FBT elettronica SpA Via Paolo Soprani 1 - 62019 RECANATI - ITALY Tel. 071 750591 - Fax. 071 7505920 - email: info@fbt.it - www.fbt.it

HORIZON

PRODUCT TRAINING MANUAL

HORIZON is not just a speaker ..... it is a complete system, highly modular, infinitely versatile, with a sound concert pressure level and bandwidth.
It combines the simplicity and flexibility of installing a "point source" with the consistency, control and output of a line array

STRENGTHS

- ***Modularity, Scalability***: Precise 90° x 20° single element coverage also allows the use of a single VHA 406A. Wide splay angle between cabinets (5° to 20°) to adapt and scale coverage and max output depending on the environment and audience.
- ***Vertical and Horizontal:*** System dispersion totally configurable.
- ***Concert sound SPL & Bandwidth:*** HORIZON system provide remarkable power, bandwidth and coherence, flexible and predictable coverage. Beautiful midrange voicing maintaining high outputs thanks to 4 x 6.5" custom woofers and 12" FBT engineered waveguide with 1.4" B&C compression driver.
- ***Coherence:*** Symmetrical driver arrangement with central waveguide for symmetrical and constant 90° dispersion pattern.
- ***Plug and Play:*** HORIZON system (top, flying sub and ground sub) have all the processing onboard on the internal DSP and is factory optimized to get the best out of each of the endless configurations.
- ***Durable:*** The rubber sides protect the cabinet from wear, keeping the astonishing look of the system over the time.
- ***Integrated advanced hardware:*** Prepared for mounting in horizontal or vertical arrays, the hardware is fully integrated into the cabinet and has only two anchoring points, for quick and easy installation; FBT engineered locking pins are permanently anchored in the structure, without the possibility of being lost and do not protrude from the sides of the structure.
- ***Unique 3 way operation mode:*** The VHA 112SA is a real plus of the HORIZON system; with the same cabinet and hardware of the VHA 406A, it can be used as subwoofer in so called "2 way + sub" configuration with a 50 - 110Hz bandwidth or as LF in "3 way" configuration with 50 - 230Hz bandwidth with the VHA 406A specialized to MF and HF. In this mode the VHA 112A and VHA 406A work as bigger real 3 way cabinet with 12" LF woofer, 4 x 6.5" MF and 1 x 1.4" HF, garantend higher dynamics and headroom but maintaining the modularity and simplicity of transport of a small cabinet.

APPLICATIONS

- Small to large rental, fixed installations, outdoor / indoor live events as main, frontfill and central cluster.

MARKET POSITION

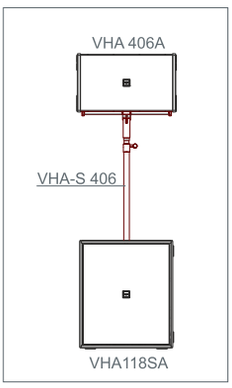
VERTICAL VARIABLE CURVATURE ARRAY:
- Only vertical installation with 90° (typical) horizontal fixed coverage
- Narrow single element vertical directivity and max 10° inter-cabinet angle mean a lot of cabinet to cover wide vertical audience
- Complicated setup and hardware

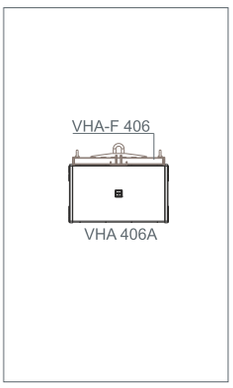
CONSTANT CURVATURE ARRAY:
- Wide vertical single element coverage and 20° - 25° inter-cabinet angle mean few element to cover entire audience at the expence of maximum output
- Limited application to short/medium throw

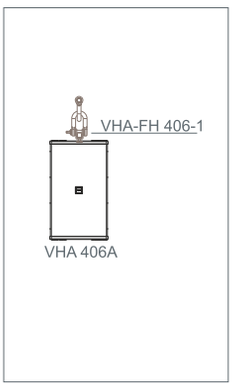
HORIZONTAL / VERTICAL VARIABLE CURVATURE ARRAY
Fill the gap between the two keeping the best of both !
- Horizontal and vertical installation mean maximum freedom coverage pattern selection to best fulfill the audience
- 5° to 20° inter-cabinet angle mean the possibility to cover the entire audience with few elements or with a hard rock concert amazing output !
- Infinite system configurations possibility thanks to a complete set of hardware accessories

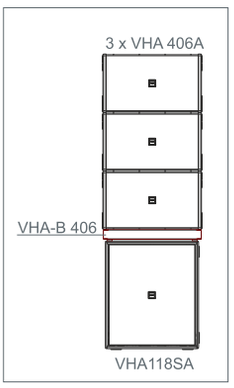
CONFIGURATIONS

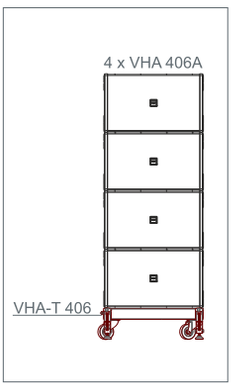
SMALL CONFIGURATIONS



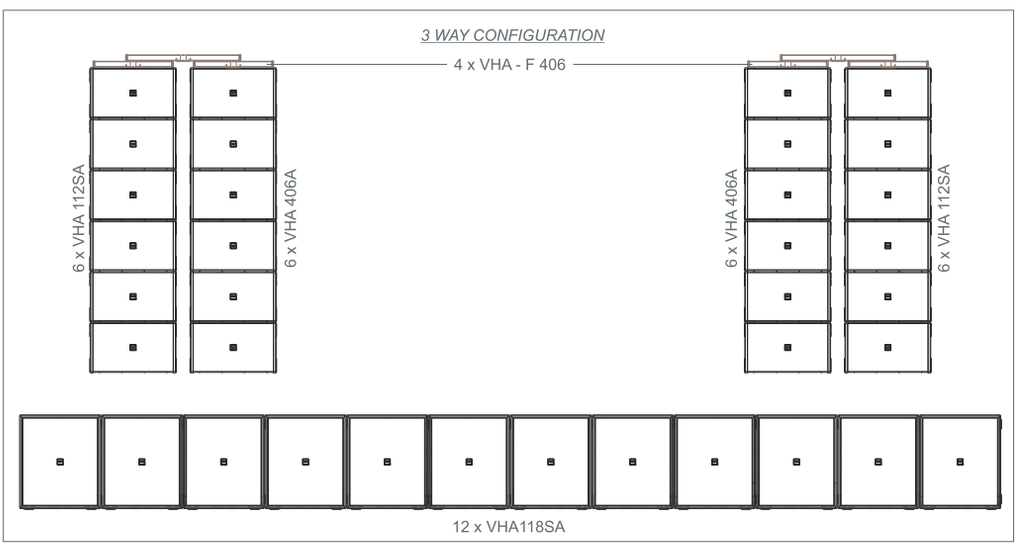


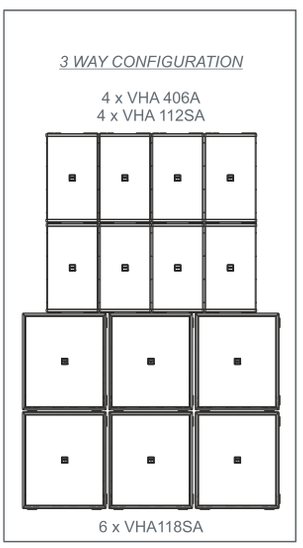


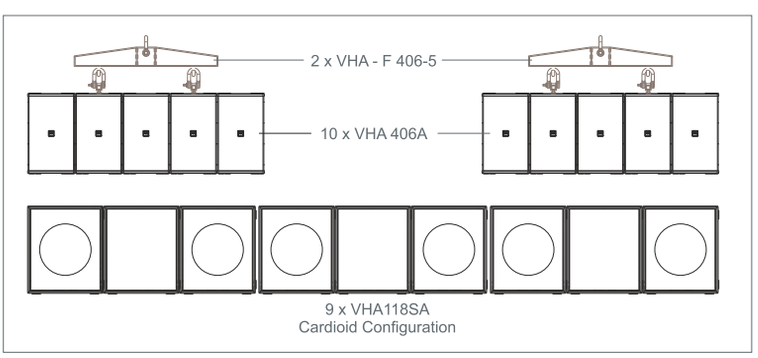


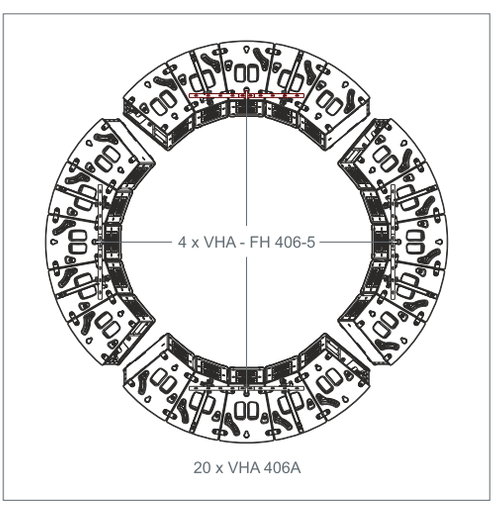


LARGE CONFIGURATIONS

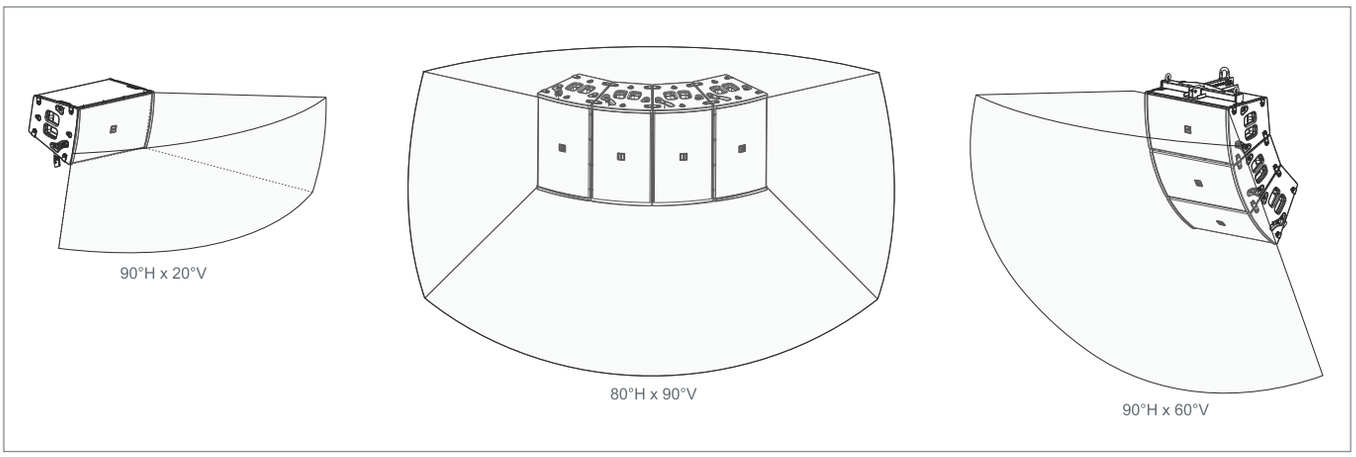








COVERAGE EXAMPLES



APPLICATION QUESTION

- **What mean '2WAY+SUB' and '3 WAY' configuration?**
  They represent two operating mode of the system, in particular the VHA406A and VHA112SA elements. In 2WAY+SUB, the VHA406A is used for LF and HF (2way) and the VHA112SA as a subwoofer with 50 – 110 Hz bandwidth. Of course the VHA112SA can be coadiuvated with the VHA118SA ground subwoofer to increase SPL and extend low frequency response. In this configuration the VHA112SA is not indispensable to the system that can be composed just by VHA406A and VHA118SA with full power bandwidth from 30 to 20KHz.
  In 3WAY mode, the VHA406A is used as MF and HF, the VHA112SA is used as LF with crossover point at 230Hz. So both element work effectively same as 3way cabinet with increased dynamics, detail and headroom. The ratio between quantity of VHA406A and VHA112SA is strictly fixed to 1:1. Of course the VHA118SA can still be used as subwoofer to increase SPL and extend low frequency response.

