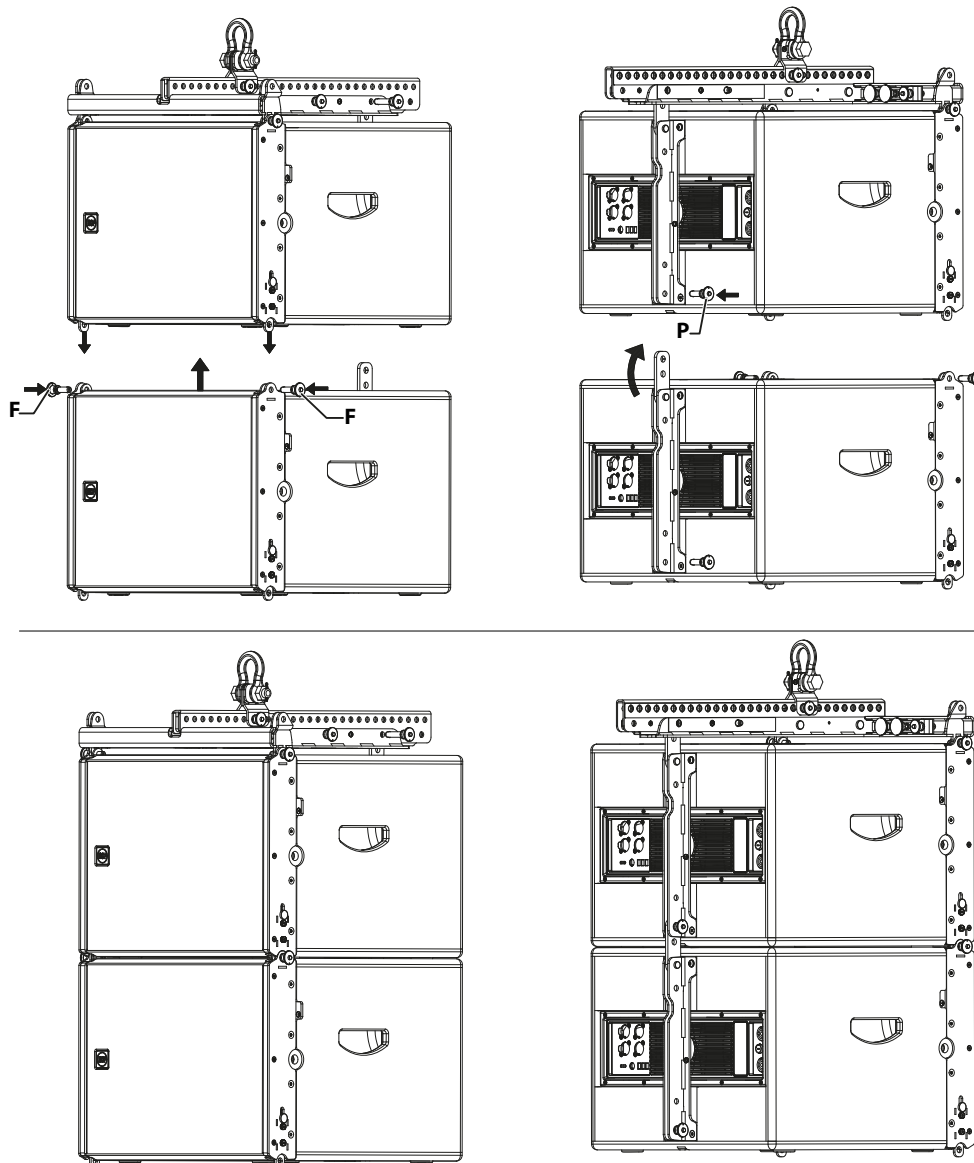


2.3 SECURING THE FLYBAR TO THE FIRST HDL12-AS SPEAKER



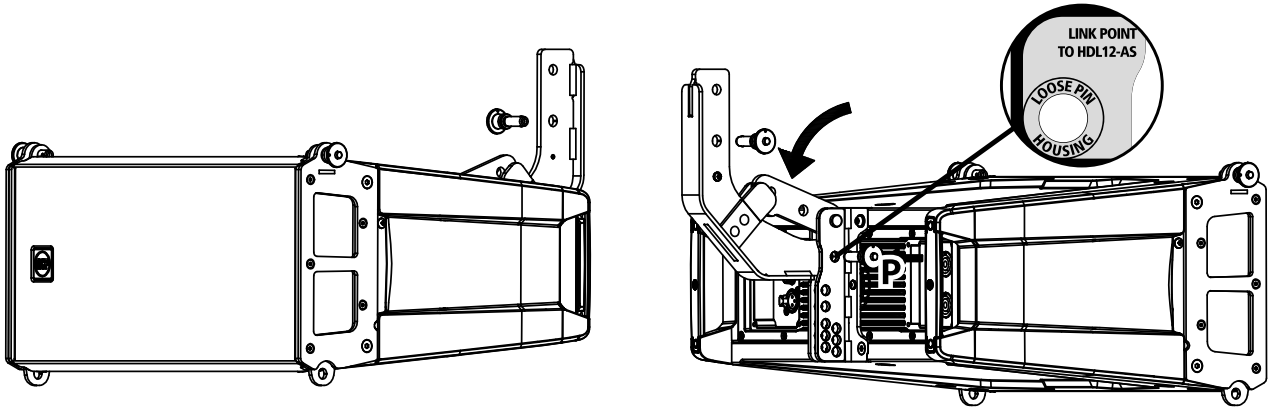
1. Insert the frontal quick lock pins "F"
2. Rotate the rear bracket and secure it to the flybar with the rear quick lock pin "S" on the HDL12 Link Point hole.

2.4 SECURING THE SECOND HDL12-AS SPEAKER TO THE FIRST (AND CONSECUTIVE):

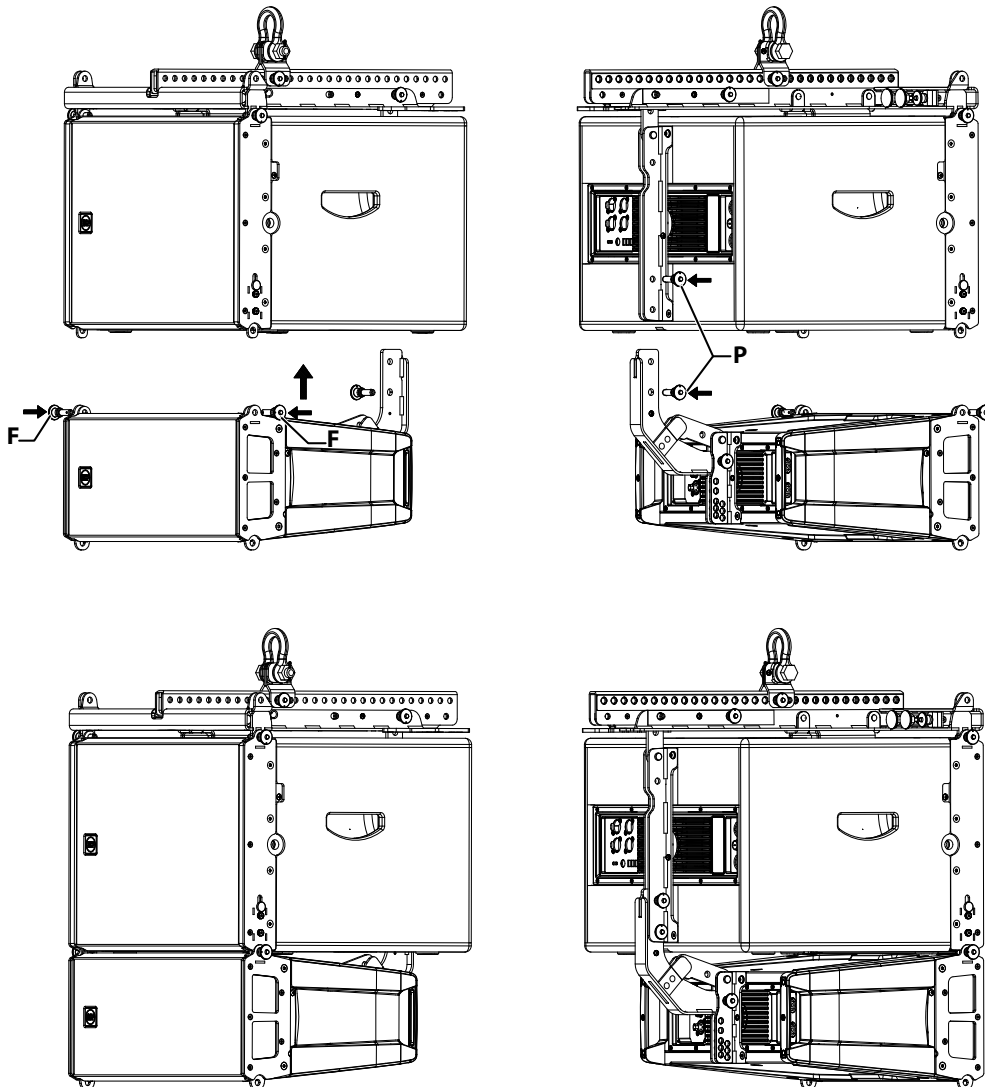


1. Pull out the frontal bracket "A"
2. Secure the frontal quick lock pins "F"
3. Rotate the rear bracket and secure it to the first speaker using the rear quick lock pin "P".

2.5 CLUSTER HDL12-AS + HDL6-A



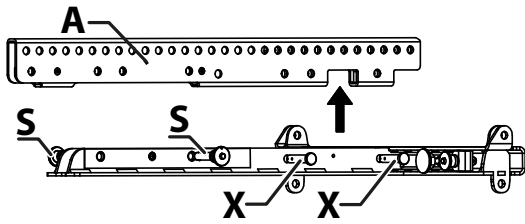
1. Using the quick lock pin "P", secure the linking bracket to the HDL6-A speaker on the "Link point to HDL12-AS" hole, on the rear bracket.
2. Rotate the HDL6-A rear bracket and block it on the linking bracket between the two metal flaps.



1. Secure HDL6-A to HDL12-AS using the frontal quick lock pins "F" and the rear ones "P".

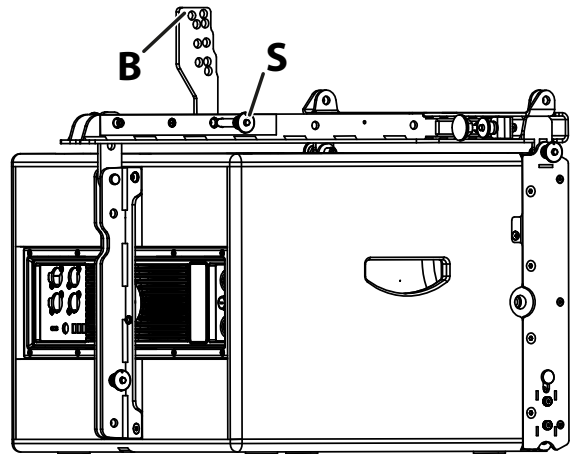
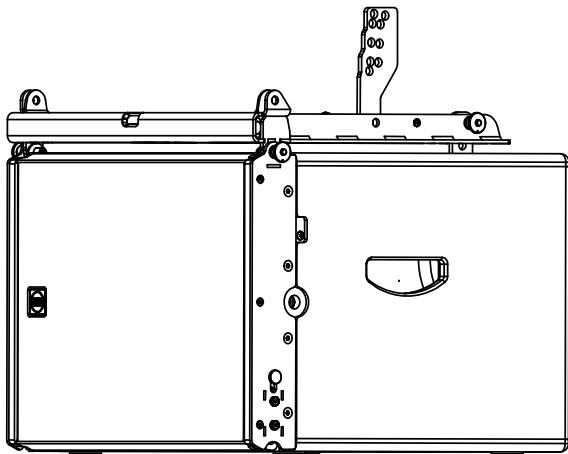
WARNING: always secure both rear pins "P".

