VTX SERIES

V25 G28 S28

JBL PROFESSIONAL by HARMAN

A Journey of Engineering Excellence

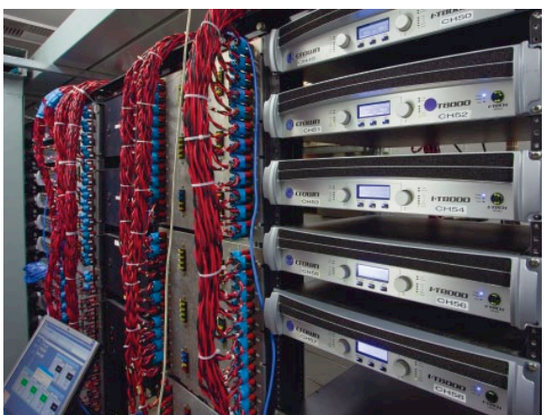
A simple formula for success in modern audio technology is to employ the best engineers using the best methodology and tools, and always develop from the ground up. The difficult part is to adhere to this formula as JBL has done for over 65 years. The result is a prolific list of audio achievements, groundbreaking technologies, revolutionary advances in the art and science of professional audio, patents and awards - many of them.

It's a journey that is legendary worldwide and has positioned JBL as the world leader in professional audio. Not just as a brand, but as a company known for consistently blending creativity and science, which is simply a manifestation of our passion for sound and our commitment to those who create it.

Purposeful invention is no accident. It requires leadership, persistence and an unfaltering commitment to JBL's ultimate design goal: create the best tools for better, more accurate sound.

Now, another significant milestone has been reached in this journey. An achievement signaling a new generation of audio components so different from their predecessors in technology and performance that they will impact the direction of professional audio for many years to come.

JBL Professional Anechoic Chamber (above), **Power Testing Facilities** (below), Northridge, California USA



VTX SERIES | V25

Next Generation Line Array System Solutions

The New Milestone

Of all the achievements JBL has made over the years, the VTX Series stands as a milestone in the practical application of creative engineering. The next generation in line arrays, VTX heralds a new era in performance, system integration and user friendliness.

Supported by multiple patents in driver, waveguide and suspension technology, VTX is also supported by technologies from Harman Professional sister companies for amplification, DSP, control and system management. In addition to high performance components, VTX is backed by JBL's high performance engineering support - the human factor and technical tools that are key to the proper specification and configuration of the VTX system in any venue, anywhere in the world.

The VTX Series is a result of JBL's continued effort to deliver more powerful, more compact, lightweight and flexible sound reinforcement systems. Designed for portable and fixed-venue system operators alike, VTX features JBL's legendary sound quality coupled with the most advanced sound reinforcement technology and support available.

As a member of the Harman group, we draw from the expertise and integration of the entire range of Harman Pro audio technologies. So, in addition to the best sound possible, setup, tuning, networking and controlling the VTX Series is efficient, intelligent and truly a system solution.

Dramatically Improved High-Frequency Response

More Compact

Easier to Assemble

Easier to Specify, Configure and Control

Featuring:

Revolutionary D2 Dual Diaphragm, Dual Voice Coil Compression Driver

JBL's patented RBI Radiation Boundary Integrator®, further-refined for VTX

3rd Generation HF Waveguide technology, newly-improved for VTX

Mid and Low Frequency Transducers, featuring JBL's patented Differential Drive® technology

New Cardioid-Arrayable Subwoofer Enclosure Models

Aluminum front baffles for reduced cabinet height, weight and improved heat transfer

Patented JBL S.A.F.E.™ Suspension System

Crown VRack DSP and Amplification

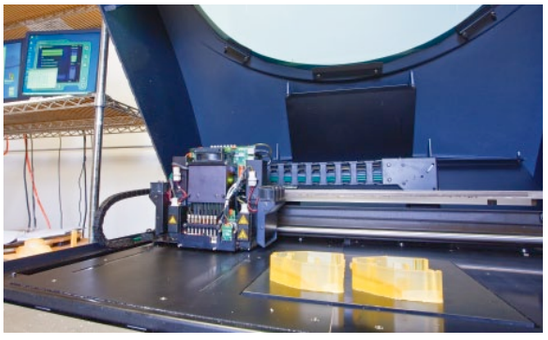
JBL HiQnet Performance Manager™ System Configuration and Control

Revolutionary Steps Require Unique Tools

JBL has invested heavily in the tools necessary to design, measure, evaluate and refine components throughout the development cycle. In addition to state of the art CAD systems, we have developed proprietary R&D tools unique to JBL.

