

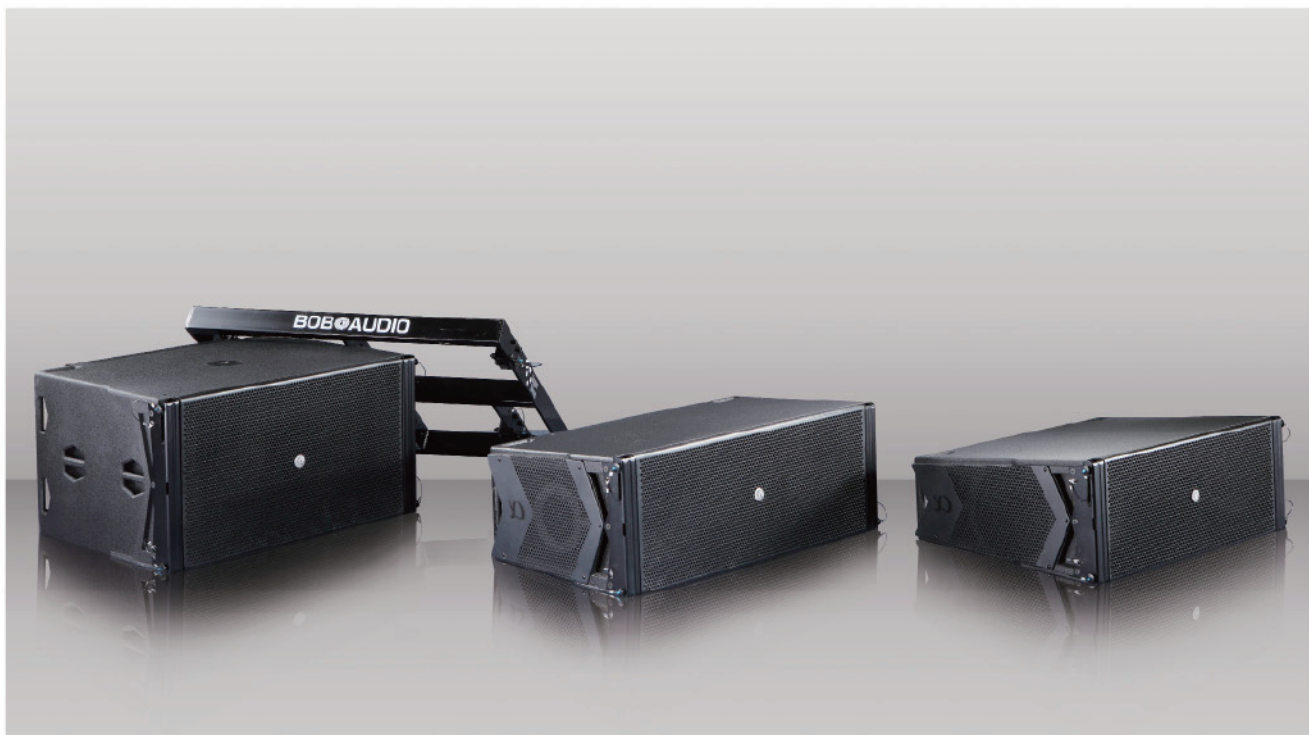


AS Series

Line Array System 綫性陣列系統

前瞻技術 創領先鋒

Advanced technology, always being a pioneer.



- 字母A在字典裏可以解釋為第一，同樣在博聲音響的產品系列裏，AS系列也是代表了第一，旗艦級的AS系列高性能陣列和綫性陣列系統，象徵着最好音質、最優的產品質量和性能。AS系列音箱採用先進的功率傳輸技術和擁有更佳的专业擴聲演出性能。創新的生產工藝使得木箱的重量大大減輕。所有這些優良特性和先進技術盡在AS系列中。
- 博聲音響的工程師為了賦予AS系列每一款音箱獨特的技術特性，多項專利技術充分運用到音箱設計上，點聲源波導管、頻波陣面糾正技術、常曲率陣列設計、中頻相位修正技術、寬頻帶點聲源技術、C.T.L同軸等等。
- AS系列產品具有各種規格的綫性陣列音箱系統可供用戶選擇，屬於大中型的AS362和AS340，中小型的是AS320和AS310。還有常曲率陣列設計的AS200系列專為小型和室內的演出而設。各種型號各具特色，也可以和其它系列型號無縫集成。
- Letter A is the first letter in alphabet. Also in BOB, AS series is the ace product range, our flagship AS series high performance array and line array system has the best sound, quality and performance. AS series uses advanced power transmission technology and achieves better professional sound reinforcement performance. Innovative techniques extremely lower the weight of cabinet. These advantages and technology are all in AS series.
- BOB's engineers have given every single product of AS series special technical character. Various of patent technology have been placed to the design of each cabinet, including point source waveguide, Frequency wave front correction technology, constant curvature array design, MF phase correction technology, broadband point source technology C.T.L coaxial etc.
- AS series has various specifications for customer's selection, AS362 and AS340 for large-scale using, AS320 and AS310 for normal using and AS200 series with constant curvature array design that designing for small and indoor performance. Each model has their own character to match with the other series perfectly.



