

Professional 12" woofer designed to meet a variety of PA needs for small and medium-sized rooms, with excellent performance in the mid and low frequency ranges.

For sound reinforcement in nightclubs, dancing halls, auditoriums, bands and also for studio monitors.

Its great efficiency in sound reproduction is due to the excellent combination of the different components:

- The light cone manufactured with long fiber pulp together with a surround of impregnated fabric give the array great stability, high yield and low distortion.

- The voice coil is made of high temperature wire, wound on Kapton® former.

- The epoxy painted reinforced steel frame provides the array with high mechanical resistance.

- The aluminum dust cap guarantees great voice coil heat dissipation.

- The use of highly resistant adhesives guarantees optimal cohesion and durability of components.

*12PW5-SLF: Product without Selenium logo printed on the dust cap.



SPECIFICATIONS

| | | |
|--|-------------|---------|
| Nominal diameter | 305 (12) | mm (in) |
| Nominal impedance | 8 | |
| Minimum impedance @ 206 Hz | 7.2 | |
| Power handling | | |
| Musical Program ¹ | 600 | W |
| AES ² | 300 | W |
| Sensitivity (2.83V@1m) averaged from 100 to 2,000 Hz | 96 | dB SPL |
| Frequency response @ -10 dB | 50 to 4,000 | Hz |

¹ Power handling specifications refer to normal speech and/or music program material, reproduced by an amplifier producing no more than 5% distortion. Power is calculated as true RMS voltage squared divided by the nominal impedance of the loudspeaker.

² AES Standard (60 - 600 Hz).

THIELE-SMALL PARAMETERS

| | | |
|--|---------------|------------------------------------|
| Fs | 42 | Hz |
| Vas | 108 (3.81) | l (ft ³) |
| Qts | 0.31 | |
| Qes | 0.32 | |
| Qms | 16.33 | |
| o (half space) | 3.24 | % |
| Sd | 0.0510 (79.1) | m ² (in ²) |
| Vd (Sd x Xmax) | 63.75 (3.89) | cm ³ (in ³) |
| Xmax (max. excursion (peak) with 10% distortion) | 3.5 (0.14) | mm (in) |

Atmospheric conditions at TS parameter measurements:

| | | |
|----------------------|---------|---------|
| Temperature | 25 (81) | °C (°F) |
| Atmospheric pressure | 1,016 | mb |
| Humidity | 51 | % |

Thiele-Small parameters are measured after a 2-hour power test using half AES power. A variation of ±15% is allowed.

ADDITIONAL PARAMETERS

| | | |
|---|---------------|---------|
| L | 15.5 | Tm |
| Flux density | 1.07 | T |
| Voice coil diameter | 75 (3) | mm (in) |
| Wire temperature coefficient of resistance (25) | 0.00344 | 1/°C |
| Hvc (voice coil winding depth) | 15.0 (0.59) | mm (in) |
| Hag (air gap height) | 8.0 (0.32) | mm (in) |
| Re | 6.0 | |
| Mms | 49.4 (0.1089) | g (lb) |
| Cms | 297.8 | µm/N |
| Rms | 0.8 | kg/s |

NON-LINEAR PARAMETERS

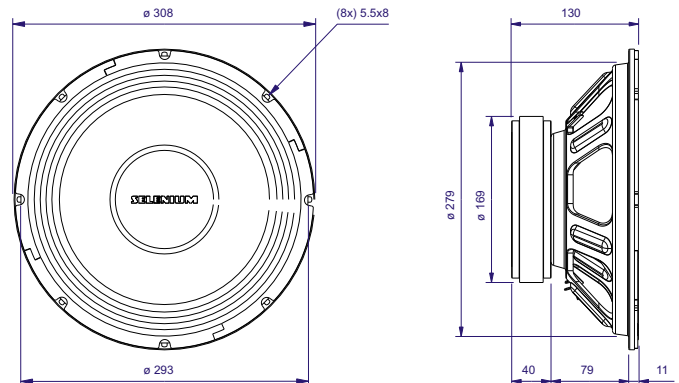
| | | |
|--|--------|----|
| Le @ Fs (voice coil inductance @ Fs) | 4.449 | mH |
| Le @ 1 kHz (voice coil inductance @ 1 kHz) | 1.332 | mH |
| Le @ 20 kHz (voice coil inductance @ 20 kHz) | 0.433 | mH |
| Red @ Fs | 0.28 | |
| Red @ 1 kHz | 4.15 | |
| Red @ 20 kHz | 51.08 | |
| Krm | 2.726 | m |
| Kxm | 35.461 | mH |
| Erm | 0.838 | |
| Exm | 0.625 | |