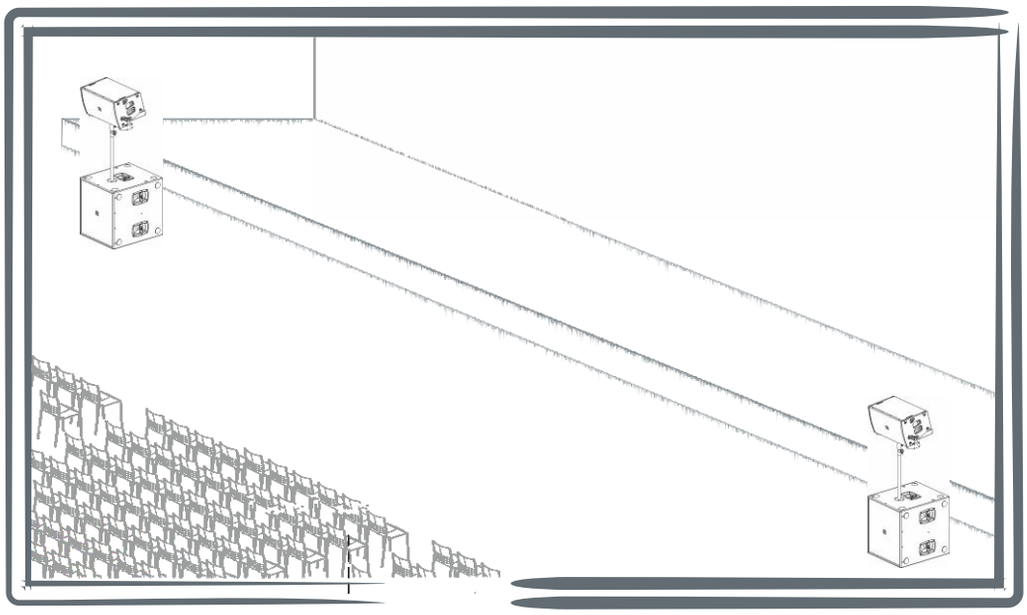
- **When VHA112SA can or must be used?**
  The HORIZON system is designed to work properly when composed with just VHA406A as top and VHA118SA as subwoofer. Anyway the VHA112SA is very helpful in some cases:
- As 'energy gap filler' between VHA406A top and VHA118SA subwoofer in high output application. In this case a ratio of 1 VHA112SA to two or three VHA406A is suggested.
- In flown application as subwoofer (in tandem with VHA118SA) to improve bass frequency consistency at far distance.
- As the only subwoofer of the system in application where only flown installation is mandatory. In this case, depending on the program reproduced, a ratio of 1 vha112SA to one or two VHA406 is suggested.
- In 3 WAY operation where VHA112SA with 1:1 ratio with VHA406A is mandatory

- **VHA118SA and VHA112SA overlap in the 50-110Hz range when both are present on system, there is a risk of phase cancellation?**
  Onboard DSP preset, if properly configured, is designed to obtain perfect power summation from the two overlapping subwoofers when aligned to the same vertical plane. Of course, if they are installed on different vertical plane, some care must be taken to digitally realign the acoustic sources to audience. VHA118SA have a delay switch onboard that is helpful to cover most installations. Otherwise an external delay line must be use.

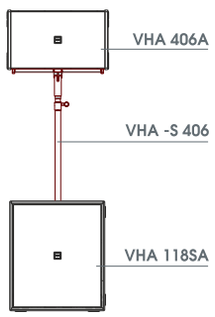
- **What's the ration between VHA406A and VHA118SA?**
  Normal ratio for standard program is two VHA406A to one VHA118SA. For indoor with light or acoustic program 3 to 1 is more than sufficient. For live concert with high output levels outdoor we suggest 1:1 or 1:1.5 ratio.

- **What's the maximum cabinet that can be flown on each flybar?**
  Vertical flybar VHA-F 406 can hung a maximum of 6 x VHA406A or VHA112SA (or a combination of the two) with 10 safety factor.
  Horizontal flybar VHA-FH 406-1 can hung a maximum of 5 x VHA406A or VHA112SA (or a combination of the two) with 10 safety factor.

CONFERENCE ROOM



SYNOPTIC



SOLUTION

It uses the VHA - S 406 speaker pole to form a "point source" system with a coverage of approximately 90 ° H x 22.5 ° V, that covers a small / medium-sized environment where the audience is arranged on a single level. Given the considerable sound pressure developed by the 18 "subwoofer, it is suitable for playing live music programs.

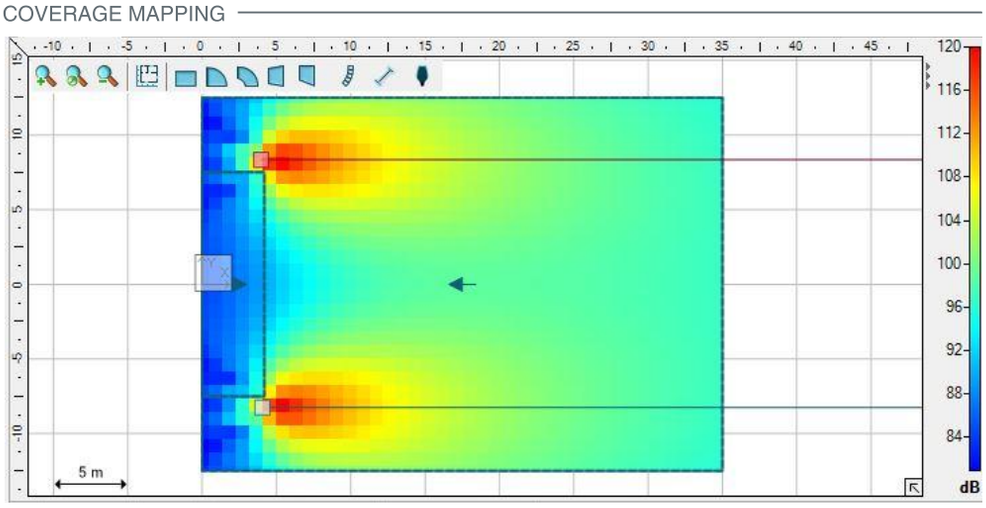
EQUIPMENT LIST

Qty	Ref	Description
2	VHA 118SA	18" woofer/4"coil amplified subwoofer
2	VHA 406A	4x6" woofers/1,5" coil - 1,4" driver/2,5" coil
2	VHA -S 406	Cluster bracket with speaker pole

SETTINGS

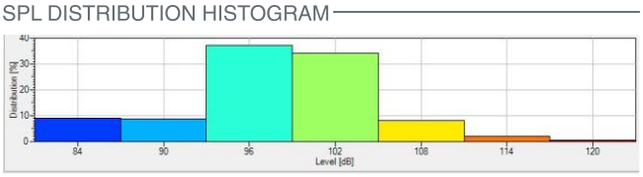
Model	Push	Prest switch
VHA 118SA	VHA 112SA NO	USER PREFERRED
VHA 406A	HPF ON	A

COVERAGE MAPPING

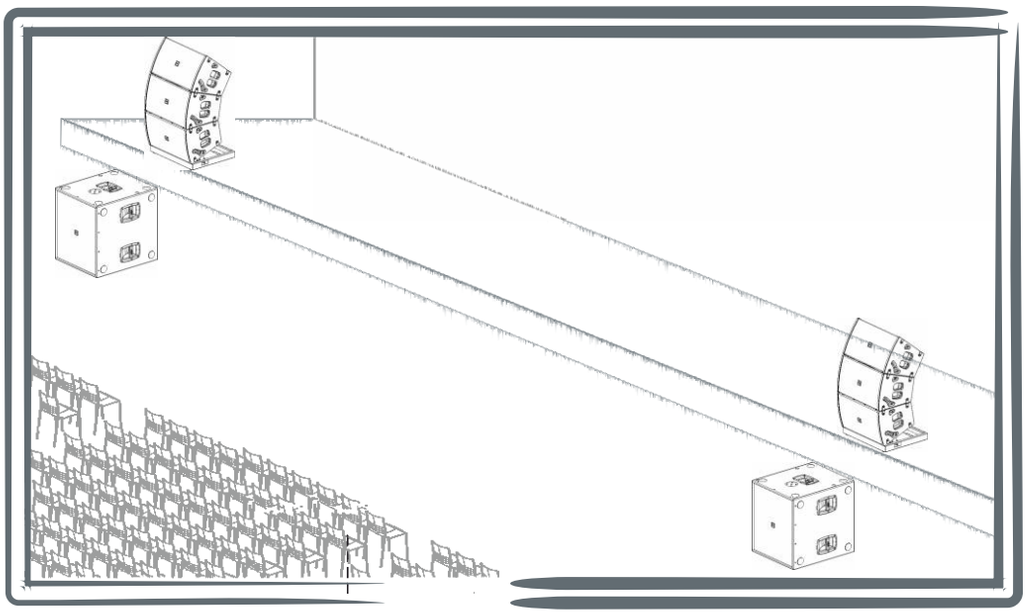


6800W in total
130mq.
134dB @1mt
110dB @16mt

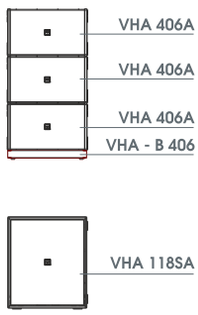
SPL DISTRIBUTION HISTOGRAM



SMALL THEATER AND AUDITORIUM



SYNOPTIC



SOLUTION

Stack configuration on stage, via dedicated accessory. The coverage of this configuration is 90 ° H x 32.5 ° up to 62.5 °. Suitable for small / medium-sized environments where the audience is arranged on one or more levels. It is possible to place the speakers above the subwoofer using the VHA-B 406 accessory (locking with M20 screws is essential)

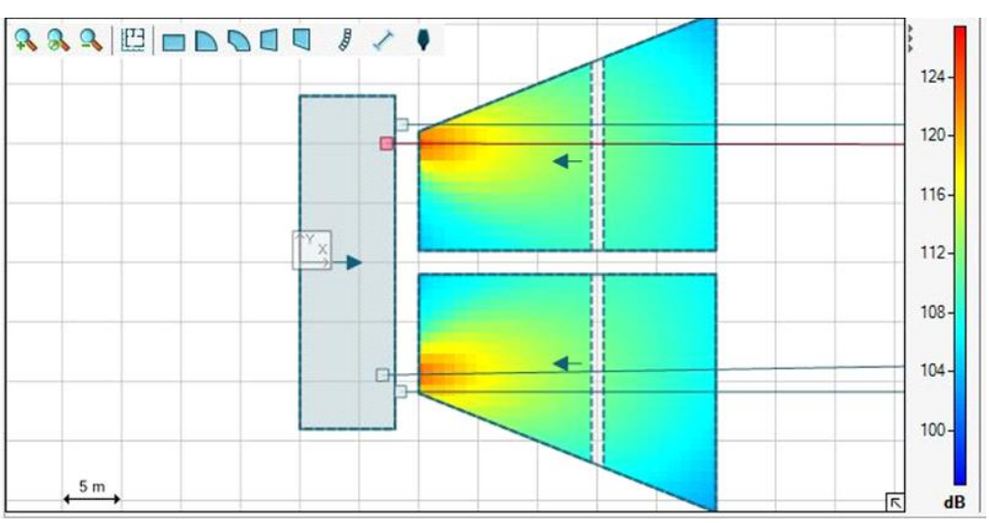
EQUIPMENT LIST

Qty	Ref	Description
2	VHA 118SA	18" woofer/4"coil amplified subwoofer
6	VHA 406A	4x6" woofers/1,5" coil - 1,4" driver/2,5" coil
2	VHA -B 406	Base to ground array

SETTINGS

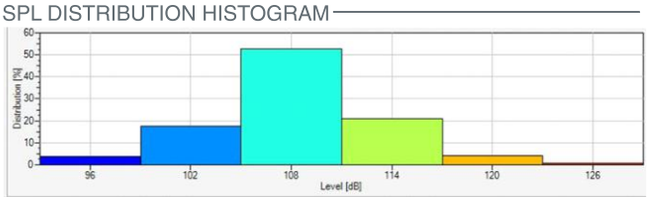
Model	Push	Prest switch
VHA 118SA	VHA 112SA NO	USER PREFERRED
VHA 406A	HPF ON	C

COVERAGE MAPPING

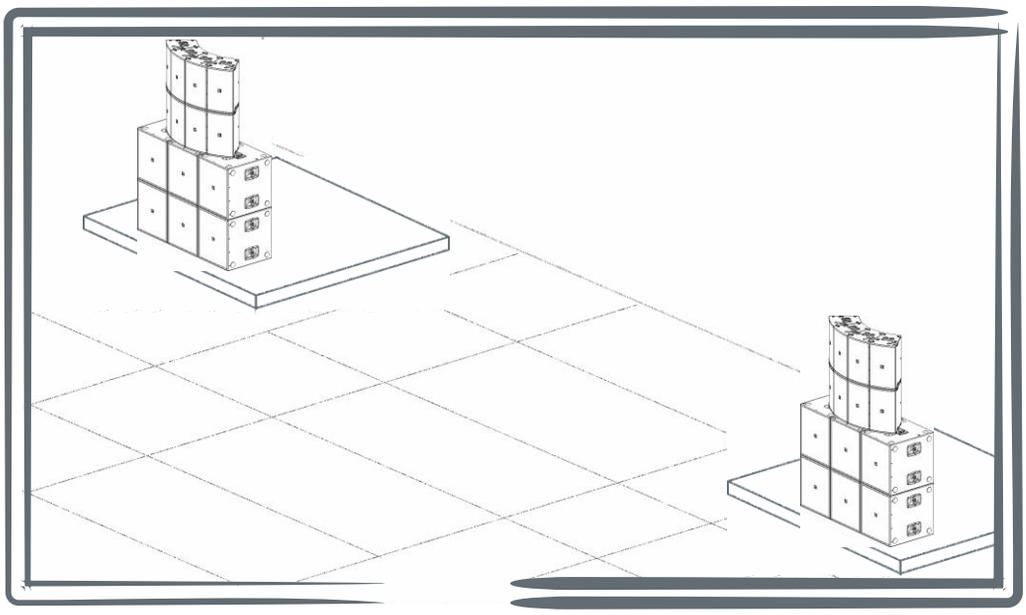


10.400W in total
450mq.
140dB @1mt
110dB @30mt

SPL DISTRIBUTION HISTOGRAM



LIVE CLUB / DISCO / OUTDOOR FESTIVALS



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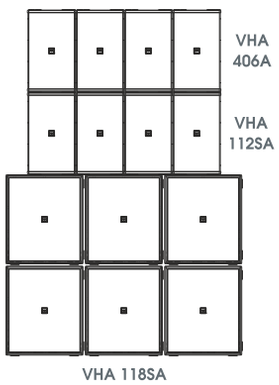


3 way configuration.
VHA 112SA work as a LF.
VHA 406A work as MF and HF to improve dynamic and headroom.

SOLUTION

High power "ground stack" configuration, particularly suitable for use in Clubs, Discos, with DJ set or live rock programs. The vertical dispersion is fixed at 90 °, therefore suitable for the sound diffusion in environments where the audience is arranged on various levels, while the horizontal dispersion varies according to the angle between the speakers and ranges from a minimum of 37.5 ° up to 82.5 ° (4 speakers with maximum inclination). The correct functioning of the 3-way configuration requires a 1: 1 ratio between the number of VHA 406A and VHA 112SA speakers.

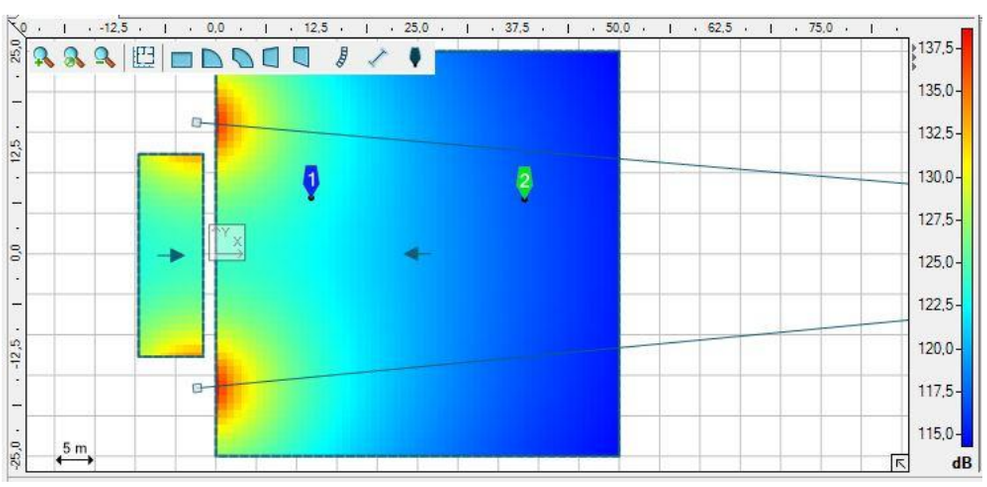
EQUIPMENT LIST

Qty	Ref	Description
12	VHA 118SA	18" woofer/4"coil amplified subwoofer
8	VHA 406A	4x6" woofers/1,5" coil - 1,4" driver/2,5" coil
8	VHA 112SA	12" woofer/3" coil amplified subwoofer

SETTINGS

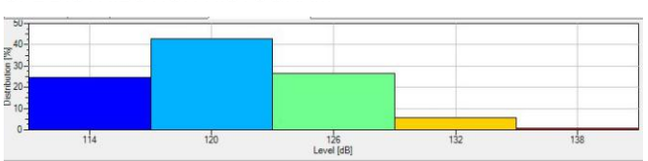
Model	Push	Prest switch
VHA 118SA	VHA 112SA YES	USER PREFERRED
VHA 406A	HPF ON	H
VHA 112SA	LOW EXT. OFF	H

COVERAGE MAPPING

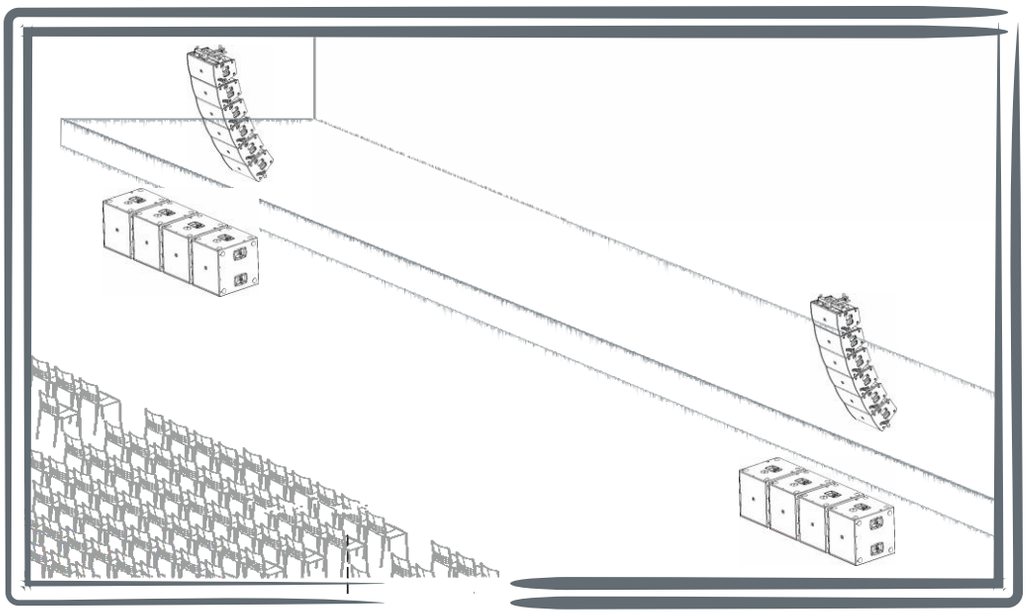


46.800W in total
3300mq.
148dB @1mt
110dB @80mt

SPL DISTRIBUTION HISTOGRAM



AMPHITHEATER / OUTDOOR CONCERT / LARGE OPEN HOUSE



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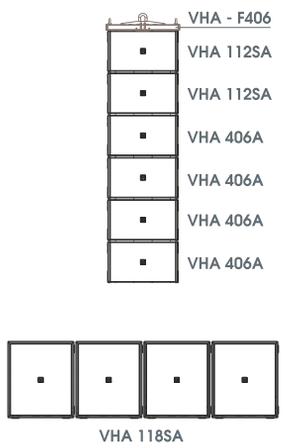


SOLUTION

System configured in vertical line array with the aid of VHA 112SA used as subwoofers. The hanging system alone is sufficient for speech or for an acoustic music program, while it requires the VHA 118SA speakers in the case of a live or disco program for a higher SPL at low frequencies. The horizontal dispersion is 90 °, the vertical dispersion varies between 37.5 ° and 82.5 °.

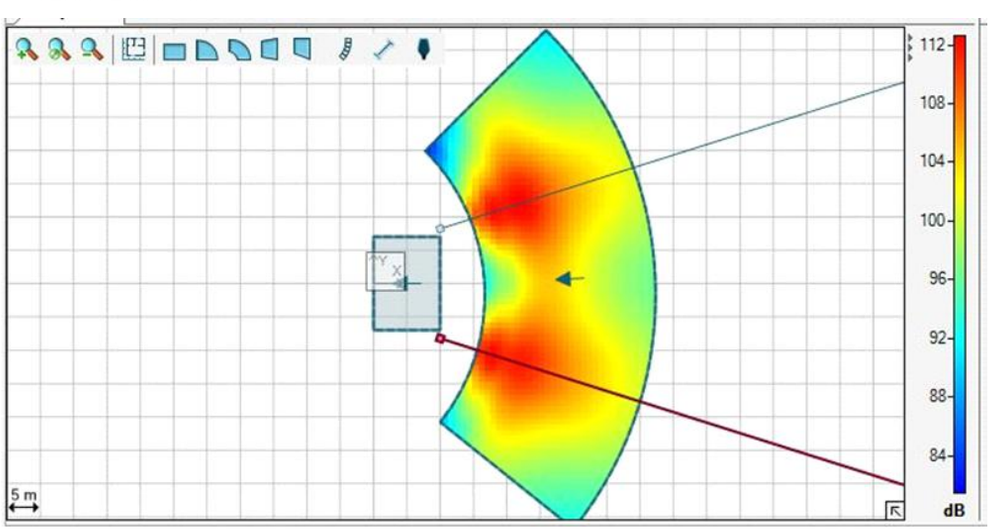
EQUIPMENT LIST

Qty	Ref	Description
8	VHA 118SA	18" woofer/4"coil amplified subwoofer
8	VHA 406A	4x6" woofers/1,5" coil - 1,4" driver/2,5" coil
4	VHA 112SA	12" woofer/3" coil amplified subwoofer
2	VHA -F 406	Vertical flybar

SETTINGS

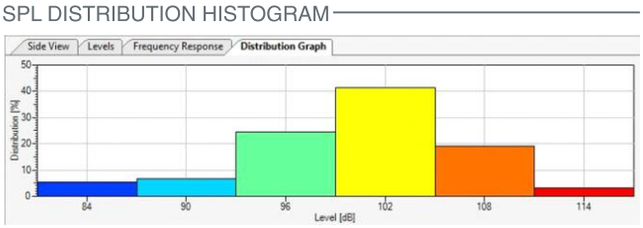
Model	Push	Prest switch
VHA 118SA	VHA 112SA YES	USER PREFERRED
VHA 406A	HPF ON	C
VHA 112SA	LOW EXT. OFF	A or B

COVERAGE MAPPING

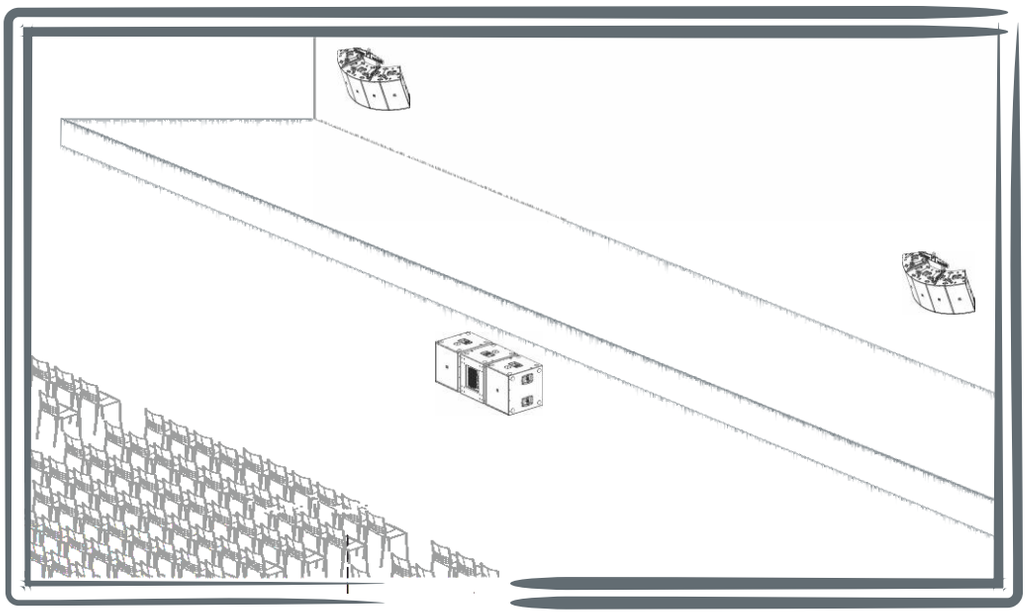


22.000W in total
1800mq.
146dB @1mt
110dB @60mt

SPL DISTRIBUTION HISTOGRAM



AUDITORIUM / HOUSE OF WORSHIP



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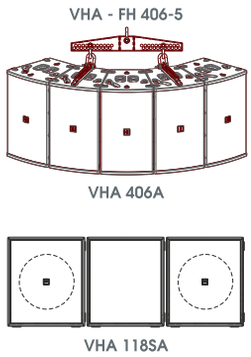


SOLUTION

Horizontal array system, useful in case the height required for a vertical array configuration is not adequate, when it is important to have large vertical dispersion (90 °) and to control the horizontal dispersion accurately and according to the environment. This configuration is suitable for medium-sized environments where the audience is arranged on a number of levels and with a general music program. To increase the SPL at low frequencies, it is possible to add the VHA 118SA subwoofers. The subwoofers are in cardioid configuration to reduce the pressure on the stage by approximately 18dB in the 30 ÷ 100Hz range.

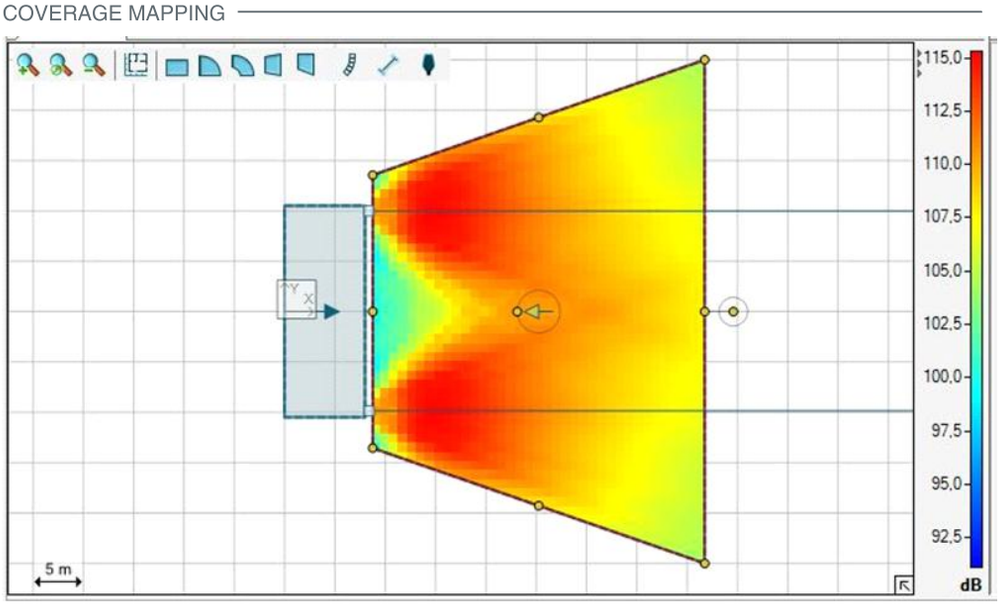
EQUIPMENT LIST

Qty	Ref	Description
3	VHA 118SA	18" woofer/4"coil amplified subwoofer (cardioid configuration)
10	VHA 406A	4x6" woofers/1,5" coil - 1,4" driver/2,5" coil
2	VHA -FH 406-5	Horizontal flybar

SETTINGS

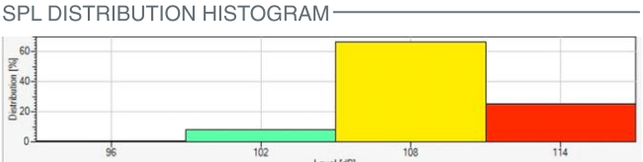
Model	Push	Prest switch
VHA 118SA	VHA 112SA NO	1
VHA 406A	HPF ON	D
VHA 118SA (reversed)	VHA 112SA NO	6

COVERAGE MAPPING

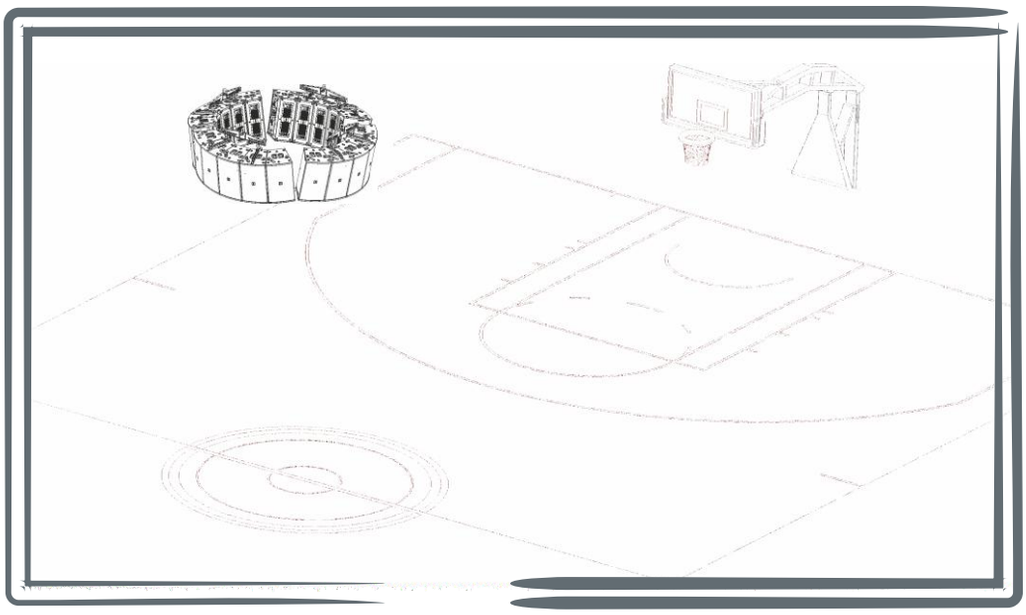


24.000W in total
1500mq.
145dB @1mt
110dB @55mt

SPL DISTRIBUTION HISTOGRAM



SPORTS ARENA 360° COVERAGE



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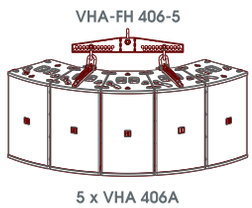


SOLUTION

This configuration has a 360 ° horizontal coverage and a 90 ° vertical coverage: it is suitable for the sound diffusion in large sports facilities and in general when the audience is arranged at 360 ° around the speakers. The individual clusters consist of a maximum of five speakers, and the number required to complete the 360 ° range depends on the angle chosen between them.