3. STACKING PROCEDURE

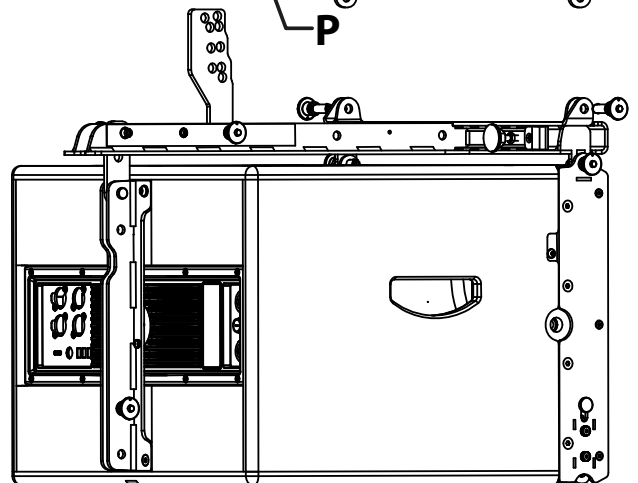
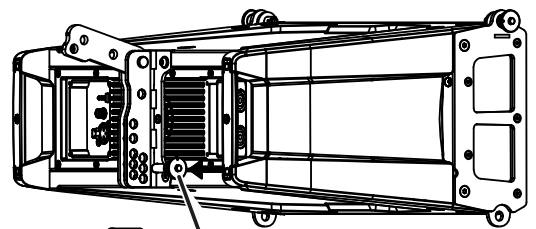
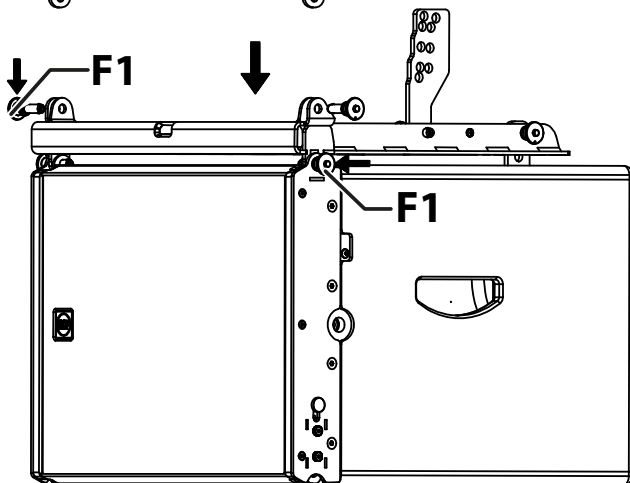
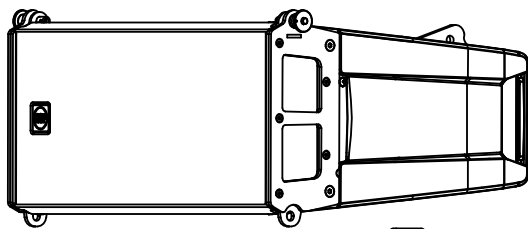


Remove the central bar "A" from the flybar by pulling out the linchpins "X" and the quick lock pins "S".

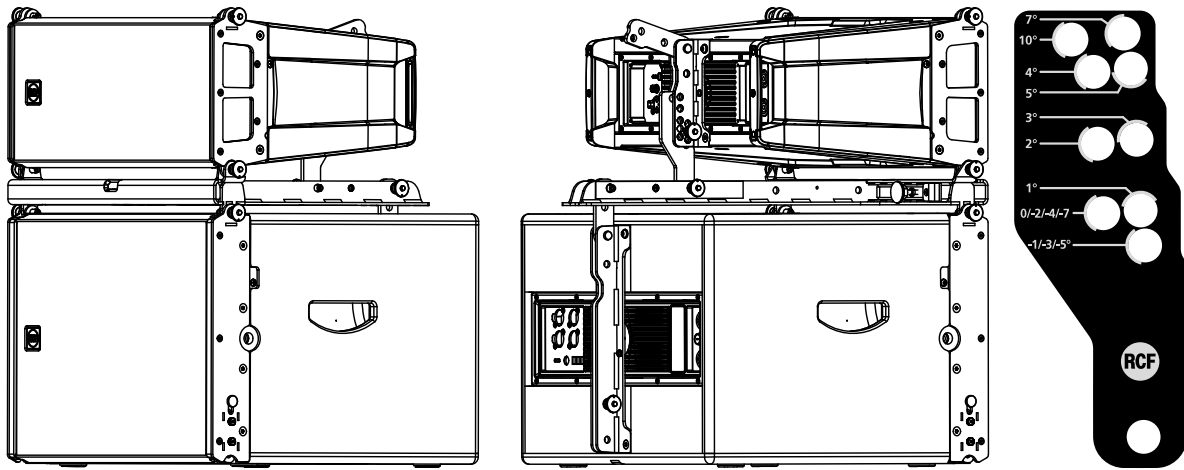
3.1 STACKING ON SUB HDL12-AS



1. Secure the flybar to HDL12-AS
2. Secure the stacking bar "B" (as shown in the picture) to the flybar using the quick lock pin "S" (follow the indication "stacking point")



1. Secure HDL6-A to the flybar using the frontal quick lock pins "F1".



2. Select the inclination angle (positive angles indicate a lower inclination of the speaker) and secure it with the rear quick lock pin "P".

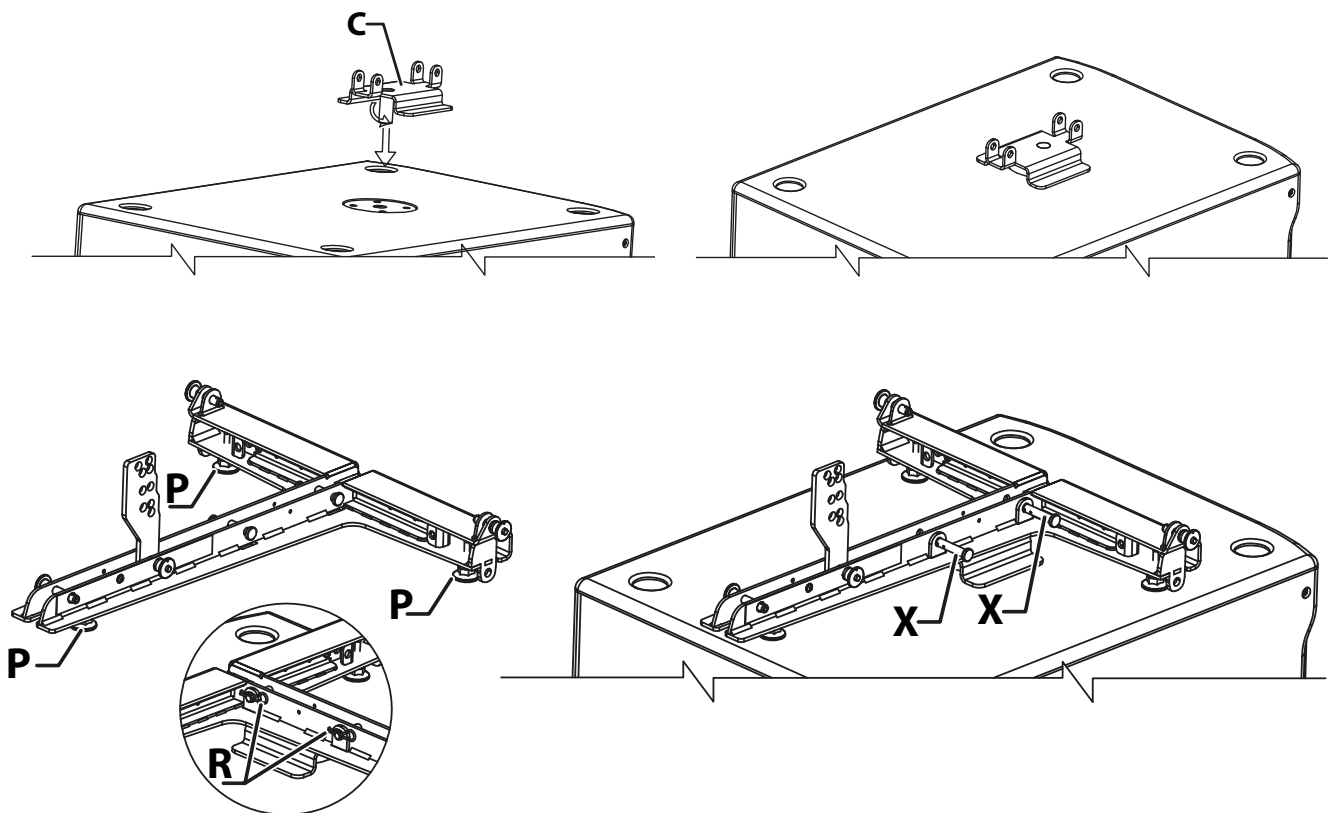
To obtain the speaker inclination (positive or negative) you need to match the stacking bar angle value with the same angle value stated on the speaker rear bracket.

This method works for every inclination except for angles 10 and 7 of the stacking bar, for which you need to proceed in the following way:

- angle 10 of the stacking bar needs to be matched with angle 0 on the speaker rear bracket.
- angle 7 of the stacking bar needs to be matched with angle 5 on the speaker rear bracket.

THE MAXIMUM NUMBER OF STACKABLE MODULES IS 6.
ALWAYS VERIFY THE SYSTEM STABILITY IN EVERY CONFIGURATION.

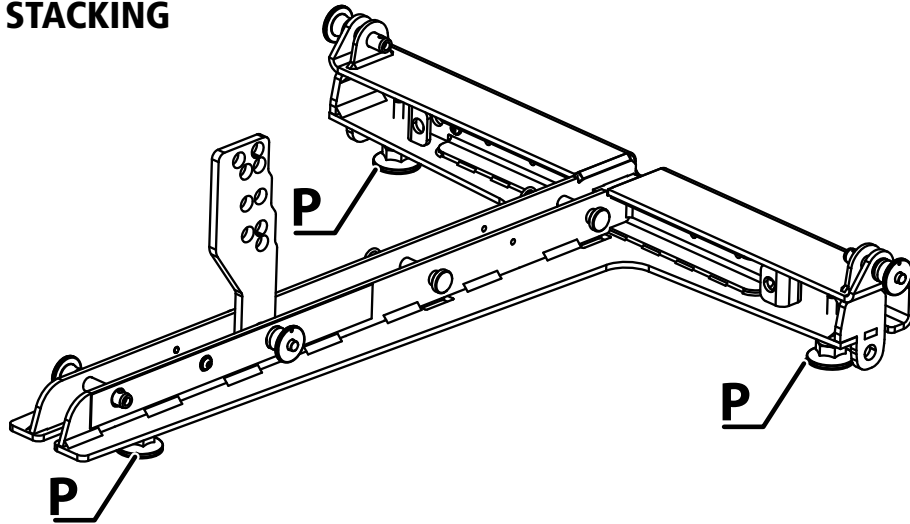
3.1 STACKING ON DIFFERENT SUBWOOFERS (OTHER THAN HDL12-AS)



1. Screw all three plastic feet "P".
2. Secure the flybar to the safety bracket using the linchpins "X" and block them with the cotter pins "R".
3. Adjust the feet to stabilize the flybar on the subwoofer then block them with their nuts to avoid unscrewing.
4. Assemble the HDL6-A speaker with the same procedure.