Enclosure Design 箱體設計

作為博聲音響最高技術的產品代表，AS系列綫性陣列音箱融合了博聲音響所有的高技術箱體製造工藝。為了達至完美，在板材和表面處理方面不遺餘地提高要求標準。AS200系列的音箱採用了優質的芬蘭全樺木多層膠合板建造箱體，符合聲學設計要求特別定制的樺木膠合板令到AS系列音箱堅固結實的同時具有良好的聲學特性。為了確保產品的一致性和不易被模仿，博聲音響採用了獨特的音箱組裝技術，榫槽結構、冷粘接、高壓定位等技術和工具令箱體粘結牢固。表面更是採用極度耐用的彈性防水材質塗層保護，高度耐刮防撞，適用於任何苛刻的環境。

作為博聲音響旗艦級別型號AS362，更是採用了冷壓碳纖維加工技術，碳纖維製造的音箱的外殼是一般木質音箱所無與倫比的。碳纖維的強度是木材的10倍，比膠合板的重量輕了60%。做出來的箱體比傳統の木質箱體重量更輕，強度更高。經過多年不斷地探索新的加工工藝，大幅度改良生產技術讓成本降到客戶可以接受的範圍。先進的冷壓加工技術首先把音箱的各部位加工成型，然後利用特殊的粘結技術把各個部位組合起來，表面噴塗極度耐用的彈性防水材質塗層保護，高度耐刮防撞。

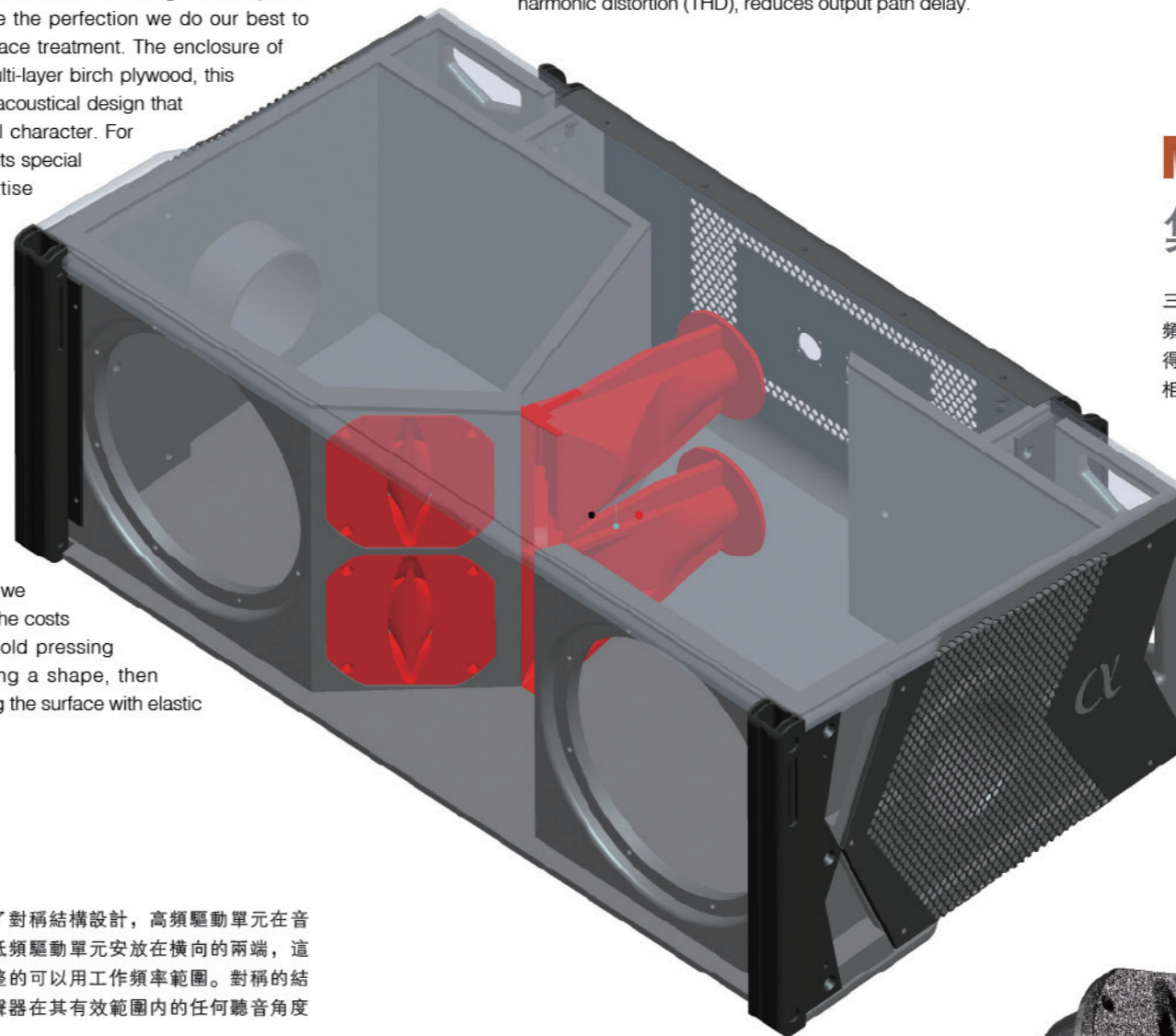
As BOB's iconic product, AS series has integrated all BOB's high technique of enclosure's manufacturing. In order to achieve the perfection we do our best to improve the standards of sheet metal and surface treatment. The enclosure of AS200 series is made of high quality Finland multi-layer birch plywood, this kind of birch plywood is specially made to meet acoustical design that leading the enclosure solid and good acoustical character. For consistency and preventing form copy, BOB use its special enclosure installation technology such as mortise structure, cold bonding and high pressure positioning etc. to bond the cabinet firmly. The surface is protected by the extremely durable elastic waterproof material coating, highly anti-scratching and hitting, can be applicable to any harsh environment.

As BOB's flagship model, AS362 uses cold pressing carbon fiber processing technology, the enclosure which make of carbon fiber is totally different form the wooden one because the strength of carbon fiber is 10 times comparing with wood but 60% lighter than plywood at the same size. So our enclosure is lighter but stronger than the traditional one. After years of constantly explore new technology, we significant improve our production technology to lower the costs to reach customers' acceptable line. The advanced cold pressing processing technology processed each part becoming a shape, then combining them with special bonding technique and coating the surface with elastic waterproof material, highly anti-scratching and hitting.

AS 300 Series

考慮到聲波在水平面的投射，大型系統的AS300系列採用了對稱結構設計，高頻驅動單元在音箱中央垂直排列，中頻驅動單元位於高頻驅動單元兩側，低頻驅動單元安放在橫向的兩端，這樣的驅動單元排列可產生正常的極性對稱，使系統擁有完整的可以用工作頻率範圍。對稱的結構設計具有和同軸驅動器一樣的配置，使AS300系列的揚聲器在其有效範圍內的任何聽音角度都擁有均勻的聲場覆蓋。

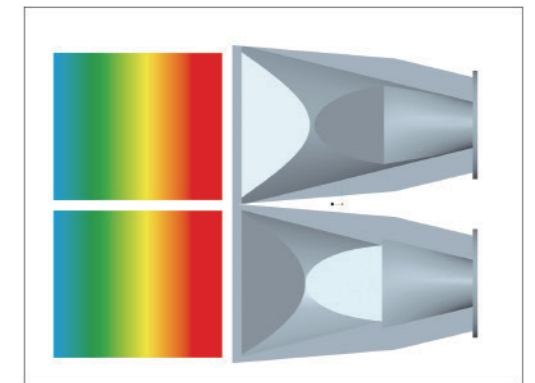
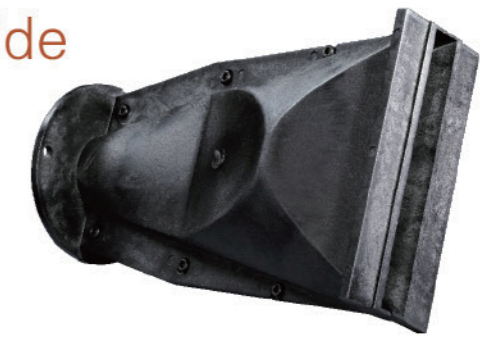
Be considered of sound-wave's projection in level, the big size system AS series is design in symmetrical structure. HF driving units lay in the central of enclosure vertically, MF units are in both sides of the HF ones, and the LF units are placed in both ends horizontally. This arrangement leads normal polarity symmetric that giving the system the whole working frequency range. Symmetrical structure design has the same configuration as coaxial driver; it makes the loudspeaker of AS300 series having a uniform sound field coverage in every angle of its effective range.



The Patented Point Source Waveguide 專利點聲源波導管

綫性陣列的核心部分就是高頻的波導管，它的作用是将高頻驅動單元的球形波陣面變成圓柱狀的同相位波陣面，使得各個揚聲器耦合一致，創建一個單一、連續的同相位聲源。我們不像以前大多數的波導管祇是以簡單的帶狀分割投射，波導管菱形的或者其他形狀的分割會影響到原始頻段輸出，我們採用了加速等路徑半球面結構來製造波導管，這樣的好處是減少波陣面的扭曲，從而確保所有原始頻段以一致的波陣面輸出，比普通的波導管具有更高的靈敏度和更低的總諧波失真，減少輸出路徑延時。

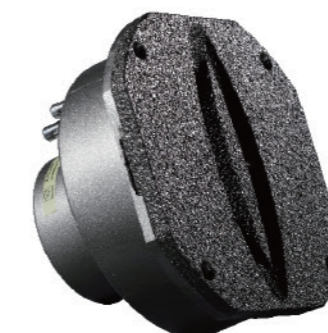
The core of line array is HF waveguide. It turns spherical wavefront of HF units into cylindrical equal phase wavefront that leading each unit coupling consistency to create a single, continuous equal phase sound source. We do not make the waveguide split projecting zonal as usual, splitting the waveguide rhombic or other shapes may effect to original frequency's output. So we have made the waveguide by accelerating equal path hemispherical structure, the advantage of this way is to reduce the distortions of the wavefront that make sure all original frequency will be out put in a consistent wavefront. Comparing with the normal ones, our waveguide has a higher sensitivity and lower total harmonic distortion (THD), reduces output path delay.

