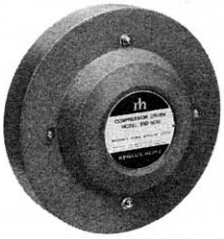
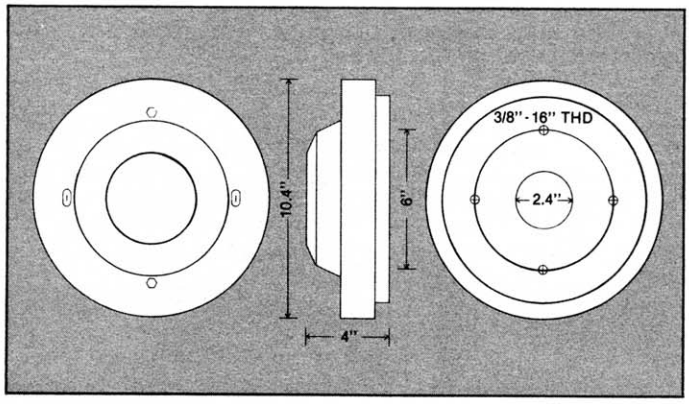


TECHNICAL DATA

RENKUS-HEINZ SSD 5600 COMPRESSION DRIVER

U.S. PAT. NO. 4336425
Other Patents Pending



Description

The Renkus-Heinz Model SSD 5600 midrange compression driver offers flat power response from 250 Hz to 4000 Hz. A rugged 5.6 inch aluminum diaphragm coupled through an acoustically optimized phasing plug generates 100 acoustic watts over the critical vocal range. In large sound reinforcement systems requiring high performance and reliability the SSD 5600 provides significant savings in cost, space, and weight over present devices. This powerful driver is also ideal for voice communication and warning systems requiring very high sound pressure levels and superior intelligibility from a single weatherproof source.

ELECTRICAL SPECIFICATIONS:		
[1] Max. Amplifier Power (Cont. Program)	400 W	500 Hz
Min. Crossover Slope	300 W	350 Hz
12 dB/octave	200 W	250 Hz
Max. Power Handling	150 W (RMS) Above 500 Hz	
[1] Power Compression	1 db, 1 W to 100 W 2h	
[2] Temp. Rise Coil	66 °C	(150 °F)
Magnet Ass'bly	7 °C	(20 °F)
[1] Low Freq. Limit	250 Hz	
[1] Frequency Response	250 Hz to 4 kHz	
Sensitivity (Horn Q = 10)	112 dB (1W, 1m, 1 kHz)	
(2" Plane Wave Tube)	114 dB (1mW, 1kHz)	
[1] Efficiency 500 Hz/1kHz	38%/26%	
[1] Harmonic Distortion 2nd	≤3% 10W, ≤3% (50 W)	
3rd	≤.3% (10W), ≤1% (50 W)	
IM-Distortion +2	3% (10 W)	
[1] +3	≤1%(100 W)	

Magnetic Field	1.6 Tesla (16000 Gauss) ± 5%
Voice Coil DC Resistance	5 ohm ± 10% (25 °C)
[1] Nominal AC Impedance	8 ohm ± 15% (25 °C)
[1] Minimum AC Impedance	6 ohm ± 15% (25 °C)
Polarity (Pos. Pressure Out)	Plus Voltage To Red Terminal
MECHANICAL SPECIFICATIONS:	
Diaphragm Displacement Limit	2.28 mm (.090")
Throat Diameter	6.09 cm (2.4")
Overall Dimensions (Mounted)	26.4 cm (10.4") dia., 10.2 cm (4") deep
[3] Mounting	Four 3/8'-16 bolts 90° on 15.2 cm (6") diameter
Diaphragm Assembly Model	CD 5600-8 Self Aligning
Diaphragm Material	Special Heat Treated Alu. Alloy
Effective Diameter	14.2 cm (5.6")
Compliance	High Temp., Silicon Elastomer
Terminations	Spade Lugs .63 cm(1/4")
Coil Material	Copper Ribbon Wire
Net/Shipping Weight	14 kg (31 lbs.)/21.4 kg (47 lbs.)