THE MAXIMUM NUMBER OF STACKABLE MODULES IS 6.
WARNING: ALWAYS VERIFY THE SYSTEM STABILITY IN EVERY CONFIGURATION.

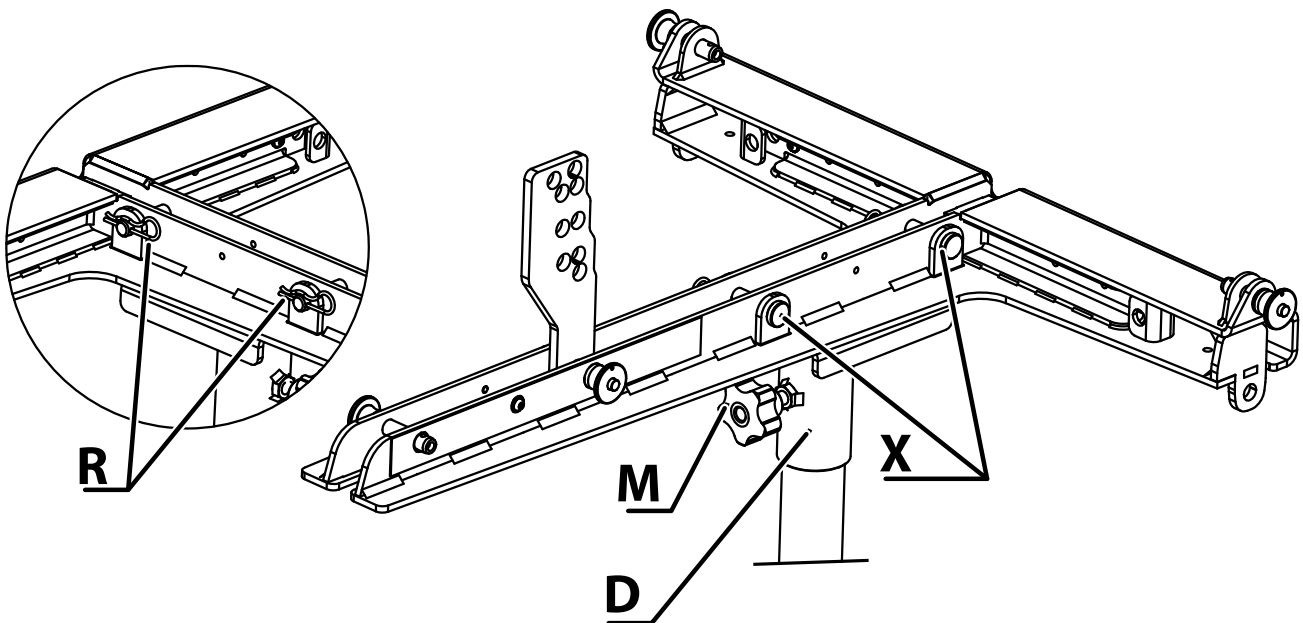
3.2 GROUND STACKING



1. Screw all three plastic feet "P".
2. Adjust the feet to stabilize the flybar on the subwoofer then block them with their nuts to avoid unscrewing.
3. Assemble the HDL6-A speaker with the same procedure.

THE MAXIMUM NUMBER OF STACKABLE MODULES IS 6.
WARNING: ALWAYS VERIFY THE SYSTEM STABILITY IN EVERY CONFIGURATION.

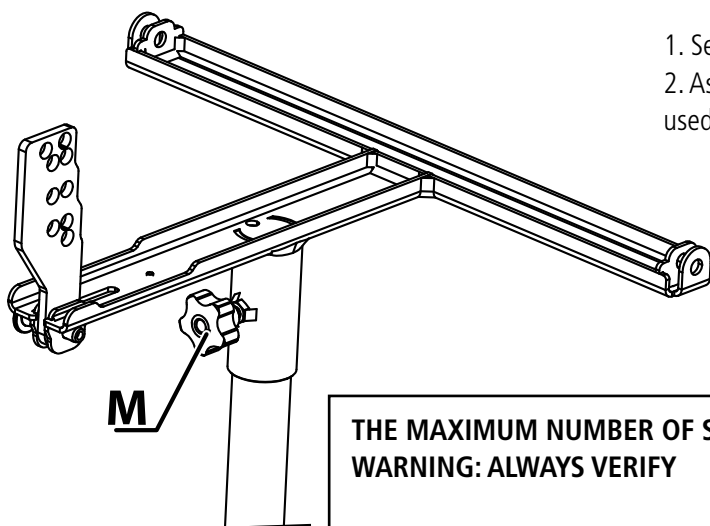
3.3 POLE MOUNTING WITH SUSPENSION BAR



1. Secure the pole mount bracket to the flybar with the linchpins "X" then block them with the cotter pins "R"
2. Block the flybar to the pole by screwing the knob "M".
3. Assemble the HDL6-A speaker with the same procedure.

THE MAXIMUM NUMBER OF STACKABLE MODULES ON THE POLE IS 3.
WARNING: ALWAYS VERIFY - THE SYSTEM STABILITY IN EVERY CONFIGURATION
- THE POLE PAYLOAD

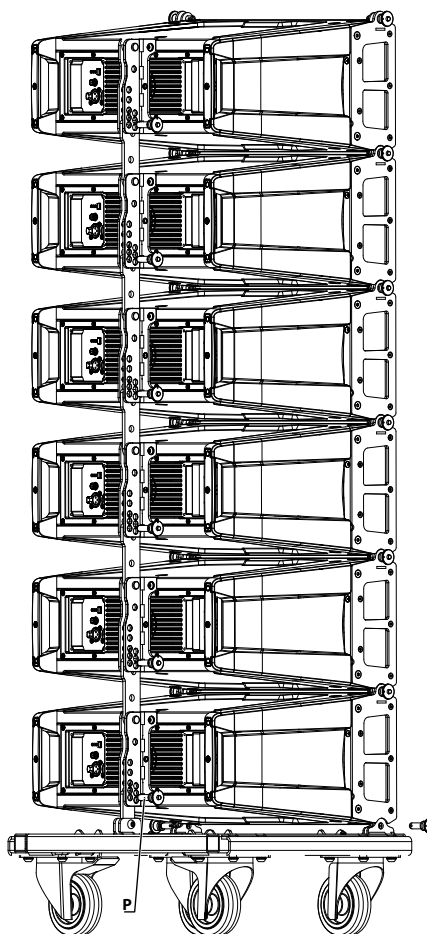
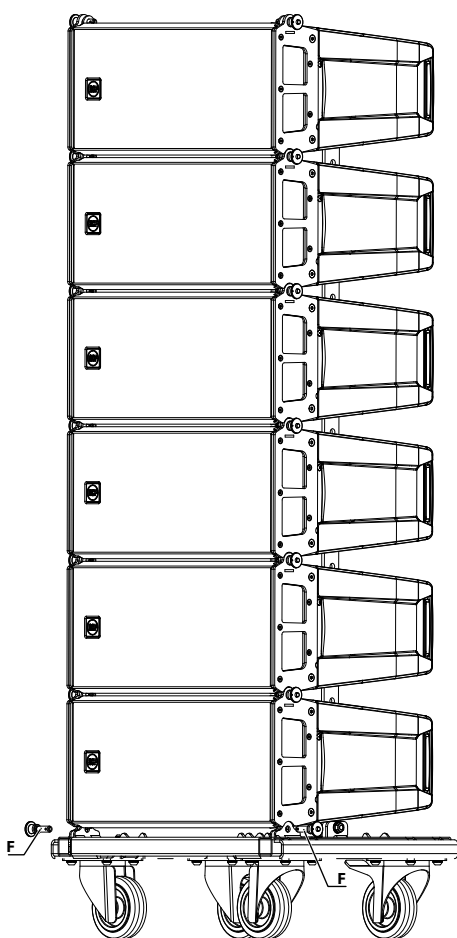
3.4 POLE MOUNTING WITH POLE MOUNT 3X HDL 6-A



1. Secure the flybar on the pole by screwing the knob "M"
2. Assemble the speakers HDL6-A with the same procedure used on stacking on sub HDL12-AS

THE MAXIMUM NUMBER OF STACKABLE MODULES ON THE POLE IS 3.
WARNING: ALWAYS VERIFY - THE SYSTEM STABILITY IN EVERY CONFIGURATION
- THE POLE PAYLOAD

4. TRANSPORTATION: POSITIONING THE SPEAKERS ON THE KART



1. Secure the front side of the speaker to the kart using the quick lock pins "F"
2. Secure the rear side of the speaker to the kart using the quick lock pins "P".
Careful: the hole to be used is 0° on the speaker rear bracket.
3. Proceed with the second speaker repeating steps "1" and "2"

WARNING: the kart has been designed to carry up to 6 speakers.

CARE AND MAINTENANCE - DISPOSAL

TRANSPORT - STORING

During transportation ensure the rigging components are not stressed or damaged by mechanical forces. Use suitable transport cases. We recommend the use of the RCF HDL6-A touring kart for this purpose.

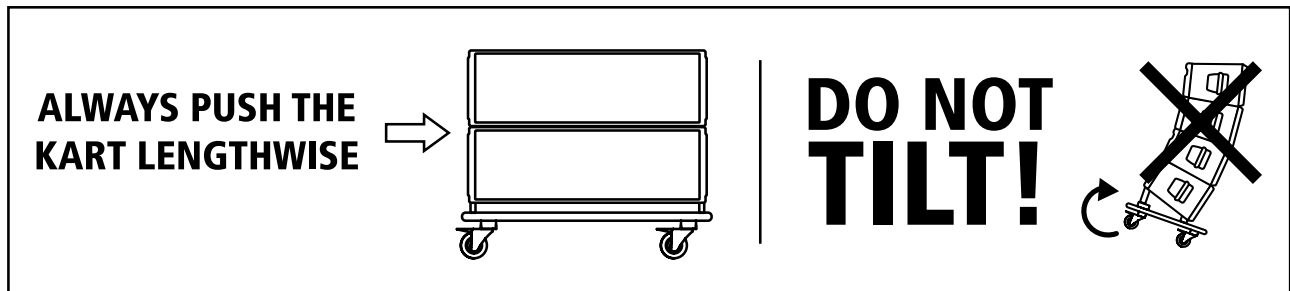
Due to their surface treatment the rigging components are temporarily protected against moisture. However, ensure the components are in a dry state while stored or during transportation and use.

SAFETY GUIDE LINES – HDL6-A KART

Do not stack more than six HDL6-A on one Kart.

Exercise extreme caution when moving stacks of six cabinets with the Kart to avoid tipping.

Do not move stacks in the front-to-back direction of the HDL6-A's (the long side); always move stacks sideways to avoid tipping.



SPECIFICATIONS

	HDL 6-A	HDL 12-AS
Frequency Response	65 Hz - 20 kHz	40 Hz - 120 kHz
Max Spl	131 dB	131 dB
Horizontal Coverage Angle	100°	-
Vertical Coverage Angle	10°	-
Compression Driver	1.0" neo, 1.7" v.c.	-
Woofers	2 x 6.0" neo, 2.0" v.c.	12", 3.0" v.c.
INPUTS		
Input Connector	XLR male	Stereo XLR
Output Connector	XLR female	Stereo XLR
Input Sensitivity	+ 4 dBu	-2 dBu/+ 4 dBu
PROCESSOR		
Crossover Frequency	900 Hz	80-110 Hz
Protections	Thermal, RMS	Thermal, RMS
Limiter	Soft limiter	Soft limiter
Controls	HF correction	Volume, EQ, phase, xover
AMPLIFIER		
Total Power	1400 W Peak	1400 W Peak
High Frequencies	400 W Peak	-
Low Frequencies	1000 W Peak	-
Cooling	Convection	Convection
Connections	Powercon in-out	Powercon in-out
PHYSICAL SPECIFICATIONS		
Height	237 mm (9.3")	379 mm (14.9")
Width	470 mm (18.7")	470 mm (18.5")
Depth	377 mm (15")	508 mm (20")
Weight	11.5 Kg (25.35 lbs)	24 Kg (52.9 lbs)
Cabinet	PP composite	Baltic Birch Plywood
Hardware	Integrated mechanics	Array fittings, pole
Handles	2 rear	2 side



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tel. +39 0522 274411 - fax +39 0522 274484 - e-mail: rcfservice@rcf.it



SUB 8003-AS MK3

SUB 905-AS MK3

PROFESSIONAL ACTIVE SUBWOOFER

ENGLISH

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1. SAFETY PRECAUTIONS AND GENERAL INFORMATION

The symbols used in this document give notice of important operating instructions and warnings which must be strictly followed.