With these tools we are assured of meeting each product's intended design goals, able to find opportunities for even better performance, and perhaps most important, have the resources to develop technologies that never existed.

The VTX System is a premier example of this.



Rapid Prototyping

Our Rapid Prototype Machines are among the most sophisticated in the audio industry, allowing us to quickly design, test and improve over multiple iterations in a shorter period of time. The result is not only a shorter design cycle, but better analysis and refinement of the final design to ensure that the component meets the intended goal.

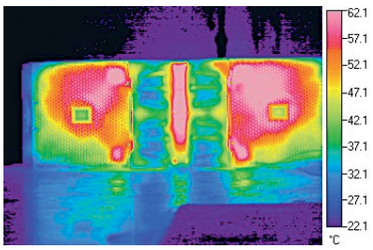
Power Test Chamber

JBL Professional sets the standard in component and system power testing and our test procedures are the most rigorous and comprehensive in the industry. Detailed component characterization allows us to find the right balance between long-term reliability and optimum performance since we know where the limits of performance truly are.

Harman Audio Test System

The Harman Audio Test System (H.A.T.S.) is a powerful 12-channel audio analyzer optimized for measuring loudspeakers and loudspeaker/room interaction. H.A.T.S. uses multiple measurement microphones and applies proprietary digital signal processing to analyze the response, allowing for precise analysis of VTX waveguide components as well as optimization of overall system performance during preset development.

Thermal Imaging



Heat transfer characteristics are analyzed via thermal imaging, allowing for optimization of transducer heat sinking as well as loudspeaker porting, cast aluminum front baffle and internal transducer mounting structures.

Anechoic Chambers

A staple of audio product development, the anechoic chamber is a critical tool for R&D, system preset development and final product testing. JBL Professional has four anechoic chambers and outdoor ground plane testing facilities, providing optimum measurement environments for developing acoustic improvements and innovations.

Laser Interferometry

Advanced vibration analysis allows us to optimize transducer geometries as well as loudspeaker enclosure bracing and cabinet construction.

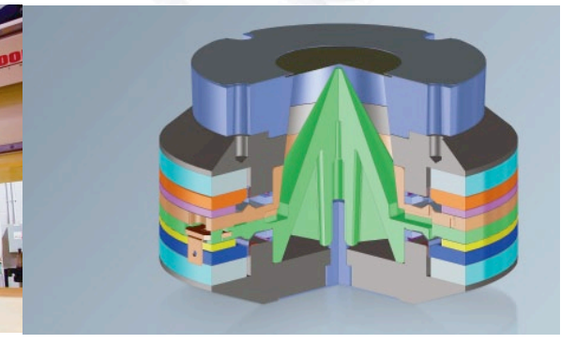
Advanced Simulation Capability

Finite Element Modeling (FEA) is an important design tool employed in developing compression driver and cone transducer topologies, waveguide design and cabinet vibration mode prediction.

The Realization of Engineering Excellence

D2 Dual Diaphragm

Dual Voice Coil Compression Driver



Cutaway: D2430K D2 Dual Driver

Exploded View: Dual Phase Plugs, Dual Annular Polymer Diaphragms

Extended HF Reproduction, Smoother Response
Higher Power Handling, Lower Distortion
Reduced Power Compression, Increased Dynamic Headroom

At the heart of VTX is the D2 Dual Driver, a revolutionary device developed by JBL that dramatically improves the sound and performance of high frequencies. D2 overcomes the limitations of conventional compression driver technology: limited high frequency extension due to mass of the diaphragm and voice coil, and distortion characteristics that arise due to dome breakup modes.