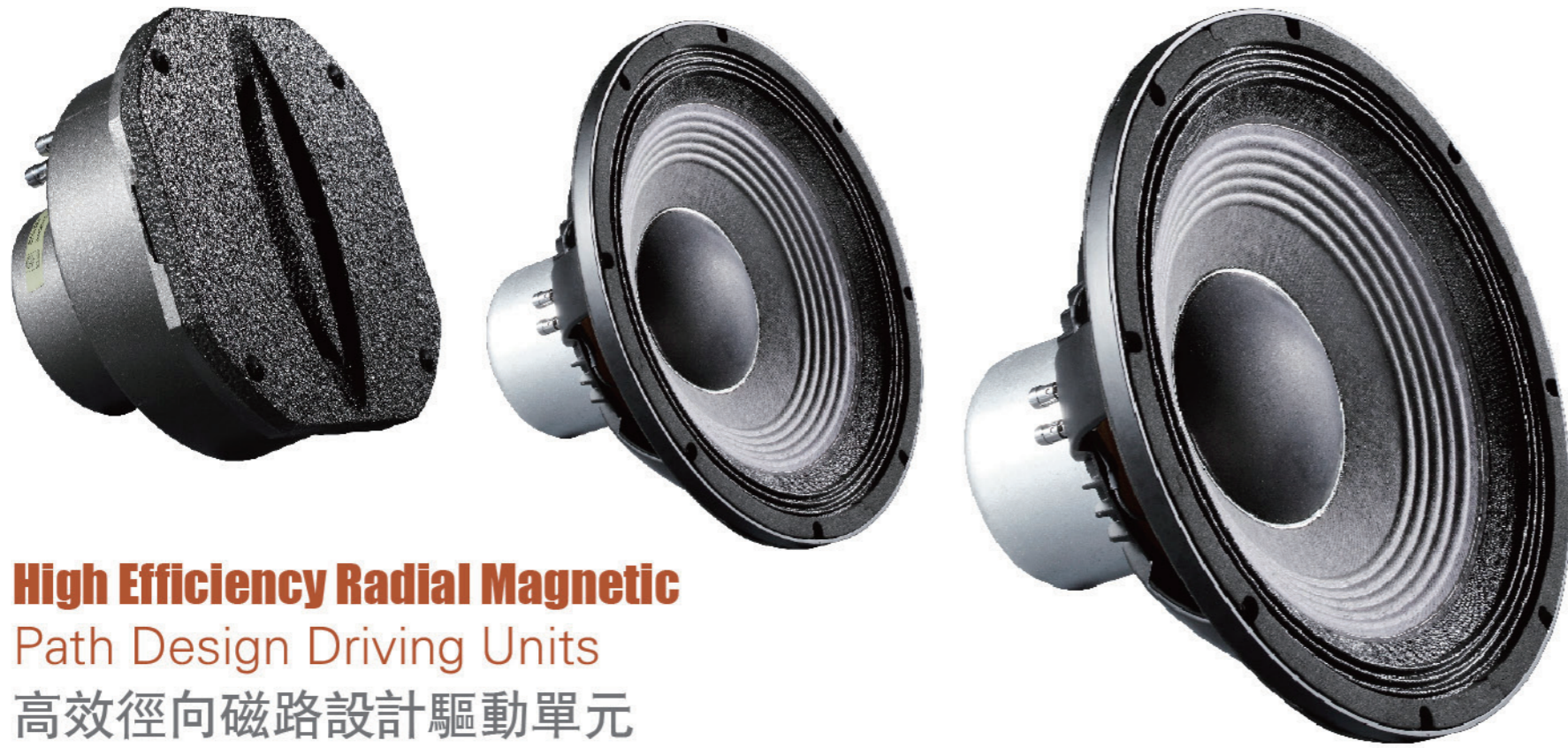


Mf And Hf Horn Integration 集成中高頻號筒

三路綫性陣列最主要的困難是匹配中頻驅動單元與高頻驅動單元的交叉頻率。主要是各種驅動單元的大小和工作頻率的波長是不一樣的，為了得到一致的相位特性和工作頻率，中頻驅動單元負載了一個設計獨特的相位塞，通過相位塞去控制中頻的水平指向性輸出，有效降低和高頻之間的相互幹擾，讓高頻輸出可以和中頻輸出在同一個號筒裏完美融合輸出，提高靈敏度和將能量集中從而得到一個平坦的波陣面。

The main difficult problem of 3-way line array is to matching the crossover frequency of MF units and HF units. The size and working frequency of each is different, for reaching the same phase and frequency, MF driving unit loads a special phase plug that controlling the horizontal directional output, reducing the interference with high frequency, making HF and MF output in the same horn perfectly and improving the sensitivity and power to getting a flat wavefront.





High Efficiency Radial Magnetic Path Design Driving Units

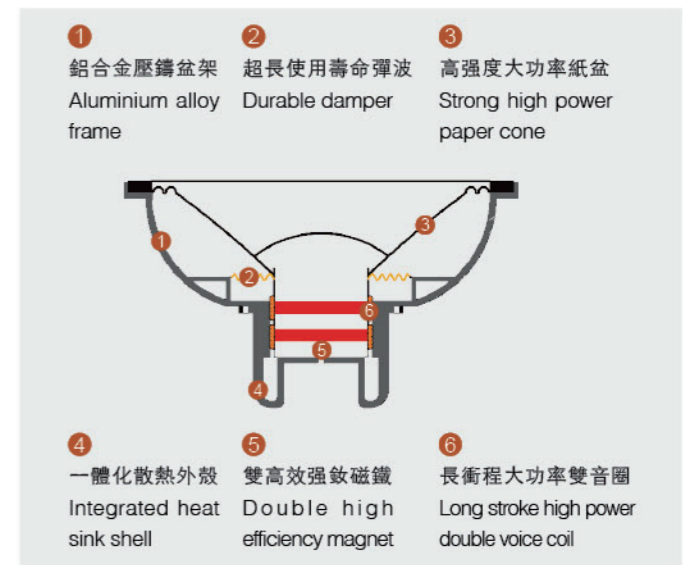
高效徑向磁路設計驅動單元

AS系列的低頻驅動單元採用了先進的徑向磁路設計，用專門設計的扁平銅線繞制而成的低頻驅動單元音圈，是特別的上下雙音圈結構，這種最新設計可獲得更大的功率處理能力，提供最高瞬態響應和功率容量，降低了失真和減少了功率壓縮，雙磁鐵和雙音圈使得散熱面積增大減低燒毀音圈的機會。更加顯著減輕驅動單元重量。

The LF driving units of AS series has an advanced radial magnetic path design. The coil is a special up and down double coils structure that surrounded by designed flat cooper wire. This design can lead a bigger power processing ability, improve the highest transient response and power capacity, and reduce distortion and power compression. Double neodymium and double coils enlarge the radiating surface for prevent the coil from burning down and reducing the weight of driving units.

