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# **STM Series**

***STM S118 Sub Module***

***STM B112 Bass Module***

***STM M46 Main Module***

***STM M28 Omni Module***

 ***Setup Manual***

**PLEASE READ CAREFULLY BEFORE PROCEEDING****BASIC PRECAUTIONS**

**Do not open** the speaker system or attempt to disassemble the internal parts or modify them in any way. The speaker system contains no user-serviceable parts. If it should appear to be malfunctioning or damaged, discontinue use immediately and have it inspected by qualified NEXO service personnel.

**Water exposure:** Do not expose the speaker system to direct rain; do not use it near water or in wet conditions. Do not place containers with liquid on speaker system as they might spill into openings. If any liquid such as water seeps into the speaker system, have it inspected by qualified NEXO personnel.

**SYSTEM DEPLOYMENT SAFETY RULES**

**Read User Manual before deployment.** Before use of enclosed speaker system, please ensure that anyone involved in system deployment understands the rigging – stacking – pole mounting safety rules as described in the speaker system User Manual. Failure to do this exposes people to potential injury or death.

Always consult qualified NEXO personnel if the device installation requires construction work and make sure to observe the following precautions:

**Mounting precautions**

- choose mounting hardware and an installation location that can support the weight of the speaker system;
- do not use speaker system handles for suspended installation;
- do not expose speaker system to excessive dust or vibration, or extreme cold or heat to prevent possibility of component damage;
- do not place the speaker system in an unstable position from which it might fall accidentally;
- if speaker systems uses a stand, ensure that stand specifications are adapted, and that stand height does not exceed 1.40m/55"; never move the stand while the speaker is in position.

**Connection and powering precautions**

- remove all connected cables before moving the speaker system;
- turn off AC power of all power amplifier units before connecting the speaker system;
- when turning on the AC power to the audio system, always turn on the power amplifier last; when turning the AC power off, always turn off the power amplifier first;
- when used in cold conditions, a gradual power ramp up should applied to the system on an 5 mn period to allow the loudspeaker components to stabilize during the very first minutes of usage.

**Inspect the speaker system periodically.**





## SAFETY INSTRUCTIONS FOR NEXO TD CONTROLLERS



NXAMP4x1 AND NXAMP4x4 POWERED CONTROLLERS ARE CLASS 1 APPARATUS AND MUST BE EARTHED.

THE GREEN AND YELLOW WIRE OF THE MAINS CORD MUST ALWAYS BE CONNECTED TO AN INSTALLATION SAFETY EARTH OR GROUND. THE EARTH IS ESSENTIAL FOR PERSONAL SAFETY AS WELL AS THE CORRECT OPERATION OF THE SYSTEM, AND IS INTERNALLY CONNECTED TO ALL EXPOSED METAL SURFACES.

- Read these instructions.
- Keep these instructions.
- Heed all warnings.
- Follow all instructions.
- Do not use this apparatus near water.
- Clean only with dry cloth.
- Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade and the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet. (US market)
- Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- Only use attachments/accessories specified by the manufacturer.
- Unplug this apparatus during lightning storms or when unused for long periods of time.
- Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

	 <div style="display: inline-block; border: 1px solid black; padding: 2px; text-align: center;"> <b>CAUTION</b>  <small>RISK OF ELECTRIC SHOCK DO NOT OPEN</small> </div> 	
<p>The lightning flash with arrowhead symbol, within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.</p>	<p><b>WARNING: To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.</b></p> <p><b>To avoid electrical shock, do not remove covers. Dangerous voltages exist inside. Refer all servicing to qualified personnel only.</b></p>	<p>The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.</p>

**HIGH SOUND PRESSURE LEVELS**



**Exposure to extremely high noise levels may cause permanent hearing loss.** Individuals vary considerably in susceptibility to noise-induced hearing loss but nearly everyone will lose some hearing if exposed to sufficiently intense noise for a sufficient period of time. The U.S. Government’s Occupational and Health Administration (OSHA) has specified the following permissible noise level exposures: Sound Duration Per

Day In Hours	Sound Level dBA, Slow Response
8	90
6	92
4	95
3	97
2	100
1 ½	102
1	105
½	110
¼ or less	115

According to OSHA, any exposure in excess of the above permissible limits could result in some hearing loss. Ear plugs or protectors to the ear canals or over the ears must be worn when operating this amplification system in order to prevent permanent hearing loss, if exposure is in excess of the limits as set forth above. To ensure against potentially dangerous exposure to high sound pressure levels, it is recommended that all persons exposed to equipment capable of producing high sound pressure levels such as this amplification system be protected by hearing protectors while this unit is in operation.

**DISPOSAL OF OLD ELECTRICAL & ELECTRONIC EQUIPMENT**



This symbol on the product or on its packaging indicates that it shall not be treated as household waste. Instead it shall be handed over to the applicable collection point for the recycling of electrical and electronic equipment. By ensuring this product is disposed of correctly, you will help prevent potential negative consequence for the environment and human health, which could otherwise be caused by inappropriate waste handling of this product. The recycling of materials will help to conserve natural resources. For more detailed information about recycling of this product, please contact your local city office, your household waste disposal service or the shop where you purchased the product.



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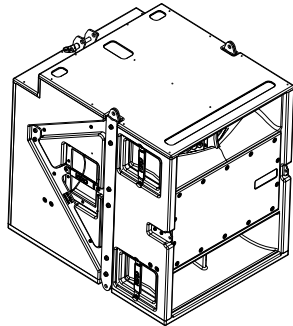
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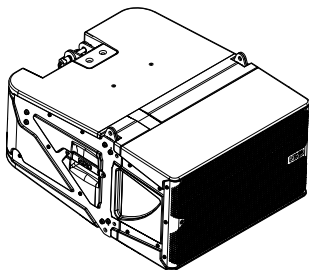
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## 1 INTRODUCTION

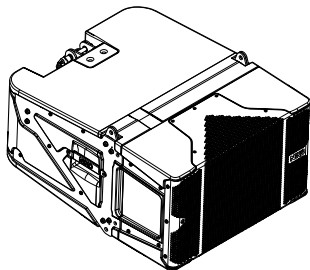
Thank you for selecting a NEXO STM Series Modular Line Array System. This manual is intended to provide you with necessary and useful information about your STM System, which includes the following products:



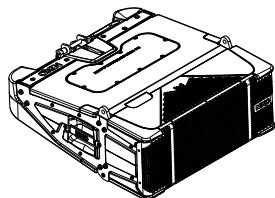
- S118 is STM Sub Module. It comprises a band-pass loaded 1x18" (46cm) 4" voice coil Neodymium high- excursion driver. An innovative profile for vent increases limits of air-flow non-linearity, and allows S118 to deliver very high SPL output under a compact volume.



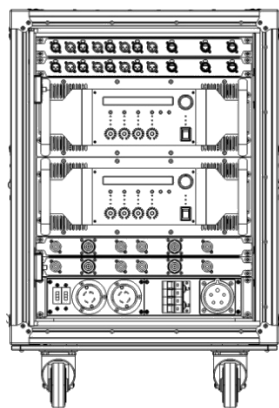
- B112 is STM Bass Module. It comprises a 1x12" (46cm) 4" voice coil Neodymium high-excursion driver. B112 load is a hybrid combination of exponential horn and vented enclosure, which provides high efficiency while keeping low frequency impact.



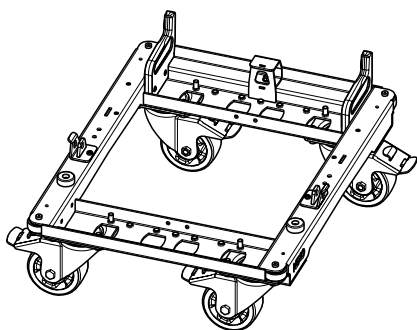
- M46 is STM Main Module. It comprises 4x6.5" flat membrane drivers minimizing diffraction along the HF path, loaded by anti-resonance vents. HF is handled by 4x2.5" coil / 1.4" exit neodymium drivers featuring Keton Polymere diaphragms; these 4 units are HRW™ NEXO proprietary waveguide loaded.



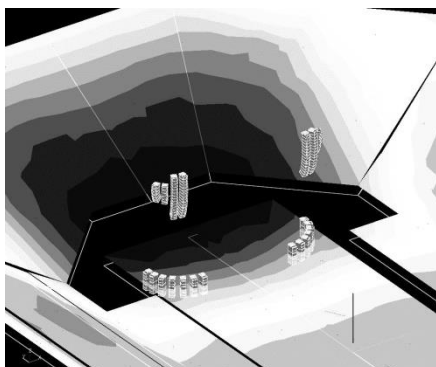
- M28 is STM Omni module. It can complement M46 as a downfill, or be flown or stacked in columns. It comprises 2x8" long excursion neodymium LF/MF drivers, loaded by anti-resonance vents, as well as 2x2.5" coil / 1.4" exit neodymium drivers featuring Keton Polymere diaphragms; these 2 units are HRW™ NEXO proprietary waveguide loaded. M28 can be configured in 90° or 120° horizontal coverage.



- The NEXO Universal Amp Rack feeds 12 STM modules in any combination in groups of 3. Comprising two NXAMP4x4 amplifiers, 2 digital input patches (DMU), 2 digital output patches (DPU) and EtherSound™, Dante™ or AES cards, the NUAR forms a compact, powerful and scalable amplification solution for STM systems of any size.



- STM Accessory Range. a full range of accessories that provides safe, flexible and simple means of transporting, protecting, installing STM modules in touring applications.



- NS-1 simulation software assists in the design and implementation of STM modules. Please consult the NEXO web site ([www.NEXO.fr](http://www.NEXO.fr) or [www.NEXO-sa.com](http://www.NEXO-sa.com)) for the latest software releases.



- NeMo Remote Monitoring: available for iPad and Mac, NEXO's NeMo Remote Monitoring app provides remote control over a NXAMP network from anywhere in the venue.

**Please devote your time and attention to reading this manual.**

**A comprehensive understanding of STM technologies, applications and specific features will help you to operate your system at its full potential.**

## 2 STM CONNECTORS AND CABLING

### 2.1 Speaker modules connection

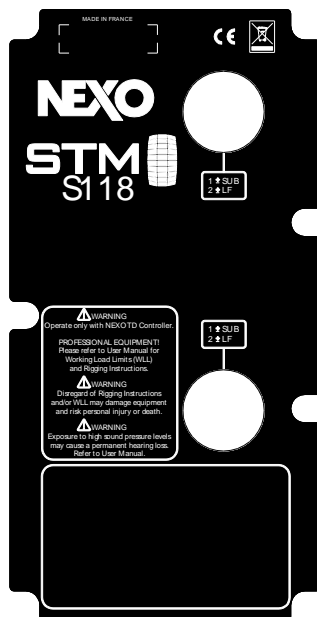
Connection system has been designed so that it is simple and mistake proof. STM modules connector panels feature robust chassis metal connectors Speakon NL4 and/or NL8.

A wiring diagram is printed on the connection panel located on the back of each cabinet.

Table below gives STM general wiring assignment.

Module – Channel	NL4 / NL8 wiring
S118 - VLF	1-/1+
B112 - LF	2-/2+
M46 - MF	3-/3+
M46 - HF	4-/4+
M28 – LF/MF	1-/1+ (NL4 only)
M28 - HF	2-/2+ (NL4 only)

### STM S118 connector panel

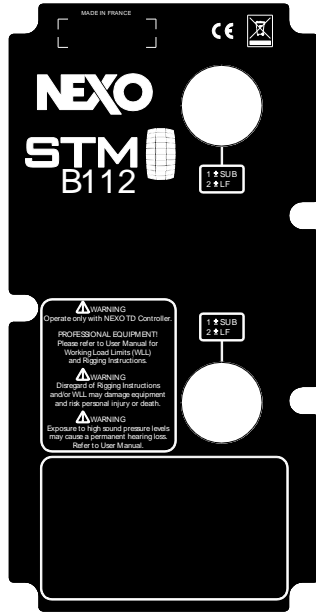


Speakon	Connecting
1(-)	S118 (-)
1(+)	S118 (+)
2(-)	To B112 (-)
2(+)	To B112 (+)

STM S118 is connected with Speakon NL4FC plugs (not supplied). The 4 pins of the 2 Speakon sockets identified in / out are connected in parallel within the enclosure.

Either connector can be used to connect amplifier or to link to an additional S118 Sub Module or to a B112 Bass Module. Therefore, a single 4-conductor cable can connect two amplifier channels up to 3xS118s and 3xB112s.

**STM B112 connector panel**

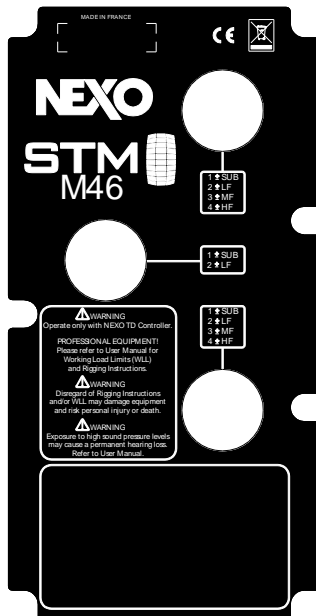


Speakon	Connecting
1(-)	To S118 (-)
1(+)	To S118 (+)
2(-)	B112 (-)
2(+)	B112 (+)

STM B112 is connected with Speakon NL4FC plugs (not supplied). The 4 pins of the 2 Speakon sockets identified in / out are connected in parallel within the enclosure.

Either connector can be used to connect amplifier or to link to an additional B112 Bass Module or to a S118 Sub Module. Therefore, a single 4-conductor cable can connect two amplifier channels to up to 3xS118s and 3xB112s.

**STM M46 connector panel**



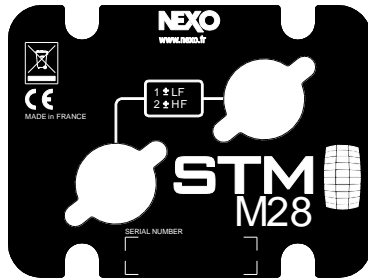
Speakon	Connecting
1(-)	To S118 (-)
1(+)	To S118 (+)
2(-)	To B112 (-)
2(+)	To B112 (+)
3(-)	M46 – MF (-)
3(+)	M46 – MF (+)
4(-)	M46 – HF (-)
4(+)	M46 – HF (+)

STM M46 is connected with Speakon NL8FC plugs (not supplied). The 8 pins of the 2 Speakon sockets identified in / out are connected in parallel within the enclosure.

Either connector can be used to connect amplifier or to link to an additional M46 main Module. Additionally, STM M46 panel features 1 NL4 connector allowing local link to S118 or B112.

Therefore, a single 8-conductor cable can connect 4 amplifier channels to up to 3xS118s, 3xB112s and 3 M46s.

## STM M28 connector panel



Speakon	Connecting
1(-)	M28 - LF (-)
1(+)	M28 - LF (+)
2(-)	M28 - HF (-)
2(+)	M28 - HF (+)

STM M28 is connected with Speakon NL4FC plugs (not supplied). The 4 pins of the 2 Speakon sockets identified in / out are connected in parallel within the enclosure.

Either connector can be used to connect amplifier or to link to an additional M28 Module.

## 2.2 STM cabling

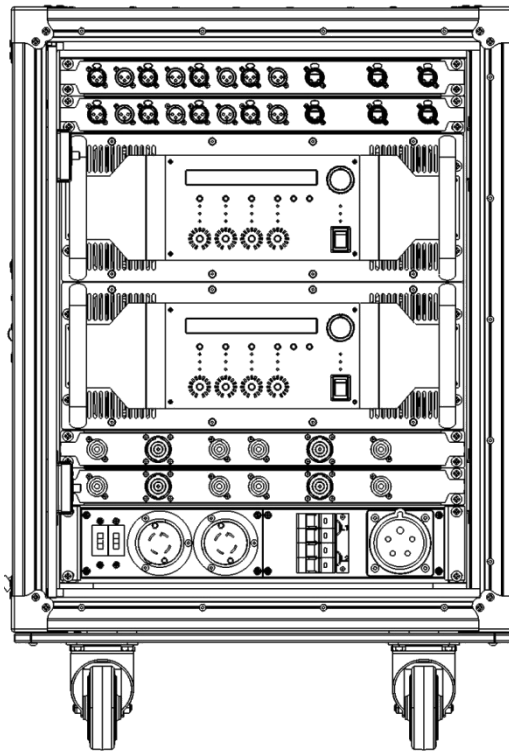
STM cabling standard is 4x4mm<sup>2</sup>/AWG#10 (NL4) or 8x4mm<sup>2</sup>/AWG#10 (NL8).

Maximum cable run is 60 meters / 200 feet

### **IMPORTANT**

Long speaker cables induce capacitive effects - up to hundreds of pF depending on the quality of the cable - with a low-pass effect on high frequencies. If long speaker cables must be used, ensure that they do not remain coiled while in use.

### 3 STM AND NUAR NEXO UNIVERSAL RACK



**The NEXO Universal Amp Rack (NUAR) provides NEXO users with a scalable, ‘plug & play’, amplified audio distribution solution of unrivalled power and flexibility. Systems of any size can be configured easily using channel by channel preset selection of any NEXO cabinet, and digital output patching.**

The NUAR rack comprises a pair of NEXO NXAMP4X4 amplifiers, twin DMU digital input metering devices, a pair of DPU digital output patching devices and a choice of 110V, 220V or dual-voltage mains distribution boxes providing power to all the components in the rack.

System configuration is simple, using either ESMonitor the new NEXO NeMo iPad® app. NEXO cabinet presets are selected on a channel by channel basis, with selected cabinet names displayed by the DPU for easy output patching.

Digital input metering is provided by the DMU, clearly indicating the presence and status of input signals, including network inputs.

An entirely new library of presets for every single cabinet in the NEXO range delivers linear phase across any system, making it possible to mix and match NEXO cabinets.

Increased efficiency and versatility is inherent in NUAR’s mechanical design. The 14U chassis is suspended within a robust rack case, featuring two sliding doors and an integrated rigging system. This enables up to 3 racks to be flown using an optional bumper and the easy attaching/detaching of a wheel board.

Each NUAR is fully configured and tested at NEXO to provide a truly versatile and tailored ‘Plug & Play’ amplification solution.

#### 3.1 **NUAR Components**

For a complete description of these units, please refer to NEXO User Manuals.

##### 3.1.1 **NXAMP4x4**

**Among the most powerful amplifiers in the industry, the NXAMP4X4 integrates command, control, amplification and protection functions within a relatively light weight and space-saving 4U rack.**

By combining real-time monitoring of temperature, voltage and current with powerful dual-DSP control, the NXAMP4X4 achieves exceptional performance with a high degree of protection for both amplifier and power supply, while simultaneously offering all control parameters required for the speakers.

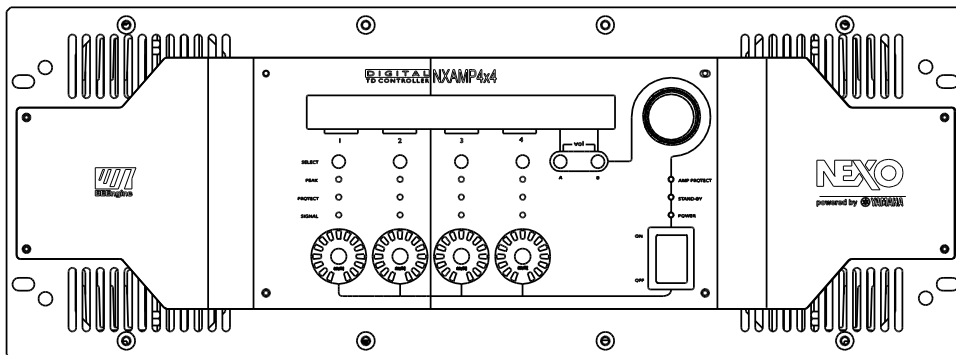


The latest firmware load enables channel by channel preset selection for any speaker in the NEXO range. The result of a 2-year development program, all presets have been revised using FIR filtering to ensure linear phase across any combination of NEXO cabinets, making it possible to mix and match cabinets in a single, coherent system.

EtherSound™ and Dante™ digital networking cards can be installed. Latest generation 24-bit audio converters provide enhanced dynamic range with low latency (500us analogue input to output in 'flat' mode), eliminating the need for external A/D conversion.

Improved power efficiency and decreased heat generation comes courtesy of four separate Switch Mode Power Supplies, which ensure high power capacity with low load drive. NEXO amplification technology delivers maximum efficiency in drive performance and power, while providing the audio quality of traditional class AB amplifiers with the heat dissipation of class D amplifiers. This results in a 50% reduction in power consumption, contributing to outstanding sound quality. Converters operate synchronized in the opposite phase, thus cancelling noise.

The NXAMP4X4 delivers 4 x 4000W into 2 Ohm loads, and is available in 110V, 220V and dual voltage versions.



### 3.1.2 DMU (Digital Metering Unit)

DMU is the ultimate tool for the easy monitoring of any activity on the NXAMP audio inputs. The DMU is totally driven by the host NXAMP, with signal and power supply coming from the NXAMP's GPIO port. Front panel features include 4 analogue XLR inputs plus links, three RJ45 ports for digital audio networking and LED VU meters. Particular care has been taken to ensure minimum insertion losses in the analogue audio signal.

#### **Key Features:**

- *Intelligent input patch panel offering digital communication with NXAMPs.*
- *Provides input level meters on all analogue and network inputs.*
- *Fully passive design on the audio and network paths.*
- *Powered through the host NXAMP, no need for mains supply.*

### 3.1.3 DPU (Digital Patching Unit)

The DPU is designed to optimise use of the NXAMP's channel by channel preset selection by automatically routing its outputs to any of 6 output connectors on the DPU front panel. Cabinet names and bridging status are displayed alongside each output, making it easy to wire the system. Security is assured by fully redundant power supplies and dual switching. When connecting DPU to the NXAMP, a routine first checks that the power from the amplifier is coming from the correct channel. If communication is lost with the NXAMP, the DPU retains its configuration until contact is resumed.

#### **Key Features**

- *Intelligent input patch panel offering digital communication with NXAMPs.*
- *Provides input level meters on all analogue and network inputs.*
- *Fully passive design on the audio and network paths.*
- *Powered through the host NXAMP, no need for mains supply.*

### 3.1.4 Digital audio networking

NUAR racks can be pre-configured with EtherSound™ or Dante™ digital audio networking capabilities, enabling users to monitor and control the NXAMPs.

#### **NXES104 EtherSound™ Network Card**

##### **Key Features**

- *Extracts 4 audio streams (24 bits / 48 KHz) among the 2 x 64 channels of a ES100 Ethersound™ stream.*
- *IN and OUT port for simple daisy chain without any need for an external switch.*
- *3rd Ethernet port for remote control of the whole network from any NXES104 card and ASIO streaming.*

#### **NXDT104 Dante™ Network Card**

##### **Key Features**

- *Receives 4 audio streams (24 bits / 48 KHz) in Dante™ format.*
- *Unique 3-port design can be used:*
  - *Has an integrated 3 port gigabit switch*
  - *Has two Dante™ redundant port plus an optional 3rd port for additional remote control*
- *Direct connection to PC using the ASIO format.*

### 3.1.5 Power box

NUAR can be configured with a choice of 110V, 220V or dual-voltage power distribution boxes, allowing the user to achieve the optimum balance of versatility and cost efficiency.