	CAUTION	Important operating instructions: explains hazards that could damage a product, including data loss
	WARNING	Important advice concerning the use of dangerous voltages and the potential risk of electric shock, personal injury or death.
	IMPORTANT NOTES	Helpful and relevant information about the topic
	SUPPORTS, TROLLEYS AND CARTS	Information about the use of supports, trolleys and carts. Reminds to move with extreme caution and never tilt.
	WASTE DISPOSAL	This symbol indicates that this product should not be disposed with your household waste, according to the WEEE directive (2012/19/EU) and your national law.

IMPORTANT NOTES

This manual contains important information about the correct and safe use of the device. Before connecting and using this product, please read this instruction manual carefully and keep it on hand for future reference. The manual is to be considered an integral part of this product and must accompany it when it changes ownership as a reference for correct installation and use as well as for the safety precautions. RCF S.p.A. will not assume any responsibility for the incorrect installation and / or use of this product.

SAFETY PRECAUTIONS

1. All the precautions, in particular the safety ones, must be read with special attention, as they provide important information.

2. Power supply from mains

- The mains voltage is sufficiently high to involve a risk of electrocution; install and connect this product before plugging it in.
- Before powering up, make sure that all the connections have been made correctly and the voltage of your mains corresponds to the voltage shown on the rating plate on the unit, if not, please contact your RCF dealer.
- The metallic parts of the unit are earthed through the power cable. An apparatus with CLASS I construction shall be connected to a mains socket outlet with a protective earthing connection.
- Protect the power cable from damage; make sure it is positioned in a way that it cannot be stepped on or crushed by objects.
- To prevent the risk of electric shock, never open this product: there are no parts inside that the user needs to access.
- Be careful: in the case of a product supplied by manufacturer only with POWERCON connectors and without a power cord, jointly to POWERCON connectors type NAC3FCA (power-in) and NAC3FCB (power-out), the following power cords compliant to national standard shall be used:
 - EU: cord type H05VV-F 3G 3x2.5 mm² - Standard IEC 60227-1
 - JP: cord type VCTF 3x2 mm²; 15Amp/120V~ - Standard JIS C3306
 - US: cord type SJT/SJTO 3x14 AWG; 15Amp/125V~ - Standard ANSI/UL 62

3. Make sure that no objects or liquids can get into this product, as this may cause a short circuit. This apparatus shall not be exposed to dripping or splashing. No objects filled with liquid, such as vases, shall be placed on this apparatus. No naked sources (such as lighted candles) should be placed on this apparatus.

4. Never attempt to carry out any operations, modifications or repairs that are not expressly described in this manual. Contact your authorized service centre or qualified personnel should any of the following occur:

- **The product does not function (or functions in an anomalous way).**
- **The power cable has been damaged.**

- **Objects or liquids have got in the unit.**
- **The product has been subject to a heavy impact.**

5. If this product is not used for a long period, disconnect the power cable.

6. If this product begins emitting any strange odours or smoke, switch it off immediately and disconnect the power cable.

7. Do not connect this product to any equipment or accessories not foreseen.

For suspended installation, only use the dedicated anchoring points and do not try to hang this product by using elements that are unsuitable or not specific for this purpose. Also check the suitability of the support surface to which the product is anchored (wall, ceiling, structure, etc.), and the components used for attachment (screw anchors, screws, brackets not supplied by RCF etc.), which must guarantee the security of the system / installation over time, also considering, for example, the mechanical vibrations normally generated by transducers.

To prevent the risk of falling equipment, do not stack multiple units of this product unless this possibility is specified in the user manual.

8. RCF S.p.A. strongly recommends this product is only installed by professional qualified installers (or specialised firms) who can ensure correct installation and certify it according to the regulations in force. The entire audio system must comply with the current standards and regulations regarding electrical systems.

9. Supports, trolleys and carts.



The equipment should be only used on supports, trolleys and carts, where necessary, that are recommended by the manufacturer. The equipment / support / trolley / cart assembly must be moved with extreme caution. Sudden stops, excessive pushing force and uneven floors may cause the assembly to overturn. Never tilt the assembly.

10. There are numerous mechanical and electrical factors to be considered when installing a professional audio system (in addition to those which are strictly acoustic, such as sound pressure, angles of coverage, frequency response, etc.).

11. Hearing loss.

Exposure to high sound levels can cause permanent hearing loss. The acoustic pressure level that leads to hearing loss is different from person to person and depends on the duration of exposure. To prevent potentially dangerous exposure to high levels of acoustic pressure, anyone who is exposed to these levels should use adequate protection devices. When a transducer capable of producing high sound levels is being used, it is therefore necessary to wear ear plugs or protective earphones. See the manual technical specifications to know the maximum sound pressure level.

OPERATING PRECAUTIONS

- Place this product far from any heat sources and always ensure an adequate air circulation around it.
- Do not overload this product for a long time.
- Never force the control elements (keys, knobs, etc.).
- Do not use solvents, alcohol, benzene or other volatile substances for cleaning the external parts of this product.

IMPORTANT NOTES

To prevent the occurrence of noise on line signal cables, use screened cables only and avoid putting them close to:

- **Equipment that produces high-intensity electromagnetic fields**
- **Power cables**
- **Loudspeaker lines**



WARNING! CAUTION! To prevent the risk of fire or electric shock, never expose this product to rain or humidity.



WARNING! To prevent electric shock hazard, do not connect to mains power supply while grille is removed



WARNING! to reduce the risk of electric shock, do not disassemble this product unless you are qualified. Refer servicing to qualified service personnel.

CORRECT DISPOSAL OF THIS PRODUCT



This product should be handed over to an authorized collection site for recycling waste electrical and electronic equipment (EEE). Improper handling of this type of waste could have a possible negative impact on the environment and human health due to potentially hazardous substances that are generally associated with EEE. At the same time, your cooperation in the correct disposal of this product will contribute to the effective usage of natural resources. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, waste authority or your household waste disposal service.

CARE AND MAINTENANCE

To ensure a long-life service, this product should be used following these advices:

- If the product is intended to be set up outdoors, be sure it is under cover and protected to rain and moisture.
- If the product needs to be used in a cold environment, slowly warm up the voice coils by sending a low-level signal for about 15 minutes before sending high-power signals.
- Always use a dry cloth to clean the exterior surfaces of the speaker and always do it when the power is turned off.



CAUTION: to avoid damaging the exterior finishes do not use cleaning solvents or abrasives.



WARNING! CAUTION! For powered speakers, do cleaning only when the power is turned off.

RCF S.p.A. reserves the right to make changes without prior notice to rectify any errors and / or omissions.

Always refer to the latest version of the manual on www.rcf.it.

FCC NOTES

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Modifications: Any modifications made to this device that are not approved by RCF may void the authority granted to the user by the FCC to operate this equipment.

2. DESCRIPTION

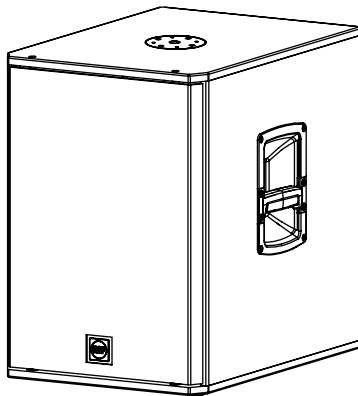
SUB 8003-AS MK3 | SUB 905-AS MK3 | PROFESSIONAL ACTIVE SUBWOOFERS

SUB 8003-AS MK3 and SUB 905-AS MK3 are high power, high output active subwoofer systems that set a new standard in professional sound reinforcement. Each transducer has been specifically designed for the application. The woofer provides large excursion and very lightweight.

RCF always has the performer's needs at the forefront of the design in order to create new lines of speakers with renewed features, improved sound clarity and definition and even lighter weight systems. Every detail of the Sub Series has been carefully studied in order to offer musicians and professionals the perfect tool to amplify their performance, night after night. High quality materials, precise manufacturing, careful assembly and extensive quality control procedures complete the groundbreaking design work of the RCF R&D team.

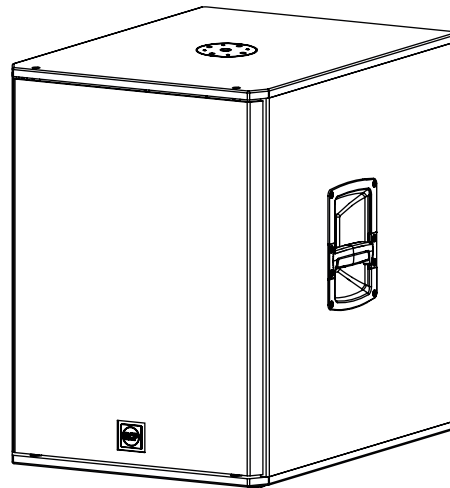
All transducers are precision built taking advantage of RCF's superior moulding, assembly technologies and a wealth of professional knowledge and experience dedicated to achieving extremely high standards. All the transducers in Sub Series speakers feature high power magnets in order to guarantee the best performance and power handling. Sub Series Subwoofers are equipped with a new generation of Class-D Amplifiers. The result of this is very high output, extremely low distortion and an incredible natural sound.

The amplifier features a solid mechanical aluminium structure which not only stabilize the amplifier during transportation but also assist in the heat dissipation. The new loudspeaker design looks aggressive whilst retaining perfect ergonomics and is the result of extensive combined functional and acoustic research. The Sub Series Subwoofer cabinets are built in polyurea coated birch plywood and are designed to dampen down vibrations even at maximum volume settings. The reflex porting has been resized to offer a better efficiency. The cabinets are equipped with ergonomically designed forged aluminium handles with rubber handgrip. Rugged steel pole mount has been installed in all models.