為了能夠讓喇叭在出廠後得到正常而長的使用壽命，在博聲音響的老化實驗裏所有的喇叭單元都經過功率限額的測試，粉紅噪音信號會使得驅動單元產生發熱和最大限度的機械振幅。在48個小時不間斷的老化試驗裏尋找實際使用中可能會出現的問題。

To make the driver durable, all the driver will be tested in aging test room, pink noise signal will make the driver hot and generate biggest amplitude. Tested in 48 hours, try to find out the potential issue in normal use.



高頻驅動單元採用了由世界知名單元製造公司西班牙BEYMA專門為博聲音響設計

和製造的鈹磁鐵3寸高頻驅動單元，鈦金屬膜片加上先進的磁路設計，最終能夠產生細膩和自然的高頻音色。

BEYMA, the world famous loudspeaker supplier in Spain specially design the 3" neodymium HF driving unit for BOB, titanium diaphragm and advanced magnetic path design results smooth and nature HF sound.

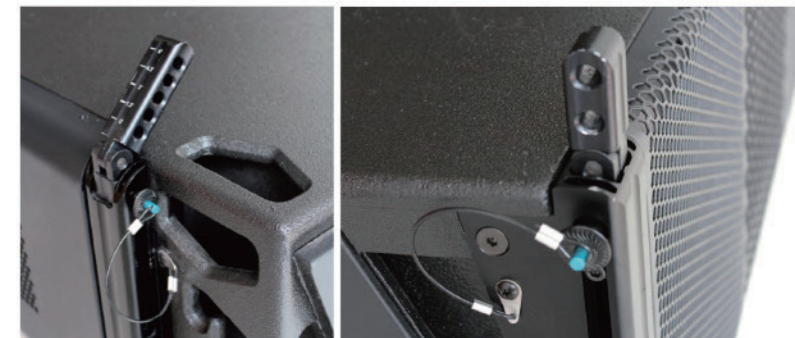


Suspension And Transportation Device

吊裝系統

安全性是線性陣列音箱最重要的一環。AS系列每一組揚聲器系統都有專門為它量身定造的懸掛系統，懸掛系統硬件都是已經裝在音箱兩側，在運送時不需要卸下，連接鉸鏈收藏在吊裝連管裏，不會丟失零件亦不需額外的工具進行吊裝。音箱群被安裝成堅固的一個整體並且很容易按所需要的投射角度進行調校，對工程施工或演出工程人員有很大幫助。安全比例達到7:1的多功能吊架，最多可以吊裝16只線性陣列音箱，也可以用于地面堆疊。

Safety is the most important part of line array system. Every product of AS series has its own designed suspension system. The suspension hardware placed on both sides of the enclosure, they do not need to be uninstalled when transporting, connection hinges are hidden in the suspension pipe that no component would be missed or hanging with additional tools. Enclosures can be installed as a solid integration that can be adjusted the projection angle easily to help the engineer of all performance project. Multi-functional suspension's security proportion at 7:1, maximum 16pcs line array enclosure can be hanged and piled.



Unapproachable Process Detail

無可匹敵的工藝細節

音箱外部分布了多個符合人體工程學的把手和連接線材固定點。粉末噴塗鋼制網罩有效保護驅動單元。音箱內裝有各種金屬製造加強連接配件配合外部吊裝組件形成安全的保障。

Ergonomic handles and connection fixable points are around the whole enclosure. Powder coating stainless grille well protects loudspeaker units. Various metallic connection inner reinforcement and outer suspension device is matching to protect the enclosure safety.