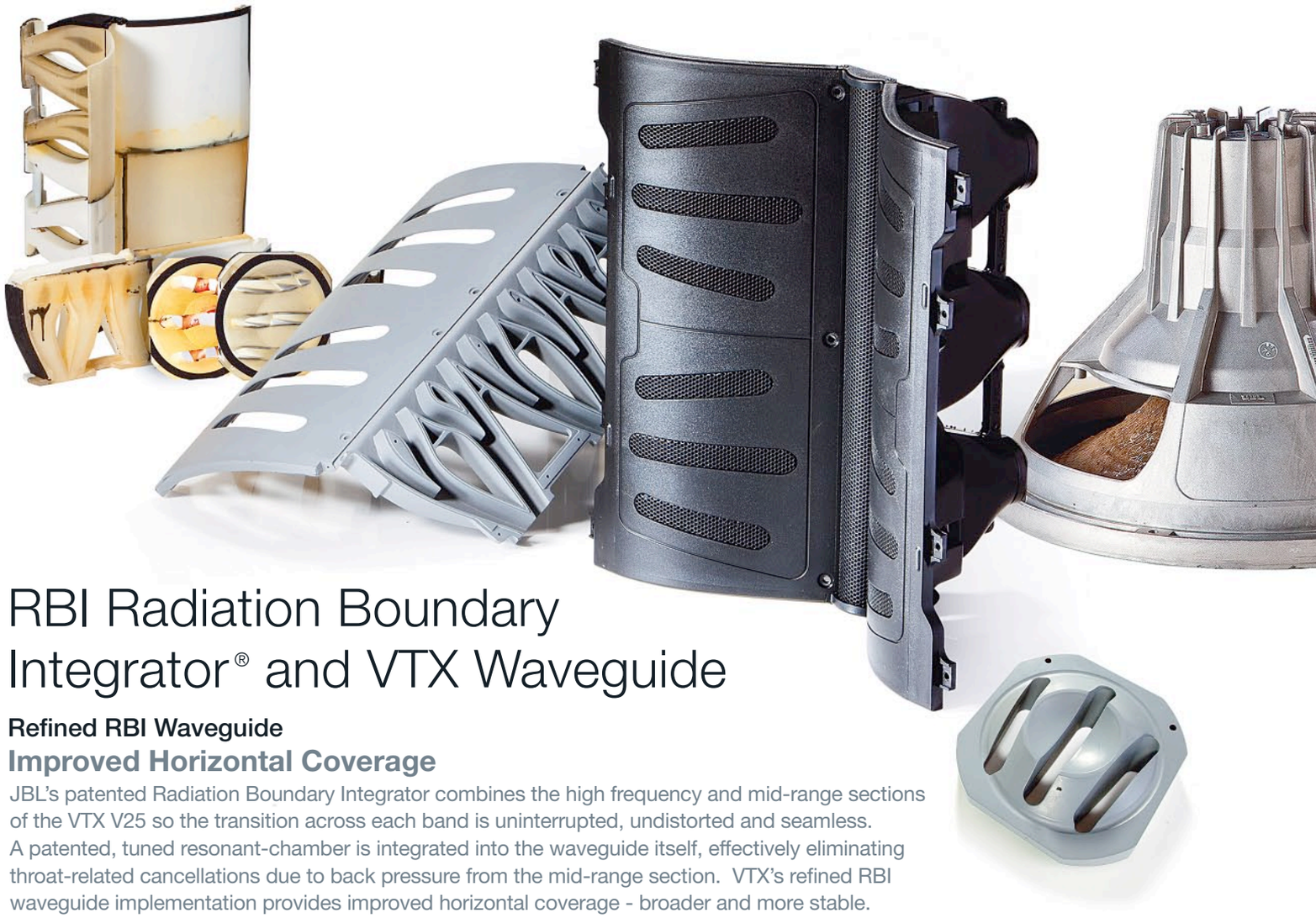
Merging two compression drivers into a single, compact transducer with a single acoustical output, the D2 Dual Driver utilizes two voice coils, each with its own lightweight, polymer, annular diaphragm, its own magnet assembly, and its own specialized phasing plug. Instead of the large and 'heavy' single voice coil metal dome diaphragm of conventional compression drivers, D2 is driven by two light but strong voice coils, two motive 'forces' instead of one, acoustically connected to a single exit chamber.

The two annular polymer diaphragms have the same radiating area as a conventional single dome, and overall output and power handling are dramatically increased due to the lower moving mass and enhanced heat transfer obtained with two separate voice coils.

The result is a compact compression driver with dramatically improved efficiency, power handling, smoother, extended high frequency response and significantly lower levels of nonlinear distortion. Well-validated by objective measurements, D2's performance has also gone through exhaustive subjective listening tests, demonstrating its superior sound quality compared to traditional metallic, mono structure drivers.

D2 provides an extreme output advantage over conventional systems with significantly higher array power density. Compared to a conventional system, the D2 has double the number of voice coils and more than double the power handling, but with a 30% reduction in weight. This results in a dramatic increase in pure high frequency sound pressure levels in the same physical footprint.