SUB 905-AS MK3

2200 Watt
15" Woofer
31,3 Kg (69 lbs)



SUB 8003-AS MK3

2200 Watt
18" Woofer
43,2 Kg (95,23 lbs)

3. REAR PANEL FEATURES AND CONTROLS

EN

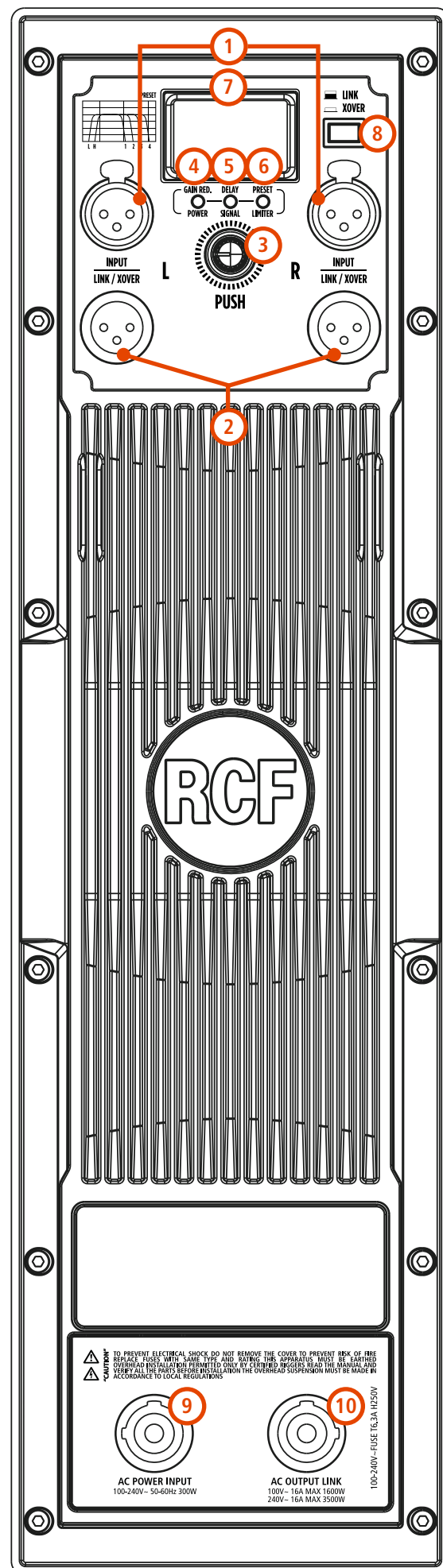
- 1 **FEMALE XLR INPUTS L and R** The system accepts XLR input connectors.
- 2 **MALE XLR SIGNAL OUTPUTS** The output XLR connectors provide a loop through for speakers daisy chaining. The balanced connectors are connected in parallel, and can be used to send the audio signal to other amplified speakers or supplementary amplifiers.
- 3 **SYSTEM SET UP ENCODER**
- 4 **GAIN REDUCTION / POWER LED**
 - **POWER LED** This green LED lights up when the speaker is connected to the main power supply.
 - **GAIN REDUCTION LED** Pushing the encoder once, the gain reduction indicator lights up green. Then, rotating the encoder, the gain level can be set to the right level.
- 5 **DELAY / SIGNAL LED**
 - **DELAY LED** Pushing the encoder twice, the delay indicator lights up green. Then, rotate the encoder to delay the speaker. The delay is expressed in meters.
 - **SIGNAL LED** This indicator lights up green if there is an audio signal on the main.
- 6 **PRESET / LIMITER LED**
 - **PRESET LED** Pushing the encoder three times, the preset indicator lights up green. Then rotate the encoder to load the right preset to the speaker.
 - **LIMITER LED** The amplifier has a built-in limiter circuit to prevent any amplifier clipping or transducers overdrive. When the soft clipping circuit is active, the LED blinks RED. It is okay if the limiter LED blinks occasionally. If the LED lights continuously, turn down the signal level.
- 7 **SYSTEM SET UP DISPLAY** It displays the system setting values.
- 8 **LINK/XOVER SELECTOR** When the selector is set to LINK position, the input signal is sent directly to the output signal. When the selector is set in XOVER position, a crossovered signal will be applied to the outputs to optimize the signal sent to any speaker connected.
- 9 **AC POWER INPUT** Powercon locking 3-pole AC mains.
- 10 **AC OUTPUT LINK** Sends the AC power to another speaker.
Power link: 100-120V~16 A MAX 1600W | 200-240V~16 A MAX 3500W.

 **WARNING! CAUTION! Loudspeaker connections should be only made by qualified and experienced personnel having the technical know-how or enough specific instructions (to ensure that connections are made correctly) in order to prevent any electrical danger.**

To prevent any risk of electric shock, do not connect loudspeakers when the amplifier is switched on.

Before turning the system on, check all connections and make sure there are no accidental short circuits.

The entire sound system shall be designed and installed in compliance with the current local laws and regulations regarding electrical systems.



4. SET-UP

Pushing the rear encoder, it is possible to select the following three functions:

INPUT GAIN REDUCTION

SPEAKER DELAY SETTING

SELECTION OF A SPEAKER PRESET

Pushing once the rear encoder the GAIN REDUCTION LED will light up. Now rotating the encoder counter clockwise, it will be possible to reduce the input gain. The gain reduction will be in steps of 0,1 dB for the first 10 dB and then in 1 dB steps. The maximum reduction is 99 dB.

Pushing a second time the rear encoder the DELAY LED will light up. Now rotating the encoder clockwise it will be possible to delay the signal output of the speaker. The delay is expressed in meter. The delay will be in steps of 0,1 m for the first 10 m and then in 1 m steps. The maximum delay will be 20 meter.

Pushing a third time the rear encoder the PRESET LED will light up. Now rotating the encoder clockwise it will be possible to select a preset:

PRESET		HIGH PASS	LOW PASS
L1	EXT LOW	30 Hz	60 Hz
L2	EXT LOW	30 Hz	80 Hz
L3	EXT LOW	30 Hz	100 Hz
L4	EXT LOW	30 Hz	125 Hz
H1	HARD	40 Hz	60 Hz
H2	HARD	40 Hz	80 Hz
H3	HARD	40 Hz	100 Hz
H4	HARD	40 Hz	125 Hz
C1 - C2 - C3 - C4	CARDIOD FOR L PRESET		

SERIAL NUMBER

MADE IN ITALY

RF S.p.A. VIA RAFFAELLO SANZIO, 13
47124 REGGIO EMILIA - ITALY

CE

UKCA

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: 1. This device may not cause harmful interference. 2. This device must accept any interference received, including interference that may cause undesired operation. This Class A digital apparatus complies with Canadian ICES-003. Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

EXTENDED LOW PRESETS (more extended and linear frequency response):

L1	30 Hz – 60 Hz	L2	30 Hz – 80 Hz
L3	30 Hz – 100 Hz	L4	30 Hz – 125 Hz

HARD PRESETS (less extended frequency response, more pressure at 50-60 Hz):

H1	40 Hz – 60 Hz	H2	40 Hz – 80 Hz
H3	40 Hz – 100 Hz	H4	40 Hz – 125 Hz

CARDIOD PRESETS (in combination with L presets)

C1	30 Hz – 60 Hz	C2	30 Hz – 80 Hz
C3	30 Hz – 100 Hz	C4	30 Hz – 125 Hz

SAVING A SPEAKER PRESET

After the parameter settings the two digits display will flash one time. This represent saving all the preset values in the speaker memory. Once saved, all the speaker settings are permanent. It is possible to turn off and turn on; the speaker will remember the last settings.

CARDIOD SET-UP

It is possible to create subwoofer cardioid systems using groups of two or three modules.

A group of two modules shall be made as follow:

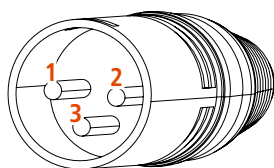
- Only use one of the L presets (30 Hz High Pass filter)
- 1 modules pointing in forward direction
- 1 module pointing in backward direction, correspondent cardioid preset
- The modules shall have the same settings (system delay, sensitivity, preset)

A group of three modules shall be made as follow:

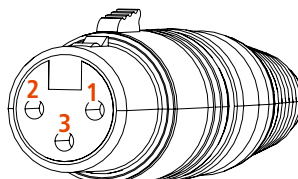
- Only use one of the L presets (30 Hz High Pass filter)
- 2 modules pointing in forward direction
- 1 module pointing in backward direction, correspondent cardioid preset
- The modules shall have the same settings (system delay, preset)
- The 2 front modules shall have -1.5 dB gain less than the rear module.

The connectors must be wired according to the standards specified by the AES (Audio Engineering Society).

MALE XLR CONNECTOR
Balanced wiring



FEMALE XLR CONNECTOR
Balanced wiring



PIN 1 = GROUND (SHIELD)
PIN 2 = HOT (+)
PIN 3 = COLD (-)

BEFORE CONNECTING THE SPEAKER

On the rear panel you will find all the controls, signal and power inputs. At first verify the voltage label applied to the rear panel (115 Volt or 230 Volt). The label indicates the right voltage. If you read a wrong voltage on the label or if you can't find the label at all, please call your vendor or authorized RCF SERVICE CENTRE before connecting the speaker. This fast check will avoid any damage.

In case of need of changing the voltage please call your vendor or authorized RCF SERVICE CENTRE. This operation requires the replacement of the fuse value and is reserved to an RCF SERVICE CENTRE.

BEFORE TURNING ON THE SPEAKER

You can now connect the power supply cable and the signal cable. Before turning on the speaker make sure the volume control is at the minimum level (even on the mixer output). It is important that the mixer is already ON before turning on the speaker. This will avoid damages to the speaker and noisy "bumps" due to turning on parts on the audio chain. It is a good practice to always turn on the speakers at last and turning them off immediately after their use. You can now turn ON the speaker and adjust the volume control to a proper level.

PROTECTIONS

These RCF active speakers are equipped with a complete system of protection circuits. The circuit is acting very gently on audio signal, controlling level and maintaining distortion at acceptable level.

VOLTAGE SETUP (RESERVED TO THE RCF SERVICE CENTRE)

220-240 Volt, 50 Hz SETUP: FUSE VALUE T6,30 A - 250V

110-120 Volt, 60 Hz SETUP: FUSE VALUE T6,30 A - 250V

6. TROUBLESHOOTING

THE SPEAKER DOESN'T TURN ON

Make sure the speaker is switched on and connected to an active AC power

THE SPEAKER IS CONNECTED TO AN ACTIVE AC POWER BUT DOESN'T TURN ON

Make sure the power cable is intact and connected correctly.

THE SPEAKER IS ON BUT DOESN'T MAKE ANY SOUND

Check if the signal source is sending correctly and if the signal cables are not damaged.

THE SOUND IS DISTORTED AND THE OVERLOAD LED BLINKS FREQUENTLY

Turn down the output level of the mixer.

THE SOUND IS VERY LOW AND HISSING

The source gain or the output level of the mixer might be too low.

THE SOUND IS HISSING EVEN AT PROPER GAIN AND VOLUME

The source might send a low quality or noisy signal

HUMMING OR BUZZING NOISE

Check out the AC grounding and all the equipments connected to the mixer input including cables and connectors.



WARNING! to reduce the risk of electric shock, do not disassemble this product unless you are qualified. Refer servicing to qualified service personnel.

1. AVVERTENZE PER LA SICUREZZA E INFORMAZIONI GENERALI

I simboli utilizzati in questo documento notificano importanti istruzioni operative e avvertimenti che devono essere seguiti attentamente.

	CAUTELA	Importante istruzione operativa: notifica un pericolo che potrebbe danneggiare il prodotto, compresa la perdita di dati
	ATTENZIONE	Avvertimento importante riguardante l'uso di voltaggi pericolosi e il potenziale rischio di shock elettrico, lesioni personali o morte.
	NOTE IMPORTANTI	Informazioni utili e rilevanti sull'argomento
	SUPPORTI, TROLLEY E CARRELLI	Informazioni riguardanti l'utilizzo di supporti, trolley e carrelli. Suggerisce di muovere con estrema cautela e di non inclinare il carico.
	SMALTIMENTO	Questo simbolo indica che il prodotto non deve essere smaltito con i rifiuti ordinari, così come indicato nella direttiva WEEE (2012/19/EU) e nelle normative nazionali in vigore.

NOTE IMPORTANTI

Questo manuale contiene informazioni importanti sull'uso corretto e sicuro del dispositivo. Prima di collegare e utilizzare questo prodotto, leggere attentamente questo manuale di istruzioni e tenerlo a portata di mano per riferimenti futuri. Il manuale deve essere considerato parte integrante di questo prodotto e deve accompagnarlo in caso di cambio proprietà come riferimento per la corretta installazione e utilizzo nonché per le precauzioni di sicurezza. RCF S.p.A. non si assume alcuna responsabilità per l'installazione e / o l'uso errati di questo prodotto.