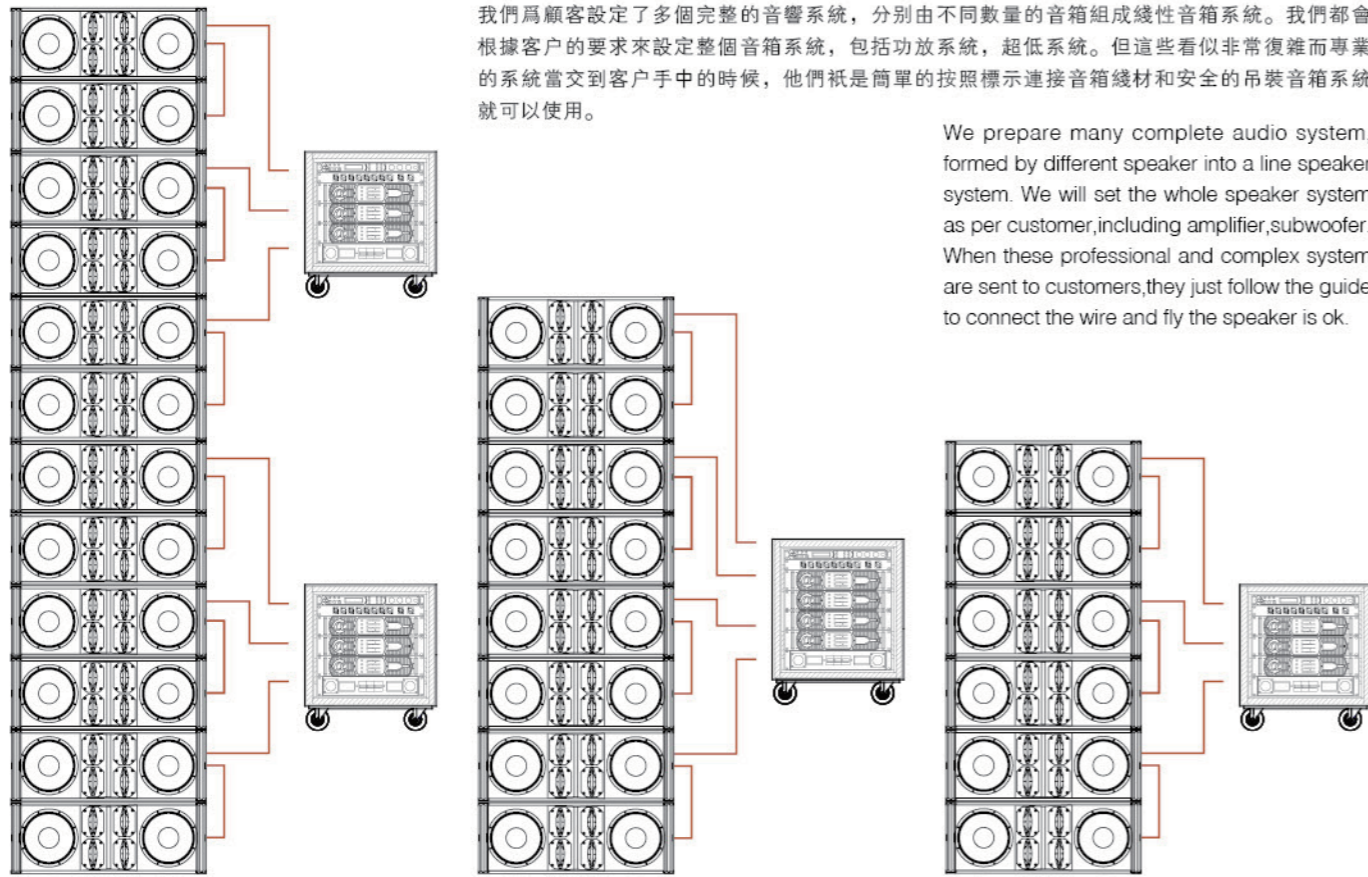
Perfect System

完善的系統

Speaker System 音箱系統

我們為顧客設定了多個完整的音響系統，分別由不同數量的音箱組成線性音箱系統。我們都會根據客戶的要求來設定整個音響系統，包括功放系統，超低系統。但這些看似非常複雜而專業的系統當交到客戶手中的時候，他們只是簡單的按照標示連接音響線材和安全的吊裝音響系統就可以使用。

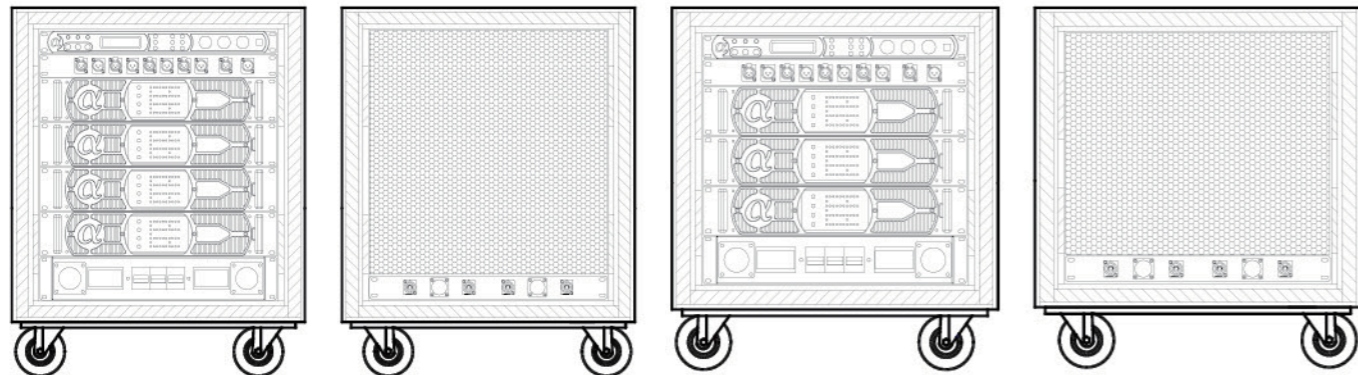
We prepare many complete audio system, formed by different speaker into a line speaker system. We will set the whole speaker system as per customer, including amplifier, subwoofer. When these professional and complex system are sent to customers, they just follow the guide to connect the wire and fly the speaker is ok.



Amplifier Rack 功放系統

使用簡單就要有一套標準的體系，博聲音響的功放系統是整個AS系列的中心，它擁有整個移動演出套裝，可為AS系列提供信號放大、電源分配、電纜連接的解決方案。或者通過以太網/局域網來遙控，可以使用2ohms的4x1300w的開關電源功放提供源源不斷的驅動能量。完全模式化的系統可以連接多個模塊，客戶只需計算每一組模塊可以配合多少只音箱就可以。快速直觀和只需要幾個簡單步驟就為工作提供完美平臺。

A standard system let you use it easily, the amplifier is the core of the BOB AUDIO whole AS series, it includes the complete show equipment set, can provide signal amplification, power distributing, wire connecting for AS series. Or remote control through Ethernet/internet, powered by 2ohms 4*1300w switch power amplifier. The complete hipping system can connect multipul module, client just calculate the amount of speaker box to match each module is ok. Fast/easy, and just few steps, you have a perfect working platform.



