

polkaudio
The Speaker Specialists

S Series Loudspeakers

Advanced Technical Information
From Matthew Polk and the Design/Engineering Team



DESCRIPTION

The Polk Audio 'S' Series is comprised of a number of sophisticated loudspeaker systems designed to provide you with the greatest possible listening pleasure. We have spent years researching every aspect of loudspeaker design using the most advanced techniques. Our use of laser interferometry, magneto testing, and computer modeling have significantly advanced our understanding of loudspeakers and our design capabilities.

The Polk 'S' Series loudspeakers have been completely engineered from the ground up and embody an attention to detail that involves the optimization of every single part and component in the design. The integration of the materials and technologies in the 'S' Series loudspeakers we have called Dynamic Balance™ which signifies this heightened level of refinement.

S Series Specifications

S 4
Driver Complement
1 x 1" (25mm) dome tweeter
1 x 6-1/2" (165mm) driver
(ported)
Size
15-1/2"H x 9-1/2"W x 7-1/4"D
(39.4cm x 24.1cm x 18.4cm)
Overall Frequency Response
32Hz - 25kHz
-3dB Limits
50Hz - 23kHz
Recommended Amplification
20 - 100 watts / channel
Impedance
Compatible with 8 ohm outputs
Efficiency
91dB
Shipping Weight
27 lbs / pair (12.2 kg / pair)

S 6
Driver Complement
1 x 1" (25mm) dome tweeter
1 x 6-1/2" (165mm) driver
1 x 6-1/2" (165mm) sub bass radiator
Size
21-1/4"H x 10-1/4"W x 7-3/4"D
(54cm x 25.9cm x 19.7cm)
Overall Frequency Response
30Hz - 25kHz
-3dB Limits
45Hz - 23kHz
Recommended Amplification
20 - 125 watts / channel
Impedance
Compatible with 8 ohm outputs
Efficiency
91dB
Shipping Weight
35 lbs / pair (15.8 kg / pair)

S 8
Driver Complement
1 x 1" (25mm) dome tweeter
1 x 7-1/2" (190mm) driver
1 x 7-1/2" (190mm) sub bass radiator
Size
25"H x 11.5"W x 8-3/4"D
(63.5cm x 29.2cm x 22.1cm)
Overall Frequency Response
28Hz - 25kHz
-3dB Limits
42Hz - 23kHz
Recommended Amplification
20 - 150 watts / channel
Impedance
Compatible with 8 ohm outputs
Efficiency
90dB
Shipping Weight
28 lbs ea. (12.7kg ea.)

S 10
Driver Complement
1 x 1" (25mm) dome tweeter
1 x 7-1/2" (190mm) driver
1 x 10" (254mm) sub bass radiator
Size
29"H x 12-1/2"W x 10-1/2"D
(73.7cm x 31.8cm x 26.4cm)
Overall Frequency Response
25Hz - 25kHz
-3dB Limits
39Hz - 23kHz
Recommended Amplification
20 - 200 watts / channel
Impedance
Compatible with 8 ohm outputs
Efficiency
91dB
Shipping Weight
35 lbs ea. (15 kg ea.)

Performance with smoother frequency response, dramatically improved phase coherence, and lowered levels of distortion means you will hear purer sound and derive greater enjoyment from your compact discs, records, or tapes.

SPEAKER WIRE

We recommend using at least 18 gauge lampcord for your speaker hook-up. If the wire run is more than 25 feet, use 16 gauge or thicker wire. For best results, invest in specialty speaker wire: your authorized Polk dealer can help you make a selection.

MULTIPLE SPEAKER CONFIGURATIONS

Polk 'S' Series loudspeakers are compatible with 8 ohm outputs. See directions in your receiver or amplifier's instruction manual for best results.

Features and Benefits

The Polk S Series loudspeakers are the result of years of fundamental research into the resonant behavior of materials and speaker cones. By using an advanced technique called "full field laser interferometry", Polk became the first audio company able to view and analyze the microscopic vibrations on the surface of the entire speaker cone while in motion.