PRECAUZIONI DI SICUREZZA

1. Tutte le precauzioni, in particolare quelle di sicurezza, devono essere lette con particolare attenzione, in quanto forniscono informazioni importanti.

2. Alimentazione principale da rete elettrica

- La tensione di rete è sufficientemente elevata da comportare un rischio di folgorazione; installare e collegare questo prodotto prima di collegarlo.
- Prima di accendere, assicurarsi che tutti i collegamenti siano stati eseguiti correttamente e che la tensione della rete corrisponda alla tensione indicata sulla targhetta dei dati sull'unità, in caso contrario, contattare il rivenditore RCF.
- Le parti metalliche dell'unità sono messe a terra attraverso il cavo di alimentazione. Un apparecchio con costruzione di CLASSE I deve essere collegato a una presa di corrente con un collegamento di terra di protezione.
- Proteggere il cavo di alimentazione da danni; assicurarsi che sia posizionato in modo tale da non poter essere calpestato o schiacciato da oggetti.
- Per evitare il rischio di scosse elettriche, non aprire mai questo prodotto: non sono previste parti interne alle quali l'utente debba accedere.
- Fare attenzione: nel caso di un prodotto provvisto solo di connettori POWERCON e senza cavo di alimentazione, congiuntamente ai connettori POWERCON tipo NAC3FCA (alimentazione) e NAC3FCB (alimentazione), devono essere usati i seguenti cavi di alimentazione conformi alla norma nazionale:
 - EU: cavo di tipo H05VV-F 3G 3x2.5 mm² - Standard IEC 60227-1
 - JP: cavo di tipo VCTF 3x2 mm²; 15Amp/120V~ - Standard JIS C3306
 - US: cavo di tipo SJT/SJO 3x14 AWG; 15Amp/125V~ - Standard ANSI/UL 62

3. Assicurarsi che nessun oggetto o liquido penetri in questo prodotto poiché ciò potrebbe causare un corto circuito. Questo apparecchio non deve essere esposto a gocciolamenti o spruzzi. Nessun oggetto riempito di liquido, come vasi, deve essere posizionato su questo apparecchio. Nessuna fiamma libera (come candele accese) deve essere posizionata su questo apparecchio.

4. Non tentare mai di eseguire operazioni, modifiche o riparazioni non espressamente descritte nel presente manuale. Contattare il centro di assistenza autorizzato o personale qualificato qualora si verifichi una delle seguenti condizioni:

- Il prodotto non funziona (o funziona in modo anormale).
- Il cavo di alimentazione è stato danneggiato.
- Oggetti o liquidi sono entrati nell'unità.
- Il prodotto ha subito un forte urto.

5. Se questo prodotto non viene utilizzato per un lungo periodo, scollegare il cavo di alimentazione.

6. Se questo prodotto inizia a emettere strani odori o fumo, spegnerlo immediatamente e scollegare il cavo di alimentazione.

7. Non collegare questo prodotto ad apparecchiature o accessori non previsti.

Per l'installazione sospesa, utilizzare solo i punti di ancoraggio dedicati e non tentare di appendere questo prodotto utilizzando elementi non idonei o non specifici per questo scopo. Verificare inoltre l'idoneità della superficie di supporto a cui è ancorato il prodotto (parete, soffitto, struttura, ecc.) a dei componenti utilizzati per il fissaggio (tasselli, viti, staffe non fornite da RCF ecc.) che devono garantire sicurezza del sistema / installazione nel tempo, anche considerando, ad esempio, le vibrazioni meccaniche normalmente generate dai trasduttori.

Per evitare il rischio di caduta dell'apparecchiatura, non impilare più unità di questo prodotto a meno che questa possibilità non sia specificata nel manuale dell'utente.

8. RCF S.p.A. raccomanda vivamente che questo prodotto sia installato solo da installatori professionisti qualificati (o aziende specializzate) che possono garantire la corretta installazione e certificarlo secondo le normative vigenti.

L'intero sistema audio deve essere conforme agli standard e alle normative vigenti in materia di sistemi elettrici.

9. Supporti, trolley e carrelli.



L'apparecchiatura deve essere utilizzata, ove necessario, solo su supporti, trolley e carrelli consigliati dal produttore. L'apparecchiatura / supporto / carrello deve essere spostata con estrema cautela. Arresti improvvisi, eccessiva spinta e pavimenti irregolari possono causarne il ribaltamento. Non inclinare mai.

10. Vi sono numerosi fattori meccanici ed elettrici da considerare quando si installa un sistema audio professionale (oltre a quelli strettamente acustici, come la pressione del suono, gli angoli di copertura, la risposta in frequenza, ecc.).

11. Perdita dell'udito.

L'esposizione a livelli sonori elevati può causare la perdita permanente dell'udito. Il livello di pressione acustica che porta alla perdita dell'udito è diverso da persona a persona e dipende dalla durata dell'esposizione. Per prevenire un'esposizione potenzialmente pericolosa a livelli elevati di pressione acustica, chiunque sia esposto a questi livelli dovrebbe usare adeguati dispositivi di protezione. Quando viene utilizzato un trasduttore in grado di produrre alti livelli sonori, è quindi necessario indossare tappi per le orecchie o cuffie protettive. Vedere le specifiche tecniche del manuale per conoscere il livello massimo di pressione sonora.

PRECAUZIONI OPERATIVE

- Posizionare questo prodotto lontano da qualsiasi fonte di calore e garantire sempre un'adeguata circolazione dell'aria attorno ad esso.
- Non sovraccaricare questo prodotto per molto tempo.
- Non forzare mai gli elementi di controllo (tasti, manopole, ecc.).
- Non utilizzare solventi, alcool, benzene o altre sostanze volatili per pulire le parti esterne di questo prodotto.



NOTE IMPORTANTI

Per evitare il verificarsi di disturbi sui cavi di segnale in linea, utilizzare solo cavi schermati ed evitare di avvicinarli a:

- Apparecchiature che producono campi elettromagnetici ad alta intensità
- Cavi di alimentazione
- Linee di altoparlanti



ATTENZIONE! CAUTELA! Per evitare il rischio di incendi o scosse elettriche, non esporre mai questo prodotto a pioggia o umidità.



ATTENZIONE! Per evitare il rischio di scosse elettriche, non collegare all'alimentazione di rete mentre la griglia è rimossa.



WARNING! Per ridurre il rischio di scosse elettriche, non smontare questo prodotto se non si è qualificati. Per l'assistenza rivolgersi a personale di assistenza qualificato

SMALTIMENTO CORRETTO DI QUESTO PRODOTTO



Questo prodotto deve essere consegnato a un sito di raccolta autorizzato per il riciclaggio di apparecchiature elettriche ed elettroniche (AEE). Una manipolazione impropria di questo tipo di rifiuti potrebbe avere un possibile impatto negativo sull'ambiente e sulla salute umana a causa di sostanze potenzialmente pericolose che sono generalmente associati alle AEE. Allo stesso tempo, la vostra collaborazione per il corretto smaltimento di questo prodotto contribuirà all'utilizzo efficace delle risorse naturali. Per ulteriori informazioni su dove sia possibile scaricare le attrezzature per il riciclaggio, si prega di contattare l'ufficio comunale locale, l'autorità competente per i rifiuti o il servizio di smaltimento dei rifiuti domestici.

CURA E MANUTENZIONE

Per garantire un servizio di lunga durata, questo prodotto deve essere utilizzato seguendo questi consigli:

- Se il prodotto deve essere installato all'aperto, assicurarsi che sia coperto e protetto da pioggia e umidità.
- Se il prodotto deve essere utilizzato in un ambiente freddo, riscaldare lentamente le bobine vocali inviando un segnale di basso livello per circa 15 minuti prima di inviare segnali ad alta potenza.
- Utilizzare sempre un panno asciutto per pulire le superfici esterne dell'altoparlante e farlo sempre quando l'alimentazione è spenta



CAUTELA! Per evitare di danneggiare le finiture esterne non utilizzare solventi per la pulizia o abrasivi.



ATTENZIONE! CAUTELA! Per gli altoparlanti alimentati, eseguire la pulizia solo quando l'alimentazione è spenta.

RCF S.p.A. si riserva il diritto di apportare modifiche senza preavviso per rettificare eventuali errori e/o omissioni.

Fare sempre riferimento all'ultima versione del manuale su www.rcf.it.

SUB 8003-AS MK3 | SUB 905-AS MK3 | SUBWOOFER ATTIVI PROFESSIONALI

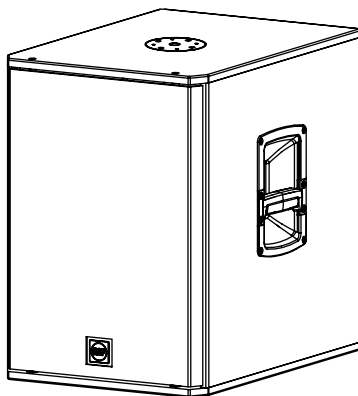
I SUB 8003-AS MK3 e SUB 905-AS MK3 sono subwoofer attivi ad alta potenza e ad alto rendimento che stabiliscono un nuovo standard nell'amplificazione audio professionale. Ogni trasduttore è stato specificamente progettato per l'applicazione. Il woofer, molto leggero, offre un'escursione molto ampia.

RCF ha sempre i desideri dei propri clienti come primo obiettivo di ogni progetto, creando nuove linee di casse acustiche con caratteristiche rinnovate, sempre migliori definizione e chiarezza del suono. Tutto con pesi sempre più contenuti. Ogni dettaglio della SUB Series è stato attentamente studiato per offrire a musicisti e professionisti strumenti perfetti per amplificare le proprie performances, serata dopo serata. Materiali di alta qualità, lavorazioni di precisione, cura nell'assemblaggio e controlli di qualità estesi completano l'incredibile lavoro del team RCF.

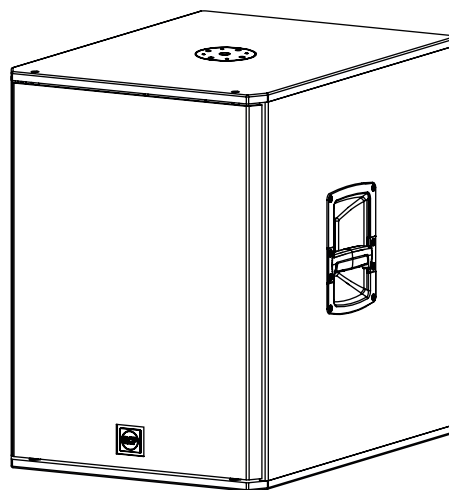
Risultati di eccellenza sono ottenuti grazie all'esperienza, il know how distribuito e standard produttivi estremamente elevati. Tutti I trasduttori della SUB Series sono dotati di magneti ad alta energia per una perfetta performance e per offrire il massimo dell'affidabilità. Il risultato sono una pressione acustica elevatissima, distorsioni bassissime ed un suono incredibilmente naturale.

L'amplificatore è dotato di una robusta struttura di alluminio che non solo lo rende solido durante il trasporto e gli urti ma assiste la dissipazione termica.

Il nuovo design della Sub Series risulta aggressivo pur mantenendo caratteristiche ergonomiche familiari ed è il risultato di estese ricerche sia acustiche che funzionali. I mobili sono costruiti in multistrato di betulla verniciato in poliurea e sono progettati in modo da smorzare le vibrazioni della struttura anche ai massimi volumi. I condotti reflex sono stati riprogettati per offrire una maggior efficienza. Il cabinet è dotato di maniglie forgiate in alluminio, dal design ergonomico, tutte con inserto in gomma. Su tutti i modelli sono presenti inserti a tazza in acciaio per l'installazione del diffusore satellite.

**SUB 905-AS MK3**

2200 Watt
15" Woofer
31,3 Kg (69 lbs)

**SUB 8003-AS MK3**

2200 Watt
18" Woofer
43,2 Kg (95,23 lbs)

3. PANNELLO POSTERIORE - FUNZIONI E CONTROLLI

- ❶ **INGRESSI XLR FEMMINA L e R** Questi ingressi bilanciati accettano connettori di ingresso XLR.
- ❷ **USCITE SEGNALE XLR MASCHIO** Questi connettori XLR di rilancio permettono la connessione a catena di più diffusori. I connettori bilanciati sono collegati in parallelo e possono essere utilizzati per inviare il segnale audio ad altri diffusori amplificati o amplificatori supplementari.
- ❸ **ENCODER DEL SISTEMA**
- ❹ **LED GAIN REDUCTION / POWER**
 - **LED POWER** Questo LED verde si accende quando il diffusore è connesso alla rete elettrica.
 - **LED GAIN REDUCTION** Premendo una volta l'encoder, il LED gain reduction si illumina di verde. Quindi ruotare l'encoder per portare il guadagno al livello giusto.
- ❺ **LED DELAY / SIGNAL**
 - **LED DELAY** Premendo l'encoder due volte, l'indicatore si illumina di verde. Quindi ruotare l'encoder per settare un ritardo sul diffusore. Il ritardo è espresso in metri.
 - **LED SIGNAL** Il LED signal si illumina di verde se è presente un segnale audio in ingresso.
- ❻ **LED PRESET / LIMITER**
 - **LED PRESET** Premendo l'encoder tre volte il LED si illumina di verde. Quindi ruotare l'encoder per caricare il preset desiderato.
 - **LED LIMITER** L'amplificatore è provvisto di un circuito limitatore integrato per prevenire il clipping degli amplificatori o il sovraccarico dei trasduttori. Quando il circuito di soft clipping è attivo il LED lampeggia in ROSSO. E' accettabile che il LED limiter lampeggi di tanto in tanto. Se il LED si accende continuamente, abbassare il livello del segnale.
- ❼ **DISPLAY DI SISTEMA.** Illustra i valori di settaggio del diffusore.
- ❽ **SELETTORE LINK/XOVER.** Quando il selettore è in posizione LINK, sulle uscite si presenterà lo stesso segnale presente in ingresso. Quando il selettore è in posizione XOVER sul segnale presente in uscita verrà applicato un filtro di crossover per ottimizzare il segnale destinato a eventuali diffusori connessi.
- ❾ **PRESA INPUT POWERCON** Connettore di alimentazione Powercon per cavo di rete.
- ❿ **PRESA OUTPUT POWERCON** Connettore di uscita di alimentazione Powercon.
Power link: 100-120V~16 A MAX 1600W | 200-240V~16 A MAX 3500W.

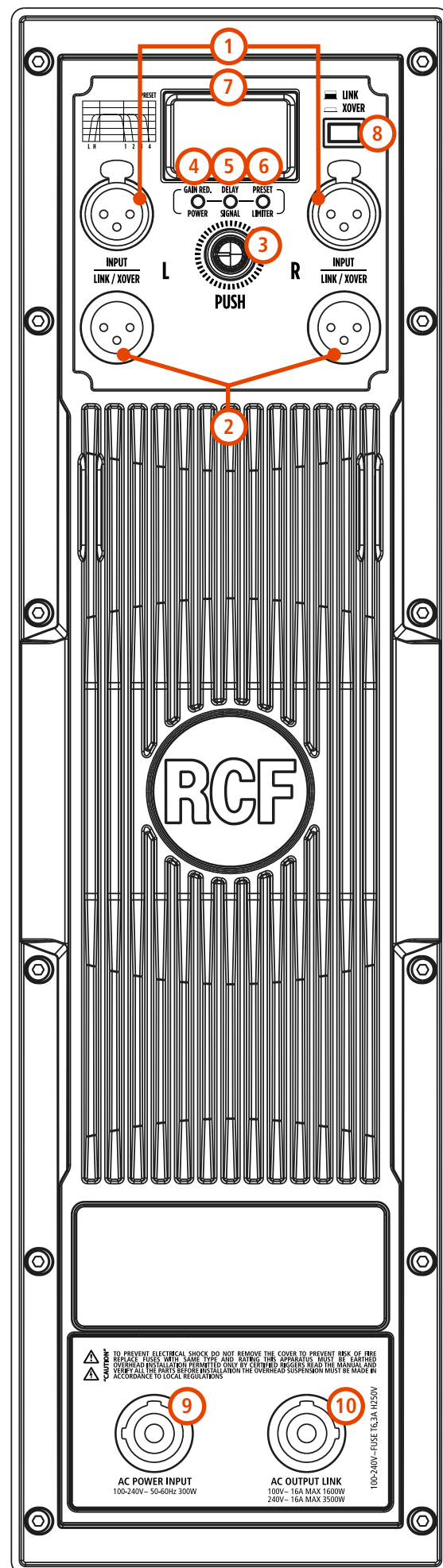


ATTENZIONE! CAUTELA! I collegamenti dei diffusori devono essere effettuati solo da personale qualificato ed esperto in possesso del know-how tecnico o di istruzioni specifiche sufficienti (per garantire che i collegamenti siano effettuati correttamente) al fine di prevenire qualsiasi pericolo elettrico.

Per evitare qualsiasi rischio di scossa elettrica, non collegare altoparlanti quando l'amplificatore è acceso.

Prima di accendere il sistema, controllare tutti i collegamenti e assicurarsi che non vi siano cortocircuiti accidentali.

L'intero sistema di diffusione sonora deve essere progettato e installato in conformità con le leggi e le normative locali vigenti in materia di impianti elettrici.



4. SET-UP

Premendo l'encoder posteriore è possibile selezionare le seguenti funzioni:

RIDUZIONE DEL GUADAGNO DI INGRESSO IMPOSTAZIONE DEL RITARDO DEL DIFFUSORE SELEZIONE DI UN PRESET DEL DIFFUSORE

Premendo una volta l'encoder posteriore il LED di riduzione del guadagno si illumina. Ora, ruotando l'encoder in senso antiorario è possibile ridurre il guadagno in ingresso. La riduzione del guadagno avviene in passi da 0,1 dB per i primi 10 decibel ed in passi da 1 dB per i successivi. La riduzione massima del guadagno in ingresso è di 99 dB.

Premendo una seconda volta l'encoder posteriore si illumina il LED dell'impostazione del ritardo temporale del diffusore. Ora, ruotando l'encoder in senso orario è possibile ritardare l'uscita audio del diffusore. Il ritardo è espresso in metri. Il ritardo è in passi da 0,1 metri per i primi 10 metri e in passi da un metro per i successivi. Il massimo ritardo è di 20 metri.

Premendo una terza volta l'encoder posteriore si illumina il LED di preset. Ora ruotando l'encoder è possibile selezionare un preset.

Sono disponibili dodici preset divisi in tre gruppi:

PRESET		HIGH PASS	LOW PASS
L1	EXT LOW	30 Hz	60 Hz
L2	EXT LOW	30 Hz	80 Hz
L3	EXT LOW	30 Hz	100 Hz
L4	EXT LOW	30 Hz	125 Hz
H1	HARD	40 Hz	60 Hz
H2	HARD	40 Hz	80 Hz
H3	HARD	40 Hz	100 Hz
H4	HARD	40 Hz	125 Hz
C1 - C2 - C3 - C4	CARDIOD FOR L PRESET		

SERIAL NUMBER

MADE IN ITALY

CE UK CA

RCF S.p.A. VIA RAFFAELLO SANZIO, 13
47124 REGGIO EMILIA - ITALY



This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: 1. This device may not cause harmful interference. 2. This device must accept any interference received, including interference that may cause undesired operation. This Class A digital apparatus complies with Canadian ICES-003. Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

PRESET EXTENDED LOW (curva di risposta più lineare e più estesa in basso):

L1	30 Hz – 60 Hz	L2	30 Hz – 80 Hz
L3	30 Hz – 100 Hz	L4	30 Hz – 125 Hz

PRESET HARD (curva di risposta meno estesa con maggior pressione a 50-60 Hz):

H1	40 Hz – 60 Hz	H2	40 Hz – 80 Hz
H3	40 Hz – 100 Hz	H4	40 Hz – 125 Hz

PRESET CARDIOM (in combinazione con preset L)

C1	30 Hz – 60 Hz	C2	30 Hz – 80 Hz
C3	30 Hz – 100 Hz	C4	30 Hz – 125 Hz

SALVATAGGIO DI UN PRESET

Dopo l'impostazione dei parametri il display lampeggerà una volta. Ciò rappresenta il salvataggio di tutti i valori preimpostati nella memoria del diffusore. Una volta salvate, tutte le impostazioni dei diffusori sono permanenti. È possibile spegnere e accendere; il diffusore ricorderà le ultime impostazioni.

SET-UP CARDIOIDE

È possibile creare sistemi cardioide utilizzando gruppi di due o tre subwoofers.

Un gruppo costituito di due moduli è come segue:

- 1 modulo rivolto nella direzione di propagazione del suono, set up L1 – L4
- 1 modulo rivolto nella direzione opposta alla propagazione, set-up C1 – C4
- I due moduli devono avere il preset corrispondente
- I due moduli devono avere identici gli altri settaggi (delay, sensitivity).

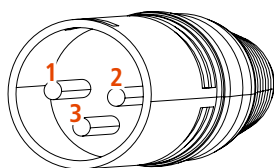
Un gruppo è costituito di tre moduli disposti come segue:

- 2 moduli rivolti nella direzione di propagazione, set-up L1 – L4
- 1 modulo rivolto nella direzione opposta alla propagazione, set –up C1 – C4
- tutti i moduli devono avere set-up corrispondenti (ad esempio L1 – C1)
- tutti i 3 moduli devono avere le medesime impostazioni generali di ritardo
- i due moduli con set-up L devono avere sensibilità -1,5 dB rispetto al modulo cardioide.

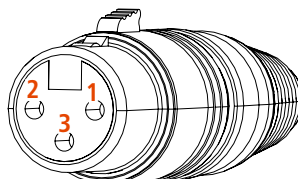
5. CONNESSIONI

I connettori di ingresso XLR devono essere cablati secondo lo standard AES (Audio Engineering Society):

CONNETTORE MASCHIO XLR Connessione bilanciata



CONNETTORE FEMMINA XLR Connessione bilanciata



PIN 1 = TERRA (GROUND; SHIELD)
PIN 2 = LATO CALDO (HOT; +)
PIN 3 = LATO FREDDO (COLD; -)

PRIMA DI CONNETTERE IL DIFFUSORE

Sul pannello posteriore si trovano tutti i controlli e gli ingressi di segnale e di alimentazione. Per sicurezza verificare sempre l'etichetta di tensione applicata al pannello posteriore (115 Volt o 230 Volt). L'etichetta indica la giusta tensione. Se è indicato un voltaggio errato o se non è possibile localizzare l'etichetta, chiamare il proprio rivenditore o il CENTRO DI ASSISTENZA RCF autorizzato prima di collegare il diffusore. Questo rapido controllo eviterà qualsiasi danno.

PRIMA DI ACCENDERE IL DIFFUSORE

A questo punto è possibile inserire il connettore di alimentazione e il connettore di segnale. Prima di accendere il diffusore assicurarsi che il controllo del volume sia al minimo sia sul diffusore che sulla sorgente sonora collegata al diffusore (generalmente un mixer); è importante anche che il mixer sia già acceso al momento in cui viene acceso il diffusore a lui collegato. Queste due precauzioni eviteranno di causare danni al diffusore stesso dovute a fastidiosi "bump" causati dall'accensione delle apparecchiature audio a monte dei diffusori. È buona regola che i diffusori amplificati e gli amplificatori in genere siano sempre le ultime apparecchiature ad essere accese dopo il montaggio e le prime ad essere spente alla fine dello spettacolo. Ora è possibile accendere il diffusore e alzare il controllo di livello a seconda delle necessità.

