

TOA SPEAKER COMPONENT

LOW-FREQUENCY LOUDSPEAKER HLS46S-8



DESCRIPTION

The HLS46S-8 is a 460mm (18 in.) low-frequency loudspeaker designed for professional applications in high level sound reinforcement environments such as studios, theaters, concert halls, auditoriums, discos and live sound reinforcement applications, where high efficiency, ultra-low-frequency response, and faithful reproduction are required. The HLS46S offers high power handling capacity and a uniform frequency response from 20Hz to 3,000Hz. A crossover frequency of 1,000Hz or lower is recommended to obtain smoothest overall system response. Nominal impedance is 8 ohms for the HLS46S-8. The loudspeaker employs a low-mass 100mm (4 in.) diameter voice coil of edgewound copper-clad aluminum ribbon on an aluminum coil form, which operates in a flux density of 13,600 gauss. The voice coil is driven by a powerful ferrite magnet, which is supported by a rugged diecast aluminum frame. The cone suspension is made of exceptionally high-compliance, damped-cloth surround.

FEATURES

1. Smooth, extended ultra-low-frequency response.
2. High power handling capacity: 600 watts continuous pink noise (AES Standard).
3. High efficiency and linearity in ultra-low response.
4. Low distortion.
5. Voice coil of edgewound copper-clad aluminum ribbon, with an aluminum coil form.
6. Powerful ferrite magnet structure.
7. Rigid diecast aluminum construction.

SPECIFICATIONS

Nominal Diameter	460mm (18 in.)
Nominal Impedance	8 ohms
Minimum Impedance above Fs	7.0 ohms \pm 10% (25°C)
Power Handling* ¹	600 watts continuous pink noise (AES standard)
Sensitivity* ²	98dB SPL (1W/1m)
Frequency Range	20Hz to 3,000Hz
Highest Recommended Crossover Frequency	1,000Hz
Effective Piston Diameter	400mm (16 in.)
Displacement Limit (p-p)	40mm (1.6 in.)
Voice Coil Diameter	100mm (4 in.)
Voice Coil Material	Edgewound copper-clad aluminum ribbon
Voice Coil Insulation	Aluminum
Voice Coil Winding Depth	30mm (1.2 in.)
Top-Plate Thickness	12mm (0.47 in.)
Bl Factor	17.4 N/A
Effective Moving Mass	0.145kg
Flux Density	13,600 gauss
Polarity	Positive voltage on plus (RED) terminal gives forward diaphragm motion.

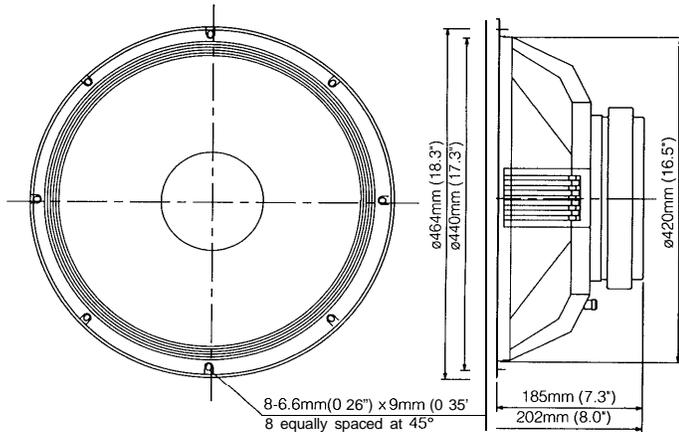
THIELE-SMALL PARAMETERS

fs	30Hz
Re	5.5 ohms
Qts	0.41
Qms	2.5
Qes	0.49
Vas	430 lit. (15.2 ft ³)
Sd	0.126m ² (195 in ²)
Xmax	10.3mm (0.41 in.)
Vd	1,294cm ³ (79.0 in ³)
η_0 (half space)	2.4%
Pe (Max)	600 watts continuous pink noise
MOUNTING DATA	
Overall Diameter	464mm (18.3 in.)
Bolt Pattern Diameter	440mm (17.3 in.)
Baffle Cutout Diameter	Front Mount: 422mm (16.6 in.) Rear Mount: 420mm (16.5 in.)
Depth	202mm (7.95 in.)
Loudspeaker Volume	8 lit. (0.28 ft ³)
Weight	16.5kg (36.4 lbs.)
Standard Accessories	Mounting screws, washers and nuts: each 8