Where necessary, the power distribution boxes feature color-coding to assist power balancing when using three phase supplies. The color-coding is also labelled on the rack case.

### 3.1.6 Rack

The 14U chassis is suspended within a rack case, featuring two sliding doors and an integrated rigging system. Up to 3 racks can be flown using an optional bumper.

## 3.2 STM Setups

STM setups are available on NXAMP4x4 in “System Configuration” Menu in the STM section.

These setups are fixed in software and updated regularly: please consult the NEXO web site ([www.nexo.fr](http://www.nexo.fr)) for the latest software releases.

#### **Load 4.0+ Key Features**

- *Set up selection per channel*
- *Linear phase on all set-ups*
- *All NEXO systems compatible 20Hz-20kHz*
- *Selectable crossover points for subs*
- *8 fully parametric EQs per channel*

### 3.2.1 NEXO STM configurations

These are NEXO recommended STM for proper STM operation. Please check STM setup list enclosed with NXAMP loads (available at [www.nexo-sa.com](http://www.nexo-sa.com))

### 3.2.2 Custom STM configurations

NXAMP4x4 Load 4.0+ (“setup per channel”) allows re-configuring NEXO speaker setups in any combination on the 4 channels when going into the Custom Setup menu.

## STM and NUAR configurations

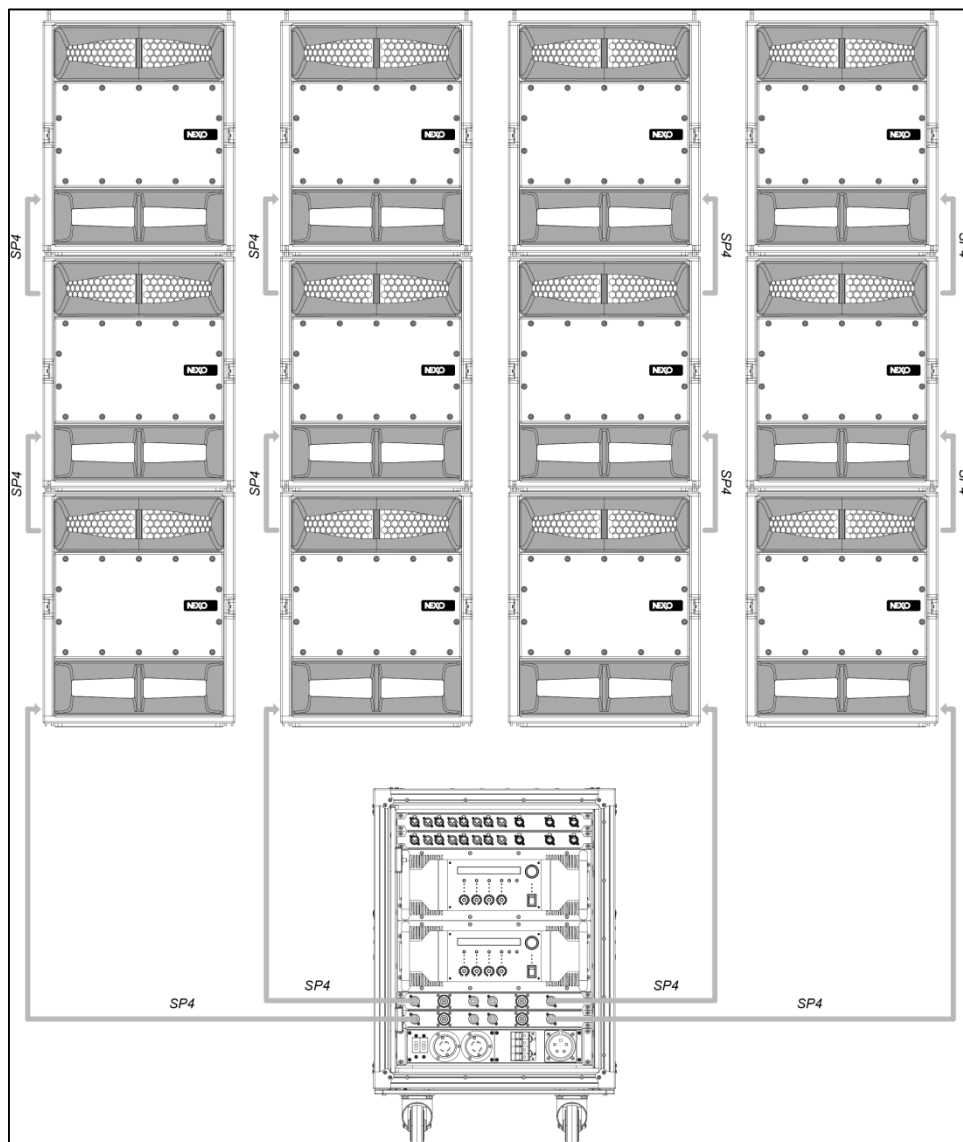
A NUAR rack can feed 12 modules of STM – whatever they are – provided they are paralleled by 3.

Active Mode	
3xSTM S118	2 channels of NXAMP4x4 in bridge stereo mode
3xSTM B112	2 channels of NXAMP4x4 in bridge stereo mode
3xSTM M46	2 channels of NXAMP4x4 in 4 channels mode
3xSTM M28	2 channels of NXAMP4x4 in 4 channels mode

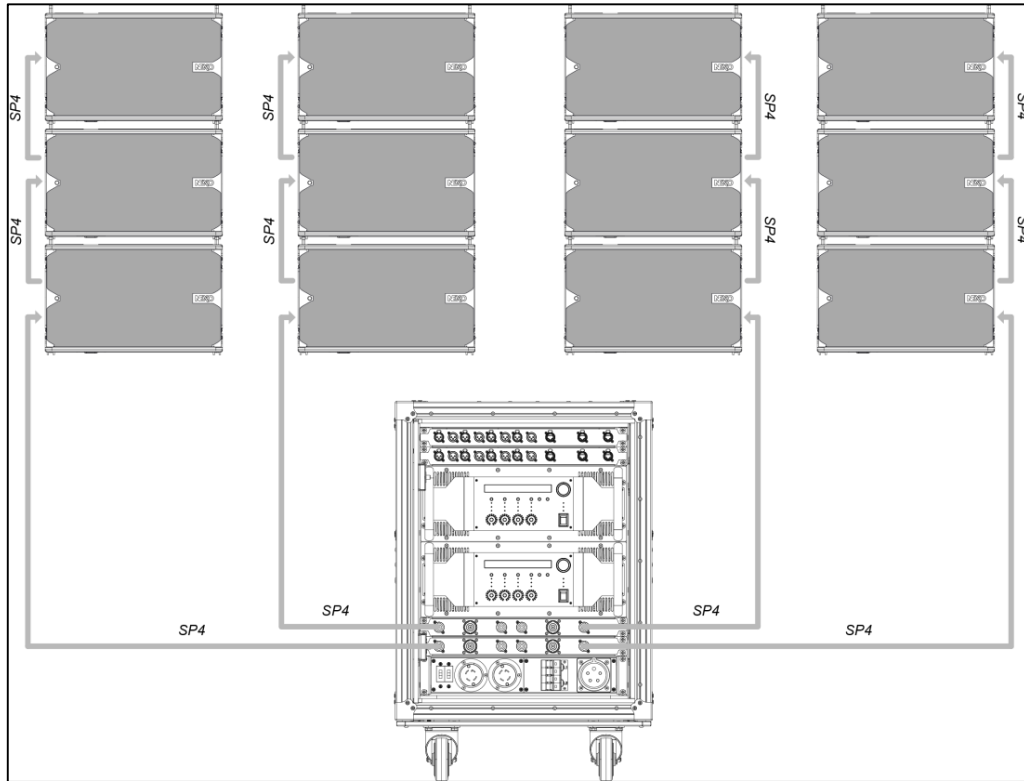
### IMPORTANT

- Paralleling less than 3 STM modules on NXAMP4x4 channels does not change power delivered to each module
- Exceeding 3 paralleled STM modules on NXAMP4x4 channels will lead to a power drop of at least 50% in each module.