ADDITIONAL INFORMATION

| | |
|--------------------------------|--------------------------------|
| Magnet material | Barium ferrite |
| Magnet weight | 2,000 (71) g (oz) |
| Magnet diameter x depth | 169 x 24 (6.65 x 0.95) mm (in) |
| Magnetic assembly weight | 4,880 (10.76) g (lb) |
| Frame material | Steel |
| Frame finish | Black epoxy |
| Magnetic assembly steel finish | Zinc-plated |
| Voice coil material | Copper |
| Voice coil former material | Polyimide (Kapton®) |
| Cone material | Long fiber pulp |
| Net weight | 5,600 (12.35) g (lb) |

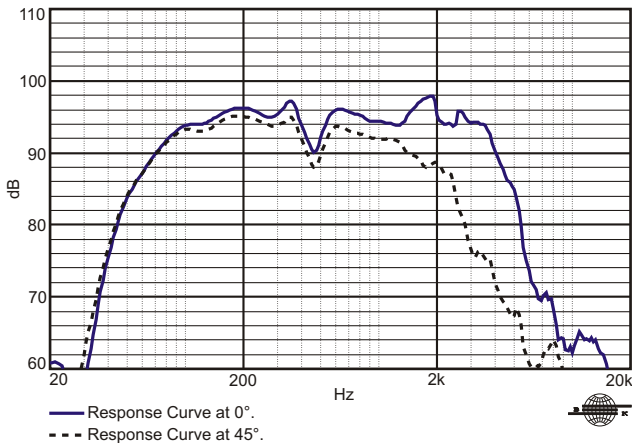
MOUNTING INFORMATION

| | |
|--|---|
| Number of bolt-holes | 8 |
| Bolt-hole diameter | 5.5 (0.22) mm (in) |
| Bolt-circle diameter | 292 (11.50) mm (in) |
| Baffle cutout diameter (front mount) | 280 (11.02) mm (in) |
| Baffle cutout diameter (rear mount) | 275 (10.83) mm (in) |
| Connectors | Push on terminals |
| Polarity | Positive voltage applied to the positive (+) terminal gives forward cone motion |
| Minimum clearance between the back of the magnetic assembly and the enclosure wall | 75 (3) mm (in) |

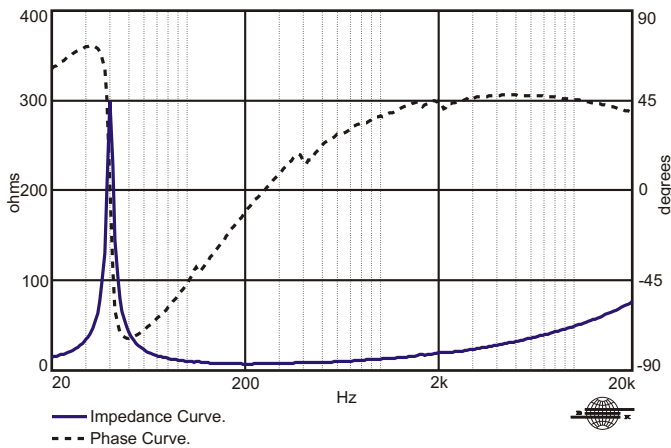


Dimensions in mm.

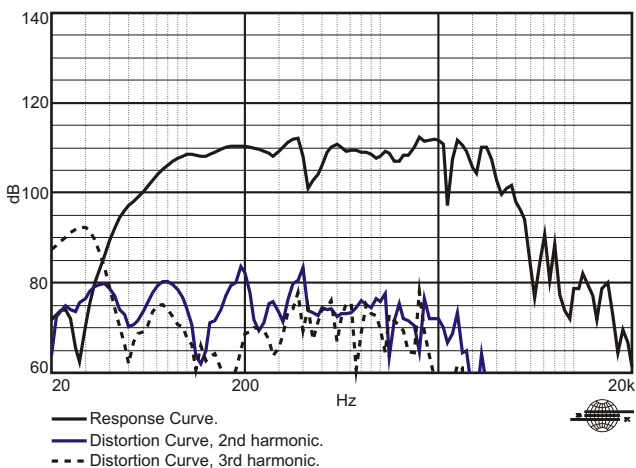
RESPONSE CURVES (0° AND 45°) IN A TEST ENCLOSURE INSIDE AN ANECHOIC CHAMBER, 1 W / 1 m



