

VANDERSTEEN

MODEL 3A



DIMENSIONAL PURITY.®

## The VANDERSTEEN MODEL 3

Since 1977, Vandersteen Audio has designed and built innovative loudspeakers using advanced design concepts. Minimum-area baffles eliminate virtually all cabinet edge and grille diffraction anomalies while mass alignment of driver elements insures proper time arrival. Vandersteen Audio was the first loudspeaker manufacturer to use the Gen-Rad 2512 FFT (Fast Fourier Transform) Computer Analyzer for in-house research and development and remains a leader in interfacing complex computerized analysis of loudspeaker parameters and performance with practical design and engineering.

### The Active Components

The components used in the Model Three combine classic durability and strength with innovative design and construction. The metal-alloy dome tweeter is a dual-chamber design to improve range and linearity. It is critically damped to extend the high frequencies past audibility without the excessive ringing associated with open or underdamped metal dome tweeters. The specific alloy used for the dome was chosen for its superior strength and resistance to break-up.

With our experience in FFT computer analysis and extensive research into the negative effects of diffraction, we developed a unique, proprietary midrange driver (Patent # 5073948) that outperforms previous designs in several significant parameters. In conventional cone midranges, the acoustic energy from the back of the cone immediately strikes the front of the driver's magnet assembly and is reflected back through the cone and into the listening room. (As shown in the illustrations to the right.) This distorted secondary signal created by the internal diffraction smears the sound of the driver and inhibits true transparency. The frontal area of the magnet assembly on the Vandersteen midrange is minimized through the use of advanced materials and construction techniques to reduce internal diffraction and the resultant distortion to inaudible levels. With the elimination of this distortion, the sound of the Model Three is cohesive and smooth with a level of inner resolution unequaled by other loudspeakers.

The active acoustic coupler and woofer use costly cast-metal baskets rather than more common stamped baskets. The cast-metal baskets' inherent rigidity and superior vibration control increase cone movement accuracy and reduce sympathetic resonances for cleaner and more natural sound. Filled polycones are used on the woofer and midrange to insure high stiffness, superior internal dampening and greater neutrality than metal alloy, woven plastic or treated paper cones. The stiff, low weight polycones resist flexing under all drive conditions for lower distortion and increased detail.

The dual-spider active acoustic coupler accurately complements the woofer to reduce box loss, thermodynamic loss and active/passive transfer nonlinearities. This novel Electro-Mechanically Optimized Woofer System provides powerful, detailed and extended bass response as the Model Three operates much more closely to the ideal than any conventional ported or passive design.

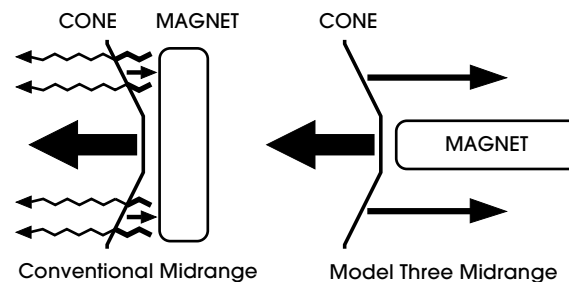
### The Crossover

The crossover in the Model Three is comprised of transient-perfect, first-order networks designed to preserve the phase integrity of the music. It is compensated to allow the drivers to operate in absolute phase with each other for more precise and stable imaging than conventional multi-way speakers using out-of-phase drivers. The crossover's computer-grade components, including low impedance air-core inductors and high-quality film capacitors in the signal path,

The Model Three benefits from our years of experience designing and building loudspeakers of unparalleled value and performance. It couples proven technology with advanced materials, construction and design for a speaker system that is always true to both science and music. The Model Three is completely upgradable. As future improvements in technology and/or materials enhance the capabilities of the speaker, cost-effective updates will be available to upgrade existing speakers to the latest components, performance and specifications.

