

Model Nine / Controlled Dispersion Array

SPECIFICATIONS

Speaker Complement — four - 4½" drivers, 2 lbs. magnet structure each
one - 8" low-resonance bass radiator
one - piezoelectric high frequency unit

Frequency Response — ± 2 db from 48 Hz to 27 KHz
— 4 db, 41 Hz and 35 KHz

Maximum Output Level — 108 db @ 1 meter, any frequency above 100 Hz

Sensitivity — 92 dB @ 1 meter with 1 watt RMS @ 1 KHz

Power Requirements — 5 watts RMS / channel minimum
100 watts RMS / channel maximum

Impedance — Nominal 8 ohms. Minimum 9.5 ohms at 70 Hz

Dimensions — 33½ high x 9" deep x 10½ wide

Shipping Weight — 40 lb.

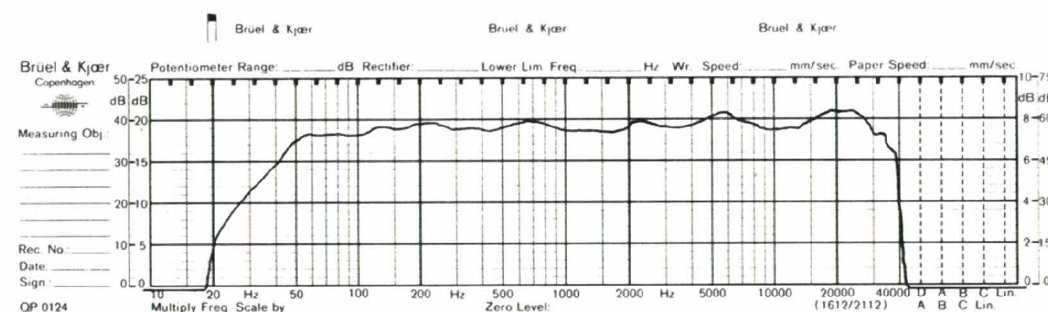
Standard finish walnut woodgrain

Available in white finish

Harmonic Distortion (at 95 dB)

Frequency	% 2nd	%3rd
50 Hz	1.5%	.5%
100 Hz	.1%	.02%
1 KHz	.06%	less than .01%
5 KHz	.06%	"
10 KHz	.03%	"

Polk Audio Loudspeaker Systems are warranted to the original purchaser to be free from defects in materials and workmanship for a period of five years from date of purchase, provided that the Warranty Registration Card is returned to us completely filled out within ten days of purchase date.



On-axis response in controlled reverberant field environment

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THE MODEL NINE CONTROLLED DISPERSION ARRAY is a unique new loudspeaker system developed to meet design criteria calling for an efficient, high-definition loudspeaker of moderate cost which would accurately recreate the sound field of the original performance. Its success in attaining these objectives is immediately evident when you sit down and listen to your finest recordings. The slender towers seem to disappear in a highly detailed three-dimensional panorama of sound suspended in space between them.

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The exceptional performance which characterizes the Model Nine is not the result of any single feature or facet of its design. Concepts such as our unique "crossoverless" three-way design and the Controlled Dispersion Array, as well as low-distortion components such as our piezoelectric high-frequency unit and multiple, lightweight high-definition cone drivers, are all important. It is, however, the elegant integration of components and concepts which results in the superior performance which sets the Model Nine apart.

The Model Nine is an attractive freestanding tower which combines four 4½" extended-range drivers, an 8" bass radiator cone, and a piezoelectric high-frequency unit in a Controlled Dispersion Array. The driver complement is arranged on the front and rear baffles of the enclosure to provide a dipolar radiation pattern at the low and mid-frequencies, which gradually progresses to direct radiation of the high frequencies. The drivers are used only in those frequency ranges where they exhibit highest definition. The crossovers between the three ranges are accomplished without the introduction of an electrical network and its associated forms of distortion into the circuit.

Controlled Dispersion Array

The six drivers in the Model Nine are critically arranged on the front and rear baffles to provide dipolar (front and rear) radiation of the bass and midrange frequencies, and direct radiation of the higher frequencies. This results in a seemingly sourceless, three-dimensional panorama of sound which retains the precise imaging and detail that is lost in omnidirectional-type speaker systems.