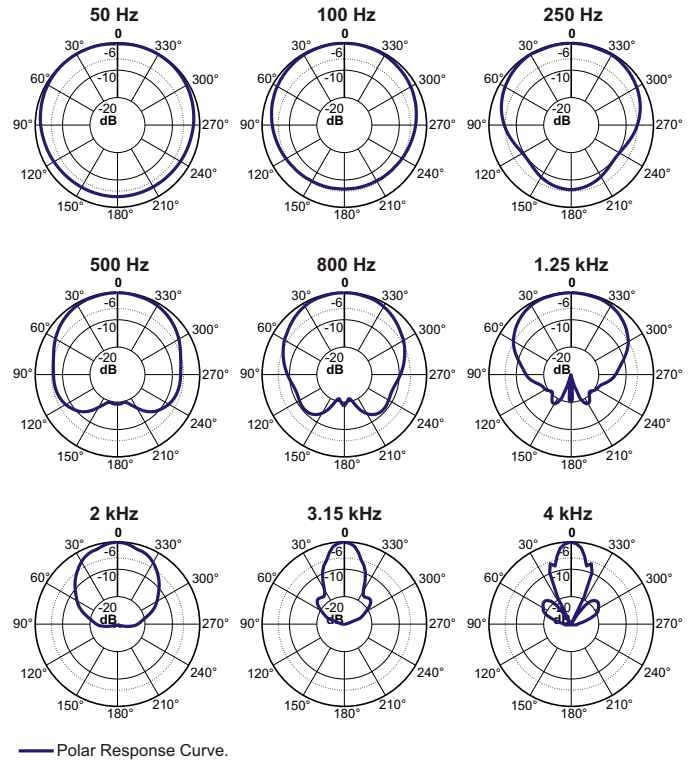
IMPEDANCE AND PHASE CURVES MEASURED IN FREE-AIR



HARMONIC DISTORTION CURVES MEASURED AT 10% AES INPUT POWER, 1 m



POLAR RESPONSE CURVES



HOW TO CHOOSE THE RIGHT AMPLIFIER

The power amplifier must be able to supply twice the RMS driver power. This 3 dB headroom is necessary to handle the peaks that are common to musical programs. When the amplifier clips those peaks, high distortion arises and this may damage the transducer due to excessive heat. The use of compressors is a good practice to reduce music dynamics to safe levels.

FINDING VOICE COIL TEMPERATURE

It is very important to avoid maximum voice coil temperature. Since moving coil resistance (R_c) varies with temperature according to a well known law, we can calculate the temperature inside the voice coil by measuring the voice coil DC resistance:

$$T_B = T_A + \frac{R_B}{R_A} - 1 \quad T_A - 25 + \frac{1}{25}$$

T_A, T_B = voice coil temperatures in °C.

R_A, R_B = voice coil resistances at temperatures T_A and T_B , respectively.

$\frac{1}{25}$ = voice coil wire temperature coefficient at 25 °C.

POWER COMPRESSION

Voice coil resistance rises with temperature, which leads to efficiency reduction. Therefore, if after doubling the applied electric power to the driver we get a 2 dB rise in SPL instead of the expected 3 dB, we can say that power compression equals 1 dB. An efficient cooling system to dissipate voice coil heat is very important to reduce power compression.

NON-LINEAR VOICE COIL PARAMETERS

Due to its close coupling with the magnetic assembly, the voice coil in electrodynamic loudspeakers is a very non-linear circuit. Using the non-linear modeling parameters $K_{rm}, K_{xm}, E_{rm}, E_{xm}$ from an empirical model, we can calculate voice coil impedance with good accuracy.

SUGGESTED PROJECTS

For additional project suggestions, please access our web site.

TEST ENCLOSURE

65-liter volume with a duct $\varnothing 4''$ by 0.8" length.

Kapton®: Du Pont trademark.