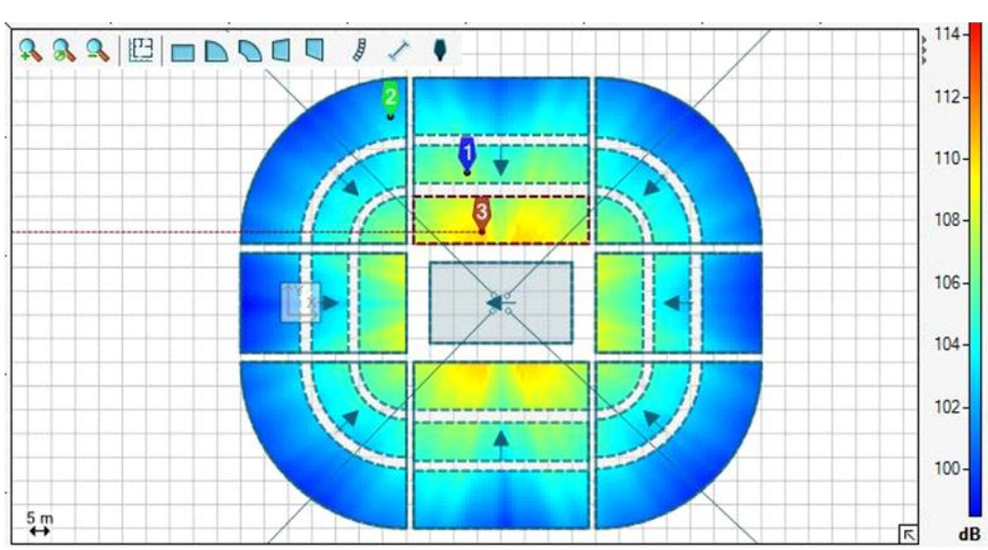
EQUIPMENT LIST

Qty	Ref	Description
20	VHA 406A	4x6" woofers/1,5" coil - 1,4" driver/2,5" coil
4	VHA -FH 406-5	Horizontal flybar

SETTINGS

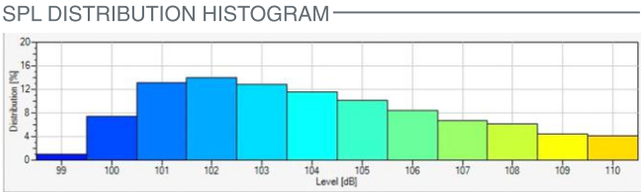
Model	Push	Prest switch
VHA 406A	HPF OFF	D

COVERAGE MAPPING

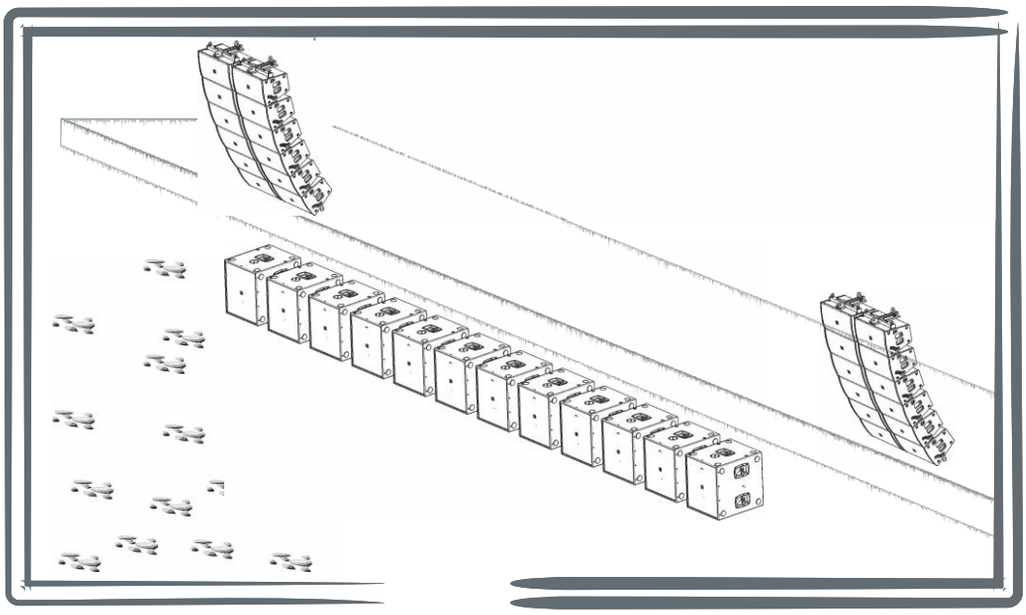


18.000W in total
4000mq.
143dB @1mt
110dB @45mt

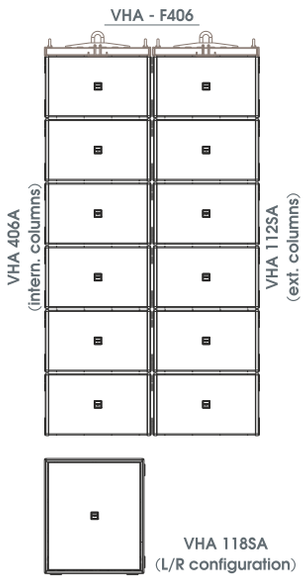
SPL DISTRIBUTION HISTOGRAM



OPEN AIR / LARGE SPACE



SYNOPTIC



SOLUTION

3-way maximum configuration system with external towers consisting of VHA 112SA (LF) and internal tower consisting of VHA 406A (MF + HF). Suitable for large indoor and outdoor environments. The VHA 112SA and VHA 118 SA speakers overlap in the 50 ÷ 100Hz range; consequently, the time alignment is especially crucial and should be performed by applying the right Delay to the VHA 118SA subwoofers, which is to be calculated according to the distance difference between ground sub and top sub and a point reference in the audience (usually median). Possible coverage 90 ° H and 47.5 ° - 122.5 ° V.

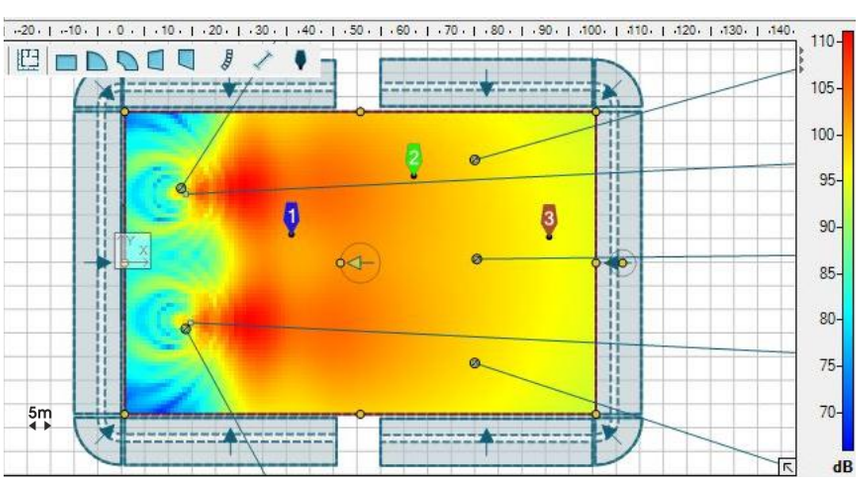
EQUIPMENT LIST

Qty	Ref	Description
12	VHA 118SA	18" woofer/4"coil amplified subwoofer
12	VHA 406A	4x6" woofers/1,5" coil - 1,4" driver/2,5" coil
12	VHA 112SA	12" woofer/3" coil amplified subwoofer
4	VHA -F 406	Vertical flybar

SETTINGS

Model	Push	Prest switch
VHA 118SA	VHA 112SA YES	USER PREFERENCE
VHA 406A	HPF ON	H
VHA 112SA	LOW EXT. OFF	H

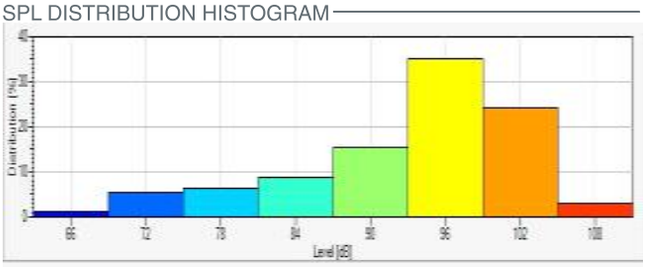
COVERAGE MAPPING

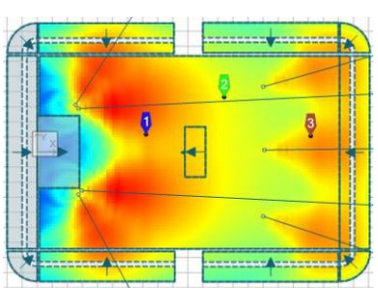


55.200W in total
5000mq.
150dB @1mt
100dB @16mt

3 way configuration.
VHA 112SA work as a LF. VHA 406A work as MF and HF to improve dynamic and headroom.

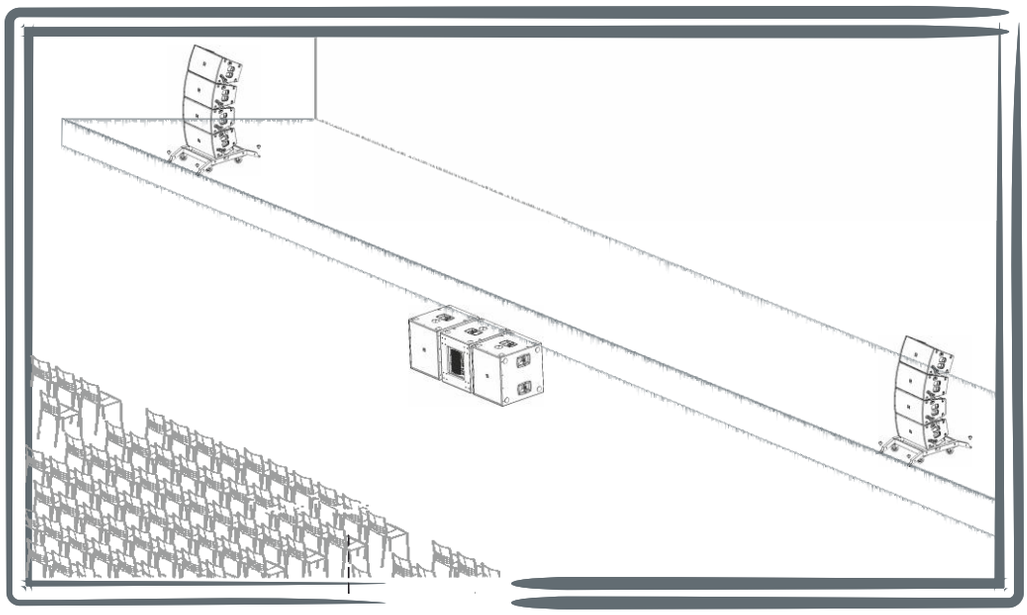
SPL DISTRIBUTION HISTOGRAM



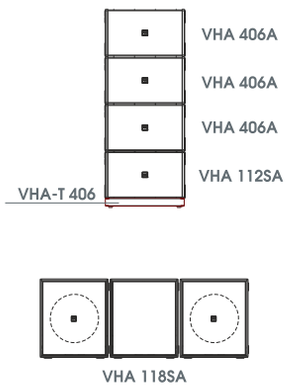


Con l'aggiunta di ulteriori diffusori in delay tower è possibile sonorizzare le gradinate che racchiudono il campo sportivo. In questo caso vengono utilizzati tre ulteriori array composti da N. 3 diffusori VHA 406A ognuno.

LIVE CLUB / AUDITORIUM / MEDIUM OUTDOOR EVENTS



SYNOPTIC



SOLUTION

Stack configuration on stage. The use of VHA 112SA in array allows for more headroom in the mid / low frequencies. The coverage of the system is 90°H and 32.5° - 82.5°V. It is suitable for medium-sized environments where the audience can also be arranged on one or more levels. The VHA 118SA subwoofers in cardioid configuration allow obtaining great uniformity and amplitude of low frequencies, reducing the SPL on stage by about 18dB in a 30 ÷ 100Hz range.

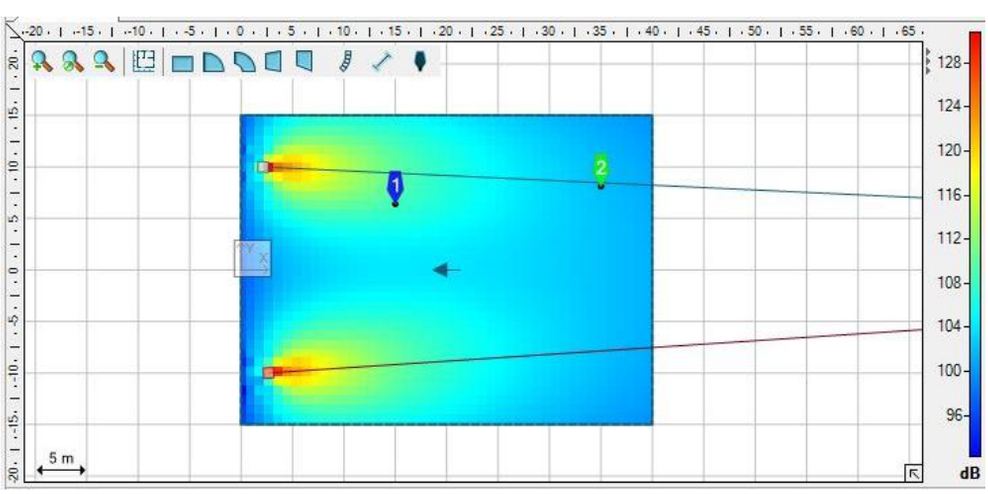
EQUIPMENT LIST

Qty	Ref	Description
3	VHA 118SA	18" woofer/4"coil amplified subwoofer
6	VHA 406A	4x6" woofers/1,5" coil - 1,4" driver/2,5" coil
2	VHA 112SA	12" woofer/3" coil amplified subwoofer
2	VHA - T 406	Trolley con piedi stabilizzatori

SETTINGS

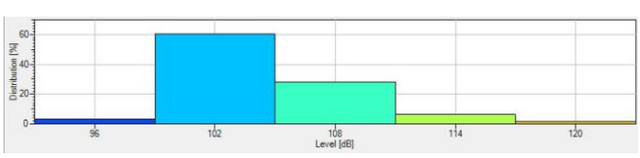
Model	Push	Prest switch
VHA 118SA	VHA 112SA YES	1
VHA 406A	HPF ON	C
VHA 112SA	LOW EXT. OFF	B or C
VHA 118SA (reversed)	VHA 112SA YES	6

COVERAGE MAPPING

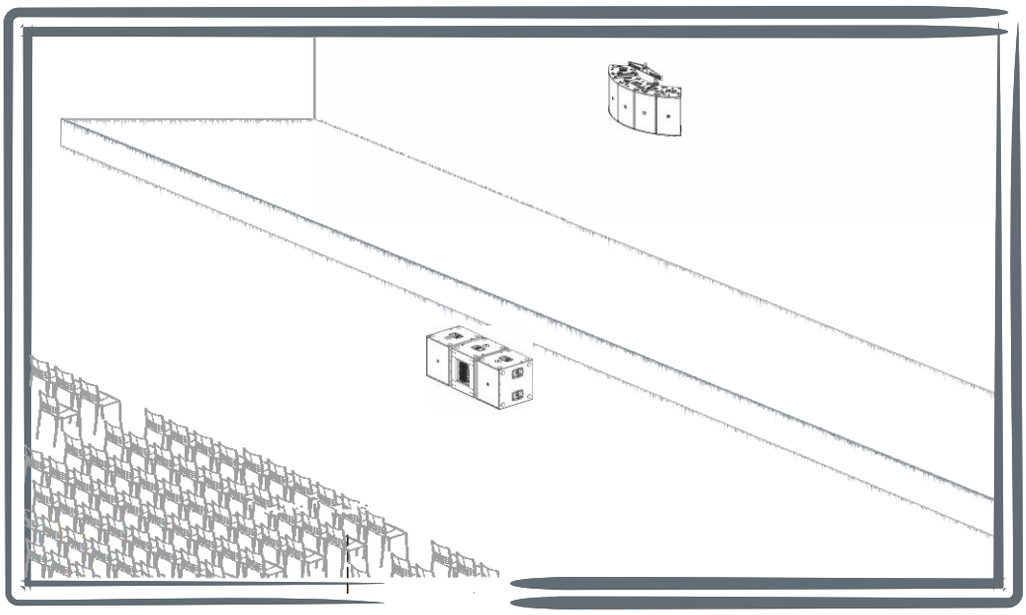


15.300W in total
650mq.
140dB @1mt
110dB @35mt

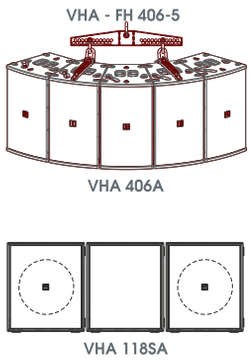
SPL DISTRIBUTION HISTOGRAM



OPEN HOUSE / HOUSE OF WORSHIP / AMPHITHEATRE



SYNOPTIC



SOLUTION

The possible coverage with this configuration is 60 ° H x 90 ° V. The system, installed in Horizontal Fly Array, is particularly suitable for vocal reproduction and for musical programs in conference rooms and small theatres, as a fixed or mobile installation. Subwoofers are configured in cardioid mode.

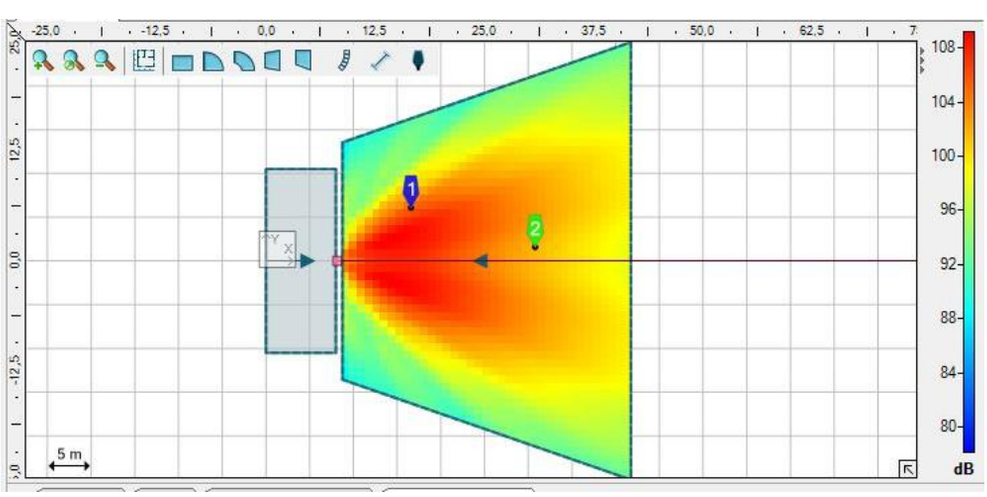
EQUIPMENT LIST

Qty	Ref	Description
3	VHA 118SA	18" woofer/4"coil amplified subwoofer (cardioid configuration)
5	VHA 406A	4x6" woofers/1,5" coil - 1,4" driver/2,5" coil
1	VHA -FH 406-5	Horizontal flybar

SETTINGS

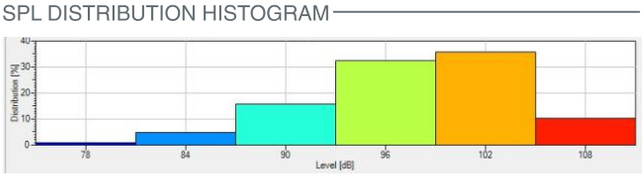
Model	Push	Prest switch
VHA 118SA	VHA 112SA NO	1
VHA 406A	HPF ON	D
VHA 118SA (reversed)	VHA 112SA NO	6