- TWEETER:**
- 1" critically damped metal alloy dome
  - Dual-chamber design
  - Ferrofluid voice coil cooling
  - Range of operation: 5kHz - 30kHz

- MIDRANGE:**
- 4 1/2" with linear surround and curvilinear polycone
  - Proprietary high performance die-cast basket and magnet structure
  - Ferrofluid voice coil cooling
  - Range of operation: 600Hz - 5kHz



- WOOFER:**
- Long excursion 8" with die-cast basket and curvilinear polycone
  - 1 1/2" two-layer voice coil with ventilated aluminum former
  - 40 oz. linear excursion magnet structure with focused field pole piece
  - Range of operation: 35Hz - 600Hz

- ACTIVE ACOUSTIC COUPLER:**
- Long excursion, dual-spider 10" with die-cast basket and aluminum alloy cone
  - Heavy-duty 1 1/2" four-layer voice coil with ventilated aluminum former
  - 60 oz. linear excursion magnet structure with focused field pole piece and copper rings
  - Range of operation: 26Hz - 35Hz

are hand soldered on a double-sided, plated-through PC board tested to insure less than 0.1dB deviation from a reference circuit. Custom 6N wire with polypropylene dielectric is used for internal wiring to maximize signal transfer.

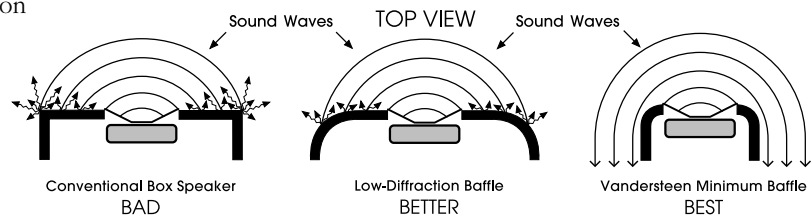
The crossover is engineered for bi-wiring with a stereo amplifier or passive vertical bi-amplification with two identical stereo amplifiers. Inputs are heavy-duty screw terminals.

## The Enclosure

The baffles holding the drivers of the Model Three are as small as possible to eliminate virtually all of the early reflections that affect dynamic speakers with conventional flat or low diffraction baffles. Reducing both early reflections and edge diffraction improves the imaging and enhances the openness and transparency of the speaker.

The Model Three's enclosure is constructed of 1 to 1 1/2 inch thick MDF, an advanced material that resists vibration and reduces cabinet resonances.

Broad-spectrum, low-Q resonances are controlled so as to cancel rather than become additive.



## The Aligned Dynamic Design

The Model Three uses the proven Vandersteen Aligned Dynamic Design to optimize the dispersion and transient accuracy of the drivers while maintaining the input signal's time and phase integrity. The drivers, their positioning and their associated minimum baffles were developed with the aid of FFT computer analysis to minimize diffraction, cone break-up, multi-driver interference and out-of-band phase irregularities. The construction, alignment and positioning of the drivers allow a point-source wave front and maximize the phase coherence of the loudspeaker at the listening position.

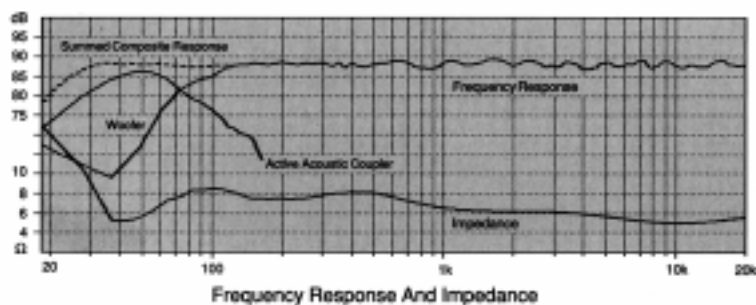
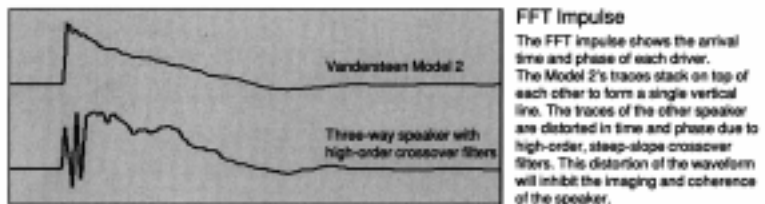
The Aligned Dynamic Design is used for the Model Three due to its many potential advantages:

- Precise, more dimensional imaging and a wider listening area.
- A greater flexibility of placement options within the listening room and better transient responses.
- A high level of genuine transparency and detail typical of planar speakers without the distortions and response variations of multi-directional dynamic loudspeakers.
- Increased efficiency and improved dynamic range.