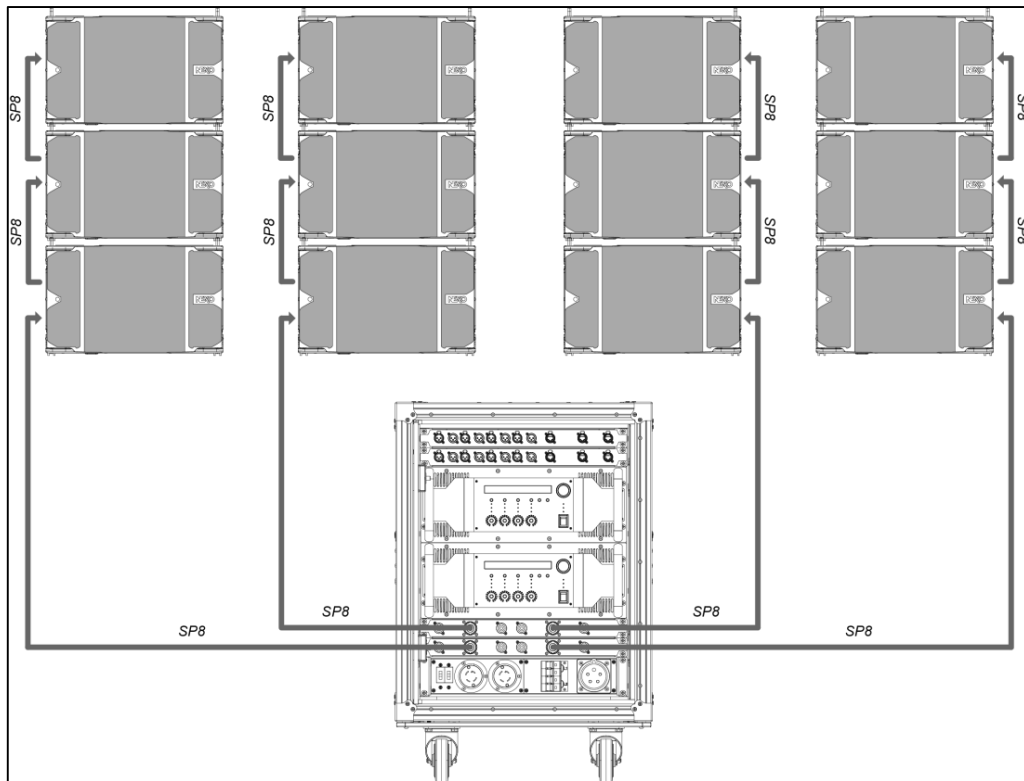
### 12xS118 and 1 NUAR



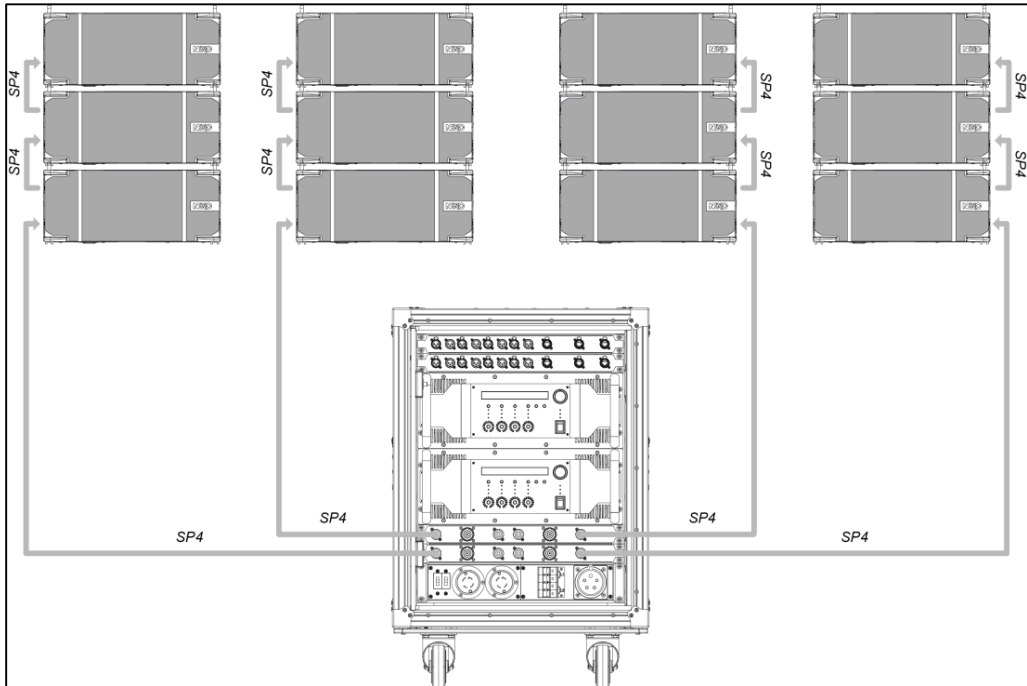
**12xB112 and 1 NUAR**



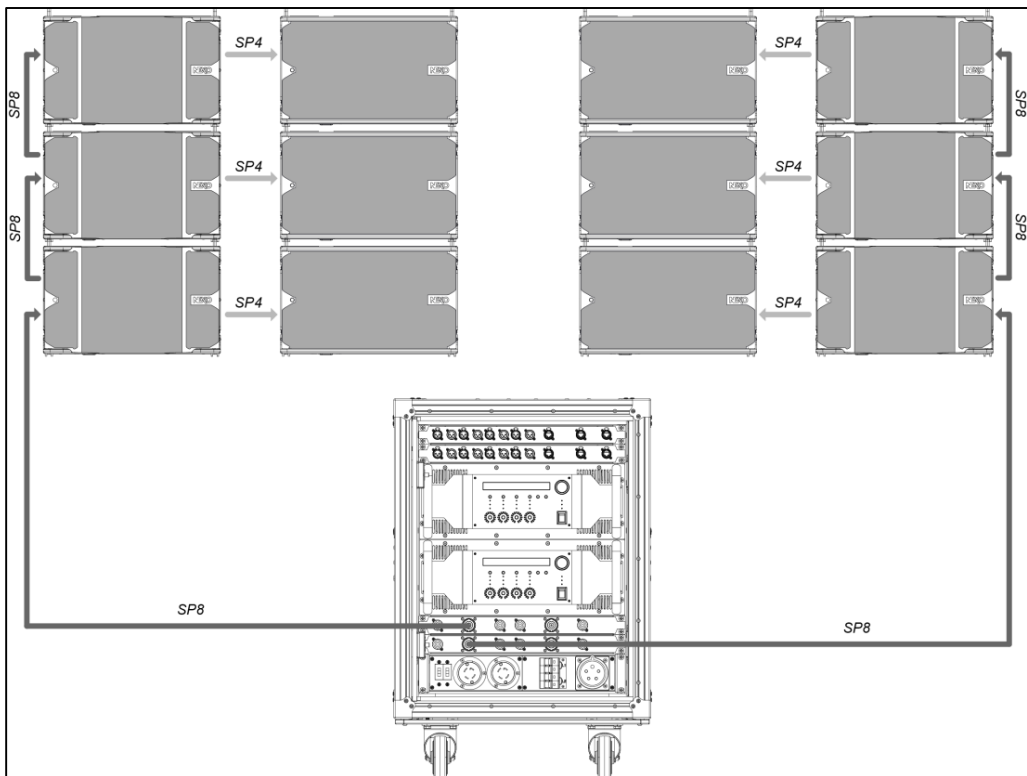
**12xM46 and 1 NUAR**



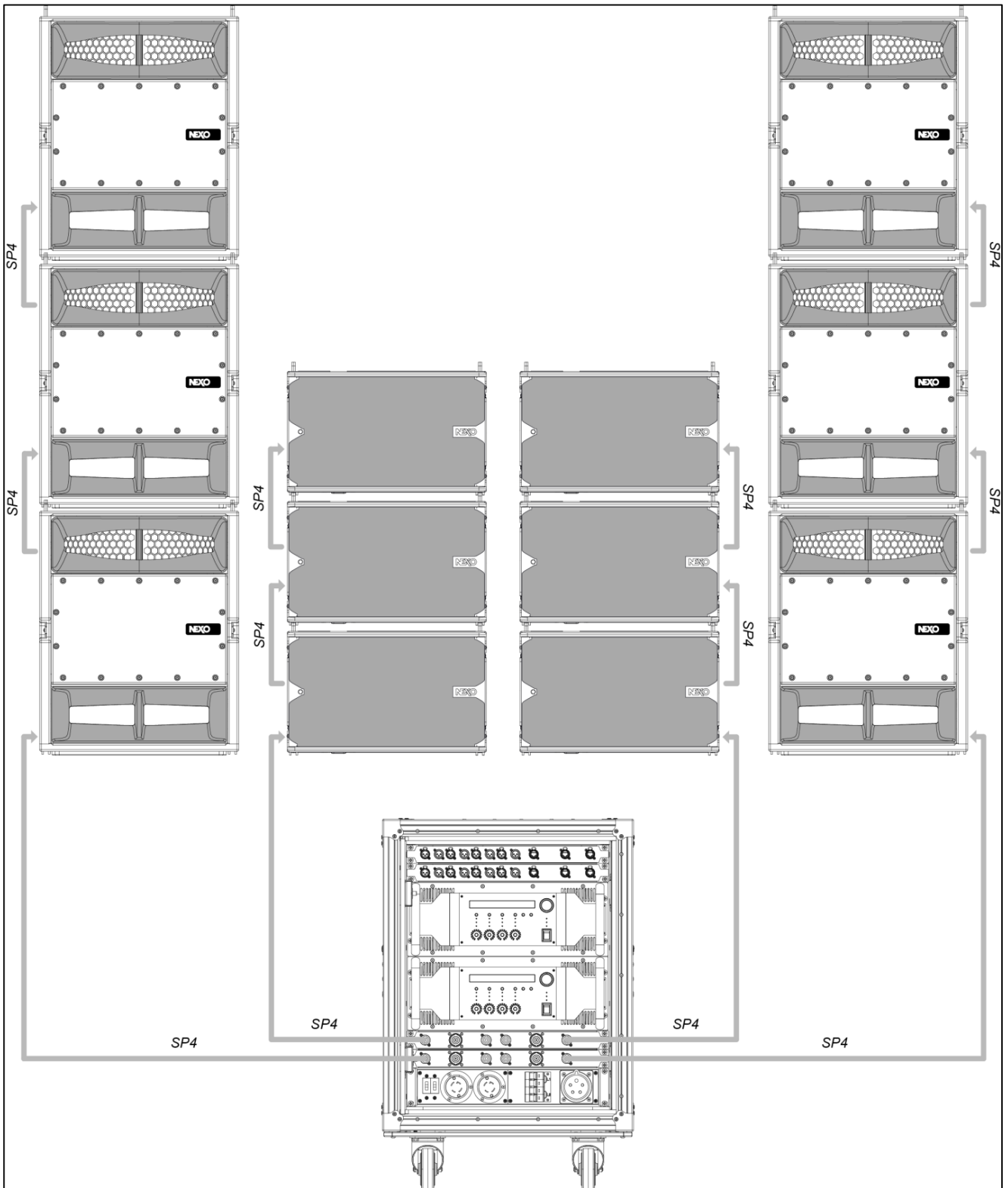
**12xM28 and 1 NUAR**



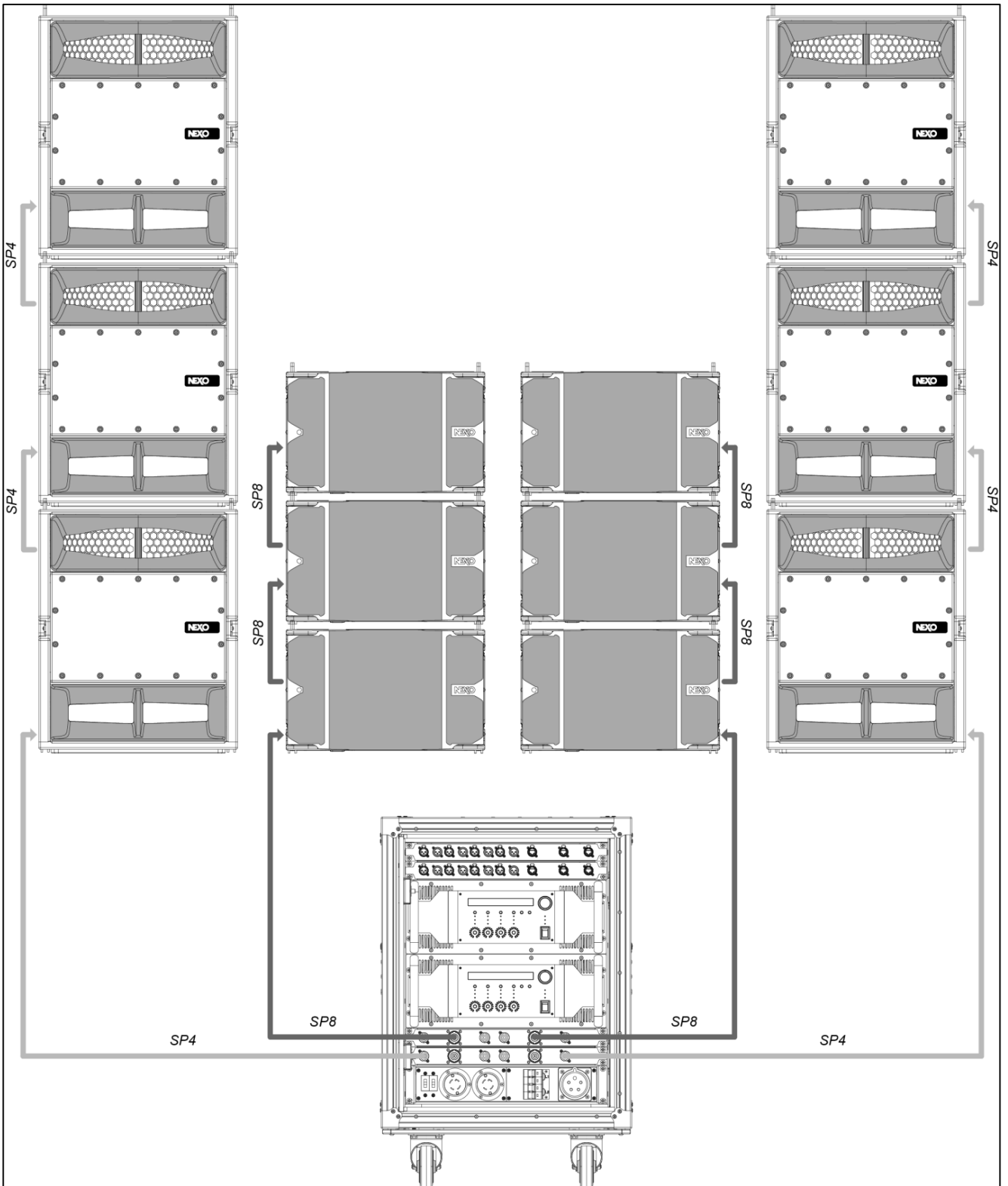
**6xB112 and 6xM46**



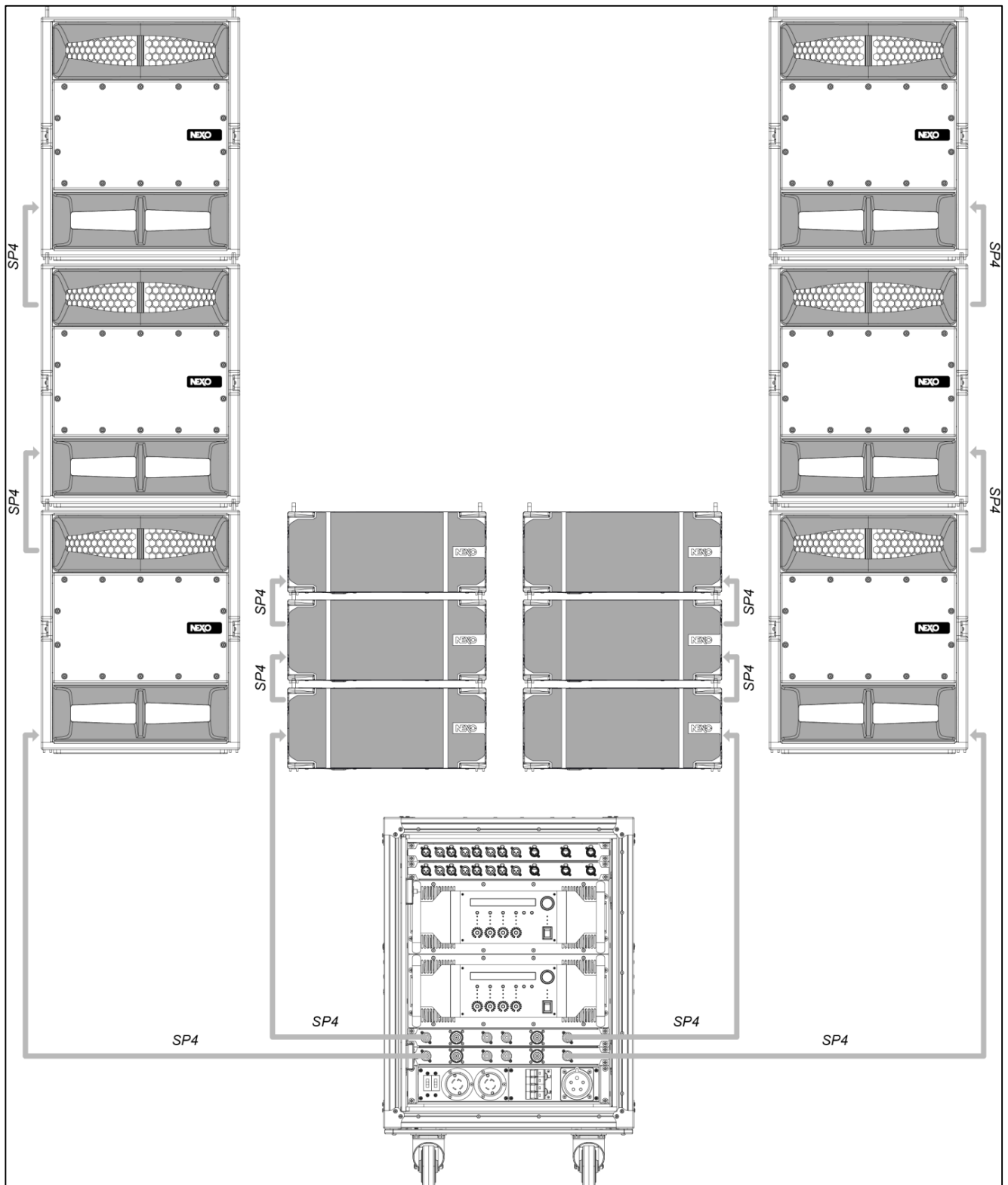
**6xS118 and 6xB112**



**6xS118 and 6xM46**



**6xS118 and 6xM28**





## 4 NS-1 SIMULATION SOFTWARE

NS-1 software is a R&D simulation tool derived application. It processes measured speaker data with complex mathematical algorithms to assist the user in optimizing system design. Due to the complexity of the interaction of multiple cabinets, it is simply not possible to reliably design curved vertical arrays without using the processing power of a computer to predict the optimum array structure for a given audience geometry. The design logic is far more complex than looking at a section drawing of the venue, measuring the overall angle needed to cover the audience from the cluster location, and dividing by 10 degrees to determine the required amount number of STM modules.

NS-1 is an easy to use tool that allows to shape the energy leaving the cluster to fit the audience. It predicts pressure levels radiated from the system to ensure enough cabinets are provided for the application, as well as mechanical constraints for safe flown systems.

In addition, it provides mechanical information for all clusters in agreement with Structural Analysis Reports (available in the Help section): dimensions, weight, gravity center position, forces, moments, working load and safety factor.

STM Structural Analysis Reports have been conducted by Vom Felde GmbH, and is currently being submitted to German Certification Organization RWTUV systems GmbH.

NS-1 installation package includes all NEXO User Manuals, Structural Analysis Reports and Certificates PDF files.

**NS-1 is a freeware available at [www.nexo-sa.com](http://www.nexo-sa.com)**

**IMPORTANT**  
**Never install a STM cluster without checking its acoustical performances and mechanical safety in NS-1 prior to installation.**

Any question or bug report please contact [technical@nexo.fr](mailto:technical@nexo.fr)

The screenshot displays the NS-1 software interface with several key components:

- INFO CLUSTER DESIGN:**
  - Cluster arrangement:  Single,  Base left,  Base right
  - Quantity of speakers: M46: 18, M112: 0, M28: 1, S118: 0
  - Setup: 120 Hz ... 20 kHz
  - Table with columns: #, Left, Main, Right, Angle, Stop, CSD, Mute
- 3D VIEW:** A 3D perspective view of the speaker cluster.
- PRESSURE PLOT:** A graph showing pressure level (CSD) vs. distance (meter) for 20 C, 60.0 F, 10%.
- SYSTEM - STM FLOWN CLUSTER:**
  - CLUSTER:** M46 (N4M) Qty: 18, M46 (D4M) Qty: 1, Cabled columns: 1, Bumper angle: -4.18 deg, Lower cabinet angle: -20.06 deg, Cluster height (H): 7.80 m, Cluster width (W): 6.80 m, Cluster depth (D): 1.88 m, Front rigging point height: 12.18 m, Rear rigging point height: 12.35 m, Lower cabinet height: 5.48 m, Distance between rigging points (S): 1.37 m, Gravity center to front rigging point (A1): 6.80 m, Gravity center to rear rigging point (A2): 6.47 m, Clearance from front rigging point (C1): 6.20 m, Clearance from rear rigging point (C2): 6.37 m, Cluster weight (W): 1122.40 kg, Weight on front rigging point (M1): 392.16 kg, Weight on rear rigging point (M2): 773.24 kg
  - ALLOWED WORKING LOADS:** Bumper front rigging point R1: 23%, Bumper rear rigging point R2: 45%, Cabinet front connecting point S1: 26%, Cabinet front connecting point S1.1: 16%, Cabinet rear connecting point S2: 39%, Cabinet side to front connector C1: 18%, Cabinet side to rear connector C2: 20%, Bending moment on lateral bar ME: 25%, Compression device: 50%, On cabinet connector to bottom bumper: 50%
  - EDIT SETTINGS:** Rigging Mode: 2 Motors + Compression Chain, Bumper Selection: Openers, Bumper Top: k3base + PRB, Compression Device: Compression chain 1500 kg, M46 Mode: Terzan, Wind type: No wind, Wind speed: 72 km/h/88, Bottom secured: No
  - WORKING LOAD - SAFETY FACTOR:** % allowed working load (safety factor 1): 59, Safety factor for 100% allowed working load: 6.8
  - WARNING:** READ USER MANUAL PRIOR TO OPERATION, CHECK LOCAL REGULATIONS ON LOADSPLACER RIGGING SYSTEMS, RIGGING ANGLE SETTINGS ARE IDENTICAL ON BOTH SIDES, BOTH MOTORS MUST BE DISMOUNTED FOR TOTAL CLUSTER WEIGHT, CHECK WITH WIND FORCES IF OUTDOORS
  - ANGLE SEQUENCE:** Table with columns: #, Delta, Sum
  - Diagram:** A schematic diagram of the cluster rigging system.

## 5 STM SYSTEM DEPLOYMENT PROCEDURE

Before proceeding with assembly of STM arrays, please ensure that the components are present and undamaged. A component list is appended to this manual. In the event of any shortage, please contact your supplier.

For maximum efficiency the STM rigging system requires three experienced persons for set-up: typically one motor hoist operator, and one STM operator per side of the array. Good synchronisation and crosscheck between the operators are key elements for a reliable and safe set-up.

### 5.1 SAFETY FIRST

STM Rigging System structural computations and related documents are available in Geosoft2 or at Nexo ([info@nexo.fr](mailto:info@nexo.fr)) upon request.

We include this section to remind you of safe practice when flying the STM system. Please read it carefully. However, user must always apply his or her knowledge, experience and common sense. If in any doubt, seek advice from your supplier or NEXO agent.

This manual offers guidance only for STM loudspeaker systems. References in this manual to other rigging equipment such as motor hoists, steels, shackles etc. are made to clarify the description of STM procedures. The user must ensure that operators are properly trained by other agencies in the use of these items.

The STM Rigging System has been optimised for the deployment of curved vertical or horizontal tangent arrays of STM loudspeakers. Angle adjustment between cabinets has been limited to specific settings to ensure correct acoustic coupling.

The STM Rigging System is a professional precision tool set, and should be handled with extreme care. Only persons who are fully conversant with the operation of the STM Rigging System and provided with suitable safety equipment should deploy GEO Arrays. Misuse of the STM Rigging System could lead to dangerous consequences.

Used and maintained correctly, the STM Rigging System will give many years of reliable service in portable systems. Please take the time to read and understand this manual. Always use GEOSoft2 to determine the optimum angle settings for a particular venue, hang point and curved vertical STM cluster. Applied forces and moments are strongly cabinet quantity and angle configuration dependent. Cluster configuration must be implemented and validated in Geosoft2 prior to installation.

#### 5.1.1 Flown Systems Safety

Always inspect all the rigging components and cabinets for damage before assembly. Pay special attention to the lifting points, and safety clips. If you suspect that any of the components are damaged or defective, DO NOT USE THE AFFECTED PARTS. Contact your supplier for replacements.

Read this manual carefully. Also be familiar with the manuals and safe working procedures for any ancillary equipment that will be used with the STM Rigging System.

Applied forces and moments are strongly cabinet quantity and angle configuration dependent. Cluster configuration must be implemented and validated in Geosoft2 prior to installation.

Ensure that all local and National regulations regarding the safety and operation of flying equipment are understood and adhered to. Information on these regulations can usually be obtained from Local Government Offices.

When deploying a STM system always wear protective headwear, footwear and eye protection.

Do not allow inexperienced persons to handle a STM system. Installation personnel should be trained in loudspeaker flying techniques and should be fully conversant with this manual.

Ensure that motor hoists, hoist control systems and ancillary rigging components are currently certified as safe and that they pass a visual inspection prior to use.

Ensure that public and personnel are not allowed to pass beneath the system during the installation process. The work area should be isolated from public access.

Never leave the system unattended during the installation process.

Do not place any object, no matter how small or light, on top of the system during the installation procedure. The object may fall when the system is flown and is likely to cause injury.

Secondary safety steels must be installed once the system has been flown to the operating height. Secondary steels must be fitted irrespective of requirements of the local safety standards applicable to the territory.

Ensure that the system is secure and prevented from pivoting around the motor hoist.

Avoid any form of excessive dynamic loading to the assembly (structural computations on STM Rigging System are based on a 1/1.2 factor for hoist or motor acceleration).

NEVER attach any item to the STM system other than the STM accessories.

When flying outdoor systems, ensure that the system is not exposed to excessive wind or snow loads and is protected from rainfall.

If wind velocity reaches or exceeds Beaufort 7 (60 km/h – 38 mp/h), the system must be landed.

The STM Rigging System requires regular inspection and testing by a competent test centre. NEXO recommend that the system is load tested and certified annually or more frequently if local regulations require.

When de-rigging the system ensure that the same duty of care is given to the procedure as for the installation. Pack STM components carefully to prevent damage in transit.

### 5.1.2 Ground Stacking Safety

Statistically, many more injuries occur due to unstable ground stacked PA systems than those associated with flown systems. There are several reasons for this fact, however the message is clear:

Always survey the supporting structure upon which a ground stack is to be built. Always look beneath PA wings to inspect the deck support and if necessary ask for the stage scrims and dressings be removed to allow access.

If the stage surface slopes, as it does in some theatres, ensure that the system is prevented from sliding forwards due to vibration. This may require the fitting of timber battens to the stage floor.

For outdoor systems ensure that the system is protected from wind forces which might cause the ground stack to become unstable. Wind forces can be huge, especially upon large systems, and should never be underestimated. Observe meteorological forecasts, calculate the “worst case” effect upon the system prior to erection and ensure that the system is secured appropriately.

Take care when stacking cabinets. Always employ safe lifting procedures and never attempt to build stacks without sufficient personnel and equipment.

Never allow anyone, whether operators, artists or members of the public to climb onto a ground stacked PA system. Anyone who needs to climb over 2m (6 ft) high should be fitted with suitable safety equipment including a clip-on harness. Please refer to local Health and Safety legislation in your territory. Your dealer can help with advice on access to this information.

Apply the same attention to all safety matters when de-stacking systems.

Be aware that safety procedures are as important in the truck and in the warehouse as they are at the venue.

### 5.1.3 Contacts

Correct training is fundamental to safe practise when working with loudspeakers flying systems. NEXO recommend that users contact local industry associations for information on specialist course.

Information for International training agencies can be obtained by contacting either:

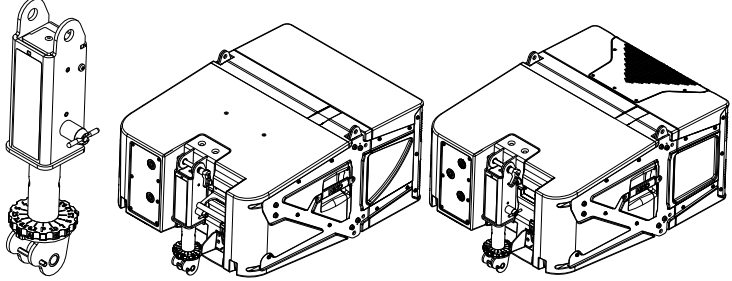
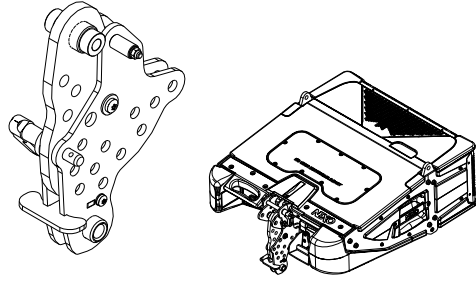
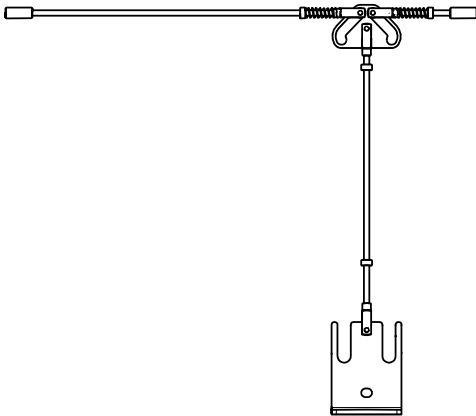
The Production Services Association (PSA),  
School Passage,  
Kingston-upon-Thames,  
KT1 SDU Surrey,  
ENGLAND  
Telephone: +44 (0) 181 392 0180

ESTA  
Entertainment Services & Technology Association  
875 Sixth Avenue, Suite 1005  
NEW YORK, NY 10001 USA  
Phone: 212-244-1505 – Fax: 212-244-1502  
[info@esta.org](mailto:info@esta.org) - [www.esta.org](http://www.esta.org)

## 5.2 General Description

### 5.2.1 STM Modules

STM SYSTEMS SHARE IN COMMON AN INNOVATIVE PATENTED RIGGING SYSTEM, WHERE ALL ASSEMBLY OPERATIONS ARE DONE FROM THE BACK OF THE MODULES:

	<p>PistonRig™ allows pre-setting of inter-cabinet angle values on M46 and B112 modules, from 0.2° to 10°</p>
	<p>CompassRig™ allows pre-setting of inter-cabinet angle values between M28 modules, from 0.2° to 15°</p>
	<p>REDLock™ handle locks front rigging points from rear of cabinet</p>

STM rigging hardware allows to fly or stack single column clusters, as well as double and triple column clusters.

Each cluster configuration is an assembly of upper and lower rigging parts attached to cabinets in 3 points:

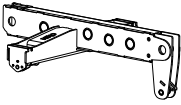
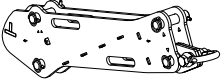
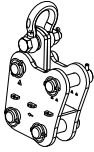
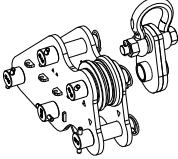
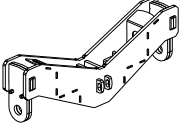
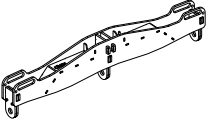
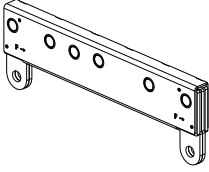
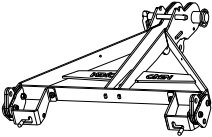
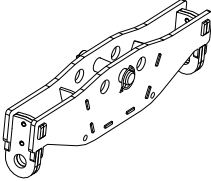
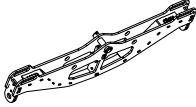
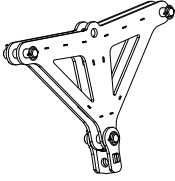
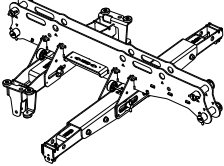
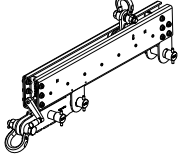





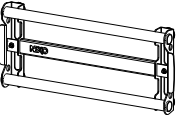
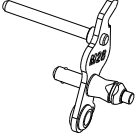

- 2 in the front with spring pins fixed inside the bumper,
- 1 in the back with a quick release pin.

The 2 and 3 columns wide configurations use coupling bars and beams.

The entire rigging of the STM is a combination of these different rigging parts.

The pages below describe every assembly of STM in flown configuration for single, double or triple column. The array is always composed of the four modules (M46, B112, S118 and M28) for general description; users will adapt the type and number of cabinets according to their project.

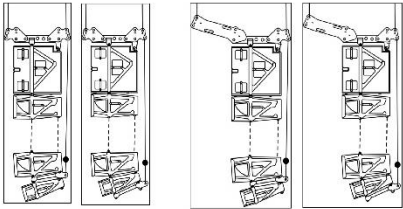
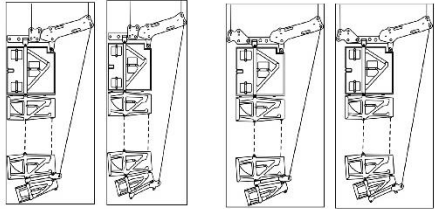
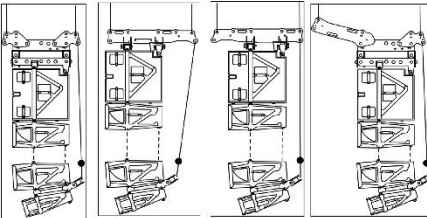
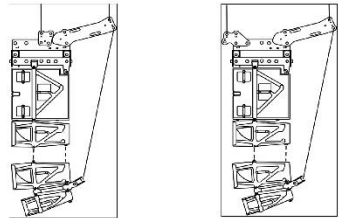
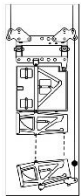
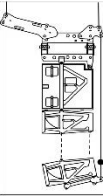
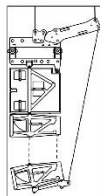
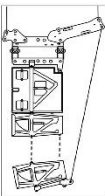
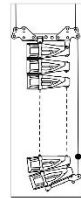
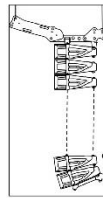
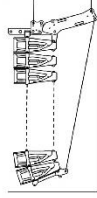
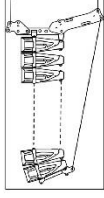
5.2.2 Rigging Components

<p><b>STT-XBOW</b></p> 	<p><b>STT-KBEAM</b></p> 	<p><b>STT-MLINK</b></p> 	<p><b>STT-PTILT</b></p> 	<p><b>STT-XCOUP2</b></p> 	<p><b>STT-XCOUP3</b></p> 
<p><b>STT-MBEAM</b></p> 	<p><b>STT-BTBUMPER</b></p> 	<p><b>STT-BCOUP2</b></p> 	<p><b>STT-BCOUP3</b></p> 	<p><b>STT-DPLATE</b></p> 	<p><b>STT-LBUMPER</b></p> 
<p><b>STT-VBUMP</b></p> 	<p><b>VXT-BRIDLE23</b></p> 	<p><b>GTT-BCCH</b></p> 	<p><b>STT-BCCH3</b></p> 	<p><b>VXT-LEVA750</b></p> 	<p><b>VXT-LEVA1500</b></p> 
<p><b>STT- FHANDLE</b></p> 	<p><b>STT-M46TOM28</b></p> 	<p><b>VXT-LIKM</b></p> 			