Audio Engineering Society Convention Paper "Dual Diaphragm Compression Drivers," Author Alex Voishvillo, Preprint 8502, presented at the 131st Convention, New York, Oct 2011

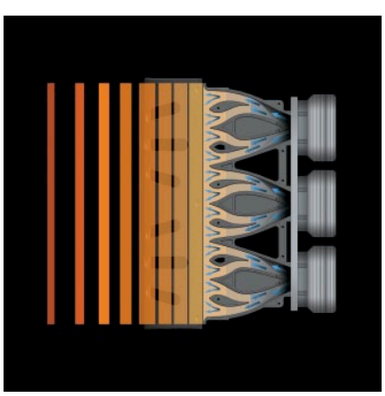


RBI Radiation Boundary Integrator® and VTX Waveguide

Refined RBI Waveguide

Improved Horizontal Coverage

JBL's patented Radiation Boundary Integrator combines the high frequency and mid-range sections of the VTX V25 so the transition across each band is uninterrupted, undistorted and seamless. A patented, tuned resonant-chamber is integrated into the waveguide itself, effectively eliminating throat-related cancellations due to back pressure from the mid-range section. VTX's refined RBI waveguide implementation provides improved horizontal coverage - broader and more stable.



Precision Waveguide

VTX V25 is fitted with JBL's precision-engineered 3rd generation HF waveguide technology producing a properly time-aligned, coherent high frequency wavefront that maximizes the combined output of three D2 Dual Drivers. While producing a wavefront that is sufficiently flat to couple properly at extreme high frequencies, the active radiating surface area extends to the edge of the enclosure, thereby ensuring optimized vertical coupling even when enclosures are tightly-wrapped at 10 degrees.

Custom Designed Aluminum Baffle

Increased Component Density
Reduced Weight
Improved Heat Dissipation

A key VTX design goal was to maximize component power density and reduce enclosure height for improved vertical coupling at higher inter-enclosure splay angles. To achieve this goal, V25 has a custom-designed cast aluminum front baffle providing improved heat dissipation while reducing weight. Component density is the highest in its class, with 9 transducers and 18 voice coils per V25 providing unparalleled SPL output. Cabinet height is reduced to the minimum possible, delivering optimum coupling up to 10 degree inter-enclosure angles. In addition, V25 width is consistent with existing systems for suspension compatibility.

Differential Drive® Technology

Enhanced Performance and Dramatically Reduced Driver Weight

JBL's exclusive dual voice coil, dual magnetic gap Differential Drive technology is at the core of all VTX models. This groundbreaking JBL technology dramatically reduces driver weight while greatly enhancing all critical performance parameters: frequency response, power output and distortion.

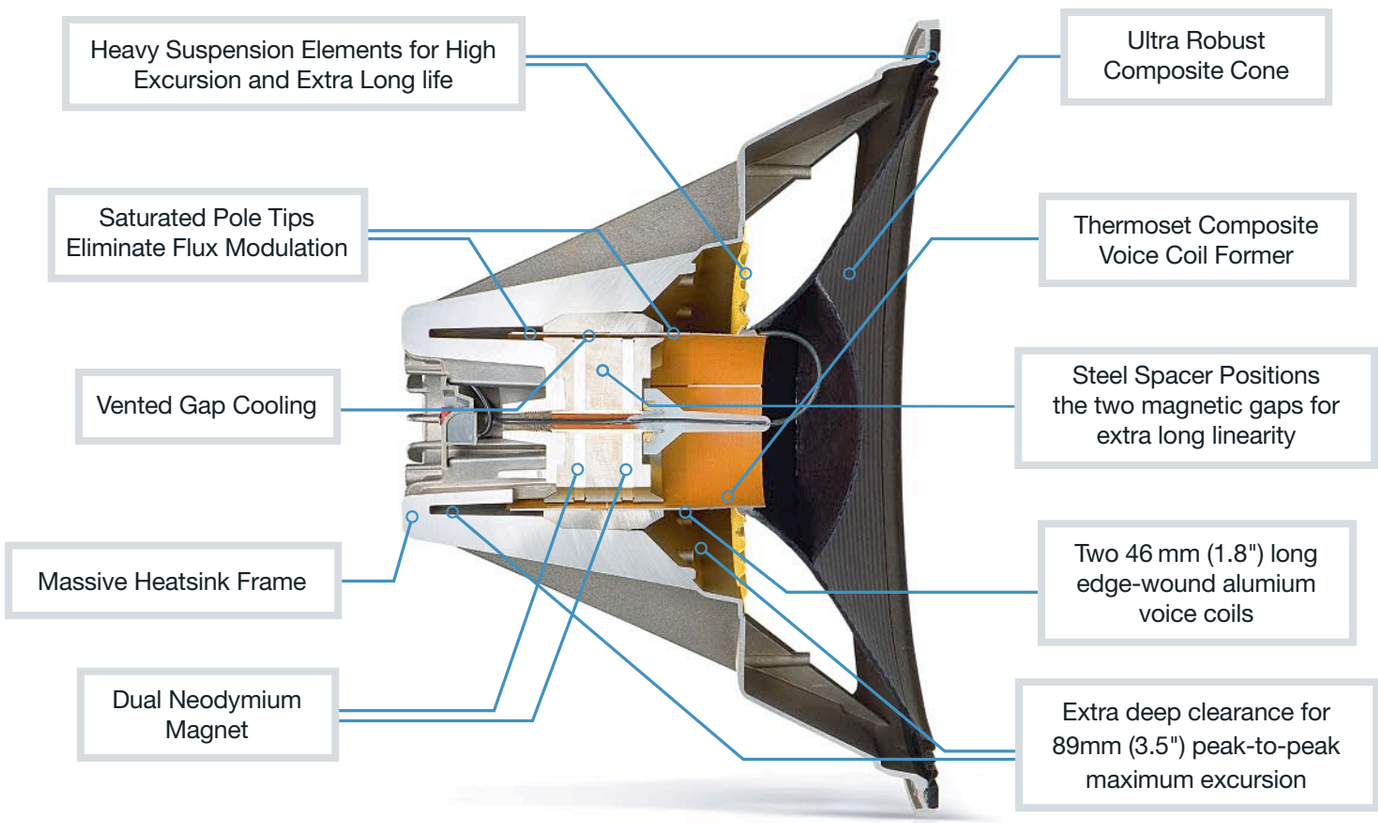
Differential Drive technology features a unique design with heat sinks integrated into the cast aluminum frame. The dual voice coil design places the neodymium magnets inside the voice coil assembly, completing the magnetic circuit without the heavy surrounding steel structure of conventional drivers.