1. See applicable graphs on other side of page for detail.
2. Temperature rise measured after 2 hour power test with 150W of pink noise (bandwidth limited from 250 Hz to 2.5 kHz, 2:1 peak to RMS voltage level). Ambient temperature 25 °C (77 °).
3. Mounting:

2.4" Throat Flange Mount

2.0" Throat Flange Mount with SSA 242 Adapter

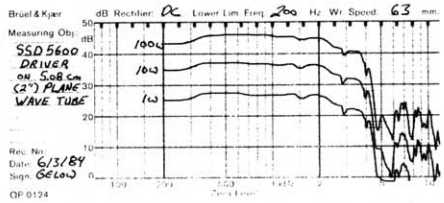
Architects and Engineer's Specifications

The low midrange compression driver shall be the Renkus-Heinz Model SSD 5600 or approved equal. When mounted to a suitable horn, the driver shall sustain a minimum of 150 watts RMS input power (pink noise band limited from 250 Hz to 2.5 kHz). Efficiency at 1 kHz shall be no less than 26%. Pressure sensitivity measured with 1 mW RMS input at 1kHz shall be 114 dB SPL when coupled to a 5.08 cm (2") plain wave tube. When coupled to a suitable horn of Q = 10, the pressure shall be 112 dB SPL at 1kHz (1 m, 1 watt input). Frequency response shall be smooth from 250 Hz to 4000 Hz, Nominal impedance shall be 8 ohm. 2nd order harmonic distortion shall be less than 3% with 10 watt input, 3rd order harmonic distortion shall be less than 0.5% with 10 watt input. The coil-diaphragm assembly shall utilize special heat treated aluminum, have high temperature silicon elastomer suspension, and shall be easily field replaceable without requiring special tools and without requiring alignment. The magnet shall be of ceramic material impervious to demagnetization, and shall be capable of sustaining a continuous magnetic field of 16,000 gauss. The driver's throat diameter shall be 6.09 cm (2.4"). Standard mounting with four 3/8"-16 bolts on 15.2 cm (6") diameter 90° apart shall be provided. All required hardware shall be supplied. The diameter of the driver shall not exceed 26.42 cm (10.4"). The depth of the driver shall not exceed 10.2 cm (4"). The net weight of the driver shall not exceed 14 kg (31 lbs).

The following Bruel & Kjaer equipment was used: 2010 Analyzer, 1902 Distortion Control, 2305 Recorder, 4440 Gating System, 4133 or 4138 Microphone, 2615 Preamp. The Renkus-Heinz soundroom in conjunction with the above equipment is capable of true anechoic measurements down to 350 Hz. The graphs are reproductions of actual, unretouched measurements, except where indicated.

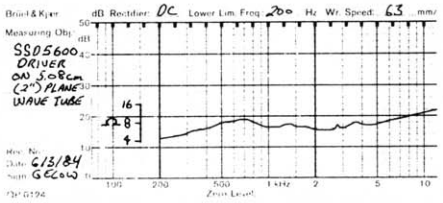
Measurements on 5.08 cm (2") Diameter Plane Wave Tube

Frequency Response 1w, 10w, 100w.



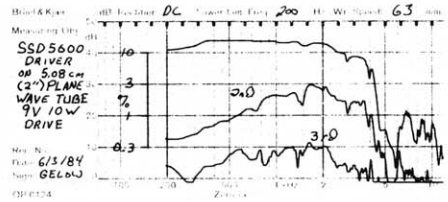
These curves allow accurate prediction of power output with respect to any input. The relatively uniform frequency response up to maximum power rating indicates excellent power linearity and dynamic range. The above plane wave tube curves are also representative of the power response of the driver when coupled to a constant directivity horn.

AC-Impedance

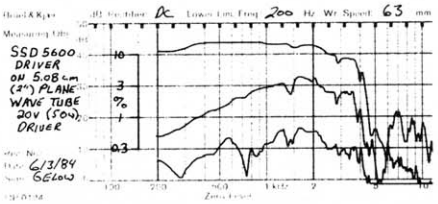


Impedance curves are smooth and show a low Q resonance at 700 Hz. Minimum ac-impedance occurs at 2 kHz.