### 5.2.3 One rigging point rigging modes

		<b>Variobumper - Single Motor</b>		<b>Chain Lever Hoist - Single Motor</b>				
<b>STM General</b>	<b>Single</b>	<p><i>Rigging Points</i> One Motor + Variobumper</p> <p><i>Bumper Top</i> Vario Rear</p> <p><i>M28 Mode</i> Compression</p> <p><i>Chain Lever Hoist</i> 750/1500</p>	<p>Vario Front</p> <p>Compression</p> <p>750/1500</p>		<p><i>Rigging Points</i> One Motor</p> <p><i>Bumper Top</i> No Kbeam</p> <p><i>M28 Mode</i> Compression</p> <p><i>Chain Lever Hoist</i> 750/1500</p> <p><i>Bridge Fix Leg</i> Front</p>	<p>No Kbeam</p> <p>Compression</p> <p>750/1500</p>	<p>No Kbeam</p> <p>Compression</p> <p>750/1500</p> <p>Rear</p>	
	<b>Bass Left or Right</b>	Not available			<p><i>Rigging Points</i> One Motor</p> <p><i>Bumper Top</i> No Kbeam</p> <p><i>M28 Mode</i> Tension</p> <p><i>Chain Lever Hoist</i> 750/1500</p> <p><i>Bridge Fix Leg</i> Front</p>	<p>LWB</p> <p>Tension</p> <p>750/1500</p> <p>Front</p>	<p>No Kbeam</p> <p>Tension</p> <p>750/1500</p> <p>Rear</p>	<p>LWB</p> <p>Tension</p> <p>750/1500</p> <p>Rear</p>
	<b>Bass Left and Right</b>	Not available			Not available			
<b>M28 only</b>	<b>Single</b>	<p><i>Rigging Points</i> One Motor + Variobumper</p> <p><i>Bumper Top</i> Vario Rear</p> <p><i>Chain Lever Hoist</i> 750/1500</p>	<p>Vario Front</p> <p>750/1500</p>		<p><i>Rigging Points</i> One Motor</p> <p><i>Bridge Fix Leg</i> Front</p> <p><i>Chain Lever Hoist</i> 750/1500</p>	<p>Front</p> <p>750/1500</p>	<p>Rear</p> <p>750/1500</p>	
	<b>S118 Only</b>	<p>Bumper forced at 0°</p>	Not available		<p><i>Rigging Points</i> (O/S)</p>	<p>One Motor (B2B)</p>	<p>(O/D or S2S)</p>	<p>(OT)</p>

5.2.4 Two rigging points modes

		Chain Lever Hoist - Two Motors				Compression Chain			
STM General	Single	<p><i>Rigging Points</i></p> <p><i>Bumper Top</i> No Kbeam    No Kbeam    Kbeam Front    Kbeam Front</p> <p><i>M28 Mode</i>    Tension    Compression Tension    Compression</p> <p><i>Chain Lever Hoist</i> 750/1500    750/1500    750/1500    750/1500</p> 					<p><i>Rigging Points</i></p> <p><i>Bumper Top</i> Kbeam+Mlin    Kbeam+Mlink    Kbeam+Ptilt    Kbeam+Ptilt</p> <p><i>M28 Mode</i>    Tension    Compression    Tension    Compression</p> <p><i>Compression Chain</i> 1500/3000    1500/3000    1500/3000    1500/3000</p> 		
	Bass Left or Right	<p><i>Rigging Points</i></p> <p><i>Bumper Top</i> No Kbeam    LWB Rear    LWB Front    Kbeam Front</p> <p><i>M28 Mode</i>    Tension    Tension    Tension    Tension</p> <p><i>Chain Lever Hoist</i> 750/1500    750/1500    750/1500    750/1500</p> 					<p><i>Rigging Points</i></p> <p><i>Bumper Top</i> Kbeam+Mlink</p> <p><i>M28 Mode</i>    Tension    Tension</p> <p><i>Compression Chain</i> 1500/3000</p> <p>Kbeam+Ptilt Tension    Tension</p> <p>1500/3000</p> 		
	Bass Left and Right	<p><i>Rigging Points</i></p> <p><i>Bumper Top</i> No Kbeam</p> <p><i>Chain Lever Hoist</i> 750/1500</p> 	<p>Two Motors</p> <p>Kbeam Front 750/1500</p> 				<p><i>Rigging Points</i></p> <p><i>Bumper Top</i> Kbeam+Mlink</p> <p><i>Compression Chain</i> 1500/3000</p> 	<p>Two Motors</p> <p>Kbeam+Ptilt 1500/3000</p> 	
M28 only	Single	<p><i>Rigging Points</i></p> <p><i>Bumper Top</i> No Kbeam</p> <p><i>Chain Lever Hoist</i> 750/1500</p> 	<p>Two Motors</p> <p>Kbeam Front 750/1500</p> 				<p><i>Rigging Points</i></p> <p><i>Bumper Top</i> Kbeam+Mlink</p> <p><i>Compression Chain</i> 1500/3000</p> 	<p>Two Motors</p> <p>Kbeam+Ptilt 1500/3000</p> 	
S118 Only	Bumper forced at 0°	Not available				Not available			

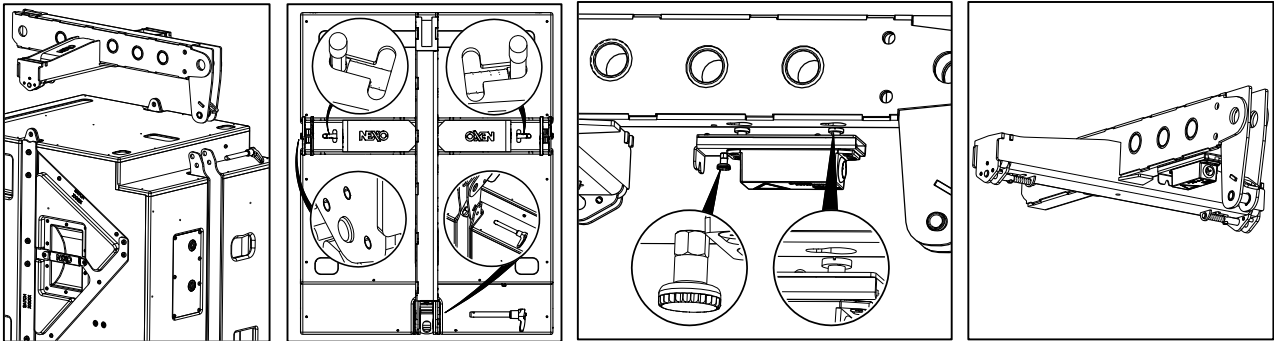
### 5.3 Upper assembly

#### **Connecting XBOW to the top of the first cabinet(s)**

- Insert the XBOW into the 3 fixing points: 2 on the sides and one at the back of the STM module
- Lock the lateral spring pins located inside the XBOW to the front lateral holes of the STM module
- Insert quick release pin at the back, in the hole located at the top of the corresponding piston

**IMPORTANT**  
**Ensure XBOW springs are functional**  
**Ensure-XBOW lateral spring pins and rear quick release pin are properly locked into top cabinet**

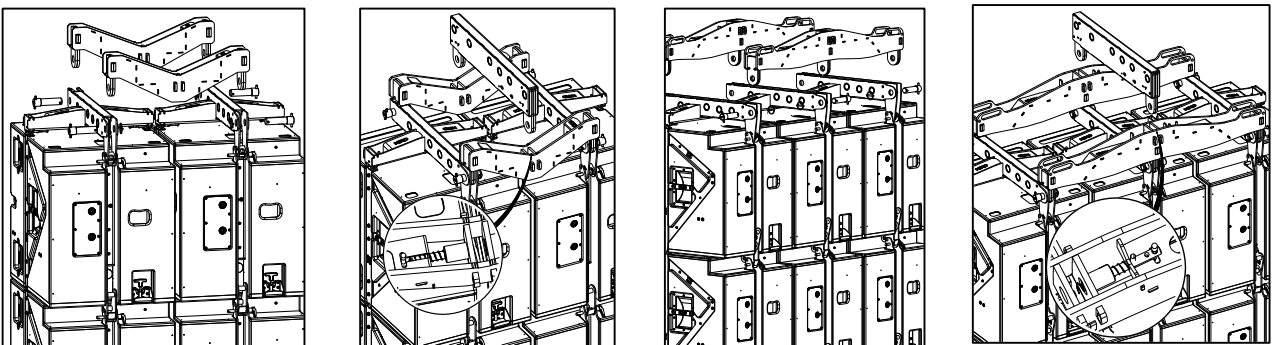
- Insert VXT-LIKM Laser inclinometer below XBOW and connect 3 pin XLR cable to it



#### **Connecting XBOW to XCOUP2 (XCOUP3) coupling beams**

- Insert front coupling beam XCOUP2 (XCOUP3) into left and right XBOWs, then lock these 2 components by inserting the steel pins into the corresponding holes
- Insert safety pins into steel pins hole and lock safety pin by rotating its ring around steel pin
- Repeat the same procedure for the rear coupling XCOUP2 (XCOUP3)

**IMPORTANT**  
**Ensure assembly is properly locked on these 4 (6) points**



#### **Connecting MBEAM to XCOUP2 (XCOUP3) coupling beams**

- Insert the MBEAM fixing points into XCOUP2 (XCOUP3) coupling beams then release XCOUP2 (XCOUP3) spring pins so that above components are locked

**IMPORTANT**  
**Ensure-XCOUP2 (XCOUP3) spring pins are properly locked into MBEAM**



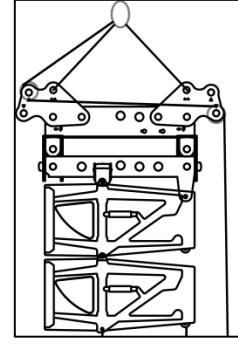
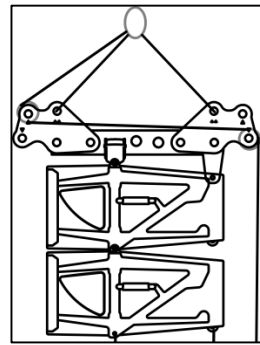
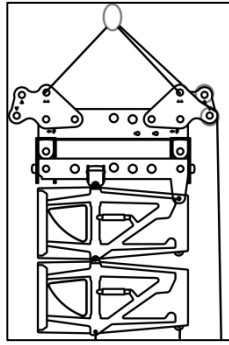
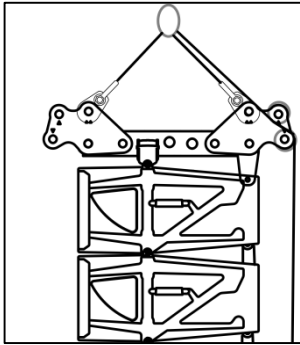
## 5.4 Flying on a single motor with bridle

Single motor with bridle mode is only available for single or double columns clusters

S118 are not allowed in combination with other STM modules in this mode

EDIT SETTINGS	
Rigging Mode	1 Motor + Chain Lever Hoist
Bumper Inclination	Downwards ▾
Bumper Top	No Kbeam
Compression Device	Chain lever hoist 750 kg

EDIT SETTINGS	
Rigging Mode	1 Motor + Chain Lever Hoist
Bumper Inclination	Upwards
Bumper Top	No Kbeam
Compression Device	Chain lever hoist 750 kg ▾



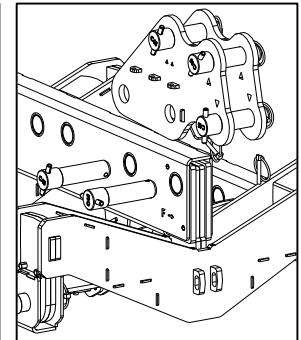
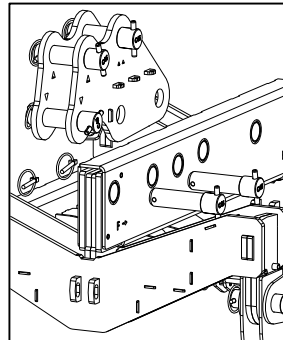
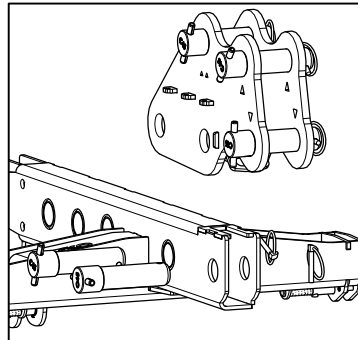
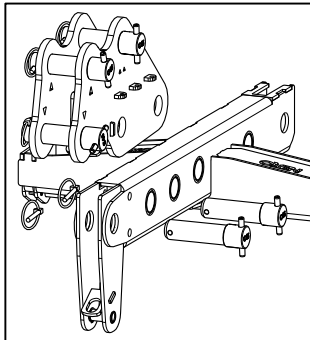
### Connecting PTILTs to XBOW or MBEAM

- Position first PTILT to the front of XBOW or MBEAM then lock these components by inserting steel pins into the corresponding holes
- Insert safety pins into steel pins holes and lock safety pin by rotating its ring around steel pin
- Position second PTILT to the rear of XBOW or MBEAM then repeat the same safety procedure than above

### IMPORTANT

Ensure safety pins springs are functional

Ensure PTILT is properly locked to XBOW or MBEAM



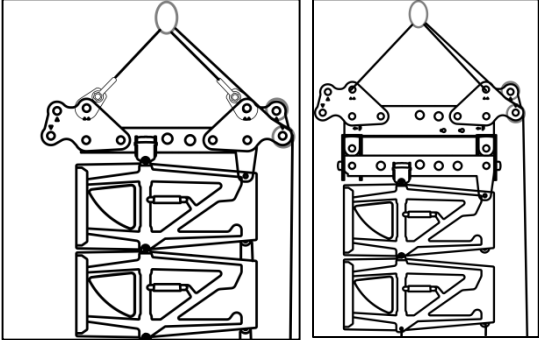
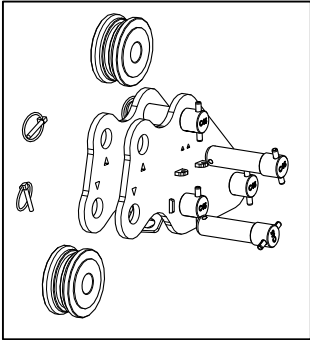
Connecting PTILTs to XBOW

Connecting PTILTs to MBEAM

### Positioning REA wheels to PTILT for bumper negative tilt

- Position lower REA wheel to the rear PTILT (rig point ▽) then lock these 2 components by inserting steel pins into the corresponding holes
- Insert safety pins into steel pins holes and lock safety pin by rotating its ring around steel pin
- Position lever hoist chain above lower REA wheel so that it follows the path as in below drawings
- Position upper REA wheel to the rear PTILT (rig point Δ) then lock these 2 components by inserting steel pins into the corresponding holes
- Insert safety pins into steel pins holes and lock safety pin by rotating its ring around steel pin

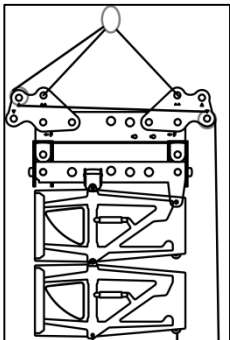
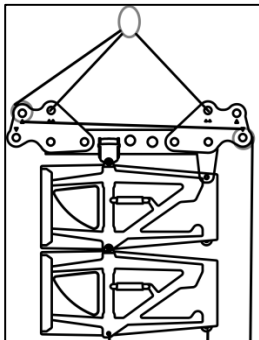
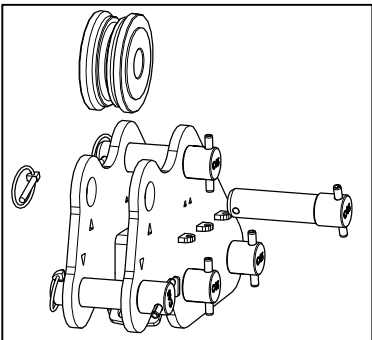
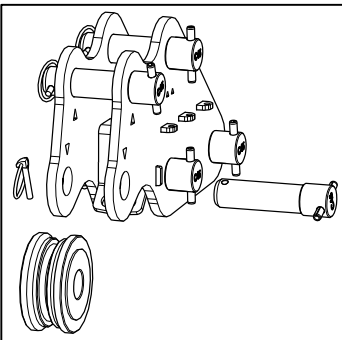
**IMPORTANT**  
**Ensure safety pins springs are functional**  
**Ensure REA is properly locked to PTILT**



**Positioning REA wheels to PTILT for bumper positive tilt**

- Position lower REA wheel to the rear PTILT (rig point ▽) then lock these 2 components by inserting steel pins into the corresponding holes
- Insert safety pins into steel pins holes and lock safety pin by rotating its ring around steel pin
- Position lever hoist chain above lower REA wheel so that it follows the path as in below drawings
- Position upper REA wheel to the front PTILT (rig point Δ) then lock these 2 components by inserting steel pins into the corresponding holes
- Insert safety pins into steel pins holes and lock safety pin by rotating its ring around steel pin

**IMPORTANT**  
**Ensure safety pins springs are functional**  
**Ensure REA is properly locked to PTILT**



**Finalizing the setup of top bumper rigging elements**

- Insert centring devices into front and rear PTILT rig points ΔΔ, then lock these devices by inserting the steel pin into the corresponding hole
- Connect the bridle ring to the motor hoist, one bridle leg to the front centring device and the other bridle leg to the rear centring device

**IMPORTANT**  
**Motor Hoist must be rated for total cluster weight**  
**Bridle must be rated for twice total cluster weight**  
**Please refer to NS1 mechanical information**

- Attach compression upper chain lever hoist hook to bridle ring

**IMPORTANT**  
**Compression chain lever hoist must be rated according to compression pullback force.**  
**Please refer to NS1 mechanical information**

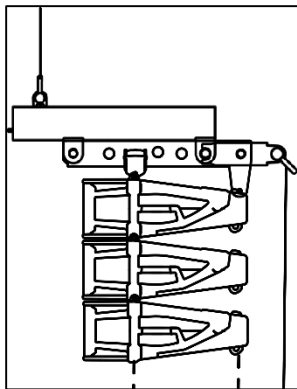
- If top modules are on a dolly, unlock the dolly by pulling bottom cabinet RedLock handle
- Lift assembly slightly off the ground (and store dolly)

### 5.5 Flying on a single motor with Variobumper

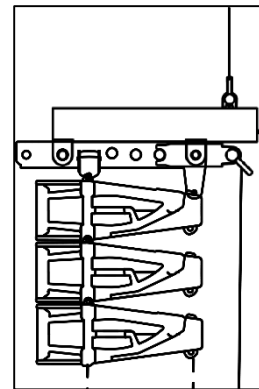
*Single motor with Variobumper mode is only available for single column clusters*

*S118 are not allowed in combination with other STM modules in this mode*

EDIT SETTINGS	
Rigging Mode	1 Motor - Vario Bumper
Bumper Inclination	Upwards
Bumper Top	No Kbeam
Compression Device	Chain lever hoist 750 kg



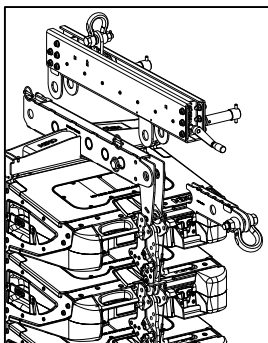
EDIT SETTINGS	
Rigging Mode	1 Motor - Vario Bumper
Bumper Inclination	Upwards
Bumper Top	No Kbeam
Compression Device	Chain lever hoist 750 kg



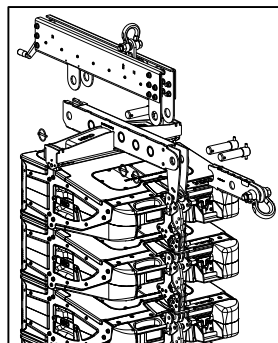
#### Connecting VBUMP to XBOW

- Position VBUMP main beam on top of XBOW and insert VBUMP tail beam into X-BOW as in drawings below for positive or negative bumper tilt
- Lock these 3 components by inserting steel pins into the corresponding holes
- Insert safety pins into steel pins holes and lock safety pin by rotating its ring around steel pin.
- Position and lock the crank as in drawings below
- Adjust VBUMP main beam shackle position according to NS1 "Rigging Point Position" value

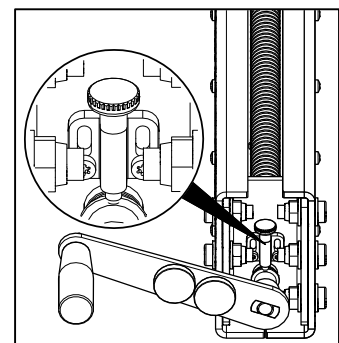
**IMPORTANT**  
**Ensure safety pins springs are functional**  
**Ensure VBUMP main beam and tail beam are properly locked to XBOW**



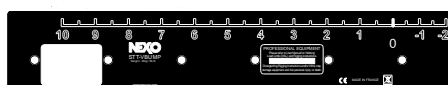
Connecting VBUMP to XBOW for negative tilt



Connecting VBUMP to XBOW for positive tilt



Locking the crank



Adjusting VBUMP rigging point position

**Finalizing the setup of top bumper rigging elements**

- Connect the motor hoist to the VBUMP main beam shackle

**IMPORTANT**  
**Motor Hoist must be rated for total cluster weight**  
**Please refer to NS1 mechanical information**

- Connect the chain lever hoist hook to the VBUMP tail beam shackle

**IMPORTANT**  
**Compression chain lever hoist must be rated according to compression pullback force**  
**Please refer to NS1 mechanical information**

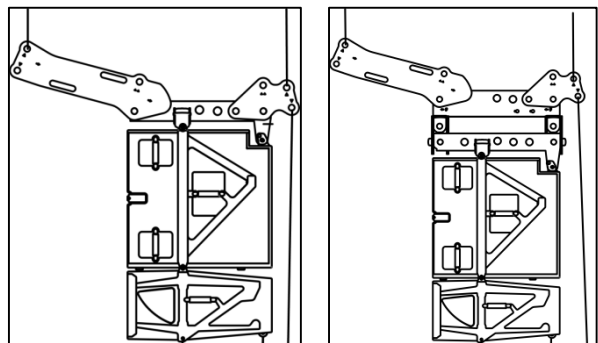
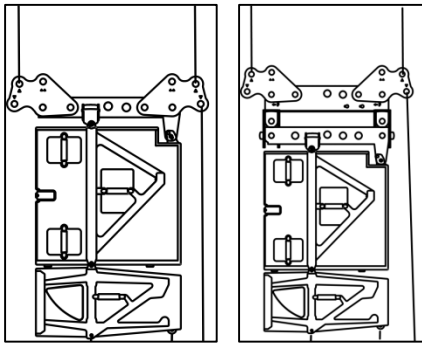
- Lift bumper assembly off the ground so that first cabinet dolly can roll underneath

**5.6 Flying on two motors and a chain lever hoist (M28 default mode)**

This flying mode should be considered as the default rigging mode to be applied when flying STM M28.

EDIT SETTINGS	
Rigging Mode	2 Motors + Chain Lever Hoist
Bumper Inclination	Downwards
Bumper Top	No Kbeam
Compression Device	Chain lever hoist 1500 kg

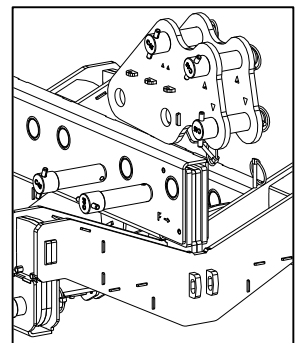
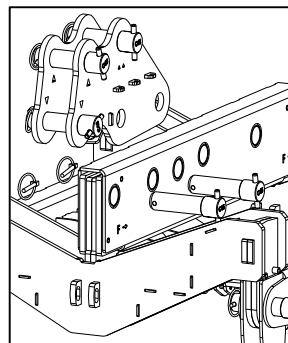
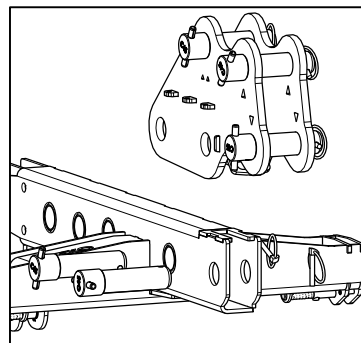
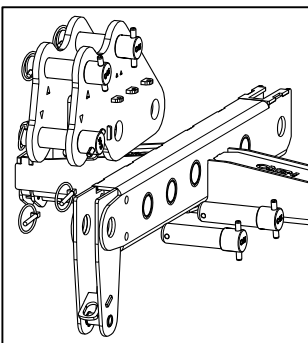
EDIT SETTINGS	
Rigging Mode	2 Motors + Chain Lever Hoist
Bumper Inclination	Upwards
Bumper Top	Kbeam front
Compression Device	Chain lever hoist 1500 kg



**Connecting PTILTs to XBOW or MBEAM**

- Position first PTILT to the front of XBOW or MBEAM then lock these components by inserting steel pins into the corresponding holes
- Insert safety pins into steel pins holes and lock safety pin by rotating its ring around steel pin
- Position second PTILT to the rear of XBOW or MBEAM then repeat the same safety procedure than above

**IMPORTANT**  
**Ensure safety pins springs are functional**  
**Ensure PTILT is properly locked to XBOW or MBEAM**



Connecting PTILTs to XBOW

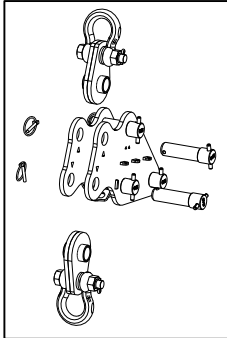
Connecting PTILTs to MBEAM

**Finalizing the setup of top bumper rigging elements**

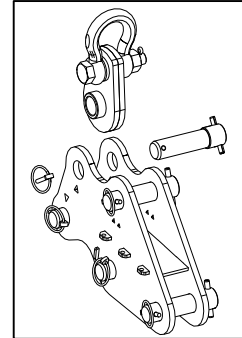
- Insert centring device into front PTILT main rig point  $\Delta$  (1 unit), then lock these 2 components by inserting the steel pin into the corresponding hole
- Insert safety pins into steel pin hole and lock safety pin by rotating its ring around steel pin
- Insert centring devices into rear PTILT upper main rig point  $\Delta$  (1 unit) and into PTILT lower compression point  $\nabla$  (1 unit), then lock these 3 components by inserting the steel pins into the corresponding holes
- Insert safety pins into steel pin holes and lock safety pins by rotating its rings around steel pins

**IMPORTANT****Ensure safety pins springs are functional**

- Attach motor hoists to front and rear PTILT upper centring devices



Attaching centring devices to rear PTILT



Attaching centring device to front PTILT

**IMPORTANT****Both motor hoists must be rated for total cluster weight  
Please refer to NS1 mechanical information**

- Attach compression upper chain lever hoist hook to PTILT lower centring device

**IMPORTANT****Compression chain lever hoist must be rated according to compression pullback force  
Please refer to NS1 mechanical information**

- If top modules are on a dolly, unlock the dolly by pulling bottom cabinet RedLock handle
- Lift assembly slightly off the ground (and store dolly)

**Alternative mode for important bumper up tilt**

When important bumper positive angle is required (such as delay towers in stadium concerts), front PTILT can be replaced by KBEAM in order to move front rigging point frontwards

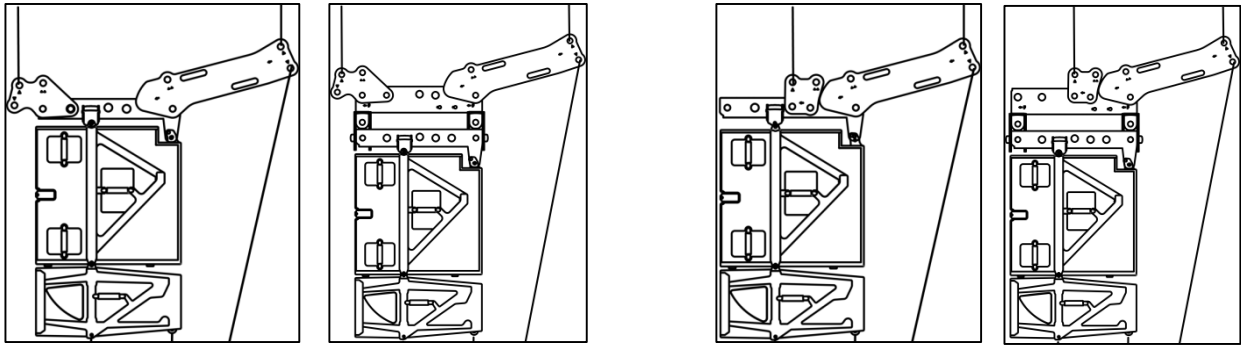
- Proceed as above, except that KBEAM replaces front PTILT and must be connected to XBOW or MBEAM through its articulation point

**5.7 Flying on two motors and keeping chain (M46 + B112 default mode)**

This flying mode should be considered as the default rigging mode to be applied when flying STM B112 and STM M46

EDIT SETTINGS	
Rigging Mode	2 Motors + Compression Ch <span style="float: right;">v</span>
Bumper Inclination	Upwards
Bumper Top	Kbeam + Ptilt
Compression Device	Compression chain 1500 kg

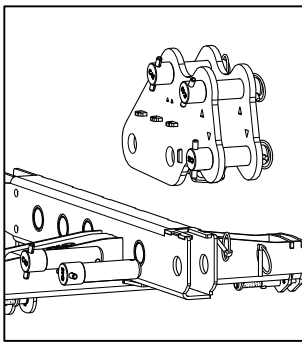
EDIT SETTINGS	
Rigging Mode	2 Motors + Compression Chain
Bumper Inclination	Downwards <span style="float: right;">v</span>
Bumper Top	Kbeam + Mlink
Compression Device	Compression chain 1500 kg



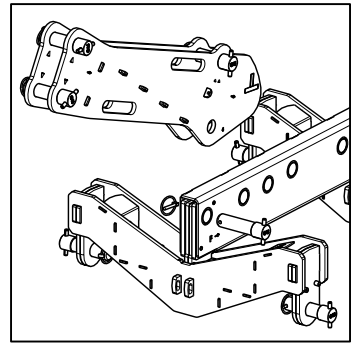
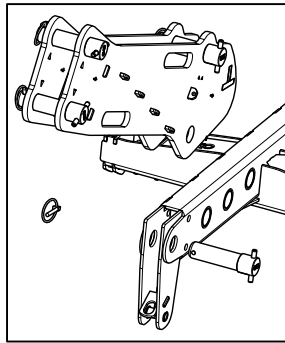
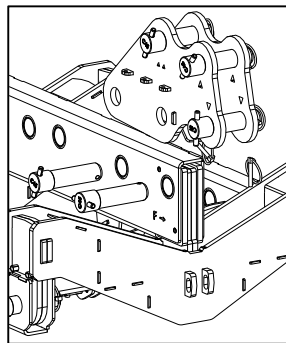
**Connecting PTILTs to XBEAM or MBEAM**

- Position first PTILT to the front of XBEAM or MBEAM then lock these components by inserting steel pins into the corresponding hole
- Insert the KBEAM into the rear end of MBEAM then lock these 2 components by inserting steel pin into the hole as displayed in side drawing
- Insert safety pin into steel pins hole and lock safety pin by rotating its ring around steel pin

**IMPORTANT**  
 Ensure safety pins springs are functional;  
 Ensure KBEAM is properly locked to MBEAM, and can be articulated around its axis



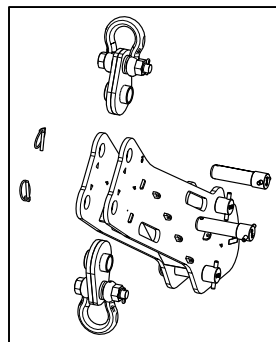
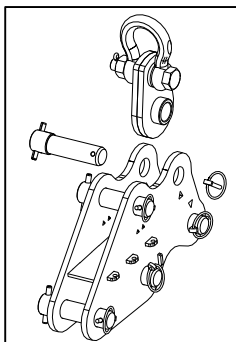
Connecting front PTILT to XBEAM or MBEAM



Connecting rear KBEAM to XBEAM or MBEAM

**Finalizing the setup of top bumper rigging elements**

- Insert centring device into PTILT main rig point Δ (1 unit), then lock these 2 components by inserting the steel pin into the corresponding hole
- Insert safety pins into steel pin hole and lock safety pin by rotating its ring around steel pin
- Insert centring devices into KBEAM upper main rig point Δ (1 unit) and into KBEAM lower compression point (1 unit) , then lock these 3 components by inserting the steel pins into the corresponding holes
- Insert safety pins into steel pin holes and lock safety pins by rotating its rings around steel pins
- Attach motor hoists to PTILT and KBEAM upper centring devices



**IMPORTANT**

**Both motor hoists must be rated for total cluster weight.**

**Please refer to NS1 mechanical information**

- Attach compression upper chain hook to KBEAM lower centring device

**IMPORTANT**

**Compression chain must be rated according to compression pullback force.**

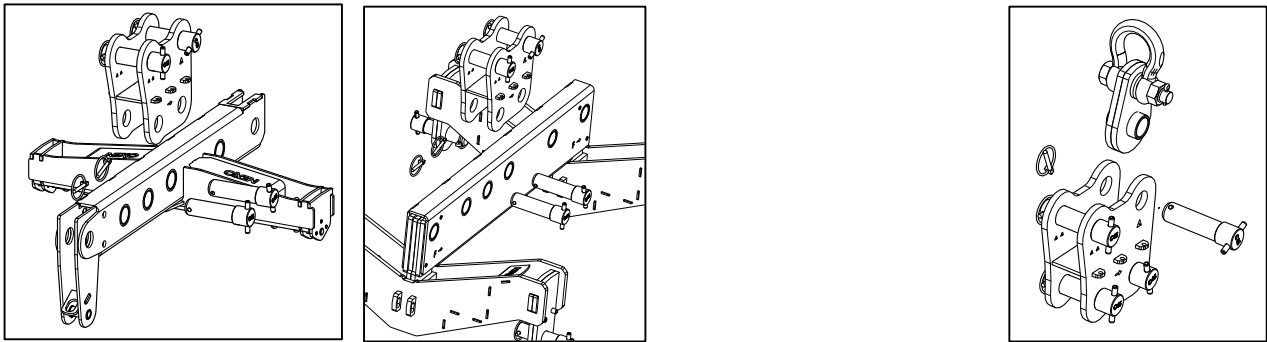
**Please refer to NS1 mechanical information**

- If top modules are on a dolly, unlock the dolly by pulling bottom cabinet RedLock handle
- Lift assembly slightly off the ground (and store dolly)

**Alternative mode to fly from gravity center**

In order to avoid front swinging of the system when compression force is applied (see section XX), it is possible to fly STM cluster from its gravity center position by using MLINK instead of PTILT

- Proceed as above, except that MLINK replaces front PTILT and must be connected to XBOW or MBEAM according to below drawings

**5.8 Connecting subsequent modules and presetting angles****Upper speaker modules assembly angle pre-setting**

- **M46 and/or B112**: Set speaker angles as specified from NS-1 Software by turning piston wheels
- Rotate piston lock handles from “STORAGE” (horizontal) to “OPERATION” position (vertical)
- **M28**: Set speaker angles as specified from NS-1 Software by inserting pin in CompassRig in appropriate hole

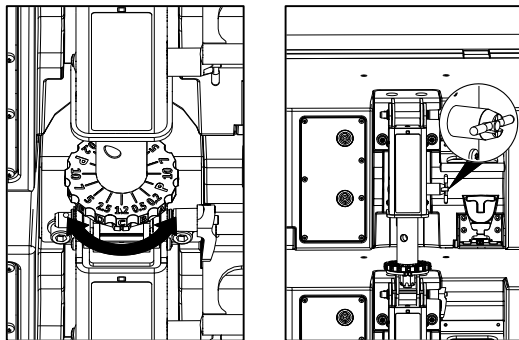
**WARNING****M46 and/or B112**

**Ensure lock handles are in “OPERATION” position**

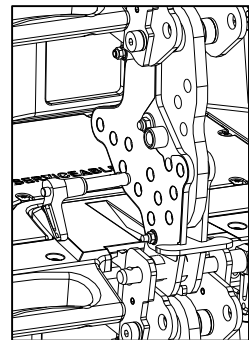
**If not, pistons will be damaged at the time compression force is applied**

**Ensure that angle selection is identical on M46 and adjacent B112**

- Connect speaker cables



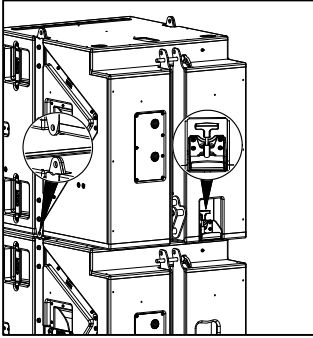
*Presetting angle on M46&B112 and moving to “operation”*



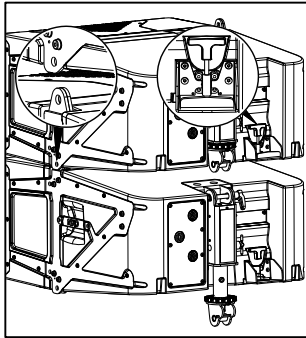
*Presetting angle on M28 by inserting pin*

**Connecting subsequent modules**

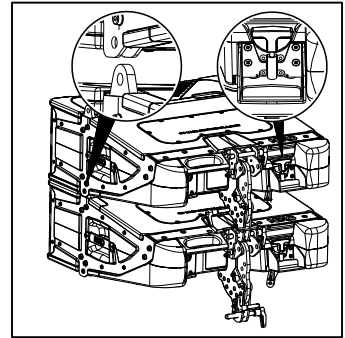
- Lift upper assembly so that next module or dolly package can set underneath
- Align module or second dolly package below upper assembly
- Lower upper assembly into position, aligning side rigging slots on both sides of the cabinets
- Connect upper assembly to the second set of cabinets by pushing REDLOCK™ into “LOCK” position
- Ensure REDLOCK™ safety pins are locked into handle holes



Front locking on S118



Front locking on B112 and M46



Front locking on M28

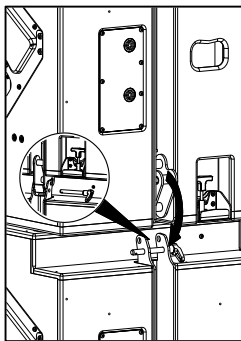
**IMPORTANT**

**Side locking pins must be flush to rigging plates on both sides of the cabinet**

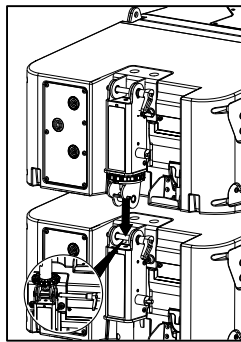
**If locking pins appear to be going inwards in relation to rigging plates, cabinets must not be flown**

**Ensure all REDLOCK™ safety pins are locked into handle holes**

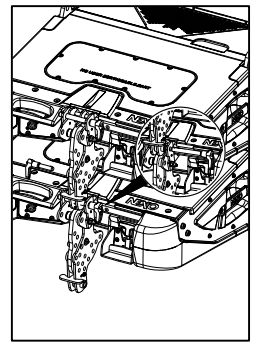
- S118: insert rear quick release pin on the rear hinge so that upper set is connected to lower set
- M46 and/or B112: rotate lock handle of first set bottom cabinets in “OPERATION” mode (vertical position)  
Slide upper set bottom modules piston axis and insert rear quick release pins so that upper set is connected to lower set
- M28: extend upper set bottom modules CompassRig™ and insert rear quick release pins so that upper set is connected to lower set



Rear locking on S118



Rear locking on B112 and M46



Rear locking on M28

**IMPORTANT**

**Check rear quick release pins are fully engaged and locked**

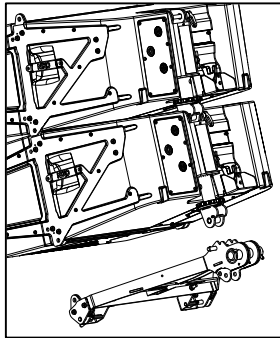
- Unlock the dolly from the bottom cabinets by pulling REDLOCK™ handle, and store dolly
- Connect speaker cables
- Lift up the assembly
- Repeat the same procedures as before until the full array is off the ground



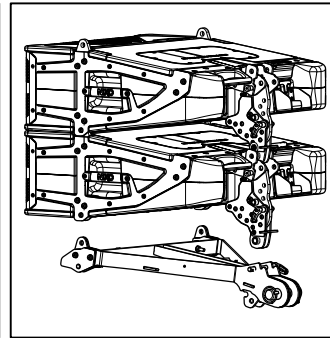
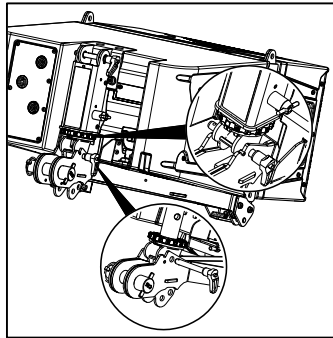
## 5.9 Lower Assembly

### Connecting BTBUMPERs below bottom modules

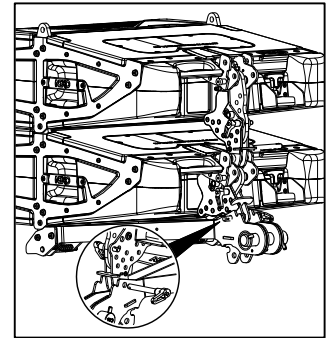
- Align BTBUMPERs to bottom cabinet side rigging slots, and lock the BTBUMPERs to bottom cabinets by pushing REDLOCK™
- *M46 and/or B112*: Slide bottom cabinets pistons to bottom bumper connection point by rotating lock handle of the last cabinet in OPERATION mode (vertical position), and insert quick release pin.
- Turn bottom cabinet piston wheels to ■ parking position.
- Lift BTBUMPERs so that they are adjacent to bottom cabinets and lock them by turning piston lock handle to "STORAGE" (horizontal position)
- *M28*: rotate CompassRig, and insert pin into "BTBUMP" hole



Connecting bottom bumper to B112 or M46



Connecting bottom bumper to M28



### IMPORTANT

Check rear quick release pins are fully engaged and locked

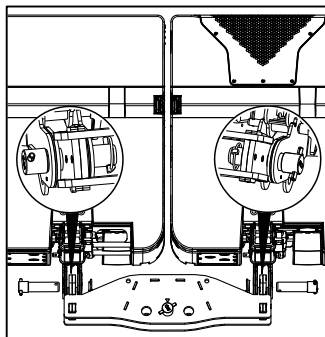
### Connecting BTBUMPER to BCOUP2 (XCOUP3) bottom coupling bar

- Insert bottom bumper coupler BCOUP2 (BCOUP3) into the 2 (3) fixing points located at the back of the BTBUMPERs.
- Insert the steel pins into the corresponding holes
- Insert safety pins into steel pin hole and lock safety pin by rotating its ring around steel pin
- Check that all elements are properly locked

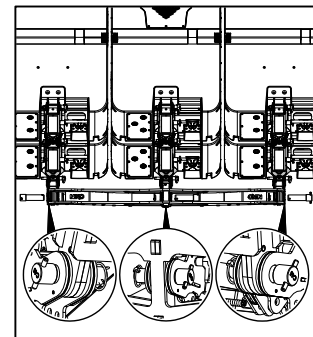
### IMPORTANT

Ensure safety pins springs are functional

Ensure BCOUP2 (BCOUP3) is properly locked to BTBUMPERs, and can be articulated around its axis



Coupling 2xBTBumpers with BCOUP2



Coupling 3xBTBumpers with BCOUP3

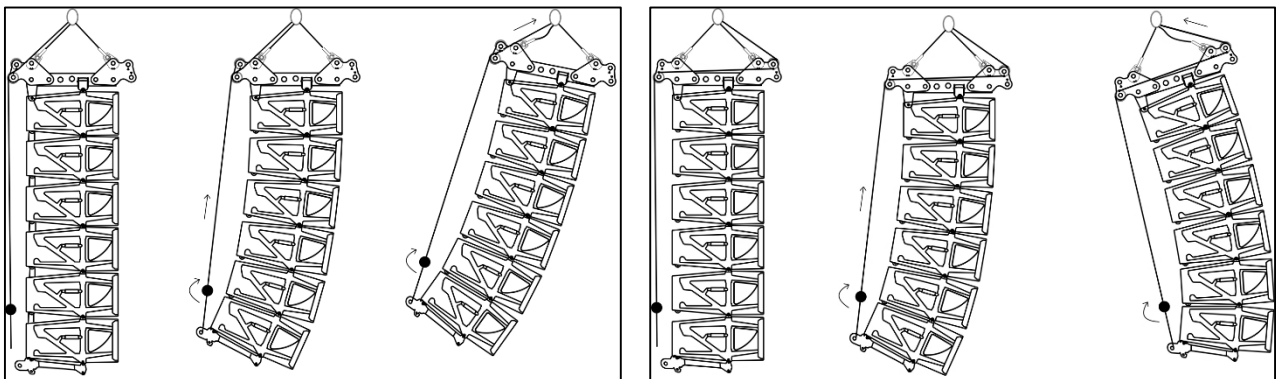
### 5.10 Compression and bumper angle with a single motor

- Attach the lower hook of the Chain Lever Hoist VXT-LEVA to the rear of BTBUMPER or BCOUP2 (BCOUP3)
- Rotate Chain Lever Hoist wheel clockwise until the BCOUP2 is approximately parallel with the ground and the chain is taught
- Make a final check that the Chain Lever Hoist VXT-LEVA is correctly installed
- Rotate the lever to apply pull up force to the bottom of the array. The rear motor hoist may now be raised to apply the pull-up force to the bottom of the array. Notice that, as the chain gets shorter, the cabinets in the array close together to piston / compass preset angle
- Once all of the cabinets are closed together, continuing rotating the lever will tilt the bumper up
- Adjust the aiming angle of the array according to the inclinometer display
- Store surplus chain in the chain bag. The chain bag should be clipped to the chain

**IMPORTANT**  
**DO NOT attempt to make any changes to the piston angles when the rear pull-up force is applied.**

- Adjust the overall height of the array by lifting the motor hoist
- Install secondary safety steel between one PTILT hole marked ΔΔ and a suitable point in the supporting structure

**IMPORTANT**  
**The requirements for secondary safety systems vary with territories. However, the secondary safety steel MUST have a SWL equivalent to or greater than that of the rigging system**



*Applying compression and adjusting bumper angle: left for bumper negative tilt, right for bumper positive tilt*

### 5.11 Compression and bumper angle with 2 motors and a chain lever hoist

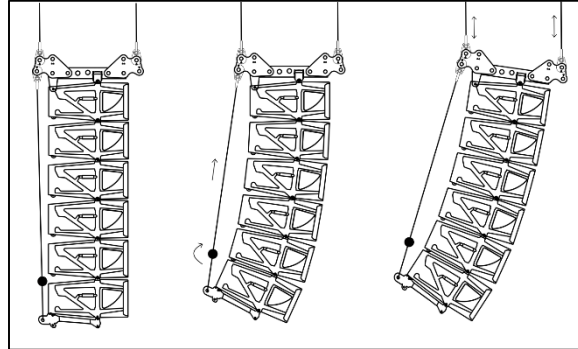
- Attach the lower hook of the Chain Lever Hoist VXT-LEVA to the rear of BTBUMPER or BCOUP2 (BCOUP3)
- Rotate the finger wheel clockwise until the BCOUP2 is approximately parallel with the ground and the chain is taught
- Make a final check that the Chain Lever Hoist VXT-LEVA is correctly installed
- Rotate the lever to apply pull up force to the bottom of the array. Notice that, as the chain gets shorter, the cabinets in the array close together to piston/compass preset angles
- When all of the cabinets are closed together, required force to rotate the lever becomes much stronger. This is the indication that the angles have been correctly set
- Store surplus chain in the chain bag. The chain bag should be clipped to the chain

**IMPORTANT**  
**DO NOT attempt to make any changes to the piston angles when the rear pull-up force is applied**

- Adjust the overall height and aiming angle of the array by adjusting the front and rear motor hoists accordingly
- Install secondary safety steel between one PTILT hole marked  $\Delta\Delta$  and a suitable point in the supporting structure

### IMPORTANT

**The requirements for secondary safety systems vary with territories. However, the secondary safety steel MUST have a SWL equivalent to or greater than that of the rigging system**



*Applying compression and adjusting bumper angle*

## 5.12 Compression and bumper angle with 2 motors and keeping chain

- With the cluster raised off the ground, lower the rear motor hoist only. The array will swing slowly forwards until the centre of gravity lies directly below the front motor hoist. Continue to lower the rear motor hoist and the the Keeping Beam KBEAM will swing downwards towards the cabinets. Stop lowering the rear hoist when the Keeping Beam KBEAM is at its lower position.

### IMPORTANT

**When lowering rear motor hoist, the cluster swings forward: ensure there is no obstacle in front of the cluster within sufficient distance**

- Attach the lower hook of the Keeping Chain to the rear of BTBUMPER or BCOUP2 (BCOUP3)
- Manually raise the Bottomcoupler BCOUP2 (BCOUP3) until it is approximately parallel with the ground
- Set the adjustable clutch in the Keeping Chain BCCH so that the chain is taught
- Make a final check that the Keeping Chain BCCH is correctly installed and store the surplus chain in the chain bag supplied. The chain bag should be clipped to the clutch adjuster assembly
- The rear motor hoist may now be raised to apply the pull-up force to the bottom of the array. Notice that, as the rear hoist is raised, the cabinets in the array close together to piston preset angles
- When all of the cabinets are closed together the array begins to move as a whole. This is the indication that the angles have been correctly set. Ensure that compression has been fully applied to all cabinets by controlling that Keeping Beam KBEAM is not at its maximum upper position

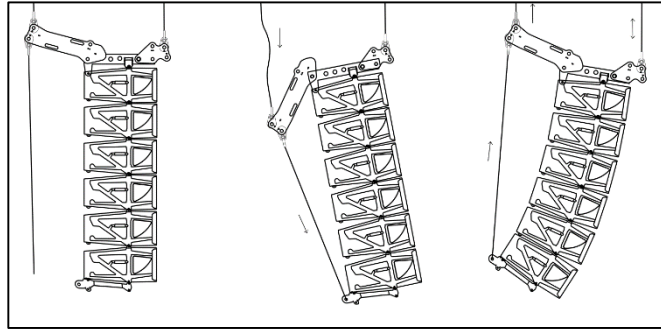
### IMPORTANT

**DO NOT attempt to make any changes to the piston angles when the rear pull-up force is applied**

- Adjust the overall height and aiming angle of the array by adjusting the front and rear motor hoists accordingly
- Install a secondary safety steel between the Keeping Beam front hole marked  $\Delta\Delta$  and a suitable point in the supporting structure

### IMPORTANT

**The requirements for secondary safety systems vary with territories. However, the secondary safety steel MUST have a SWL equivalent to or greater than that of the rigging system**



Applying compression and adjusting bumper angle

### 5.13 Adding M28 as a downfill for M46

Up to 3xM28 modules can be added below bottom M46 module in order to extend front coverage.

M28s can be added below bottom bumper in tension mode,

Angle between bottom M46 and first M28 is forced at 10°, angle between subsequent M28s ranges from 10° to 15°.

*NB: M28 cannot be flown below triple column clusters*

Once M46 and B112 modules are off the ground and before bottom bumper is installed – ie before compression is applied -.

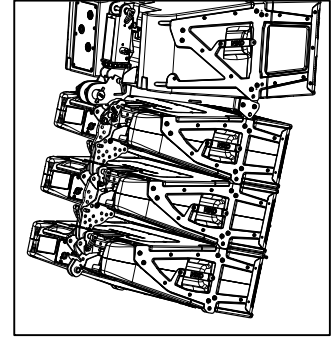
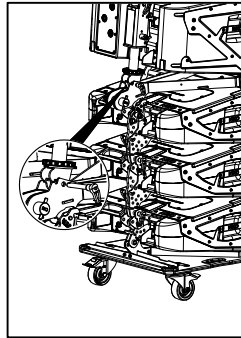
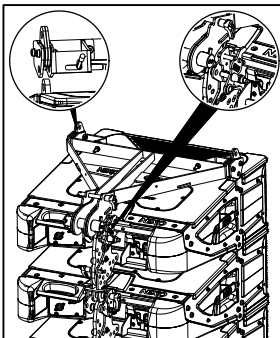
#### Single STM column

- Connect BTBUMPER on top of M28 first downfill by locking the front points and with M46TOM28 for the rear point
- Bring M28 dolly package below M46 column and lower cluster so that front connecting points of BTBUMPER and lower M46 module are aligned
- Lock front pins by pushing REDLOCK™ into “LOCK” position; ensure REDLOCK™ safety pins are locked into handle holes.

#### **IMPORTANT**

**Side locking pins must be flush to rigging plates on both sides of the cabinets**  
**If locking pins appear to be going inwards in relation to rigging plates, cabinets must not be flown**  
**Ensure REDLOCK™ safety pin are locked into handle holes**

- Rotate lock handle of bottom M46 module in “OPERATION” mode (vertical position) in order to disengage PISTONRIG™
- Connect PISTONRIG™ to BTBUMPER
- apply compression according to preceding sections



**Double STM column**

Proceed as above, but prior to applying compression:

- lock the second BTBUMPER to bottom B112 module by pushing RedLock.

**IMPORTANT**

**Side locking pins must be flush to rigging plates on both sides of the cabinets**  
**If locking pins appear to be going inwards in relation to rigging plates, cabinets must not be flown**  
**Ensure REDLOCK™ safety pins are locked into handle hole**

- Slide bottom B112 module pistons to bottom bumper connection point by rotating lock handle of the last cabinet in OPERATION mode (vertical position), and insert quick release pin
- Turn bottom B112 module piston wheel to ■ parking position
- Lift BTBUMPER so that it is adjacent to bottom cabinets and lock them by turning piston lock handle to "STORAGE" (horizontal position)

**IMPORTANT**

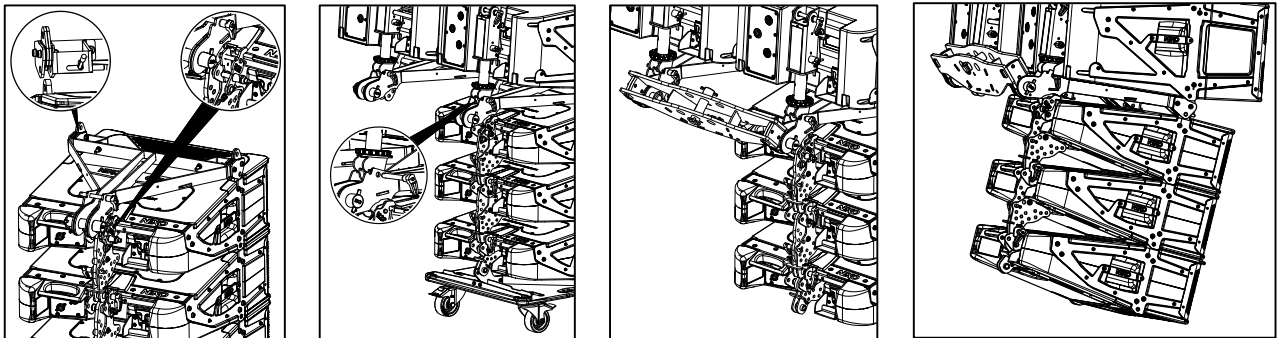
**Check rear quick release pins are fully engaged and locked**

- Insert bottom bumper coupler BCOUP2 (BCOUP3) into the 2 (3) fixing points located at the back of the BTBUMPERs
- Insert the steel pins into the corresponding holes
- Insert safety pins into steel pin hole and lock safety pin by rotating its ring around steel pin
- Check that all elements are properly locked

**IMPORTANT**

**Ensure safety pins springs are functional**  
**Ensure BCOUP2 (BCOUP3) is properly locked to BTBUMPERs, and can be articulated around its axis**

- apply compression according to preceding sections

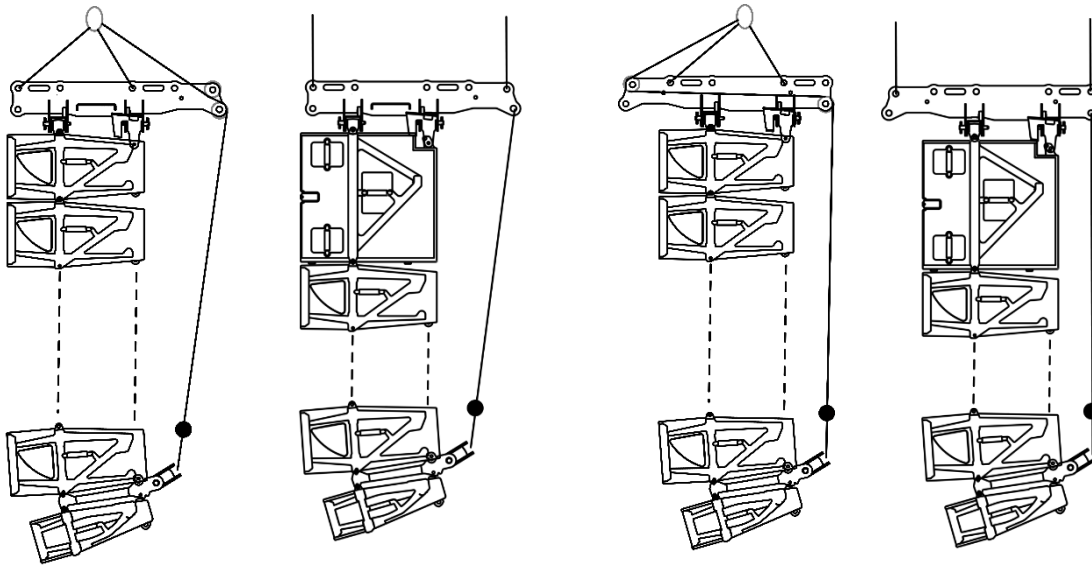


### 5.14 Special case: flying with lightweight bumper

For small and mid-size STM applications (up to 12 B112 and M46 modules and 3 M28), a specific lightweight bumper LBUMPER is available.

EDIT SETTINGS	
Rigging Mode	1 Motor + Chain Lever Hoist
Bumper Inclination	Downwards
Bumper Top	LWB rear
Compression Device	Chain lever hoist 1500 kg
M28 Mode	Tension
LWB Horiz Offset	#0

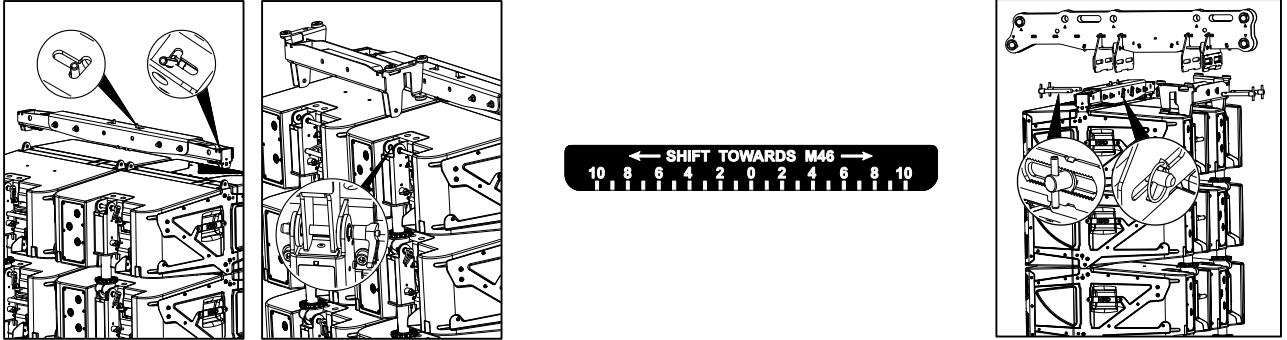
EDIT SETTINGS	
Rigging Mode	2 Motors + Chain Lever Hoist
Bumper Inclination	Upwards
Bumper Top	LWB front
Compression Device	Chain lever hoist 750 kg
M28 Mode	Tension
LWB Horiz Offset	#0



- Position LBUMPER front beam on top of the two STM modules
- Lock the 4 lateral spring pins into the front lateral holes of STM modules
- Position LBUMPER rear beam on top of the two STM modules
- Insert the 2 quick release pins at the back, in the holes located at the rear of STM modules

**IMPORTANT**  
**Ensure LBUMPER front beam springs are functional**  
**Ensure LBUMPER spring pins and rear quick release pin are properly locked into top modules**

- Position LBUMPER rigging beam perpendicular to front and rear beams, frontwards or rearwards depending on anticipated positive or negative bumper angle
- Adjust LBUMPER rigging beam laterally according to NS1 “LWB Horiz Offset” value
- Insert the 4 pins VG0UP16 once rigging beam is adjusted, and secure with the safety pins



### **Finalizing the setup LBUMPER**

- Insert centring devices into LBUMPER rigging points  $\Delta$  (1 unit), then lock these components by inserting the steel pin into the corresponding hole
- Insert safety pins into steel pin hole and lock safety pin by rotating its ring around steel pin

#### **IMPORTANT**

**Ensure safety pins springs are functional**

- Attach motor hoists to centring devices

#### **IMPORTANT**

**Both motor hoists must be rated for total cluster weight**

**Please refer to NS1 mechanical information**

- Insert centring devices into LBUMPER lower compression point  $\nabla$  (1 unit), then lock these components by inserting the steel pins into the corresponding holes
- Attach chain lever hoist hook to LBUMPER lower centring device

#### **IMPORTANT**

**Compression chain must be rated according to compression pullback force**

**Please refer to NS1 mechanical information**

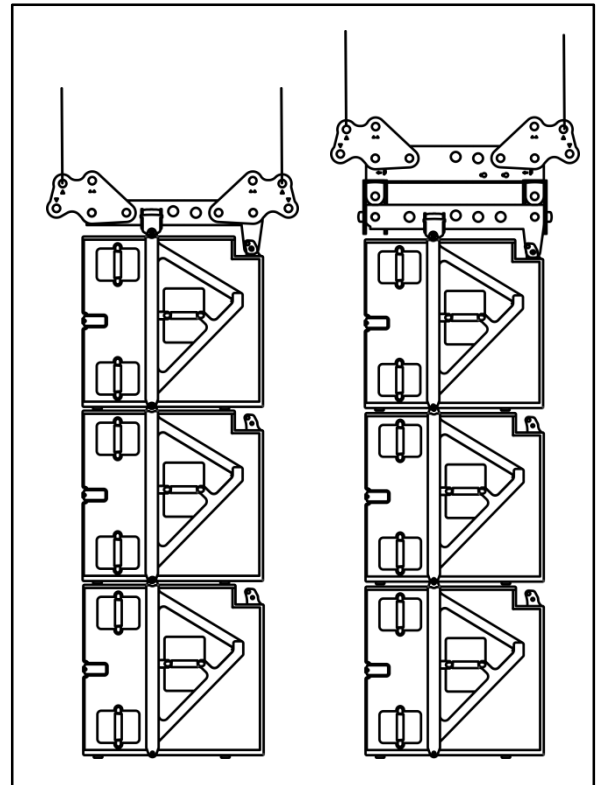
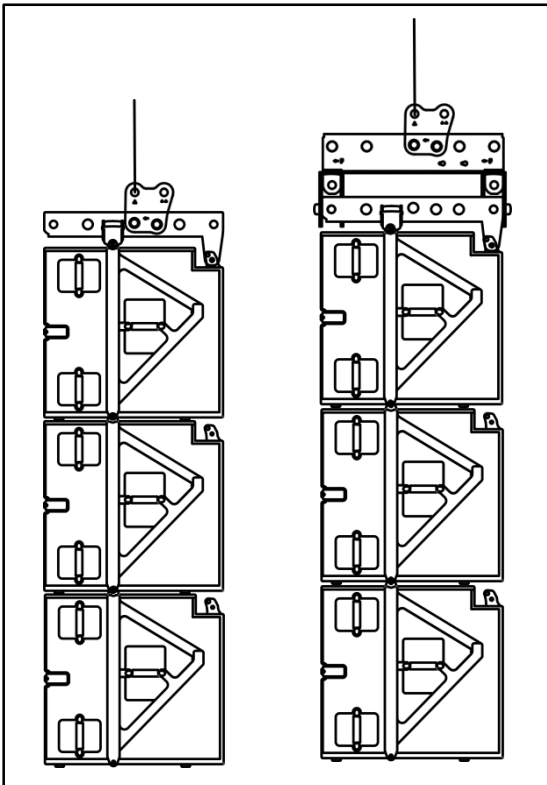
- If top modules are on a dolly, unlock the dolly by pulling bottom cabinet RedLock handle
- Lift assembly slightly off the ground (and store dolly)
- And proceed as in above sections to connect modules, attach bottom bumper and apply compression

### 5.15 Special case: flying S118 only clusters

When flying S118 only in single or multiple columns, and provided bumper angle is forced to 0° (horizontal), compression procedure is no longer required.

EDIT SETTINGS	
Motor Mode	1 Motor
Bumper Top	Kbeam + Mlink

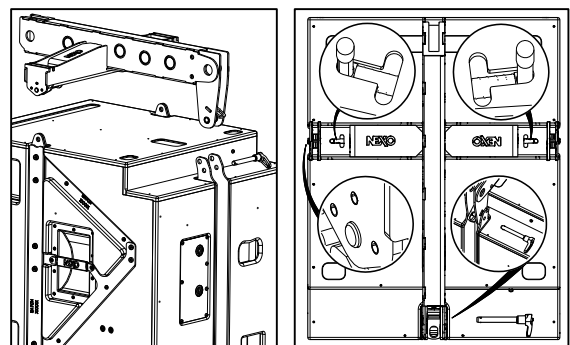
EDIT SETTINGS	
Motor Mode	2 Motors
Bumper Top	Kbeam + Ptilt



#### Connecting XBOW to the top S118

- Insert the XBOW into the 3 fixing points: 2 on the sides and one at the back of the S118
- Lock the lateral spring pins located inside the XBOW to the front lateral holes of the S118
- Insert quick release pin at the back

**IMPORTANT**  
**Ensure XBOW springs are functional**  
**Ensure-XBOW lateral spring pins and rear quick release pin are properly locked into top cabinet**



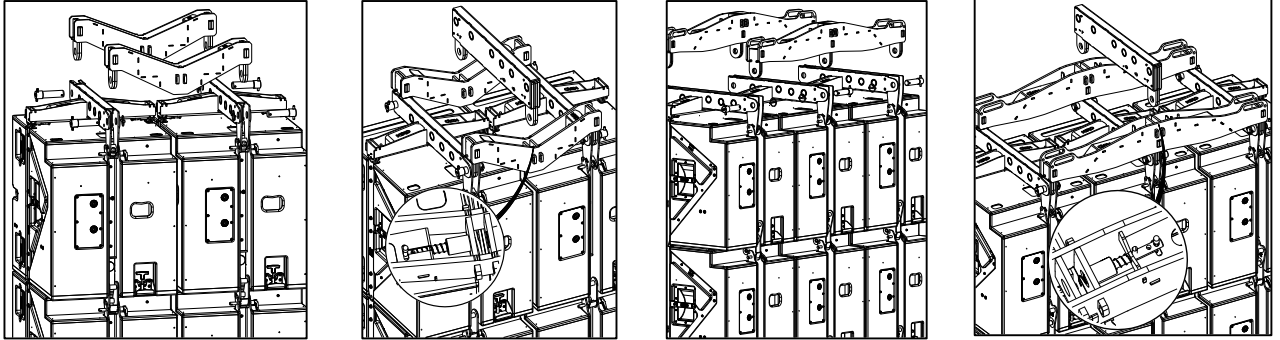
#### Connecting XBOW to XCOUP2 (XCOUP3) coupling beams

- Insert front coupling beam XCOUP2 (XCOUP3) into left and right XBOWs, then lock these 2 components by inserting the steel pins into the corresponding holes
- Insert safety pins into steel pins hole and lock safety pin by rotating its ring around steel pin
- Repeat the same procedure for the rear coupling XCOUP2 (XCOUP3)



**IMPORTANT**

**Ensure assembly is properly locked on these 4 (6) points**

**Connecting MBEAM to XCOUP2 (XCOUP3) coupling beams**

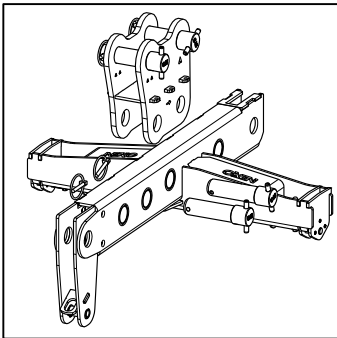
- Insert the MBEAM fixing points into XCOUP2 (XCOUP3) coupling beams then release XCOUP2 (XCOUP3) spring pins so that above components are locked

**IMPORTANT**

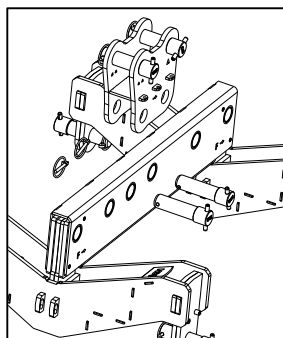
**Ensure-XCOUP2 (XCOUP3) spring pins are properly locked into MBEAM**

**One motor: connecting MLINK to XBOW or MBEAM**

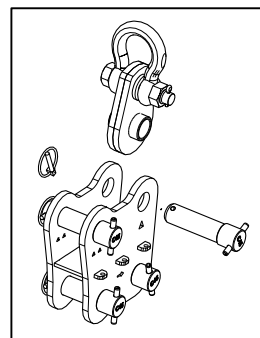
- Position MLINK at the middle of XBOW or MBEAM then lock these components by inserting steel pins into the corresponding holes
- Insert centring device into MLINK main rig point  $\Delta$  (1 unit), then lock these 2 components by inserting the steel pin into the corresponding hole
- Insert safety pins into steel pins holes and lock safety pin by rotating its ring around steel pin



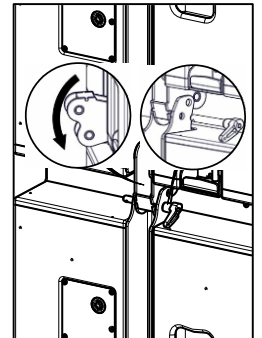
*Connecting MLINK to XBOW or MBEAM*



*Centring Device*

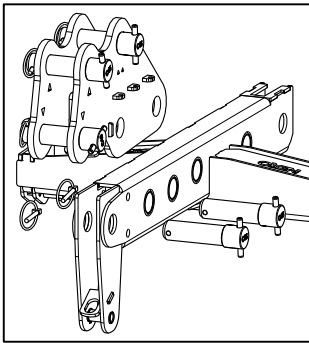


*Linking S118s*

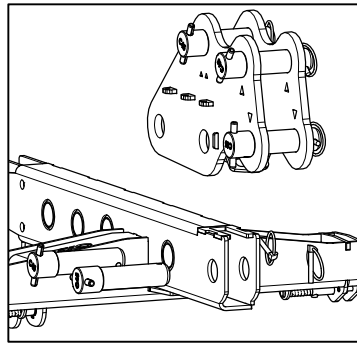
**Two motors: connecting PTILTS to XBOW or MBEAM**

- Position first PTILT to the front of XBOW or MBEAM then lock these components by inserting steel pins into the corresponding holes
- Insert safety pins into steel pins holes and lock safety pin by rotating its ring around steel pin

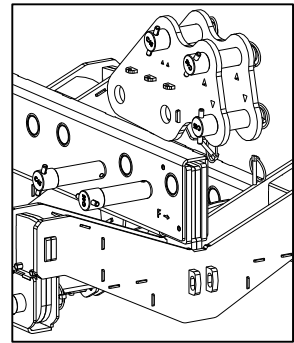
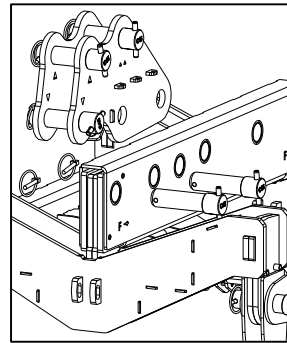
- Position second PTILT to the rear of XBOW or MBEAM then repeat the same safety procedure than above



Connecting PTILTs to XBOW



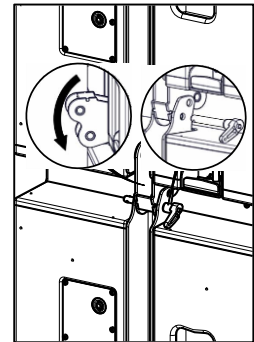
Connecting PTILTs to MBEAM



**IMPORTANT**  
**Ensure safety pins springs are functional;**  
**Ensure PTILTs or MLINK are properly locked to XBOW or MBEAM**

**Connecting subsequent S118**

- Lift upper S118 assembly so that next dolly package can roll underneath
- Align second dolly package below upper assembly
- Lower upper assembly into position, aligning side rigging slots on both sides of the cabinets
- In order to connect upper assembly to the second set of cabinets, push REDLOCK™ into “LOCK” position; ensure REDLOCK™ safety pins are locked into handle holes
- insert rear quick release pin on the rear hinge so that upper set is connected to lower set

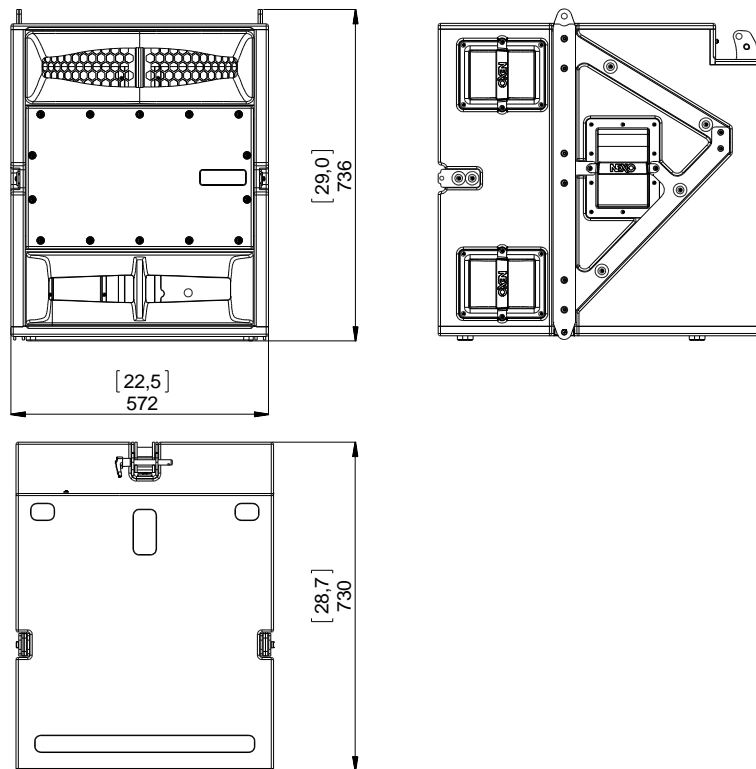


**IMPORTANT**  
**Side locking pins must be flush to rigging plates on both sides of S118**  
**If locking pins appear to be going inwards in relation to rigging plates, S118 must not be flown**  
**Check rear quick release pins are fully engaged and locked**

- Repeat the same procedures as before until the full array is off the ground
- Install a secondary safety steel between the MLINK or PTILTs and a suitable point in the supporting structure

**IMPORTANT**  
**The requirements for secondary safety systems vary with territories. However, the secondary safety steel MUST have a SWL equivalent to or greater than that of the rigging system**

## 6 STM S118 TECHNICAL SPECIFICATIONS



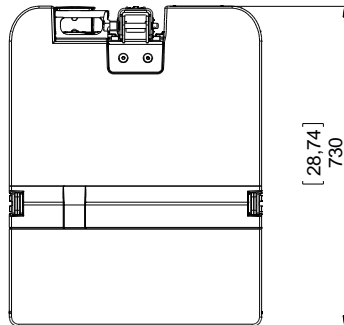
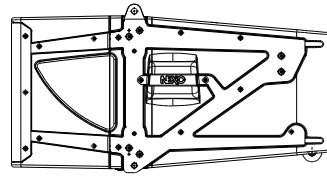
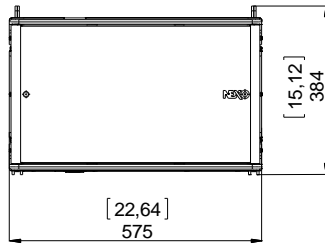
SYSTEM SPECIFICATIONS		STM S118 with NXAMP 4x4
Frequency Response [a]		27Hz – 85Hz ±3dB
Usable Range @-6dB [a]		23Hz – 100Hz
Sensitivity 1W @ 1m [b]		109dB SPL Nominal
Nominal Peak SPL @ 1m [b]		143dB Peak
Nominal Impedance		16Ω (12 Ω min)
Amplified Controller		NXAMP4x4 - 3xSTM S118 in parallel on 2 NXAMP4x4 bridged channels – 8000W/4Ω
PRODUCT FEATURES		STM S118
Components :		LF: 1 x 18" (46cm) 3000W high excursion Neodymium16 Ohms driver.
Height x Width x Depth		700 x 575 x 715 mm – 27.56" x 22.64" x 28.15"
Weight : Net		85kg – 187lbs
Connectors		2 x NLT4-MDV Speakon 4 poles (in/out)
Construction		Baltic birch ply finished with structured black coating
Fittings: Handles		6 handles (3 per side)
Front		Perforated Dark Grey Metal Grille
Rigging		Integral 3 points flying and locking system.
SYSTEM OPERATION		
Electronic Controller		The NEXO NXAMP4x4 presets are precisely matched to the STM Series cabinets and include sophisticated protection algorithms.. Using STM Series cabinets without a properly connected NEXO NXAMP4x4 will result in poor sound quality and can damage components.
Speaker Cabling		1/1': SUB - 2/2': LF

As part of a policy of continual improvement, NEXO reserves the right to change specifications without notice.

[a] Response curves & data : Half-Space Far Field for the STM S118 & B112 + NXAMP4x4.

[b] Sensitivity & Peak SPL data : these will depend on spectral distribution and crest factor of program material. Measured with band limited Pink Noise. Data are for speaker + amplified controller. Peak SPL is at clipping of NXAMP4x4.

## 7 STM B112 TECHNICAL SPECIFICATIONS



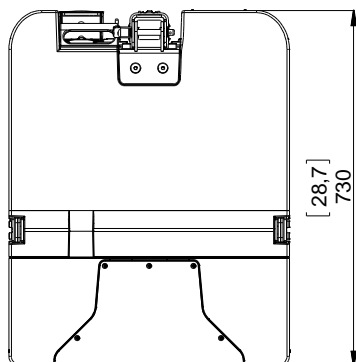
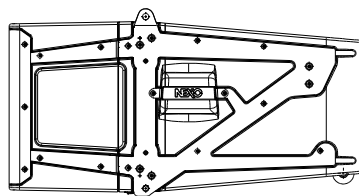
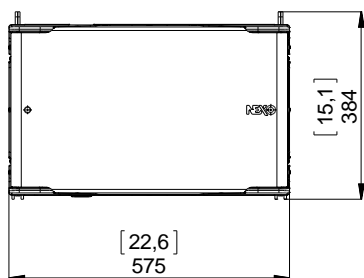
SYSTEM SPECIFICATIONS		STM B112 with NXAMP 4x4
Frequency Response [a]		63Hz – 200Hz $\pm$ 3dB
Usable Range @-6dB [a]		55Hz – 250Hz
Sensitivity 1W @ 1m [b]		107dB SPL Nominal
Nominal Peak SPL @ 1m [b]		141dB Peak
Nominal Impedance		16 $\Omega$ (12 $\Omega$ min)
Amplified Controller		NXAMP4x4 - 3xSTM B112 in parallel on 2 NXAMP4x4 bridged channels – 8000W/4 $\Omega$
PRODUCT FEATURES		STM B112
Components :		LF: 1 x 12" (30cm) 3000W high excursion Neodymium 16 Ohms driver.
Height x Width x Depth		350 x 575 x 715 mm – 13.78" x 22.64" x 28.15"
Weight : Net		59 kg – 130 lbs
Connectors		2 x NLT4-MDV Speakon 4 poles (in/out)
Construction		PU Composite Low Density – Polyurethane water based black coating
Fittings: Handles		3 handles (2 sides and 1 rear)
Front		Perforated Dark Grey Metal Grille
Rigging		Integral 3 points flying system. Intercabinet angle adjustments from 0.2° to 10° in logarithmic steps.
SYSTEM OPERATION		
Electronic Controller		The NEXO NXAMP4x4 presets are precisely matched to the STM Series cabinets and include sophisticated protection algorithms. Using STM Series cabinets without a properly connected NEXO NXAMP4x4 will result in poor sound quality and can damage components.
SubBass		STM S118 extends system low frequency response down to 25Hz
Speaker Cabling		1/1": SUB - 2/2": LF

As part of a policy of continual improvement, NEXO reserves the right to change specifications without notice.

[a] Response curves & data : Half-Space Far Field for the STM S118 & B112 + NXAMP4x4.

[b] Sensitivity & Peak SPL data : these will depend on spectral distribution and crest factor of program material. Measured with band limited Pink Noise. Data are for speaker + amplified controller. Peak SPL is at clipping of NXAMP4x4.

## 8 STM M46 TECHNICAL SPECIFICATIONS



SYSTEM SPECIFICATIONS		STM M46 with NXAMP 4x4
Frequency Response [a]		85Hz – 19kHz $\pm$ 3dB
Usable Range @-6dB [a]		80Hz – 20kHz
Sensitivity 1W @ 1m [b]		110dB SPL Nominal
Nominal Peak SPL @ 1m [b]		145dBPeak
Dispersion [c]		90° Horizontal x 0-10° vertical
Crossover Frequency		1.5 kHz
Nominal Impedance		LF-MF:16 $\Omega$ (12 $\Omega$ min) – HF: 16 $\Omega$ (12 $\Omega$ min)
Amplified Controller		NXAMP4x4 - 3xSTM M46 in parallel on 2 NXAMP4x4 channels – 2x4000W/2 $\Omega$
PRODUCT FEATURES		STM M46
Components :		LF-MF: 4 x 6.5" (17cm) 16 $\Omega$ flat membrane high excursion drivers. HF: 4 x 2.5" voice coil, 1.4" throat Neodymium 16 $\Omega$ drivers, Ketone Polymer diaphragm
Height x Width x Depth		350 x 575 x 715 mm – 13.78" x 22.64" x 28.15"
Weight : Net		59kg – 130lbsb
Connectors		2 x NL8-MDV Speakon 8 poles (in/out) & 1 x NLT4-MDV Speakon 4 poles (to STM S118 and B112)
Construction		PU Composite Low Density – Polyurethane water based black coating
Fittings: Handles		3 handles (2 sides and 1 rear)
Front		Perforated Dark Grey Metal Grille
Rigging		Integral 3 points flying system. Intercabinet angle adjustments from 0.2° to 10° in logarithmic steps.
SYSTEM OPERATION		
Electronic Controller		The NEXO NXAMP4x4 presets are precisely matched to the STM Series cabinets and include sophisticated protection algorithms. Using STM Series cabinets without a properly connected NEXO NXAMP4x4 will result in poor sound quality and can damage components.
SubBass		STM S118 extends system low frequency response down to 25Hz
Speaker Cabling		1/1*: SUB - 2/2*: LF – 3/3*: LF-MF 4/4*: HF

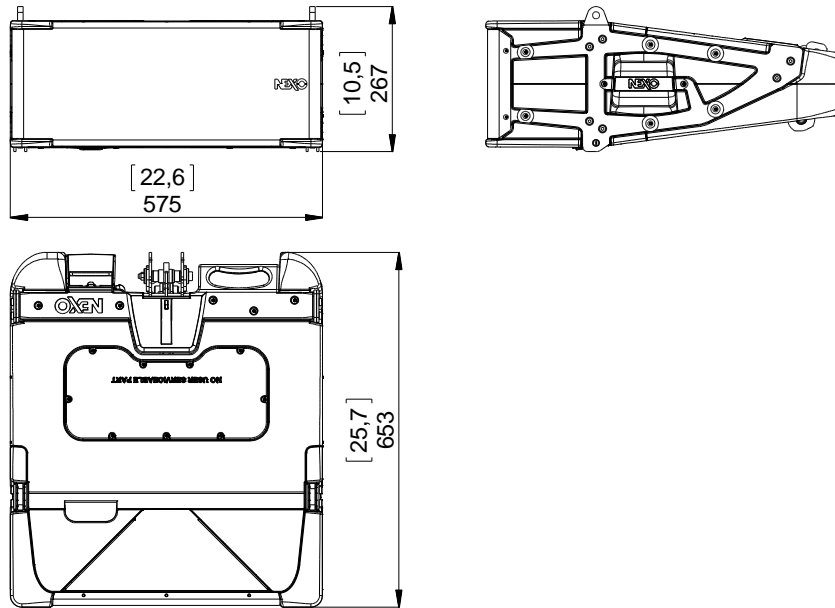
As part of a policy of continual improvement, NEXO reserves the right to change specifications without notice.

[a] Response curves & data : Half-Space Far Field for the STM S118 & B112 + NXAMP4x4.

[b] Sensitivity & Peak SPL data : these will depend on spectral distribution and crest factor of program material. Measured with band limited Pink Noise. Data are for speaker + amplified controller. Peak SPL is at clipping of NXAMP4x4.

[c] Directivity curves & data : obtained by computer treatment on off axis response curves.

## 9 STM M28 TECHNICAL SPECIFICATIONS



SYSTEM SPECIFICATIONS	STM M28 with NXAMP 4x4
Frequency Response [a]	65Hz – 19kHz $\pm$ 3dB
Usable Range @-6dB [a]	60Hz – 20kHz
Sensitivity 1W @ 1m [b]	106dB SPL Nominal (120° horizontal coverage) 107 dB SPL Nominal (90° horizontal coverage)
Nominal Peak SPL @ 1m [b]	140dBPeak (120° horizontal coverage) 141 dB Peak (90° horizontal coverage)
Dispersion [c]	Configurable 90°-120° Horizontal x 0-15° vertical
Crossover Frequency	900Hz (Active)
Nominal Impedance	LF: 8 $\Omega$ (6 $\Omega$ min) - HF: 8 $\Omega$ (6 $\Omega$ min)
Amplified Controller	NXAMP4x4 - 3xSTM M28 in parallel on 2 NXAMP4x4 channels – 2x4000W/2 $\Omega$
PRODUCT FEATURES	STM M28
Components :	LF: 2 x 8" (20cm) high excursion 16 $\Omega$ Neodymium drivers HF: 2 x 2.5" voice coil, 1.4" throat Neodymium 16 $\Omega$ drivers, Ketone Polymer diaphragm
Height x Width x Depth	234 x 575 x 653 mm – 9.2" x 22.64" x 25.7"
Weight : Net	37 kg – 82lbs
Connectors	2 x NLT4-MDV Speakon 4 poles
Construction	PU Composite Low Density – Polyurethane water based black coating
Fittings: Handles	3 handles (2 sides and 1 rear)
Front	Perforated Dark Grey Metal Grille
Rigging	Integral 3 points flying system. Intercabinet angle adjustments from 0.2° to 15° in logarithmic steps.
SYSTEM OPERATION	
Electronic Controller	The NEXO NXAMP4x4 presets are precisely matched to the STM Series cabinets and include sophisticated protection algorithms. Using STM Series cabinets without a properly connected NEXO NXAMP4x4 will result in poor sound quality and can damage components.
SubBass	STM S118 extends system low frequency response down to 25Hz
Speaker Cabling	1/1*: LF - 2/2*: HF

As part of a policy of continual improvement, NEXO reserves the right to change specifications without notice.

[a] Response curves & data : Half-Space Far Field for the STM S118 & B112 + NXAMP4x4.

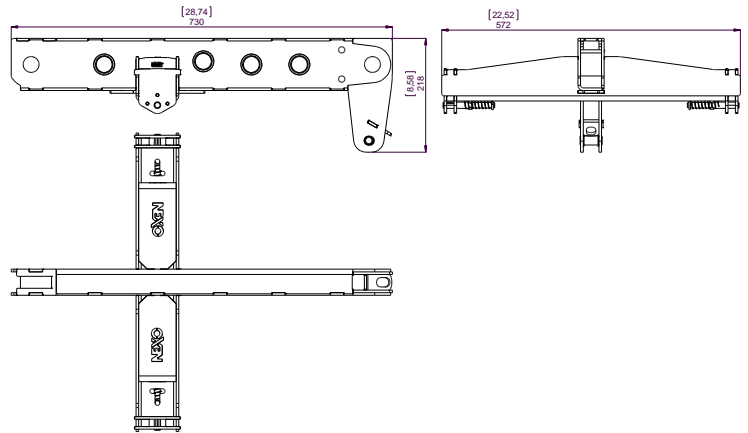
[b] Sensitivity & Peak SPL data : these will depend on spectral distribution and crest factor of program material. Measured with band limited Pink Noise. Data are for speaker + amplified controller. Peak SPL is at clipping of NXAMP4x4.

[c] Directivity curves & data : obtained by computer treatment on off axis response curves.