PROTEZIONI

Questi diffusori RCF sono dotati di un sistema completo di circuiti di protezione. Il circuito agisce molto delicatamente sul segnale audio, controllando il livello e mantenendo la distorsione a un livello accettabile.

SELEZIONE DELLA TENSIONE DI ALIMENTAZIONE (RISERVATO AI CENTRI SERVIZIO RCF)

220-240 Volt, 50 Hz SETUP: FUSE VALUE T6,30 A - 250V

110-120 Volt, 60 Hz SETUP: FUSE VALUE T6,30 A - 250V

6. RISOLUZIONE DEI PROBLEMI

IL DIFFUSORE NON SI ACCENDE

Assicurarsi che il diffusore sia acceso e collegato a un'alimentazione attiva.

IL DIFFUSORE È COLLEGATO A UN'ALIMENTAZIONE ATTIVA MA NON SI ACCENDE

Verificare che il cavo di alimentazione sia integro e collegato correttamente.

IL DIFFUSORE È ACCESO MA NON EMETTE ALCUN SUONO

Verificare che la sorgente stia inviando il segnale correttamente e che i cavi di segnale non siano danneggiati.

IL SUONO È DISTORTO E IL LED SOVRACCARICO LAMPEGGIA FREQUENTEMENTE

Abbassare il livello di uscita del mixer.

IL SUONO È MOLTO BASSO E CON PRESENZA DI FRUSCIO

Il guadagno della sorgente o il livello di uscita del mixer potrebbero essere troppo bassi.

SI SENTE UN FRUSCIO ANCHE CON VOLUME E GUADAGNO CORRETTI

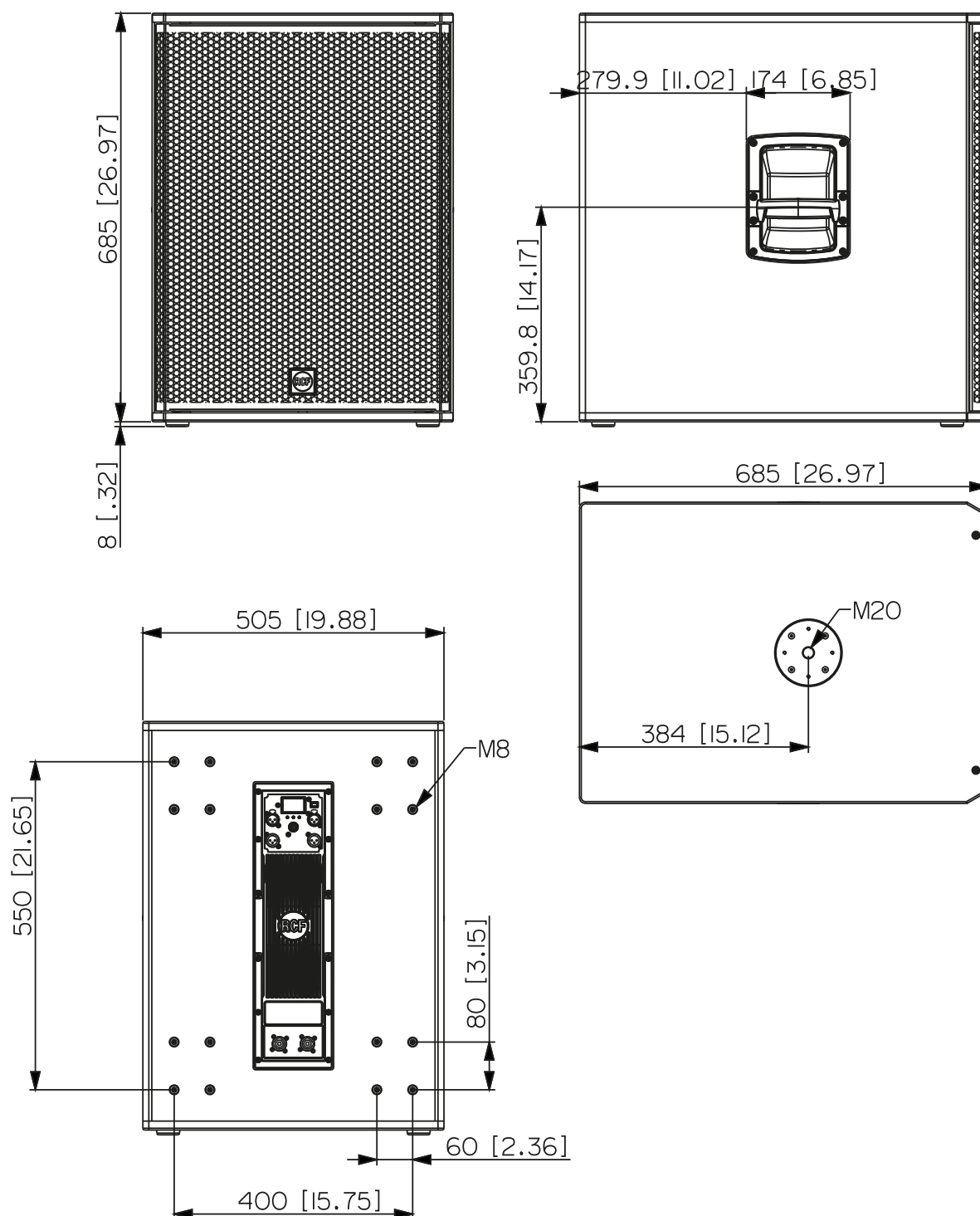
La sorgente potrebbe inviare un segnale di bassa qualità o rumoroso

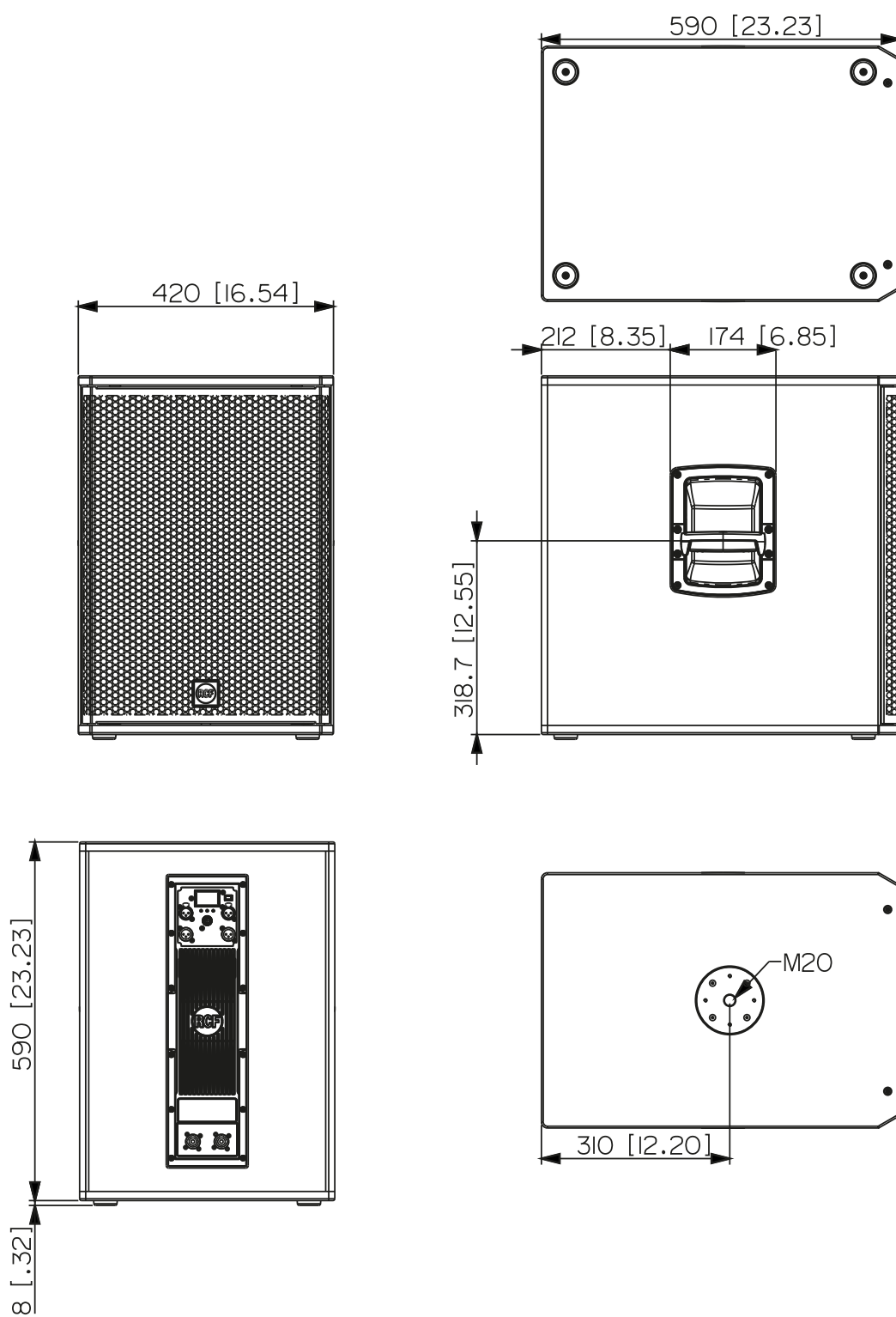
IL DIFFUSORE EMETTE UN RONZIO CONTINUO

Controllare la messa a terra sia del diffusore che di tutte le apparecchiature collegate all'ingresso del mixer.
Controllare cavi e connettori.



ATTENZIONE! Per ridurre il rischio di scosse elettriche, non smontare questo prodotto a meno che non si sia qualificati.
Per l'assistenza, rivolgersi a personale di assistenza qualificato.





SPECIFICATIONS

TECHNICAL SPECIFICATIONS		SUB 8003-AS MK3	SUB 905-AS MK3
Acoustical specifications	Frequency Response:	35 Hz ÷ 120 Hz	40 Hz ÷ 120 Hz
	Max SPL @ 1m:	135 dB	133 dB
Transducers	Woofer:	18", 4.0" v.c	15", 3.0" v.c
Input/Output section	Input signal:	bal/unbal	bal/unbal
	Input connectors:	XLR	XRL Stereo
	Output connectors:	XLR	XRL Stereo
	Input sensitivity:	-2 dBu/+4 dBu	-2 dBu/+4 dBu
Processor section	Crossover Frequencies:	Selectable	Selectable
	Protections:	Thermal, RMS	Thermal, RMS
	Limiter:	Soft Limiter	Soft Limiter
	Controls:	Gain, EQ, Phase, Xover, Delay, Cardioid	Gain, EQ, Phase, Xover, Delay, Cardioid
Power section	Total Power:	2200 W Peak	2200 W Peak, 1100 W RMS
	Cooling:	Convection	Convection
	Connections:	Powercon IN/OUT	Powercon IN/OUT
Standard compliance	Safety agency:	CE compliant	CE compliant
Physical specifications	Cabinet/Case Material:	Plywood	Plywood
	Handles:	One handle each side	One handle each side
	Grille:	Steel with clothing	Steel with clothing
	Color:	Black	Black
Size	Height:	693 mm / 27.28 inches	590 mm / 23.23 inches
	Width:	505 mm / 19.88 inches	420 mm / 16.54 inches
	Depth:	685 mm / 26.97 inches	590 mm / 23.23 inches
	Weight:	37.6 kg / 82.89 lbs	31.3 kg / 69 lbs