The outstanding musical reproduction of speakers exhibiting these dispersion characteristics has until recently been available only to the perfection-seeking audiophile who would put up with the expense and inconvenience of exotic, large screen-type speaker systems such as the full-range electrostatics. The combination of direct and ambient information in the bass and mid-frequencies is responsible for maintaining the illusion of musicians performing on a three-dimensional stage which seems to extend back beyond the wall of the listening room. The direct radiation of the higher frequencies in the Array provides the location cues needed to obtain the highly detailed and precise imaging characteristics of the Model Nine. This image stabilization prevents "instrument wander" and "larger-than-life instruments", and other such problems commonly associated with omnidirectional speaker systems. And while highly important in stereo, this stabilization is absolutely essential in any proper four-channel system. When you listen to a performance over a pair of Model Nines, each musician assumes his intended position on the stage and remains there until the program material indicates otherwise.

A High - Definition Loudspeaker

A high definition loudspeaker such as the Model Nine will reveal all the subtle details of the program material. This high resolution capability is in large part due to the consistently excellent transient response and uniformly low harmonic and IM distortion characteristics of each driver in its assigned operating range.

Early in the design program which produced the Model Nine, we realized that consistency of definition among the various drivers covering different frequency ranges in a loudspeaker system is more essential to the natural reproduction of music than the possibility of marginally higher definition over just one part of the bandwidth. All too often, exotic high-frequency drivers of high definition are combined in systems with a relatively low-definition ten or twelve-inch conventional woofer. Usually, the woofer is being asked to perform both as a low-frequency and midrange speaker in these systems. The result is a terribly confusing lack of homogeneity in the reproduction of instruments in different frequency ranges. Orchestras sometimes seem to be placed half three feet in front of the listener and half about a hundred feet behind the wall. An instrument like the tenor saxophone, whose range extends across the crossover point between two drivers, can seem to leap out from behind a thick blanket every time the musician goes from a low note to a high one.

In the Model Nine we have selected drivers having similarly excellent transient response and low-distortion characteristics in their respective ranges and combined them in a system without the use of distortion-introducing electrical crossover networks. The result is a loudspeaker system of exceptional clarity and ultra-low distortion.

The Polk Audio Acoustic Crossover

The poor transient response of a conventional woofer above 150 or 200Hz generally eliminates its usefulness as a midfrequency radiator in a truly high definition system. Unfortunately, the use of a standard crossover network at such low frequencies results in a severe loss of coupling between the amplifier and the individual drivers, in addition to causing a power-consuming loss of efficiency as well as a tremendous increase in harmonic, IM and phase distortion.

Our solution to this problem is a unique Acoustic Crossover (Patent applied for) which couples the four high definition 4½" drivers to an 8" long-throw, low-resonance bass radiator. This efficient coupling enables the same 8 pounds of magnet structure to drive both the four lightweight midrange cones as well as the bass cone. The 12 dB per octave acoustic crossover at 180 Hz results in the radiation of frequencies below this point by the 8" cone, and those above it by the smaller 4½" cones. The result is taut, clean bass with exceptional upper bass detail and imperceptibly smooth transition into the midrange.

Soft Dome The Piezoelectric High - Frequency Unit

Above 3500Hz the output of the 4½" drivers is attenuated acoustically and mechanically, and the Solid State piezoelectric high frequency unit crosses itself in. This high-frequency transducer, which employs the piezoelectric momentum drive principle, was introduced to the consumer audio market by Polk Audio. It eliminates the fragile magnet and voice coil of conventional tweeters and replaces them with a virtually indestructible ceramic crystal bender. This superb device boasts transient performance and frequency response characteristics excelled only by the now-legendary ionic tweeter.

The ideal load characteristics of the unit lead it automatically to discriminate against low-frequency signals; thus the Model Nine, while effectively a three-way system, is totally crossoverless and direct-coupled to the amplifier output.

Efficiency and Power Handling

The unusual combination of high efficiency and high power-handling capacity makes the Model Nine the perfect choice for use with any amplifier from a 5 watt per channel compact, or a typically low-power quadraphonic receiver, to a 100 watt per channel "super amp". They will permit the owner of an exotic, high-power amplifier to fully realize the capabilities of his equipment, as well as provide a level of performance when used with lower powered equipment that is literally startling.

Live concert hall levels can be achieved in the home with as little as 10 watts per channel. In practical terms, this frequently means that it is more economical to build a superior hi-fi system around the Model Nine, than around a comparably-priced, or even substantially less expensive acoustic suspension system.

A Word About Specifications

Although the achievement of excellent specifications is seen as an end in itself by many loudspeaker designers and testing organizations, at Polk Audio it is only the inevitable byproduct of a design program whose goal is simply to produce a better, more natural-sounding loudspeaker. Many thousands of hours of critical listening were spent on the design and refinement of the Model Nine. We urge you to audition the Model Nine with your finest recordings, and let your ears hear how well we have succeeded.