AS Series

Constant Curvature Line Array System
可變常曲率綫性系統

前瞻技術 創領先鋒

Advanced technology, always being a pioneer.



- AS200系列採用了兩路分頻的常曲率綫性陣列設計，波陣面糾正技術波導管配置，提供清澈而連貫的聲音。當構成陣列時，其水平方向性是所有音箱組合後的角度總和(22.5xAS200)，在垂直的方向上採用了不對稱75度設計，（35度/40度）當陣列是垂直懸吊是可以把大部分能量投向觀眾。
- AS200系列體現了博聲音響對中小型演出的理解，純正的音質、實用的工程設計效用，靈活而多樣化的組合、先進的技術、使用方便直接的集成化系統。
- AS200 series has a 2-way constant curvature line array design, wavefront correction technology and waveguide configuration, presents clear and coherent sound. When being the array, the horizontal direction is the total angle of all enclosure (22.5xAS200), the asymmetric 75° design on vertical direction (35°/40°) makes the whole array pressing most of the power to the audience.
- AS200 series represents BOB AUDIO's understanding of small/middle size show. It is a integrated system with pure sound, suitable engineering design, flexible combination, advanced technology and easy using.



Constant Curvature Line Array System 可變常曲率綫性系統

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High Efficiency Radial Magnetic Path Design Driving Units 高效徑向磁路設計驅動單元



AS系列的低頻驅動單元採用了先進的徑向磁路設計，用專門設計的扁平銅綫繞制而成的低頻驅動單元音圈，是特別的上下雙音圈結構，這種最新設計可獲得更大的功率處理能力，提供最高瞬態響應和功率容量，降低了失真和減少了功率壓縮，雙釹磁鐵和雙音圈使得散熱面積增大減低燒毀音圈的機會。更加顯著減輕驅動單元重量。

高頻驅動單元採用了由世界知名單元製造公司西班牙BEYMA專門為博聲音響設計和製造的釹磁鐵高頻驅動單元，鈦金屬膜片加上先進的磁路設計，最終能夠產生細膩和自然的高頻音色。

The LF driving units of AS series has an advanced radial magnetic path design. The coil is a special up and down double coils structure that surrounded by designed flat cooper wire. This design can lead a bigger power processing ability, improve the highest transient response and power capacity, and reduce distortion and power compression. Double neodymium and double coils enlarge the radiating surface for prevent the coil from burning down and reducing the weight of driving units.

BEYMA, the world famous loudspeaker supplier in Spain specially design the neodymium HF driving unit for BOB, titanium diaphragm and advanced magnetic path design results smooth and nature HF sound.



Multi Function Selection 多功能選擇模式



為了讓產品可以有更多的功能和選擇，所有的AS200系列產品背板都集成了雙功放驅動和單功放驅動選擇開關，在使用單功放驅動的模式下，背板上的高頻選擇開關可以進行+3dB/0dB/-3dB調整，-3 dB位置通常會被用于涵蓋了最近的聆聽區域，+3 dB的位置將被用于覆蓋更遠遠的地方。

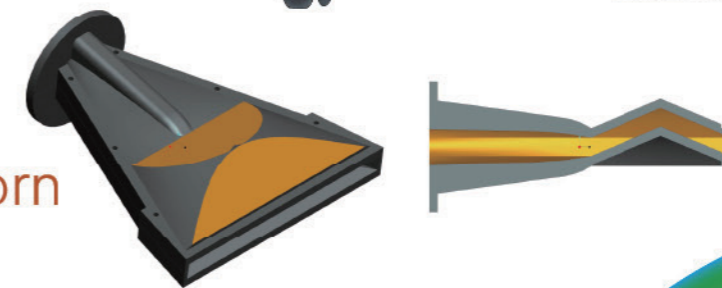
For more function and selection, switch of bi-amp driving and single amplification is integrated in the rear panel of all AS200 series' product. Under single amplification mode, the HF switch on rear panel can be adjusted in +3dB/0dB/-3dB, normally -3 dB is used for covering the nearest listening area while +3 dB is used for a more further place.

專門為所有的AS200系列音箱配置了帶DSP控制的D類功放模組，在選擇使用有源模式時，只需要更換和金屬背板同等尺寸的鋁合金外殼有源功放模組就可以完成改裝。為客戶節省重復購置器材的費用。

All AS series is equipped with DSP controlling model D amplifier module. It only needs to replace a aluminum alloy powered amplifier module that the size same as back panel to finish conversion while choosing powered mode. So clients' repeat purchase cost can be saved.



Patented Point Source Horn 專利點聲源號筒

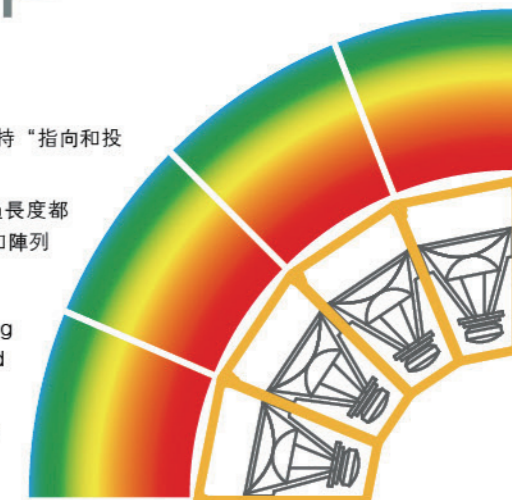


AS200使用了和AS300同樣原理設計的專利點聲源號筒，專利的點聲源號筒不僅是為了保持“指向和投射”的方向性特性，而是要徹底改善陣列音箱所指向區域的直觀聽感及聲音的無縫連接。

通過計算我們把修正距離的地方做成鼓狀，確保了聲音從振膜至號筒表面每一個點的通過長度都是一樣。聲學中心位于振動系統之後的設計，形成了一個虛擬的點聲源，點聲源的半徑和陣列的曲率是嚴格保持一致的。

AS200 series uses same design patented point source horn, this horn is not only for protecting "pointing and shooting" features, but completely improve the listening effect and sound transmitting of line array speaker.