Harmonic Distortion with 10w input

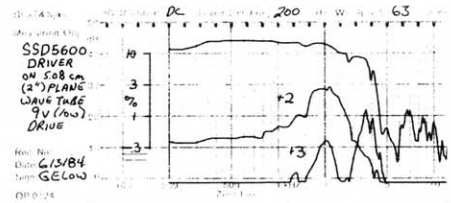


Harmonic Distortion with 50w input



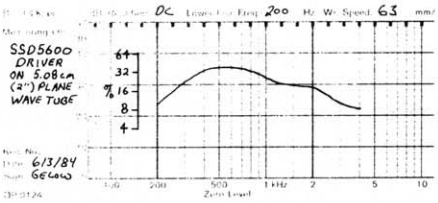
The above curves show 2nd or 3rd harmonic distortion as a function of frequency at two power levels. Note, that both components of harmonic distortion do not increase proportional with input power. This fact, just as the minimal change in frequency response with power is an indication of the drivers ability to reproduce accurately even with very high input power peaks.

Intermodulation Distortion at 10w input



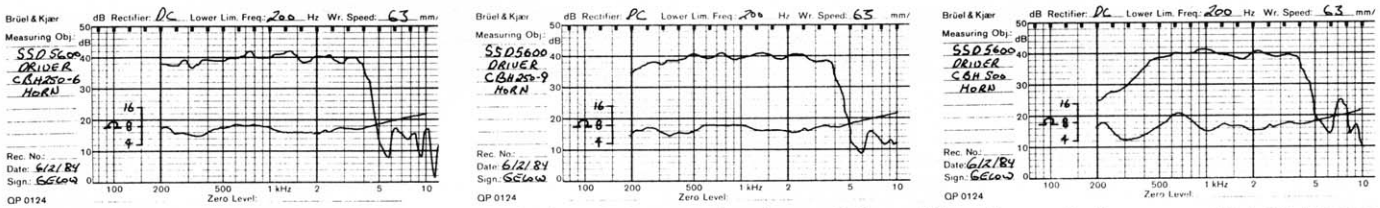
The curves show 2nd ($f_2 + f_1$) and 3rd ($f_2 + 2f_1$) components of a two tone test signal ($f_2 = f_1 + 2$ kHz). This measurement gives an opportunity to describe complex, not harmonically related nonlinearities. Intermodulation distortion is musically much more offensive than harmonic distortion and must be small.

Efficiency versus Frequency



This calculated curve gives the efficiency of the driver under ideal conditions. Maximum efficiency is indicated at 600 Hz. The pronounced drop-off toward higher frequencies is common to all compression drivers.

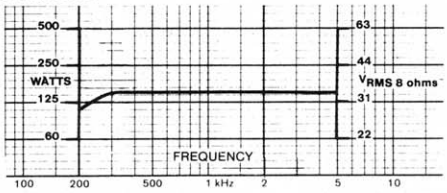
Measurements on Renkus-Heinz Constant Beamwidth Horns



These measurements were made on axis at a distance of 4' from the horn mouth under anechoic conditions. No equalization was provided. The improvement in high frequency response compared to the plane wave tube measurements is due to the horn characteristics. The ac-impedances are measured with the drivers mounted to the horns.

Maximum Ratings

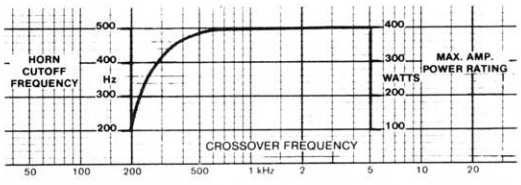
Maximum Power Handling as a Function of Coil Temperature and Displacement Limits.



This calculated graph indicates maximum allowable steady state sine wave power input of 150 w RMS above 500 Hz. Maximum voltage for 8 ohm coils is also indicated (35 V) below 500Hz. Maximum input power is limited by the available diaphragm displacement as shown. This graph indicates clearly that lower crossover frequencies can be used only with reduced input power.

These maximum limits are important for such applications as high level warning systems and sirens. They also apply for audio systems in acoustic feedback mode.

Maximum Rated Amplifier Power as Function of Crossover Frequency



In addition to temperature and and displacement limits, this graph takes into account the effects of high pass networks on continuous program power passed through to the driver. The left vertical scale represents horn cut-off frequency. Below this frequency, the horn will not load the diaphragm properly and will distort (see above impedance curves on horns). The horizontal frequency scale represents crossover frequencies. The right vertical scale represents rated amplified power (RMS) into 8 ohm. Note, that the scale is for amplifiers operated in the linear region with continuous program material (no clipping or heavy compression). The steady state sine wave limit is 150 watts or less as indicated in the graph to the left. **To find minimum crossover frequency from horn cut-off, go right to curve then down. To find maximum amplifier power rating, go up from selected crossover frequency, then righ to amplifier scale.**