This breakthrough in speaker performance analysis enabled Polk engineers to devise techniques for controlling and minimizing the cone resonances which cause coloration and distortion in loudspeakers. We call these techniques "Dynamic Balance", the successful integration of materials and mechanics in motion. As it is better to bal-

ance the wheels of a car "dynamically", that is while in motion, it is better to study and design speakers dynamically. Through the use of Dynamic Balance technologies, the Polk S Series loudspeakers achieve a level of sonic performance usually associated with extremely costly systems.

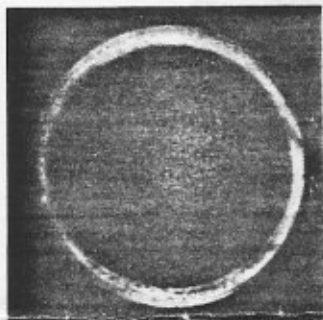
Polymer Composite Cones - Composed of polyolefin and stiffening mineral fill, this cone resists the resonant breakup commonly found in single material cones. Rather than settling for the compromises of one cone material, Polk uses two materials, one stiff, one soft, to get the benefits of both. Free of resonant breakup modes, the new Polk drivers provide flat, low distortion performance for clear, uncolored sound reproduction.

Resonance Damping Rubber Surround and Dustcap - Polk drivers use costly rubber surrounds and dustcaps which are tuned to absorb cone resonances rather than allow them to reflect back into the cone again. As the springs and shocks of a car need to be tuned by the designer for optimum ride and handling, the cone and surround of the Polk drivers are tuned to minimize unwanted resonances. This feature contributes to the flat frequency and phase response of the S Series models. The rubber surrounds also resist Ultra violet light and airborne pollutants which deteriorate cheap foam surrounds. A Polk driver will last far longer than competitive products and is therefore a better long term value.

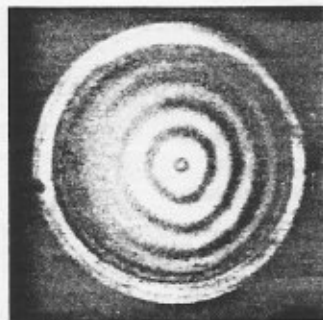
Rigid and Damped Driver Baskets - The computer assisted design of the Polk driver basket provides the strength, rigidity and non-resonant performance of cast baskets at the price of stamped baskets. Twelve metal ribs, molded into the circumference of the driver allow a "friction fit" of the driver into the baffle, insuring that all driver energy is used to reproduce sound, not shake the basket or baffle. The extension of the surround to the edge of the basket also helps damp it to eliminate basket "ringing" which would color the sound. The Polk S Series speakers let you hear the music on the CD, not the distortion of resonating speaker parts.

Two-Way, Phase Coherent Crossovers - The human ear is ultra sensitive to the phase and frequency response errors in the range of 200 - 1,000 Hz (the midrange). Crossovers cause such errors and are therefore best placed outside that frequency range. Because of the wide response range of the Dynamic Balance drivers, Polk engineers were able to cross over to the tweeter well above the midrange. Free of the midrange phase response errors of typical loudspeakers, the Polk S Series models provide vocal purity, clarity, and imaging not before available at their low prices.

Diffraction Control Baffle - The extended surround of the driver and the contoured tweeter faceplate provide a smooth transition for the waveforms leaving the side of the moving cones. This minimizes the early reflections known as diffraction. The beveled baffle frame also provides a smooth transition from the baffle and guides the waveforms to the listening space, thereby minimizing the effects of room reflections. The Polk S Series loudspeakers are less room sensitive than other speakers and provide the kind of three dimensional imaging which was previously found only in costlier designs.



Polk Dynamic Balance Technology defeats cone resonance



Laser Interferometry testing illustrates severe resonance break-up of single material cones