EVO55-P Dual 5 Inch Passive Line Array System User Guide

EVO55-P
Dual 5-inch Passive Line-Array System
USER MANUAL

Contents

Overview

EVO55-P line-array elements are unique professional install sound reinforcement systems that offer excellent modularity and versatility.
The very compact 4-element array cluster (smaller than a typical 15” 2-way loudspeaker) will always deliver SPL and coverage beyond the physical size of the system, while it can be rigged and operated with minimal logistical resources. It can be pole mounted, stacked and flown very easily by only operator.
EVO55-P features HF assembly with a 1” compression driver and a proprietary wave-guide design and a dual-5” woofer configuration for the LF section.

These premium-quality, high-performance European transducers a dedicated passive crossover filter allow for a natural, linear response throughout the useful frequency range spectrum without any processing of the system.
The integrated weatherised steel rigging structure and stacking, transport and rigging accessories make EVO55-P a really plugand-play system.
Flown and staked systems can be configured with the specific BASSO24t F400 subwoofer (2 × 12” bandpass), with active and passive versions (3.2 kW Class-D).

Features

- 2-Way Dual 5” Ported Compact Line-Array element
- 1 element of active EVO55-M powers three EVO55-P passive elements
- Premium European High Efficiency custom IDEA Transducers
- Proprietary IDEA High-Q 4-slot line-array diffraction waveguide
- Dedicated transport /storage/rigging accessories and flying frame
- Staked and flown configurations with BASSO24t F400, with active and passive versions

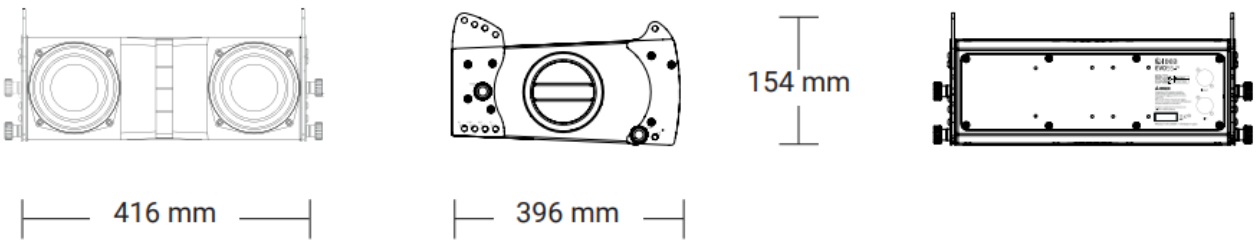
Applications

- Ultra-compact High SPL installed sound reinforcement
- FOH for small to medium size performance venues and clubs
- High SPL A/V portable sound reinforcement

Technical data

Enclosure design	5′ Trapezoidal
LF Transducers	2 x 5′ High performance woofers
HF Transducers	1′ Voice coil Compression Driver
Power Handling (RMS)	300 W
Nominal Impedance	16 Ohm
SPL (Continuous/Peak)	121/127 dB SPL
Frequency Range (-10 dB)	69 -19000 Hz
Frequency Range (-3 dB)	95 -17000 Hz
Aiming/Prediction Software	EASE FOCUS
Coverage	90′ Horizontal
Connectors +/-1 +/-2	2 x Neutrik speakON® NL-4 in parallel Input Parallel Signal
Cabinet Construction	12/15 mm Birch Plywood
Grille	1.5 mm perforated weatherised steel with protective foam
Finish	Durable IDEA proprietary Aquaforce High Resistance paint coating proce ss
Rigging Hardware	High-resistance, coated steel integrated 4-point rigging hardware (intern al splay angles: 0′-1.25″-2.5″-51
Dimensions (WxHxD)	416 x 154x 334mm
Weight	13.3 kg
Handles	2 integrated handles
Accessories	Rigging frame (RF EV055) Rigging frame stack (RF EV055 STK) Pole adaptor (PA EV055) Extensible pole with hand crank (P21338)

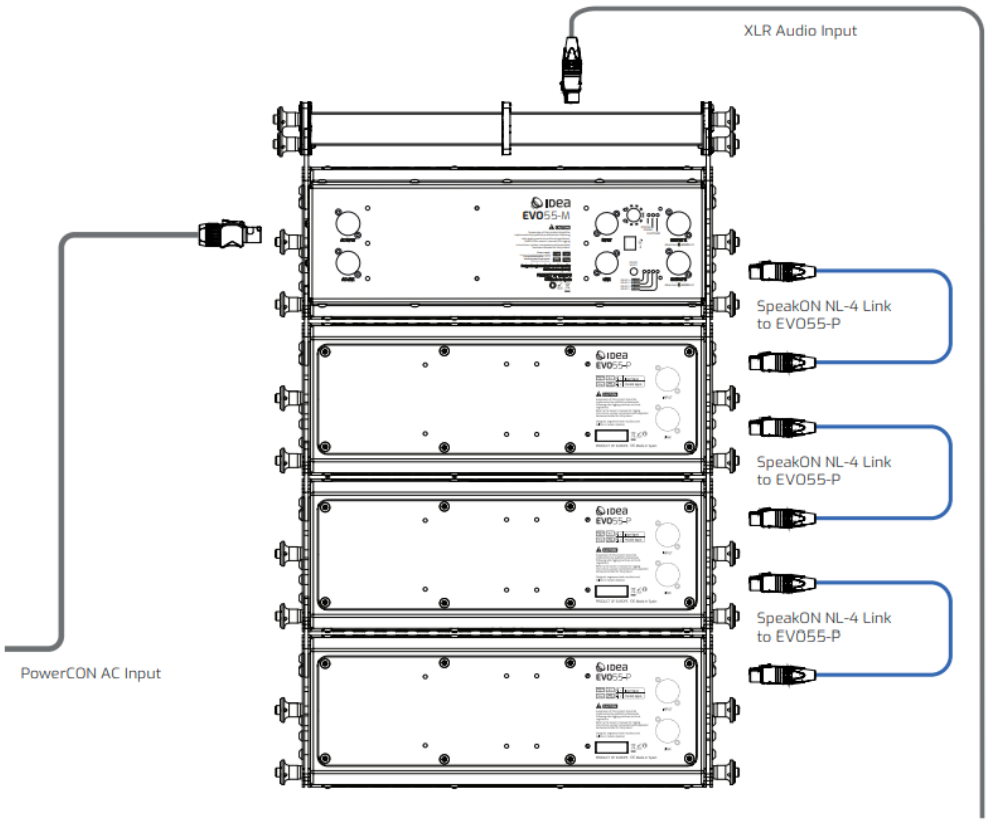
Technical drawings



System configuration

The active EVO55-M features a 1.4 kW Class-D amp and DSP power module by Powersoft so one EVO55-M element can power up to three EVO55-P in the active system, as shown in the diagram below, with the dedicated SpeakON NL-4 cable links included with every EVO55-M.
Depending on the scale of the application, a medium-sized EVO55-M system can be easily split into smaller

clusters for mobile and portable solutions.Passive systems can be configured as factory ready with turn-key solutions for TEOd9 driven amps.



Introductory guidelines on Line-Array system configurations

Line-Arrays work because of the interactions of the different transducers in each array element. Some of these interactions result in negative effects, such as distortion and phase issues, the benefits of energy summing and a degree of vertical directivity control prevail as the advantages of using Line-Array systems.

The IDEA DSP Line-Array settings aim to facilitate a simplified approach to the Line- Array setup and deployment and focus on two fundamental factors that affect the behavior of the array in terms of directivity and frequency response linearity.

Array Length

The first factor is Array Length, which influences the range of frequencies in which the linearity of the response of the array is affected by the total distance between the axis of all the transducers aligned in the vertical plane.

This is specially noticeable in the LF, as the LF woofers, due to their proximity in relation the their band pass, sum acoustic energy particularly efficiently, and require a compensation of the amplitude of the LF signal from the crossover point with the subwoofers up to different frequency points depending on the number of elements present in the array.

For this purpose the Settings are grouped in four Array lengths/ Element counts: 4 -6, 6-8, 8-12 and 12-16.

Array Curvature

The second key element for the DSP setting of the Arrays is the curvature of the array. Many different combination of angles can be set by the operators of a Line-Array, optimizing the desired vertical coverage required for the application.

Users can use EASE FOCUS as a guide to find the ideal internal splay angles between array elements.

Note that the sum of the internal splay angles and the nominal vertical coverage angles of the array do not correlate directly and their relation varies with the array length. (see examples)

IDEA DSP settings

IDEA DSP settings operate in 3 categories of averaged Array curvature:

- MINIMUM (<30° Recommended Internal Splay Angulation Sum)
- MEDIUM (30-60° Recommended Internal Splay Angulation Sum)
- MAXIMUM (>60° Recommended Internal Splay Angulation Sum)

EASE FOCUS Prediction Software

EVO55-M Ease Focus GLL files are available for download from the product's page as well as from the Downloads repository section.

MINIMUM ARRAY CURVATURE

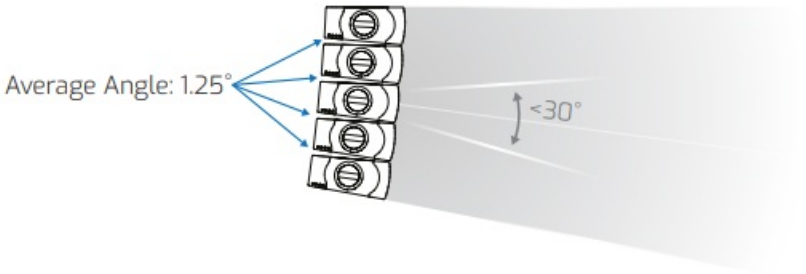
<30° Recommended Internal Splay Angulation Sum

Low internal splay angles result in more "straight" arrays that concentrate more HF energy on the acoustical axis of the Array, achieving greater HF energy over greater distances (improving "throw") but narrowing down the usable vertical coverage.

These settings are available for TEOd9 and other External Standalone DSP processors for IDEA Active Line-Array systems like EVO55-M, and included in IDEA System-Amplifier DSP Solutions.

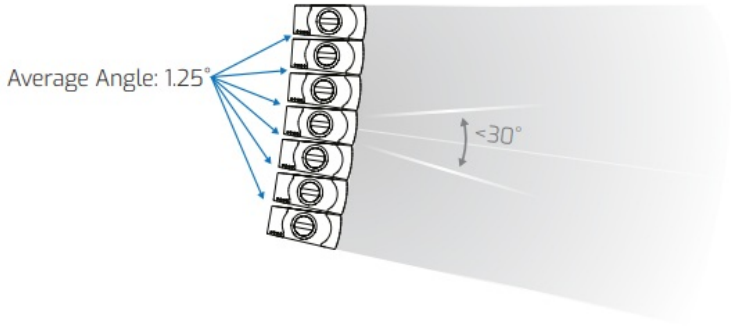
4-6 × EVO55 elements

The example image shows a 4˚×5-elements configuration
[Total splay angle sum: 16˚]



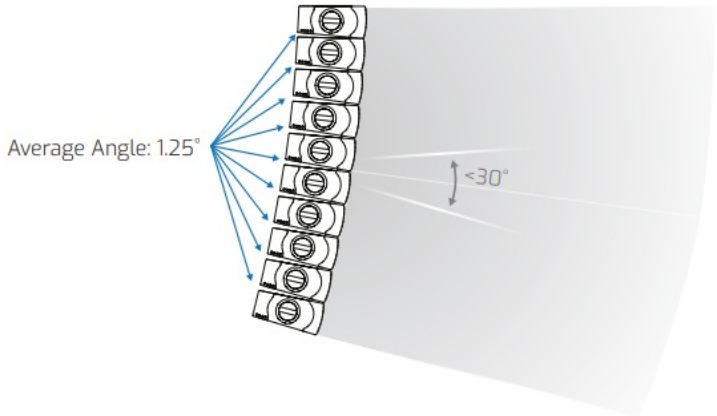
6-8 × EVO55 elements

The example image shows a 3˚×7-elements configuration
[Total splay angle sum: 18˚]



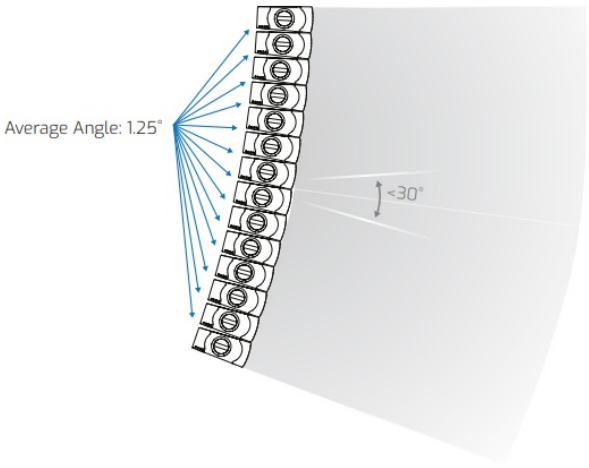
8-12 × EVO55 elements

The example image shows a 2˚×10-elements configuration
[Total splay angle sum: 18˚]



12-16 × EVO55 elements

The example image shows a 1˚×14-elements configuration
[Total splay angle sum: 13˚]



MEDIUM ARRAY CURVATURE

30°- 60° Recommended Internal Splay Angulation Sum

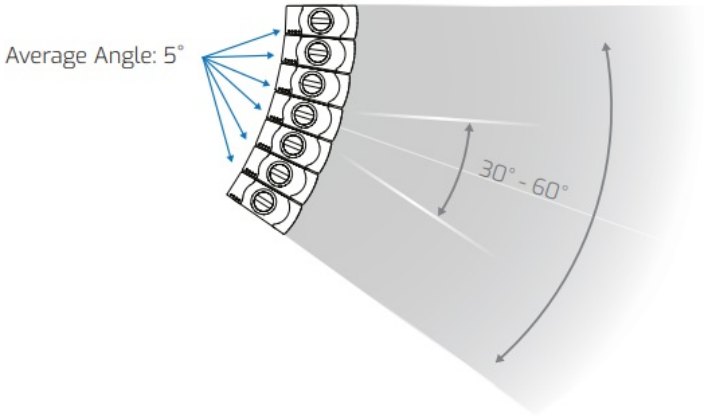
This is the most useful level of vertical coverage for the most typical flown Line-Array applications and it will ensure balanced coverage and SPL within the listening area for the majority of the applications.

These presets are found as standard in the EVO55-M integrated DSP and can be directly selected from the back pannel interface as shown in the corresponding section of this document.

4-6 × EVO55

The example image shows a 5˚×7-elements configuration

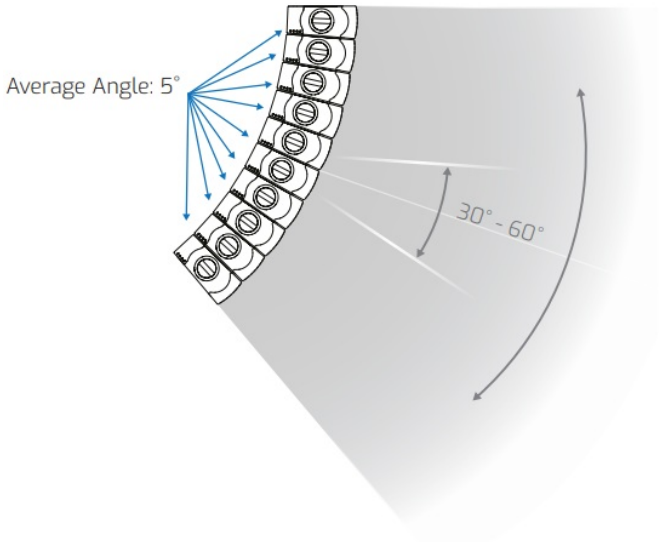
[Total splay angle sum: 30˚]



8-12 × EVO55

The example image shows a 5˚×10-elements configuration

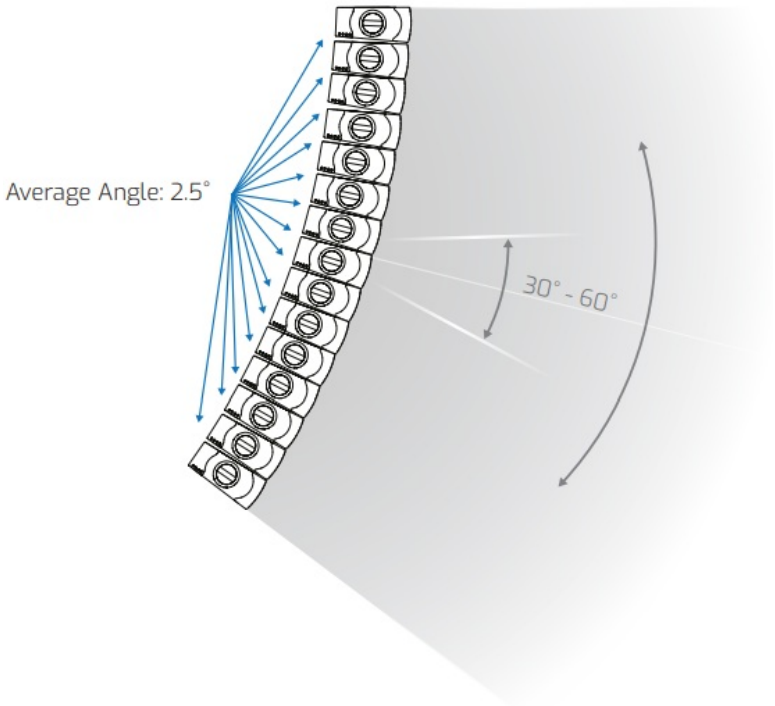
[Total splay angle sum: 45˚]



12-16 × EVO55

The example image shows a 2.5˚×14-elements configuration

[Total splay angle sum: 32.5˚]



Larger internal splay angle counts result in greater curvatures, with wider vertical coverage patterns and lesser summing of the HF energy. This kind of angling is found in Arrays with a small box count or in larger arrays that are ground-stacked or installed close to grandstands in Sport arenas.

MAXIMUM ARRAY CURVATURE

>60° Recommended Internal Splay Angulation Sum

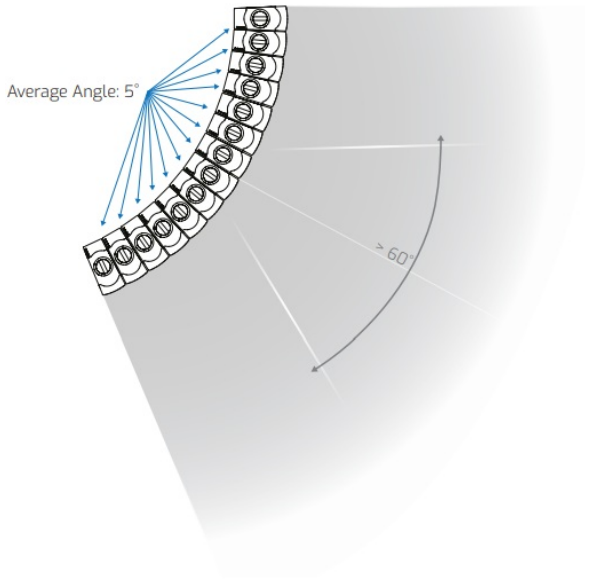
Larger internal splay angle counts result in greater curvatures, with wider vertical coverage patterns and lesser summing of the HF energy. This kind of angling is found in Arrays with a small box count or in larger arrays that are ground-stacked or installed close to grandstands in Sport arenas.

These settings are available for TEOd9 and other External Standalone DSP processors for IDEA Active Line-Array systems like EVO55-M, and included in IDEA System-Amplifier DSP Solutions.

12-16 × EVO55

The example image shows a 5˚×14-elements configuration

[Total splay angle sum: 65˚]



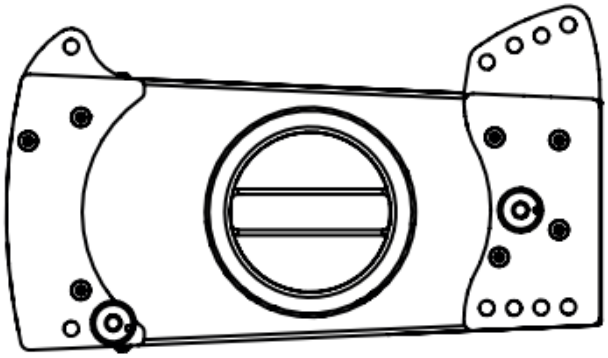
Rigging and installation

EVO55 Line-Array elements feature an integrated steel rigging hardware especially designed for ease of set-up and use. Up to 10 internal angulation options in 1° steps are available and dedicated stow positions for a precise and quick deployment of the array.

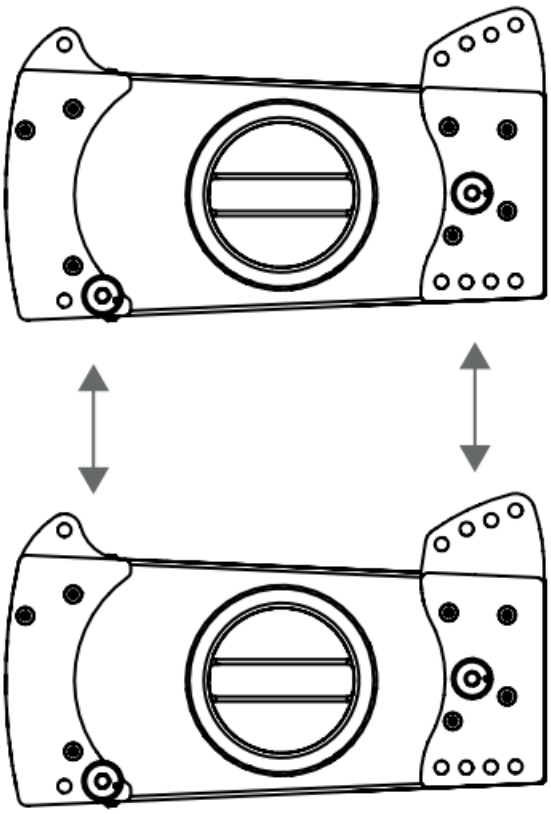
The following are the basics for array element linking.

BASIC GUIDELINES

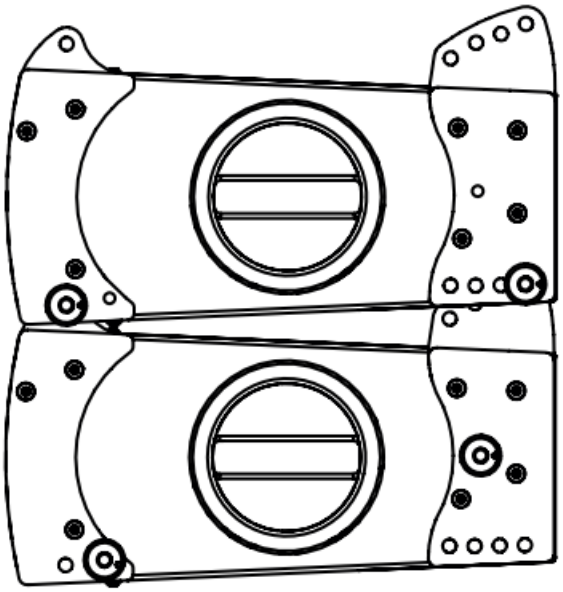
1. To proceed setting-up the array, release and unlock the front and back links of the lowest element in the system.



2. Position and lock the front and back links of the following element in the array using the spare pins stored in the dedicated hole labelled as Stow.

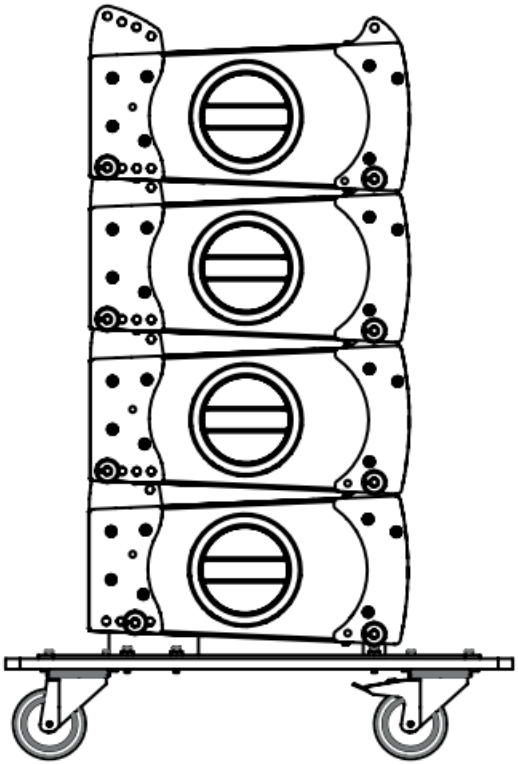


3. Finally lock the desired position with the dedicated pin stored in the Groundstack/Stow hole. Repeat the operation for the any other EVO55 element in the system.

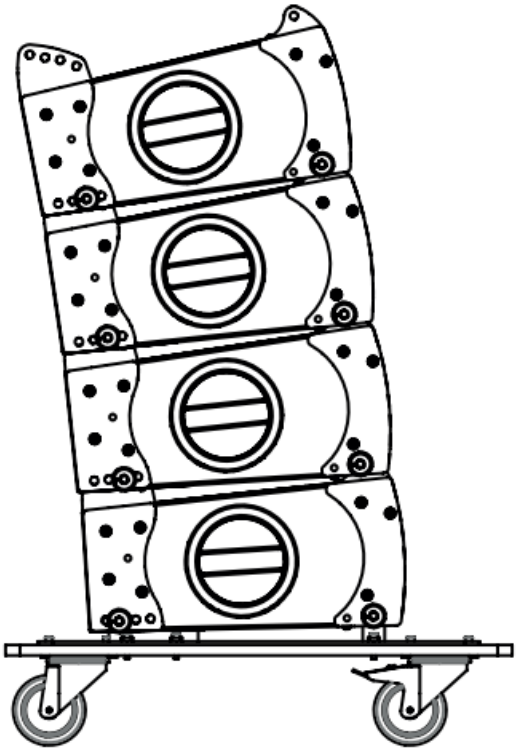


RECOMMENDED SYSTEM SUSPENSION PROCEDURE

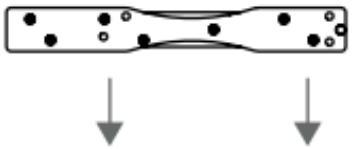
1. Set the transport cart with the EVO55 elements in the desired position and lock the wheelfor a secure setup.

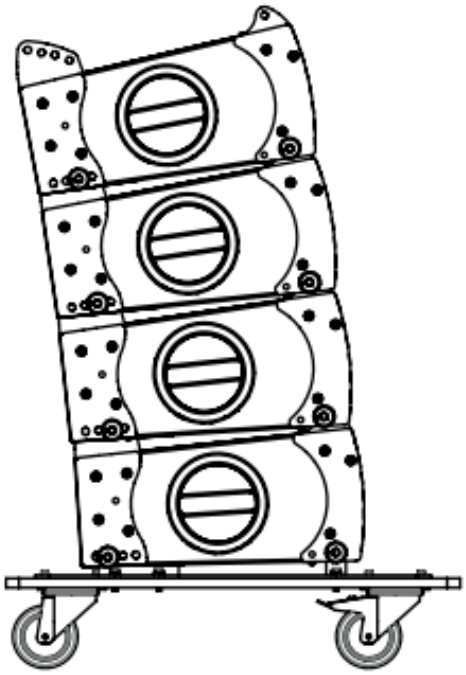


2. Set the proper internal spaly angles of the EVO55 elements while still on the transport cart for a more convenient, quicker setup operation.

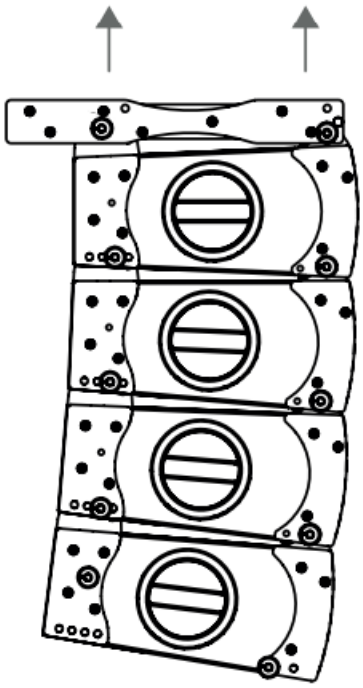


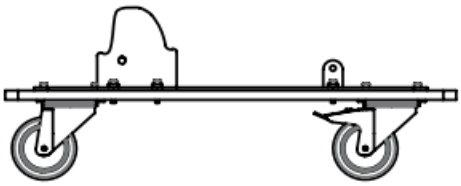
3. Fit the flying rigging frame RF-EVO55 to the top element of EVO55 using the included locking pins.



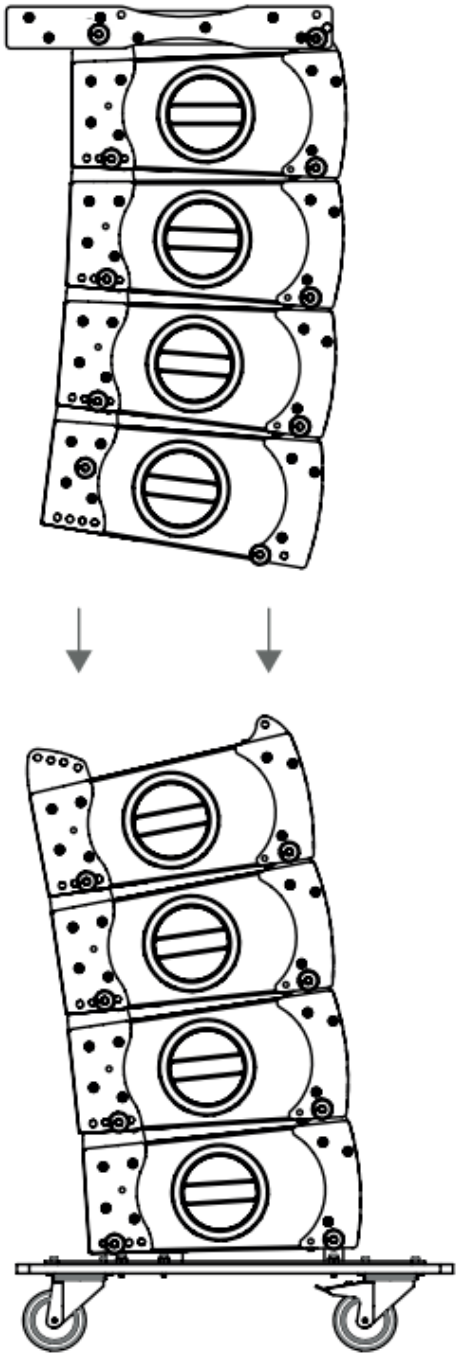


4. Unlock the bottom EVO55 element from the transport cart and proceed to suspend the system up to a comfortable position for next step.





5. Lift the four top elements to a level where the next EVO55 elements in the transport cart naturally allaign the already set-up array and repeat the above steps.



Warnings on safety guidelines

- Read this document thoroughly, follow all safety warnings and keep it for future reference.
- The exclamation mark inside a triangle indicates that whatever repairing and component replacement operations must be done by qualified and authorized personnel.
- No user serviceable parts inside.
- Only use accessories tested and approved by IDEA and supplied by the manufacturer or an authorized dealer.
- Installations, rigging and suspension operations must be done by qualified personnel.
- Only use accessories specified by IDEA, complying with maximum loads specifications and following local safety regulations.
- Read the specifications and connection instructions before proceeding to connect the system and use only cabling supplied or recommended by IDEA. Connection of the system should be done by qualified personnel.

- Professional sound reinforcement systems can deliver high SPL levels that may result in hearing damage. Do not stand close to the system while in use.
-  Loudspeaker produce magnetic field even while they are not in use or even when disconnected. Do not place or expose loudspeakers to any device that is sensitive to magnetic fields such as television monitors or data storage magnetic material.
- Disconnect the equipment during lightning storms and when it is not to be used for a long time.
- Do not expose this device to rain or moisture.
- Do not place any objects containing liquids, such as bottles or glasses, on the top of the unit. Do not splash liquids on the unit.
- Clean with a wet cloth. Do not use solvent-based cleaners.
- Regularly check the loudspeaker housings and accessories for visible signs of wear and tear, and replace them when necessary.
- Refer all servicing to qualified service personnel.
-  This symbol on the product indicates that this product should not be treated as household waste. Follow local regulation for recycling of electronic devices.
- IDEA declines any responsibility from misuse that may result in malfunction or damage of the equipment.

Warranty

- All IDEA products are guaranteed against any manufacturing defect for a period of 5 years from date of purchase for acoustical parts and 2 years from date of purchase for electronic devices.
- The guarantee excludes damage from incorrect use of the product.
- Any guarantee repair, replacement and servicing must be exclusively done by the factory or any of authorized service centres.
- Do not open or intend to repair the product; otherwise servicing and replacement will not be applicable for guarantee repair.
- Return the damaged unit, at shipper’s risk and freight prepaid, to the nearest service centre with a copy of the purchase invoice in order to claim guarantee service or replacement.

Declaration of conformity

I MAS D Electroacústica S.L. , Pol. A Trabe 19-20 15350 CEDEIRA (Galicia – Spain), declares that EVO55-P complies with the following EU Directives:

- RoHS (2002/95/CE) Restriction of Hazardous Substances
- LVD (2006/95/CE) Low Voltage Directive
- EMC (2004/108/CE) Electro-Magnetic Compatibility
- WEEE (2002/96/CE) Waste of Electric and Electronic Equipment
- EN 60065: 2002 Audio, video and similar electronic apparatus. Safety requirements.
- EN 55103-1: 1996 Electromagnetic compatibility: Emission
- EN 55103-2: 1996 Electromagnetic compatibility: Immunity

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Specifications and product appearance may be subject to change without notice.
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RoHS
2002/95/EC

Documents / Resources

	EVO EVO55-P Dual 5 Inch Passive Line Array System [pdf] User Guide EVO55-P, EVO55-M, EVO55-P Dual 5 Inch Passive Line Array System, Dual 5 Inch Passive Line Array System, Passive Line Array System, Array System, System

References

- IDEA Pro Audio
- User Manual