Powerful Mid-Range 2169H 8" Transducers

The low distortion, high output design of the 2169H 8" mid-range transducers ensures superb fidelity and articulation for critical mid-range frequencies. The VTX V25 system's mid-range drivers employ JBL's exclusive Differential Drive technology for lower weight and higher output. The highly efficient cooling characteristics of the mid-range drivers ensure lower operating temperatures, greatly improved power compression characteristics, dynamic headroom and lower harmonic distortion.

Powerful Low Frequency 2267H 15" and 2269H 18" Transducers

The 2267H was specifically-designed for VTX V25 and has the same motor structure as employed in the 2269H 18" transducer featured in both G28 and S28 subwoofers. The result? Four-inch diameter, dual voice coil, dual magnet transducers with industry-leading AES 2 hr power handling of 2000 Watts. Combined with uncompromised Crown power amplification, VTX V25 low section output is unequalled in its class and G28, S28 subwoofers provide a solid foundation for high impact, very low frequency reproduction.



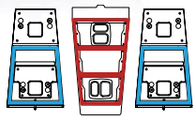
2269H 18" Transducer used in the VTX G28 & S28

Subwoofers

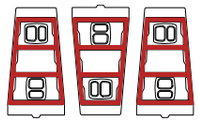
Cardioid-Arrayable
True Sub Performance

VTX SERIES | **G28**

VTX SERIES | **S28**



Compatible with VT4880, VT4880A



VTX S28 Standalone Operation

VTX series dual 18" subwoofers employ two 2269H 18" transducers featuring Differential Drive technology with two voice coils, two neodymium magnets and extremely high peak-to peak excursion capabilities to deliver extended very low frequency performance. Two VTX Subwoofer models are available: G28 and S28, both models are reverse cardioid-arrayable.

The VTX G28 is ground stackable only with a practical form factor for convenient stacking and additional enclosure volume plus port tuning that delivers true sub performance down to 22 Hz @ -10 dB.

The VTX S28 can be suspended or ground-stacked and is cardioid-arrayable in either configuration for improved rear rejection. Compatible with VTX V25 suspension, S28 can be suspended at the top of V25 arrays to extend the effective low frequency line length, providing improved vertical pattern control combined with improved rear rejection when used in cardioid mode. Alternatively, S28 arrays (*cardioid or front-firing*) can be suspended beside or behind V25 arrays. For theatrical sound design, S28 can be suspended in the middle of flown V25 arrays to facilitate balcony and floor coverage by allowing improved underbalcony penetration. Larger cardioid configurations are also effective where S28 is suspended or ground-stacked in multiple cardioid blocks, each block consisting of 3 enclosures (*2 front-firing, 1 rear-firing*).

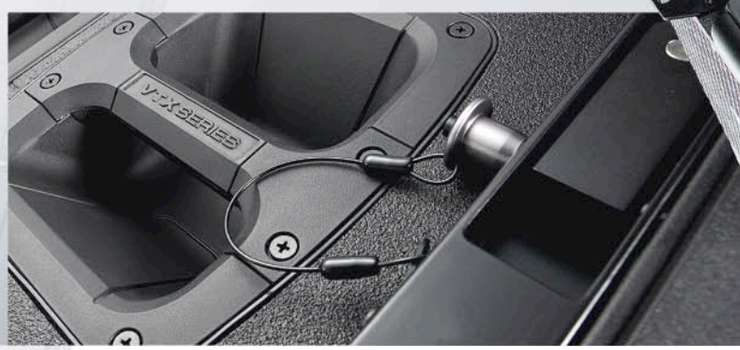
VTX G28 Ground Stack Cardioid Mode

VTX S28 Ground Stack Mode

S.A.F.E™ Suspension

VTX's patented S.A.F.E. suspension system is streamlined for speed and efficiency with improved hardware for faster setup with fewer pinning operations and greater security. A custom-designed protective cover and dolly makes transport easy and the suspension process fast, efficient and safe. Vertical Transporters are also available allowing for transport of four V25 enclosures or three S28 enclosures in either front-firing or cardioid mode.

All suspension hardware is integrated into the enclosure and strategically-positioned for fast and secure operation. Front flip hinges and captive rear hinge bars utilizing a unique Angle Stop Mechanism (ASM) allow for efficient assembly that is not only secure, but anti-rattle. Also included is provision for mounting a Laser Sighting Module accessory for greater ease and precision in array focus and system tuning.



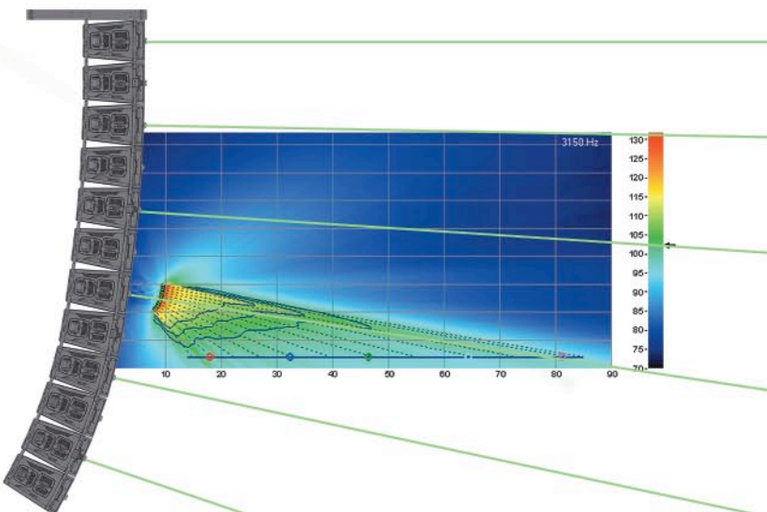
Laser Accurate Setup

Precise Coverage Demands Precise Installation and Tuning

Precise VTX V25 vertical pattern control requires precise focus for optimum audience coverage and the LZ laser accessory provides a cost-effective installation tool to help streamline the setup process. Typically a single LZ is installed on the top enclosure to serve as a visual reference while setting the overall array site angle in accordance with JBL Line Array Calculator (LAC) predictions.

For advanced system tuning, multiple LZ lasers can be deployed to serve as site angle references for individual array circuits, assisting in physical measurement microphone placement to correspond with virtual measurement microphones shown in LAC.

Using JBL HiQnet Performance Manager™ control software and with reference to measured spatial response, circuit level gain and JBL Line Array Control Panel tapering adjustments are performed as a first step in system tuning. Once SPL and frequency response has been optimized on a circuit level, global equalization can then be applied to the entire array to compensate for room-related effects. This patented approach to system tuning has been specifically designed into the workflow of Performance Manager.



System Integration and Management

Complete System Integration and Support

With the VTX Series you are not just using a product, you are gaining access to an expert system. Tools for system design and all the components to analyze, configure, set up and control a VTX system are all part of the JBL commitment to total system integration and support. The goal is maximum efficiency and the highest possible level of performance in any venue, anywhere in the world.

Crown® Audio VRack

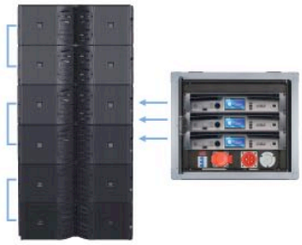
VRack is a rugged touring rack fitted with three Crown ITech HD Series power amplifiers, power input panel, custom-engineered input / output panels that is available in two configurations: VRack 12000 and VRack 4 x 3500 are loaded with three IT 12000HD and three IT 4 x 3500HD, respectively.

Apart from the performance advantage of a standard package ensuring that VTX Series enclosures are optimally powered and processed, VRack ensures compatibility for cross rental between VTX Network Partners. Since VRack is supplied with all components installed and internally connected, there is also no need for laborious rack building; no chance that a component might be improperly connected; and a dramatically lower chance of connection failure.

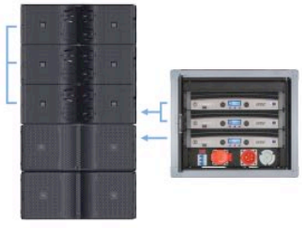
Crown Audio I-Tech DriveCore™ Series

The I-Tech DriveCore series of amplifiers represents decades of work developing and refining amplifier technology that pushes the limits of sound reinforcement. It started in 1967 with the world's first solid state, high-powered amplifier with unsurpassed reliability and it continues today with the first tour sound amplifier offering four inputs routable to any output (analog, AES3, VDrive, or CobraNet), the new I-Tech 4 x 3500HD.

Boasting eight patents – three on the power supply alone – and the amplifier industry's first integrated TFT LCD full-color touchscreen, the I-Tech HD DriveCore series offers a switching power supply with PFC and Crown's patented Class I output stage resulting in greater fidelity at high and low power levels, more efficiency with less waste heat, and unparalleled reliability.

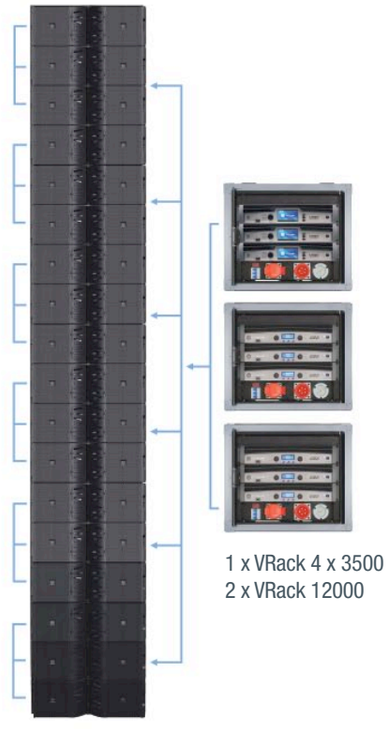


VRack 4 x 3500:
6 x VTX V25 (2 enclosures in parallel)



VRack 12000:
3 x V25: 2 x VTX subwoofers building block

1 x VRack 12000, 1 x VRack 4 x 3500
6 x VTX subwoofers (cardioid), 6 x V25

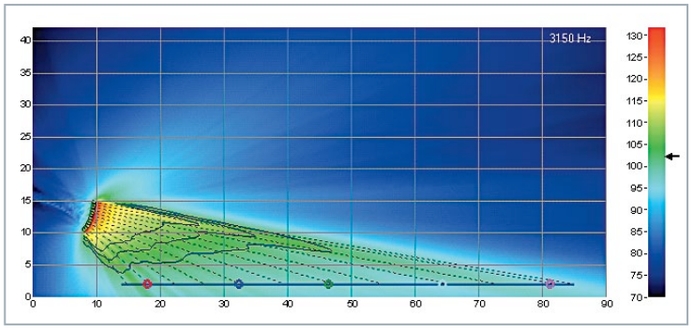


18 x VTX V25

1 x VRack 4 x 3500
2 x VRack 12000

VRack 12000, VRack 4 x 3500 Configurations

VRack is best thought of not as just an amp rack, but as a building block for your system. Every time you add one VRack 12000, you are adding a building block that powers the recommended 3:2 ratio of V25 to VTX subs while VRack 4 x 3500 provides a building block for powering six VTX V25.



JBL Line Array Calculator

JBL Line Array Calculator acoustic modeling software accurately predicts loudspeaker system performance in the user-defined venue, allowing you to determine the appropriate number of cabinets, required angles and installation parameters along with circuit level gain shading and frequency tapering using the JBL Line Array Control Panel equalization interface.

JBL HiQnet Performance Manager™ Software

Designed specifically for touring and theatrical sound engineering, JBL HiQnet Performance Manager is an application-specific iteration of HiQnet System Architect™ - the connectivity and control application for professional-grade audio system integration.

The patented workflow paradigm of the Performance Manager interface guides the system designer through the complete system design, configuration and control process and, in many ways, the entire process feels and acts like a simple step-by-step wizard.

The Performance Manager workflow starts with array templates. For each array in a template, JBL Line Array Calculator can be run, adding passive or powered speaker models directly to the workspace. Based on a few configuration parameters, the correct quantity of amplifier racks is then added. Amplifier channels are associated directly with the bandpass inputs overlaid on the array representations – all amplifier control can therefore be carried out from the arrays. Networking has been reduced to a simple drag and drop. All test, tuning and calibration control interfaces are embedded – no need to spend time designing control panels. Finally, the dedicated show mode provides all the monitoring and control you need to run the show.

VTX Network

Connects Companies with Opportunities

As an industry leader, JBL Professional has developed a vast network of professional users, venues and system designers. Access to this network provides a valuable service to our business partners who have been trained and certified on the VTX System. While ensuring optimum performance, the VTX system standard effectively allows the VTX Network Partner access to a larger cross-rental inventory pool to help manager larger projects or multiple concurrent projects.

Designed For Reliability

Like all JBL Professional products, the VTX Series is comprehensively tested in JBL's power testing facilities. Unique in the industry, during the design phase JBL power testing submits each component and system to 100 hours of continuous, high level input, ensuring that your system will deliver extraordinary sound even after years of hard use and thousands of hours of performance.

Training and Support

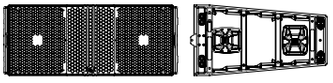
In addition to designing the most sophisticated sound reinforcement system available, JBL Professional provides the expertise to achieve the maximum performance possible. Our 65+ years of expertise in the use of systems in venues around the world is an invaluable resource that is at the core of our training curriculum, helping you to maximize both the use and your investment in the VTX System.

Visit **www.jblpro.com/training** for latest training dates and registration.

Harman Green Edge Environmental Responsibility

Harman GreenEdge systems combine environmentally-friendly design with dramatic energy savings without compromising the excellent performance for which Harman products are known.

- Improved acoustic efficiency and heat dissipation
- Lower system weight and packaging
- Reduced power consumption and amplifier efficiency



SPECIFICATIONS	V25	S28	G28
System Type:	Full Size 3-Way High Directivity Line Array Element with D2 Dual Drivers	Full Size Suspendable, Cardioid-Arrayable, Dual 18" Subwoofer with Ultra Long Excursion Transducers	Full Size Ground Stack-Only, Cardioid-Arrayable, Dual 18" Subwoofer with Ultra Long Excursion Transducers
Components:	2 x 2267H 15" Differential Drive® LF 4 x 2169H 8" Differential Drive® MF 3 x 2430K D2 Dual Driver	2 x 2269H Differential Drive® 18"	2 x 2269H Differential Drive® 18"
Horizontal Coverage (-6 dB):	90 degrees nominal (250 - 16k Hz)		
Frequency Range (-10 dB):	35 - 20k Hz	24 - 400 Hz	22 - 160 Hz
Frequency Response (+/-3 dB):	41 - 18k Hz	27 - 300 Hz	27 - 120 Hz
Sensitivity (1W/1m):	99 dB LF, 103 dB MF, 116 dB HF	96 dB free field / 102 dB half space	101 dB half space
Nominal Section Impedances:	2 x 8 ohms LF, 8 ohms MF, 8 ohms HF	2 x 8 ohms	2 x 8 ohms
Continuous Power Rating:	4000W LF, 1400W MF, 600W HF	4000W	4000W
Dimensions (W x H x D):	1223 mm x 414 mm x 614 mm (48.2" x 16.3" x 24.2")	1222 mm x 493.3 mm x 926.5 mm (48.1" x 19.4" x 36.5")	1210.8 mm x 493.3 mm x 1211.1 mm (47.7" x 19.4" x 47.7")
Weight:	82.6 kg (182 lb)	83.0 kg (183 lb)	92.5 kg (204 lb)

ACCESSORIES

VTX-V25-ACC	Accessory Kit: dolly/wheelboard and padded protective cover for one VTX V25
VTX-V25-ASP	Acoustic Spares Kit: (1x 2267H, 3x D2430K diaphragm kit, 2x 2169H)
VTX-V25-MSP	Mechanical Spares Kit: (hinges, quick release pins, skid plates, grills)
VTX-V25-VT	Vertical Transporter for 4x VTX V25 including padded protective cover
VTX-V25-AF	Array Frame for suspending or ground stacking VTX V25 and/or S28 enclosures
VTX-V25-SF	Short Frame for suspending or ground stacking VTX V25 and/or S28 enclosures; can also be used for rear pullback suspension
VTX-G28-ACC	Accessory Kit: dolly/wheelboard and padded protective cover for one VTX G28
VTX-S28-ACC	Accessory Kit: dolly/wheelboard and padded protective cover for one VTX S28
VTX-S28-VT	Vertical Transporter for 3x S28 including padded protective cover
VTX-LZ-K	Laser Kit: (power supply and 2x VTX-LZ lasers)
VTX-LZ	Laser only (1 piece)
VTX-LZ-PS	Power supply only (1 piece)

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