**10 STM ACCESSORIES**

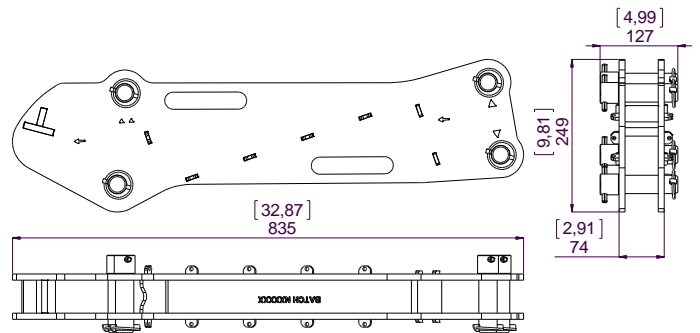
**10.1 Rigging accessories**

XBOW - single column top bumper



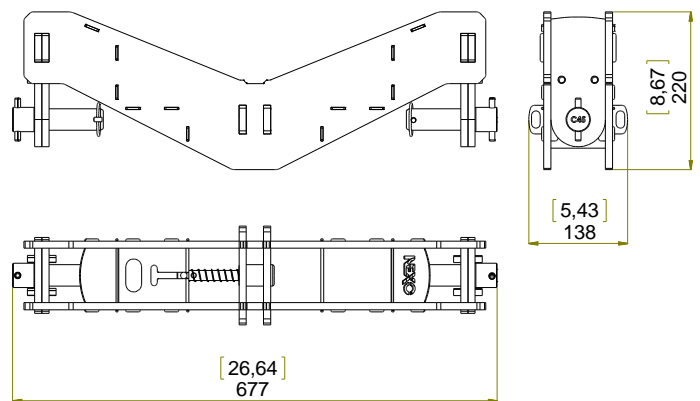
Item: 1 x unit  
Weight: 16kg / 35lb

KBEAM – Kelping beam



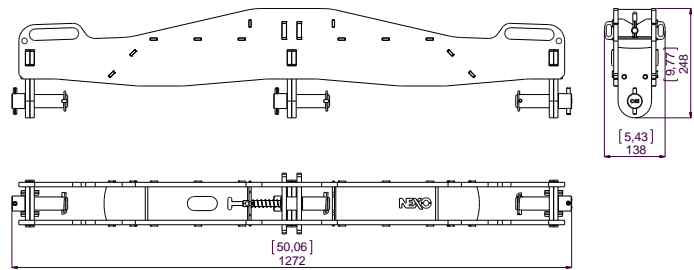
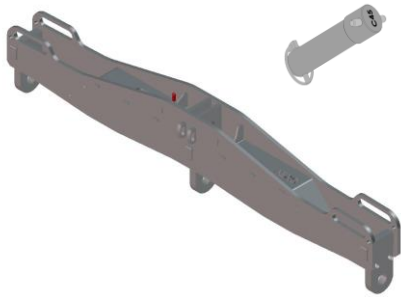
Items: 1 x unit + 4 x C45 Ø30mm pins + 2 x centring devices  
Weight: 26kg / 57lb (without centring device)

XCOUP2 - double column top coupling bar



Items: 2 x units + 4 x C45 Ø30mm pins  
Weight: 20kg / 44lb

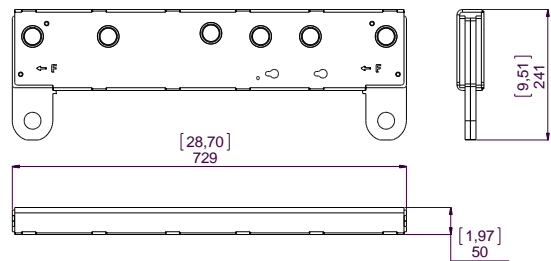
**XCOUP3 - triple column top coupling bar**



Items: 2 x units + 6 x C45 Ø30mm pins

Weight: 34kg / 75lb

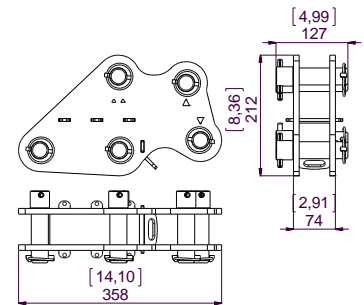
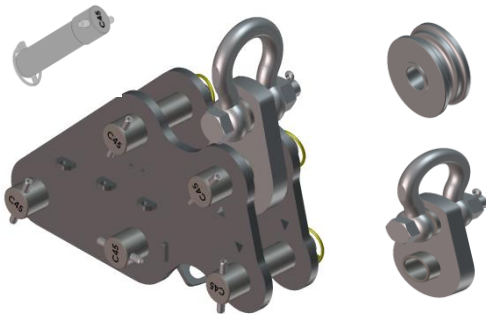
**MBEAM – 2 and 3 columns flying beam**



Items: 1 x unit

Weight: 19kg / 42lb (without centring device)

**PTILT – front / rear motor rigging point**

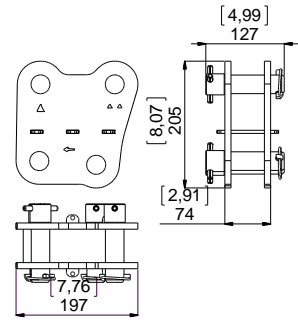
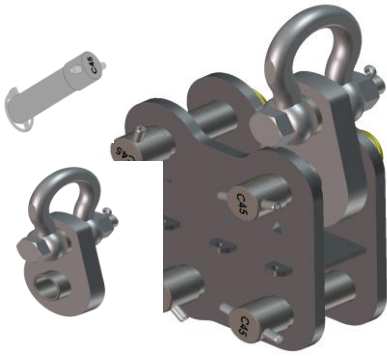


Items: 1 x unit + 5 x C45 Ø30mm pins + 1 x centring devices + 1 x nylon wheel

Weight: 12kg / 26lb (without centring device)

**MLINK – center motor rigging point**

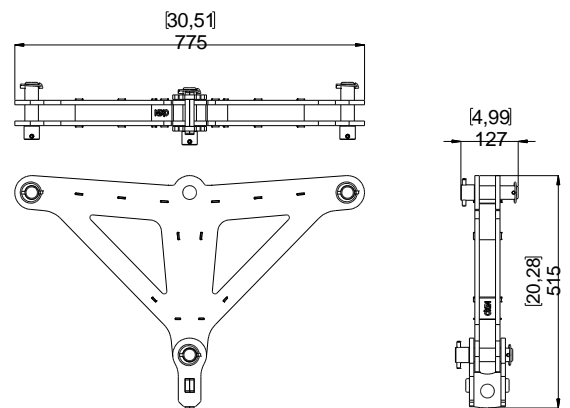
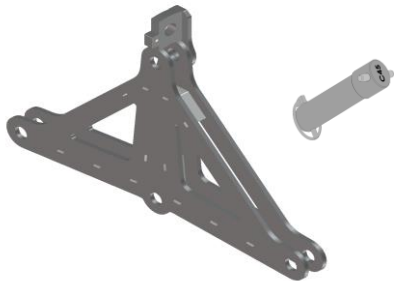




Items: 1 x unit + 4 x C45 Ø30mm pins + 1 x centring device

Weight: 8kg / 18lb (without centring device)

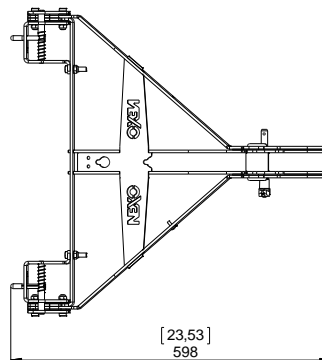
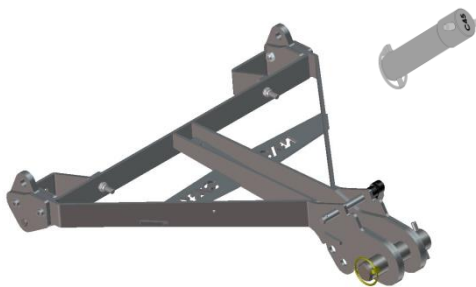
**DPLATE – Delta plate for horizontal aiming**



Items: 1 x unit + 3 x C45 Ø30mm pins + 1 x centring device

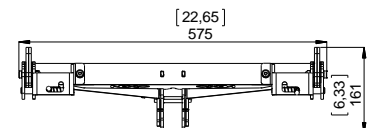
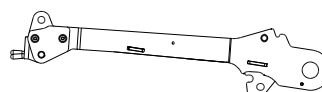
Weight: 24kg / 53lb (without centring device)

**BTBUMPER - single column bottom bumper**

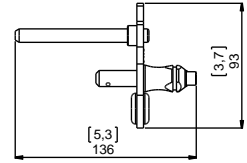
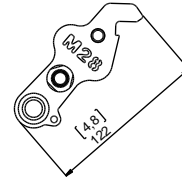


Items: 1 x unit + 1 x C45 Ø30mm pin

Weight: 10kg / 22lb



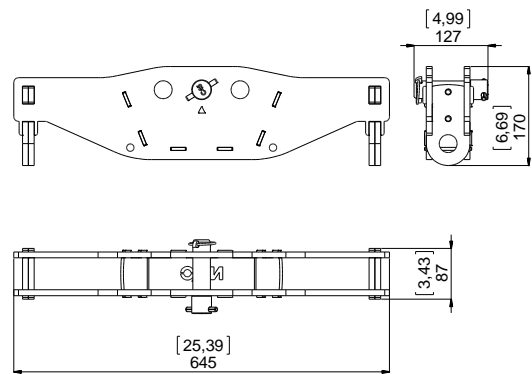
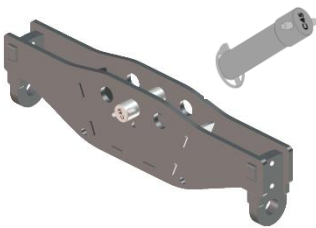
**M46TOM28 – M28 Bottom bumper adaptor**



Item: 1 x unit

Weight: 1kg / 2lb (without centring device)

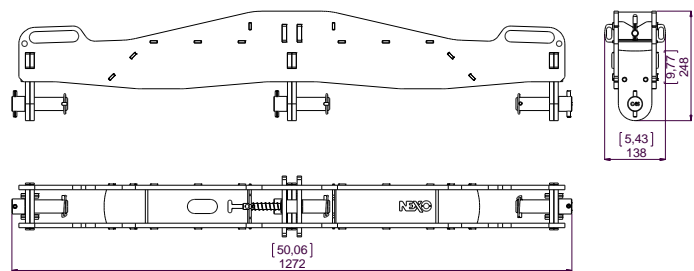
**BCOUP2 - double column bottom coupling bar**



Items: 1 x unit + 1 x C45 Ø30mm pin

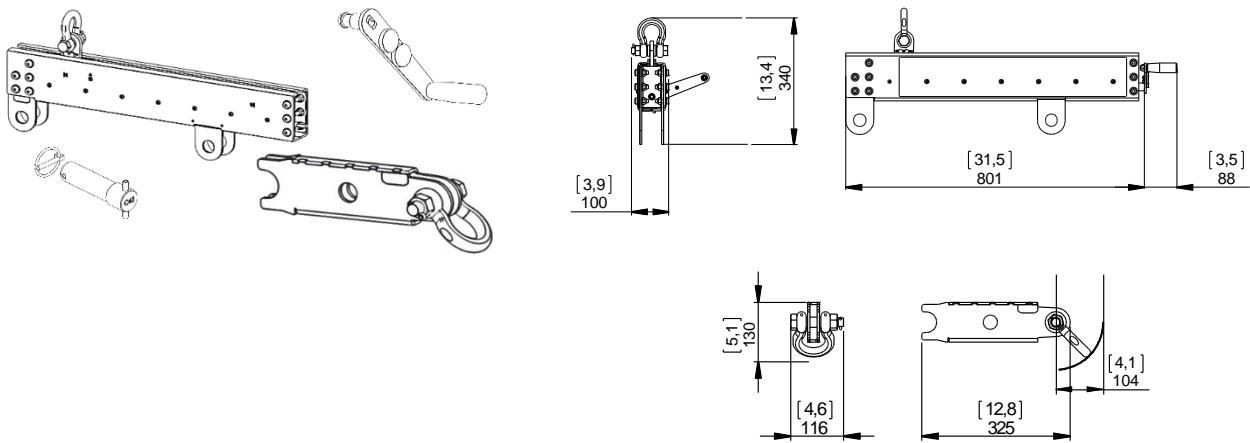
Weight: 16kg / 35lb

**BCOUP3 - triple column bottom coupling bar**



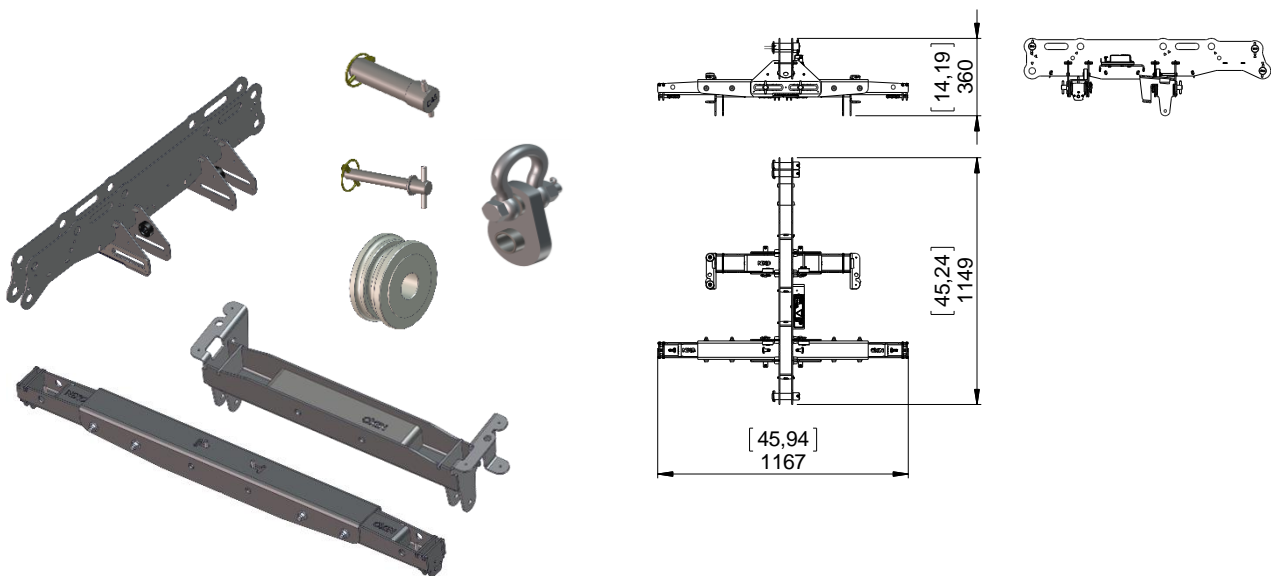
Items: 1 x unit + 1 x C45 Ø30mm pin

Weight: 34kg / 75lb

**VBUMPER – single rigging point Variobumper**

Items: 1 x unit+ 3 x C45 Ø30mm pins

Weight: 25 kg / 55 lb

**LBUMPER – double column bumper**

Items: 1 x unit + 4 x C45 Ø30mm pins + 2 x 4 Vgoup16 + 3 x centring device + 2 x nylon wheels

Weight: 62 kg / 136 lb

LEVA750 Chain Lever Hoist 750kg



Item= 1 x unit  
Weight: 11kg / 24lb

LEVA1500 Chain Lever Hoist 1.5ton



Item : 1 x unit  
Weight: 24kg / 53lb

BCCH15 Compression Chain 1.5ton



Items : 1 x unit + 1 chain bag  
Weight: 10kg / 22lb – Length: 6m / 20ft

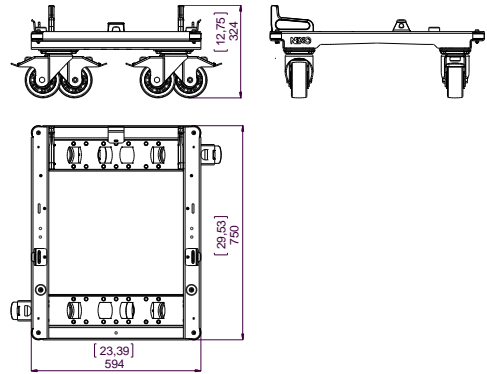
BCCH3 Compression Chain 3ton



Items : 1 x unit + 1 chain bag  
Weight: 30kg / 66lb – Length: 9m / 30ft

## 10.2 Transport accessories

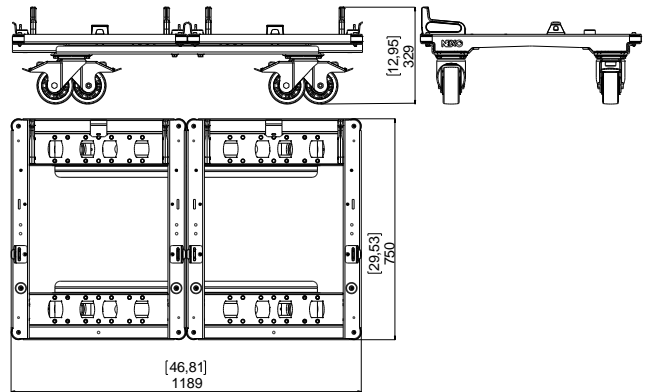
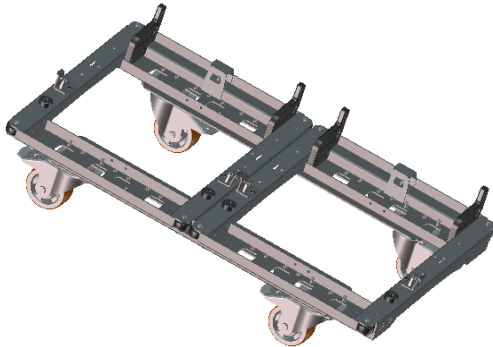
### DOLLY01 – Single dolly for up to 3xM46 or 3xB112 or 2xS118



Items : 1 x unit + 1 x S118 adaptor

Weight: 32kg / 70lb

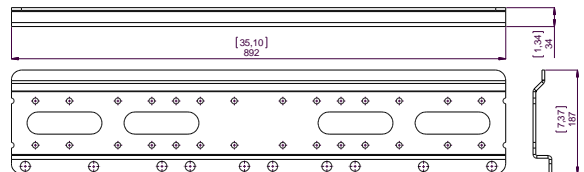
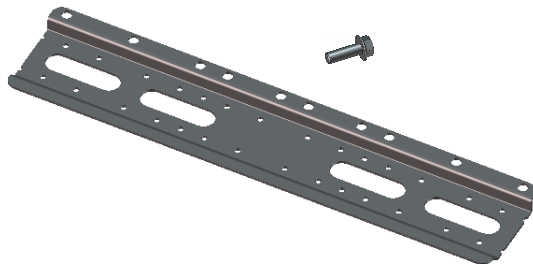
### DOLLY02 – Double dolly for up to 6xM46 or 6xB112 or 4xS118



Items : 1 x unit + 2 x S118 adaptor

Weight: 63kg / 139lb

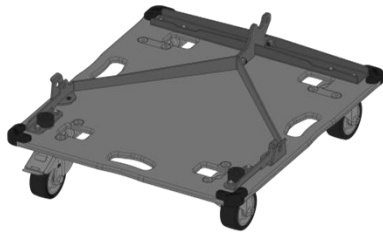
### DCOUP- Coupling Rod for Dolly01



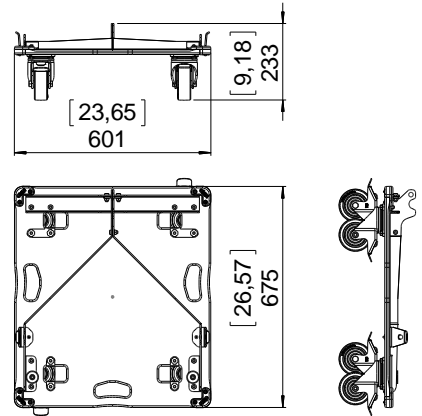
Items : 2 x units + 8 x M1030 screws

Weight: 12kg / 26lb

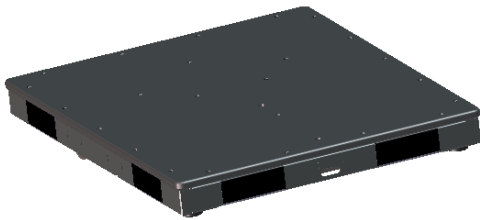
DOLLY03 –Dolly for up to 3xM28



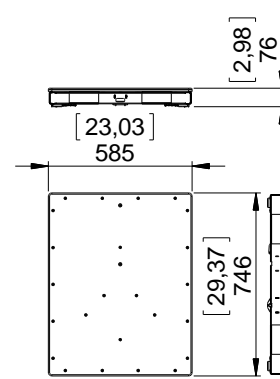
Item : 1 x unit  
Weight: 11kg / 24lb



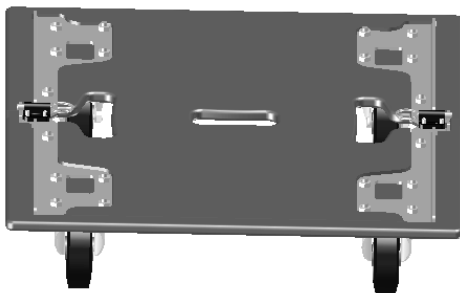
DROOF – Dolly roof



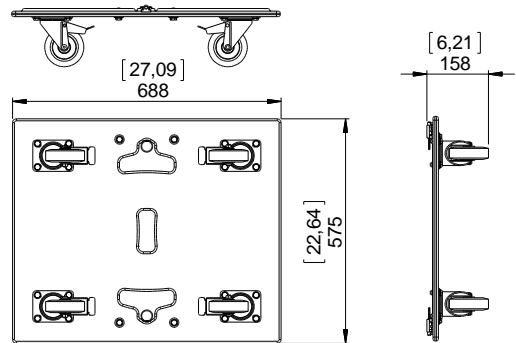
Item: 1 x unit  
Weight: 13kg / 29lb

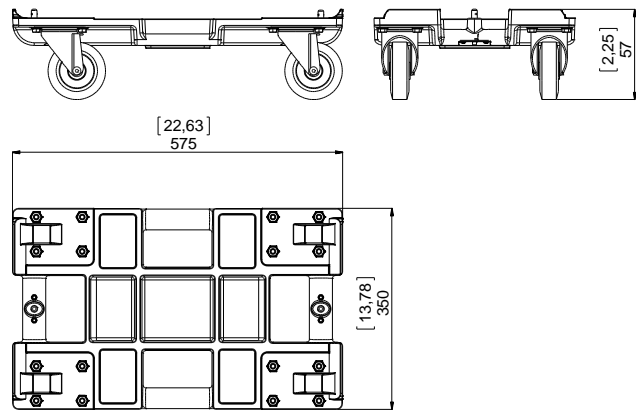
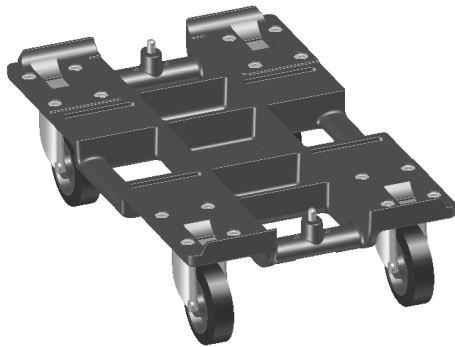


WB02- S118 wheelboard



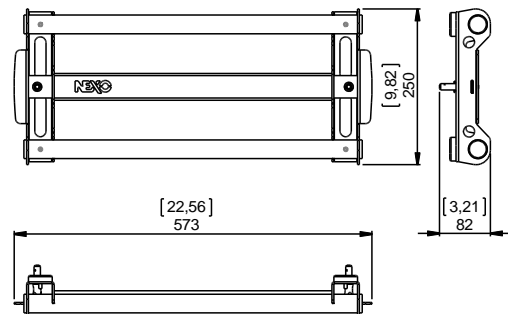
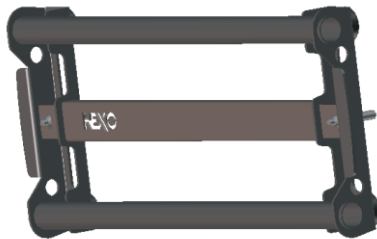
Item: 1 x unit  
Weight: 10kg / 22lb



WB01 – B112 and M46 wheelboard

Item: 1 x unit

Weight: 6kg / 13lb

FHANDLE – Front handle for B112 and M46

Item: 1 x unit

Weight: 3kg / 7lb

DCOVER01 – Lateral cover for 3xM46 or 3xB112 on DOLLY01

Item: 1 x unit

Weight: 4 kg / 9lb

DCOVER04 – Lateral cover for 2xS118 on DOLLY01

Item: 1 x unit

Weight: 4 kg / 9lb

DCOVER02 – Lateral cover for 2x3xM46 or 2x3xB112 on DOLLY02

Item: 1 x unit

Weight: 6 kg / 13lb

DCOVER03 – Lateral cover for 8xM46 or 8xB112 or 4xS118 (on DOLLY02)

Item: 1 x unit

Weight: 7 kg / 15lb



DCOVER283 – Cover for 3xM28 (on DOLLY03)



Item: 1 x unit

Weight: 3 kg / 7lb

DCOVER283 – Cover for 3xM28 (on DOLLY03)



Item: 1 x unit

Weight: 6 kg / 13lb

## 11 USER NOTES

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