By calculating, we make the distance correcting element into drum shape, ensuring the length of all points from drum to horn is same. This design, acoustic center locates behind vibrating system, act as an visual point source, the radius and always same as the curve rate of line array.



Flexible Multi-Combination 靈活的多元組合

AS200系列是演出租賃公司使用最多的一種產品，它體型精巧，重量輕，聲壓大，特具靈活的應用性。也是固定安裝音響系統的理想選擇。AS200常曲率綫性陣列多達10多種組合配套使用，適合各種場地安裝音響系統。AS200可以在地面堆疊，也可以在天花上面懸吊，水平或垂直懸吊。單獨的或者和BS200配合使用，增強低頻延伸，同時非常適合在大系統中作為中置使用。每個型號都配有支撐底座，既可以用三腳架或用加長支架杆配合低頻音箱使用。詳細方案請看圖示：

AS200 series is a product that be used most by the rental companies. It is slim and small, light weight, flexible application and has powerful SPL. This constant curvature line array system have more than 10 kinds of combination modes that is suitable for installation in any place. AS200 can be stacked on the ground or hanging in the ceiling horizontally or vertically. It can be use apart or with BS200 to extend the LF power, also it is very suitable to be the middle sound source in a big system. Each model has support base that can be used with the subwoofer supporting by tripod or extra long bar. See more detail:



System Training Service 系統培訓服務

由于現代的專業音響系統已經和以前的要求不一樣了，很多功能都和電子器材結合起來。為了讓已經在使用或者準備使用我們系統的顧客能够熟練的使用和調試。我們專門為這部分顧客提供一對一的專業知識培訓，讓顧客知道怎樣使用產品實現最大的性能比，幫助顧客最大限度地提高AS綫性陣列系統的使用，讓投資得到最大回報。

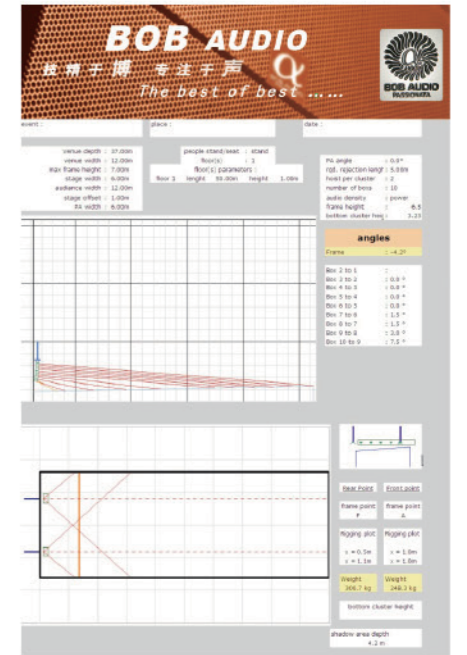
The modern professional audio system is different from past, many functions is connected with electric elements. To make customer who is using or will use our system can use and test system expertly. We provide 1 to 1 training, let customers best use the product, help them increase the using of AS line array, and get the biggest redound.



Line Array Acoustic Calculation Software 綫性陣列聲學計算軟件

針對本公司的綫性陣列音箱而編寫的聲學綫性模擬是軟件，主要用于模擬綫性音箱在整個聲場中的聲壓分布狀況。對於一個演出工程來說，前期的音響設計是很重要，而對於聲場的控制是整個工程的關鍵。通過該軟件模擬的聲場，給予設計者很大的參考價值，可以對於前期音箱的選擇起到指導作用，特別是對於一些大型的演出活動，可以通過模擬來決定用什麼音箱和多少音箱，音箱的懸掛角度是多少，高度是多少，這些問題全部可以通過軟件進行模擬，用于現場操作指導。

Acoustic line simulation is a software that specially designed for our line array speaker, mainly uses for simulate the sound pressure distribution of the line array speaker in the whole sound field. For a performance project, the previous system design is very important, and the sound field controlling is the key of the whole project. The simulated sound field gives a good reference value to the designer as a guide of previous speaker selection. Especially for some big performance or event, through simulation, such problems as the kind of speaker, quantity of speaker, suspension angle and height can be solved by live operation.



Transportation Device 運輸裝置

所有的AS系列都可以提供給客戶多種運輸方式選擇，適合大型運送的運輸滑板既方便又安全，減少儲存空間，同時亦是音箱的保護面板。傳統的航空箱包裝有效保護音箱整體，適合合作一些長途運送。防水防塵耐用的尼龍外罩適合短時間的倉庫堆放和簡單運送。

AS series provides optional transportation ways. Transportation wheel board is suitable for big quantity's delivery. It is convenience and safe, less space and already the shell to protect the enclosure. Traditional flight case protects the whole enclosure well for long distance transportation. Nylon cover is waterproof and dustproof that using for short time storage and simple delivery.