Notes

- *AES Standard is 60Hz to 600Hz continuous pink noise, at -12dB/Octave cut-off, and with a 6dB crest factor, measured for 2 hours, with the unit suspended in free air.
- *Sensitivity is based on a band-limited (100 to 800Hz) pink noise signal.
- Specifications are subject to change without notice.

APPEARANCE AND DIMENSIONAL DIAGRAM

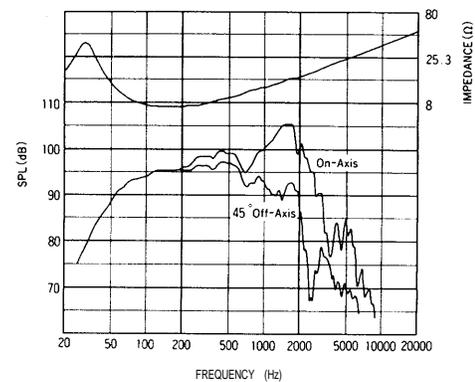


ARCHITECT'S AND ENGINEER'S SPECIFICATIONS

The low-frequency loudspeaker shall be a TOA Model HLS46S-8 or approved equivalent. The loudspeaker shall have a 460mm (18 in.) nominal diameter, with a bolt pattern diameter of 440mm (17.3 in.), a weight of 16.5kg (36.4 lbs.), and a depth of 202mm (7.95 in.). The loudspeaker shall have a rigid diecast aluminum frame that shall permit front or rear mounting. The loudspeaker shall have a 600 watts, AES Standard power-handling capacity and a uniform frequency response from 20Hz to 3,000Hz, with a recommended crossover frequency of 1,000Hz or lower to obtain smoothest overall system response. Band-limited (100 to 800Hz) pink noise sensitivity shall be 98dB (1W/1m). Nominal impedance shall be 8 ohms. The loudspeaker shall employ a low-mass 100mm (4 in.) diameter voice coil of edgewound copper-clad aluminum ribbon of 30mm (1.2 in.) winding depth, on an aluminum coil form, operating in a flux density of 13,600 gauss. The voice coil shall be driven by a powerful ferrite magnet. Effective moving mass shall be 0.145kg. The cone suspension shall be made of exceptionally high-compliance, damped-cloth surround.

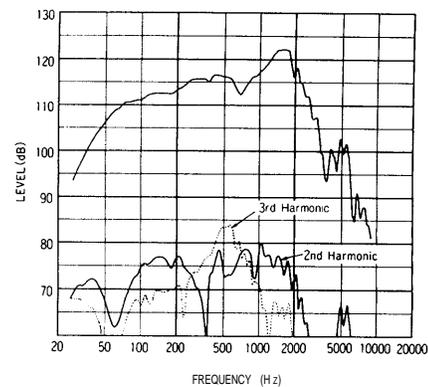
CHARACTERISTIC DIAGRAMS

*Frequency Response and Impedance Curve



Frequency response is measured in a spherical free-field environment, under 1 watt & 1 meter conditions, with a swept sine wave signal, while the speaker unit is mounted in an 200-liter sealed box. The impedance magnitude curve is measured while the speaker is suspended in free air, with its cone in the vertical plane

*Distortion Response



Distortion response is measured with a swept sine wave signal, at 60 watts (-10dB power) & 1 meter, and while the speaker unit is mounted in an 200-liter sealed box



TOA Corporation