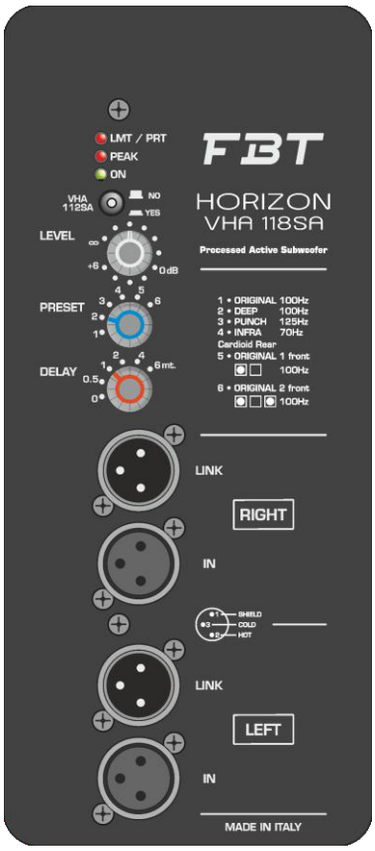
COVERAGE MAPPING



12.000W in total
650mq.
140dB @1mt
110dB @35mt

SPL DISTRIBUTION HISTOGRAM





PRESET CHART

1 • ORIGINAL 100Hz
2 • DEEP 100Hz
3 • PUNCH 125Hz
4 • INFRA 70Hz

Cardioid Rear

5 • ORIGINAL 1 front
100Hz

6 • ORIGINAL 2 front
100Hz

PRESET CHART

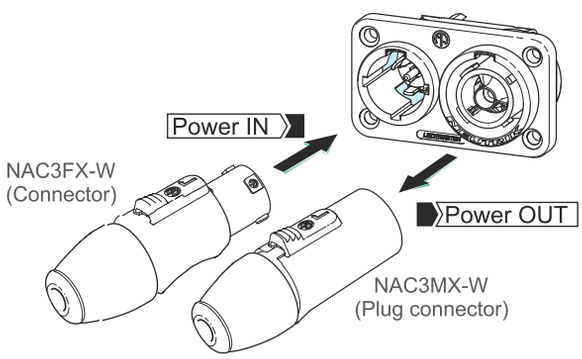
2 WAY+SUB SYSTEM	3 WAY SYSTEM
VHA406A (HF+LF) VHA112SA (SUB)	VHA406A (HF+MF) VHA112SA (LF)
1:1 RATIO	1:1 RATIO
A • 1 SPKR	E • 1 SPKR
B • 2 SPKRS	F • 2 SPKRS
C • 3/4 SPKRS	G • 3/4 SPKRS
D • 5/6 SPKRS	H • 5/6 SPKRS

PRESET CHART

2 WAY+SUB SYSTEM	3 WAY SYSTEM
VHA406A (HF+LF) VHA112SA (SUB)	VHA406A (HF+MF) VHA112SA (LF)
SUB : SAT RATIO	1:1 RATIO
A • 1:1	E • 1 SPKR
B • 1:2	F • 2 SPKRS
C • 1:3	G • 3/4 SPKRS
D • 2:1	H • 5/6 SPKRS

POWER SUPPLY 220 - 230V
For power supply VHA model features a Neutrik PowerCon cable duplex with input and output.
CAUTION: never replace the plug of the power cord supplied since the power cord can only support a maximum current of 16A.

POWER SUPPLY 120V
If the total current demand does not exceed 15A use the power cable supplied.
If the total current demand is between 15A and 20A, user the power cable AWG12 SJT VW1 with plug rated current equal or greater than 30A.
THE CABLE AND THE PLUG MUST HOLD THE "UL" OR "CSA" CERTIFICATION.



The HORIZON system consists of three models:
- **VHA 406A:** 2-way bi-amplified speaker with 65Hz - 20kHz bandwidth (120Hz - 20kHz HP Filter ON)
- **VHA 112SA:** 12" 1-way amplified subwoofer with 50Hz - 120Hz bandwidth (40Hz - 120Hz con "LF Extension" ON)
- **VHA 118SA:** 18" 1-way amplified subwoofer with 30Hz - 100Hz bandwidth

The system is very versatile and is available in a variety of configurations to better adapt to the requirements of use; the pre-sets are designed to guarantee correct alignment of the system in amplitude and phase as the configuration used varies. ***It is very important to correctly configure all the controls in the speakers in order to avoid seriously compromising the final result.***

When the system includes **VHA 406A and VHA 112SA**, two modes of operation are possible:
- **2 WAY + SUB SYSTEM:** "2 WAY" refers to the VHA 406A model and "SUB" to the VHA 112SA model. In this mode the acoustic crossover is set to 110Hz (therefore outside the vocal range) and the system is assimilated to a "SAT+SUB". The ratio between SUB and SAT can be chosen between 2:1 and 1:3 depending on how much energy is required below 110Hz and the physical distance between SUB and SAT can also vary accordingly depending on the number of SAT and SUB that make up the horizontal and vertical array. For example, an array can be configured with 2 x VHA 112SA and under 4 x VHA 406A. This mode works correctly with any permissible configuration of the HORIZON system.
- **3 WAY SYSTEM**: The combination of VHA 406A and VHA 112SA is addressed to produce a 3-way speaker (LF+MF+HF) in which the VHA 112SA speaker forms the first way (LF) and the VHA 406A constitutes the two remaining ways (MF+HF). The acoustic crossover, in this case, is set to 230Hz (within the vocal range) and the system must respect precise rules in terms of the ratio of the two speakers (which must be strictly 1:1) and the distance of the acoustic centres (which must be aligned vertically or horizontally and as close as possible). This configuration was conceived above all to have the maximum SPL and "headroom" in large configurations where the 12" woofer is used in all its potential to provide the system with the necessary energy supply on the LF range.

N.B. Both configurations can be accompanied by the VHA 118SA which is the "actual" subwoofer of the system and is required in the vast majority of "live" and "sound reinforcement" applications to provide the correct impact at low frequencies.

The possible combinations of speakers are:
- **VHA 406A** in full-range (HP FILTER OFF): for voice or music with limited energy content at low frequencies.
- **VHA 406A (HP FILTER ON) + VHA 112SA** in "2 WAY+SUB" or "3 WAY" configuration. The "LF EXTENSION" button can be activated on • VHA 112SA to obtain greater extension at low frequencies.
- **VHA 406A (HP FILTER ON) + VHA 112SA** in "2 WAY+SUB" or "3 WAY" configuration ("LF EXTENSION OFF" button) + VHA 118SA with a preset of your choice (VHA button 112SA ON). In this configuration the preset "INFRA" offers the highest quality and timbre neutrality, while the "ORIGINAL" or "DEEP" pre-sets offers the maximum SPL ensuring the overlap between VHA 112SA and VHA 118SA. The "PUNCH" preset is not recommended.
- **VHA 406A (HP FILTER ON) + VHA 118SA** (VHA button 112SA OFF). In this configuration it is necessary to choose one of the first 4 pre-sets (A-B-C-D) for VHA 406A according to the number of speakers that compose the array, while it is forbidden to use the "E-F-G-H" pre-sets (see figure 1). For the VHA 118SA in general the "INFRA" pre-set is not recommended while it is possible to choose from among the others available as required. The INFRA preset can only be used together with the "HP FILTER" OFF button located on the VHA 406A speaker which ensures a uniform response in the crossover area, even if energetically, at high volumes, the system may suffer a drop in performance in the 75Hz - 105Hz range, due to the limitation of the VHA 406A. The PUNCH pre-set offers a fast and high impact bass on 60 - 90Hz, particularly suitable in "live" mode.

VHA 112SA PRESET CHART

Ratio between quantities of VHA 112SA and VHA 406A that compose the array in 2-WAY+SUB mode.

2 WAY+SUB SYSTEM	3 WAY SYSTEM
VHA406A (HF+LF) VHA112SA (SUB)	VHA406A (HF+MF) VHA112SA (LF)
SUB : SAT RATIO	1:1 RATIO
A • 1:1 B • 1:2 C • 1:3 D • 2:1	E • 1 SPKR F • 2 SPKRS G • 3/4 SPKRS H • 5/6 SPKRS

VHA 406A PRESET CHART

Number of VHA 406A that compose the array in 2-WAY+SUB or 3-WAY modes. The 3-WAY mode is not achievable if the VHA 112SA model is not present in the configuration; in this case the choice of the pre-sets will be limited to the first four (A-B-C-D).

2 WAY+SUB SYSTEM	3 WAY SYSTEM
VHA406A (HF+LF) VHA112SA (SUB)	VHA406A (HF+MF) VHA112SA (LF)
	1:1 RATIO
A • 1 SPKR B • 2 SPKRS C • 3/4 SPKRS D • 5/6 SPKRS	E • 1 SPKR F • 2 SPKRS G • 3/4 SPKRS H • 5/6 SPKRS

The ratio between the quantities of VHA 112SA and VHA 406A is fixed at 1:1. E.g. A configuration with 4 speakers must have no. 2 VHA 112SA models and no. 2 VHA 406A models. Furthermore, the two modules must respect a rule on their mutual positioning. (see fig.1)

HORIZON VHA 406A

Button for activating the low-cut filter device that only releases the highest frequencies of the "cut-off frequency". N.B. the command, in a 3-way configuration, is "bypassed".

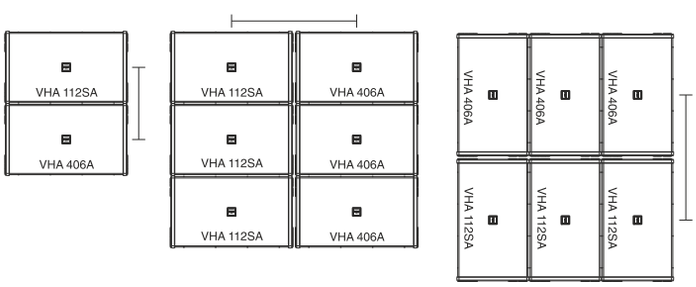
HORIZON VHA 112SA

Activating this control extends the response to the low frequencies. *TO BE USED EXCLUSIVELY WHEN THE VHA 112SA IS THE ONLY SUBWOOFER OF THE SYSTEM.*

HORIZON VHA 118SA

Position the button in "YES" mode only when the HORIZON system also includes the VHA 112SA model; in this way, through the "all pass" filters, perfect phase alignment between the two subwoofers is guaranteed.

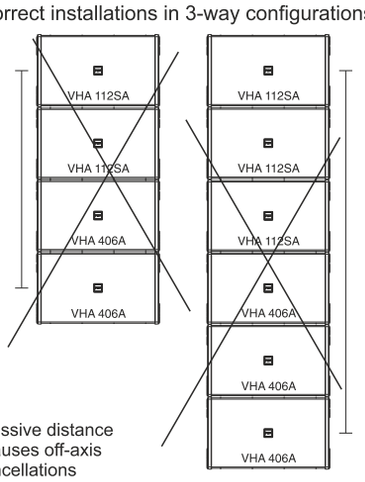
Correct installation of VHA 112SA and VHA 406A in the 3-way configuration



Distance between acoustic centre

Fig. 1

Incorrect installations in 3-way configurations



An excessive distance that causes off-axis cancellations

VHA 406A

PERFORMANCE

System Type	2 ways bi-amplified line array
Built-in Amplifiers LF / HF	max.: 600 / 300W RMS max. peak.: 1200 / 600W
Frequency Response @ -6dB	65Hz - 20kHz
Input Impedance	22kOhm
Maximum SPL (cont/peak)	128/133dB
Dispersion	90°H x 20°V
Crossover Frequency	1,2 kHz
Power consumption	640 W
Nominal power requirement	220 - 230Vac 50/60Hz

PHYSICAL

Low Frequency Woofer	4 x 6,5" - 1,5" coil
High Frequency Driver	1 x 1,4" - 2,5" neodymium coil
Input Connectors	1 male + 1 female XLR IN/LINK
Net Dimensions (WxHxD)	24,1" x 14,2" x 15,6" 612 x 360 x 397mm
Shipping Dimensions (WxHxD)	28,34" x 16,14" x 20,27" 720 x 410 x 515
Net Weight	68,34 lbs / 31 kg
Shipping Weight	72,75 lbs / 33 kg
Enclosure Material	0,47" birch plywood
Power cord	16,40 ft / 5 mt.

VHA 112SA

PERFORMANCE

System Type	1 way bass-reflex subwoofer
Built-in Amplifier	max.: 1200W RMS max. peak.: 2400W
Frequency Response @ -6dB	50Hz - preset dependent
Input Impedance	22kOhm
Maximum SPL (cont/peak)	131,5/135dB half space
Dispersion	omnidirectional
Crossover Frequency	preset dependant
Power consumption	640 W
Nominal power requirement	220 - 230Vac 50/60Hz

PHYSICAL

Low Frequency Woofer	1 x 12" - 3" coil
Input Connectors	1 male + 1 female XLR IN/LINK
Net Dimensions (WxHxD)	24,1" x 14,2" x 15,6" 612 x 360 x 397mm
Shipping Dimensions (WxHxD)	28,34" x 16,14" x 20,27" 720 x 410 x 515
Net Weight	57,32 lbs / 26 kg
Shipping Weight	61,72 lbs / 28 kg
Enclosure Material	0,47" birch plywood
Power cord	16,40 ft / 5 mt.

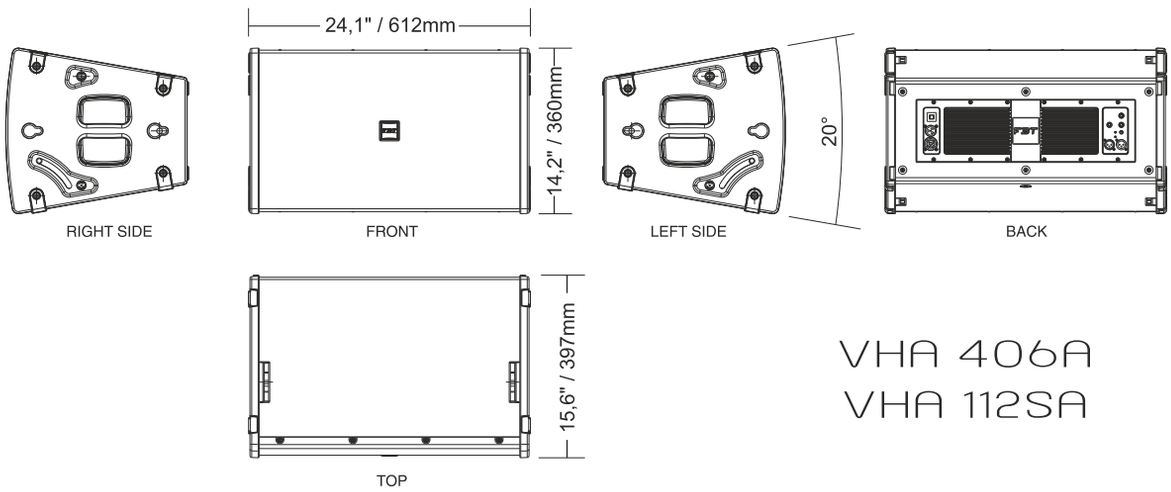
VHA 118SA

PERFORMANCE

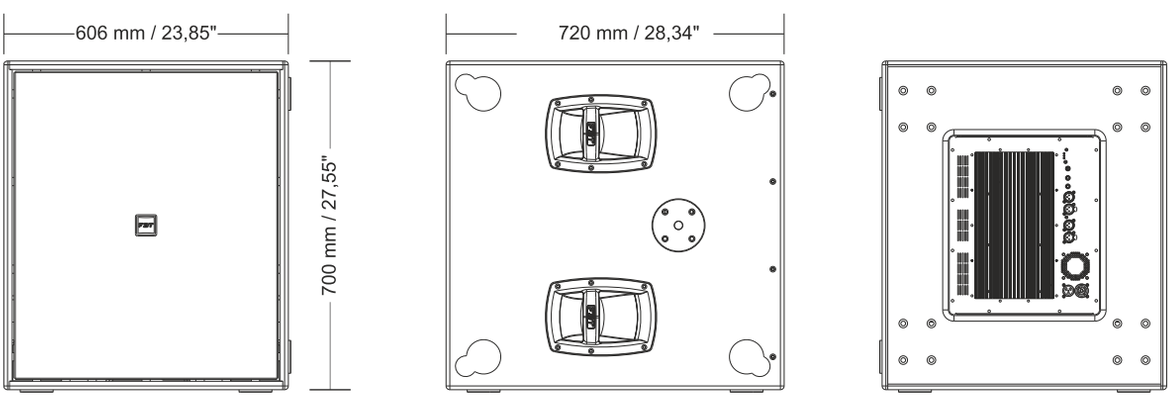
System Type	1way reflex active subwoofer
Built-in Amplifiers LF / HF	max.: 2500W RMS max. peak.: 5000W
Frequency Response	30Hz - preset dependent
Input Impedance	22kOhm
Maximum SPL (cont/peak)	137/143dB half space
Dispersion	omnidirectional
Crossover Frequency	preset dependant
AC Power requirement	650 W (1/4 max power)

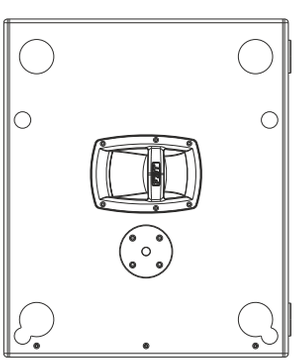
PHYSICAL

Low Frequency Woofer	1 x 18" - 4" coil
Input Connectors	XLR with loop
Net Dimensions WxHxD	23,85" x 27,55" x 28,34" 606 x 700 x 720mm
Shipping Dimensions with pallet WxHxD	27,55" x 35,31" x 31,49" 700 x 897 x 800mm
Net Weight	143 lbs / 65 kg
Shipping Weight (with pallet)	165 lbs / 75 kg
Enclosure Material	0,70" birch plywood
Power cord	16,40 ft / 5 mt.



VHA 406A
VHA 112SA





VHA 118SA

ONLY FOR GROUND STACK CONFIGURATION

ACCESSORIES

System installation should only be performed by qualified personnel

All system components must be inspected before use to detect any defects.

FBT is not responsible for any equipment and mounting accessories not produced by FBT.
It is the user's responsibility to check the workload limit of all additional hardware components.

During the installation of the system, make sure that the calculation of the total weights includes the weight of the accessories, including the chains of the lifters, motors, cables and other additional weights

Every element of the ceiling, floor or other support in which a HORIZON system is installed or hung must be able to support the load safely.

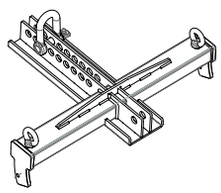
In addition to the main suspension system, the speakers hanging in theatres, sports halls or other places of work and entertainment must be equipped with an independent secondary safety system and the load capacity should be adequate.

QUANTITY	WEIGHT	
HORIZON VHA 406A	Kg	Lbs
1	31	68,34
2	62	136,68
3	93	205,02
4	124	273,37
5	155	341,71
6	186	410,05

QUANTITY	WEIGHT	
HORIZON VHA 112SA	Kg	Lbs
1	26	57,32
2	52	114,64
3	78	171,96
4	104	229,28
5	130	286,60
6	156	343,92

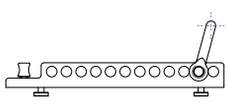
VHA-F 406
FLYBAR FOR VERTICAL CONFIGURATION

Manufacture: Steel
Safety factor: max 6 modules
Dimensions: 544 x 400 x 112,5 mm / 22.41 x 15.74 x 4.42 inch
Weight: 7,2 kg / 15.87 lb



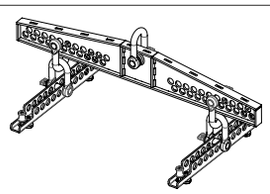
VHA-FH 406-1
FLYBAR FOR HORIZONTAL CONFIGURATION

Manufacture: Steel
Safety factor: max 1 module
Dimensions: 371 x 56,5 x 30 / 14.60 x 2.22 x 1.18 inch
Weight: 1,5 kg / 3.30 lb



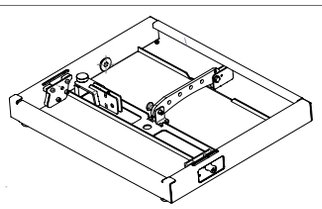
VHA-FH 406-5
FLYBAR FOR HORIZONTAL CONFIGURATION

Manufacture: Steel
Safety factor: 2 / 5 modules
Dimensions: 744,5 x 244,9 x 371 mm / 29.31 x 9.64 x 14.60 inch
Weight: 8 kg / 17.60 lb



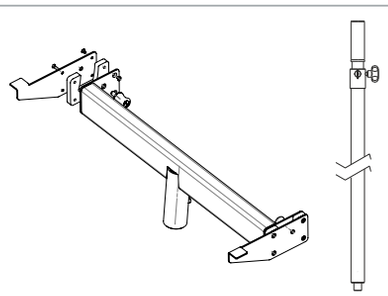
VHA-B 406
METAL BASE FOR ARRAY GROUND CONFIGURATION OR ABOVE SUBWOOFER

Manufacture: Steel
Safety factor: 2 modules on the ground / 3 modules above subwoofer
Dimensions: 606 x 73 x 502 mm / 23.85 x 2.87 x 19.76 inch
Weight: 10,3 kg / 22.70 lb



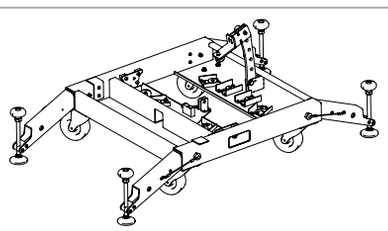
VHA-S 406
BRACKET FOR 1 SPKR WITH SPEAKER POLE

Manufacture: Steel
Safety factor: max 1 module
Dimensions: 590 x 180 x 154 mm / 23.22 x 7.08 x 6.06 inch
Weight: 5,5 kg / 12.12 lb (with speaker pole)



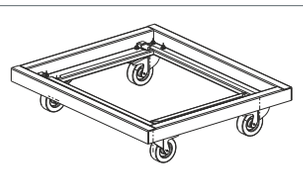
VHA-T 406
TROLLEY WITH FEET STABILIZERS

Manufacture: Steel
Safety factor: max 4 modules
Dimensions: 1048,7 x 394,5 x 645 mm / 41.28 x 15.53 x 25.39 inch
Weight: 27 kg / 59.52 lb



VHA-T 118
TROLLEY FOR SUBWOOFER TRANSPORT MOD. VHA 118SA

Manufacture: Steel
Safety factor: max 2 modules
Dimensions: 805 x 181 x 690 mm / 31.69 x 7.12 x 27.16 inch



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