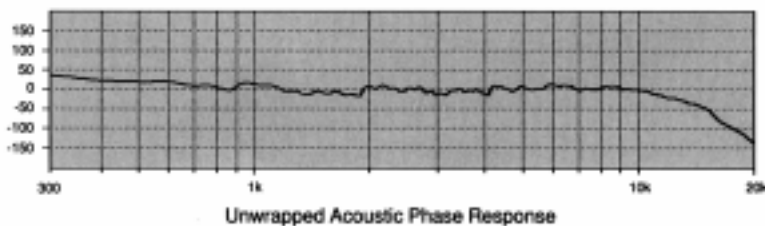
## The Almighty Specification

Even with advanced test equipment and complex computer analysis, loudspeaker design remains an incomplete science. No measurements currently available can fully convey the sound of a speaker or provide a meaningful comparison between differing designs.

The truth is in the listening.



The dashed portion of the frequency response line represents the summed composite response of the woofer and active acoustic coupler. The nearfield response of the woofer and active acoustic coupler is plotted below 300Hz.



Except as noted, microphone based measurements were taken slightly off the speaker's axis with the speaker on the 3 inch Model 2 Base and the microphone 30 inches high and 78 inches from the front of the speaker. The Unwrapped Acoustic Phase Response is corrected for the distance between the speaker and the microphone.

### IMPEDANCE

6 ohms nominal 4 ohms minimum

### EFFICIENCY

87dB with 2.83 volts of pink noise input at 1 meter on axis

### RECOMMENDED AMPLIFICATION

100 to 200 watts per channel into 8 ohms  
The amplifier must be stable into a 4 ohm load

### FREQUENCY RESPONSE

26Hz to 30kHz  $\pm$  3dB  
30Hz to 22kHz  $\pm$  1.5dB By FFT step function

### DISPERSION

26Hz to 17kHz  $\pm$  3dB 30 degrees off axis

### CROSSOVER FREQUENCIES

600Hz and 5kHz First-order, 6dB per octave  
Dual inputs allow bi-wiring with a single stereo amplifier or passive vertical bi-amplification with two identical stereo amplifiers

### INPUT CONNECTIONS

2 pair of heavy duty screw terminals

### CABINET FINISH

Hand-matched and finished natural oiled wood veneers

### VIDEO APPLICATIONS

Main or surround speakers. The Model Three is not magnetically shielded and should be positioned at least 10 inches away from a direct view television set

### PHYSICAL SPECIFICATIONS

48" high x 16" wide x 10.25" deep  
102 lbs gross, 90 lbs net

### WARRANTY

One year, extendable to five years by registering the free optional warranty within 30 days of purchase

### UPGRADABILITY

The Model Three series speakers are designed for complete upgradability. As future technological advancements improve the model's capabilities, cost-effective updates will be available to upgrade existing speakers to the latest components, performance and specifications.

## Quality Control

Each Vandersteen Audio Model Three undergoes rigorous testing and retesting during each phase of construction. Each driver and crossover is tested for proper operation and computer matched to within 0.1dB. After final assembly, each pair is high-power sweep tested for

structural integrity and FFT computer analyzed for correct response and performance compared to a model reference. This intense commitment to product quality and reliability is unsurpassed in the audio industry.

## Dimensional Purity

Music is pure in its dimensions. Vandersteen loudspeakers are true to the original dimensions of the music. They preserve its carefully crafted proportions and weight. They accurately convey the composition, shading and timing that build an involving experience. They reveal the power, the authority, the subtlety and the intimacy of the music.

This dimensional purity is the essence of the Model Threes. It allows them to recreate the music's original scope and passion. You hear deeper into the music and better understand the feelings forming its foundation. You become more involved in the music as its complex

inner structure is revealed with increased clarity and realism.

At Vandersteen Audio, we believe that these qualities are fundamental to your enjoyment of your music. We are pleased to have embodied these qualities in a speaker whose simple, but elegant, physical presence complements the decor of your listening room.

We are devoted to continue building distinguished loudspeakers that make a statement about the importance of music in your life.

## VANDERSTEEN AUDIO

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Specifications and design are subject to change without notice due to our continuous research and development program.

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Literature design by Ron Rick and photography by Alan Ross.

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DEALER:

