

15SW14A 4+4

The line SW14A is composed by 12" and 15" subwoofers specially developed to reproduce the lowest frequencies of the audio spectrum and support the power of 400W MAX with a good linear displacement of the cone. They have double voice coil of 2+2 and 4+4 Ohms increasing the possibilities of setting impedance, allowing a better use of the amplifier.

Their main characteristics:

Magnet assembly optimized by finite element software, has lowered bottom plate allowing large displacements at low frequencies.

2+2 and 4+4 Ohms double voice coils form in Kapton® and coated with copper wire coated with varnish to support high temperatures.

Spider manufactured in Policotton, providing high linearity and high damping in the excursion at low frequencies.

The cone pressed specially designed for this application, developed with long-fiber pulp.

Suspension of high compliance, suitable for the damping of stationary waves, made in nitrile rubber and sewn to the cone.



SPECIFICATIONS

Nominal diameter	381 (15)	mm (in)
Nominal impedance	4+4	Ω
Minimum impedance @ 74 Hz	7.9	Ω
Power handling		
Peak	800	W
Continuous Music ¹	400	W
NBR ²	200	W
AES ³	200	W
Sensitivity (2.83V@1m) averaged from 55 to 200 Hz	90	dB SPL
Power compression @ 0 dB (nom. power)	2.81	dB
Power compression @ -3 dB (nom. power)/2	1.80	dB
Power compression @ -10 dB (nom. power)/10	0.60	dB
Frequency response @ -10 dB	35 to 2,500	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 NBR Standard (10,303 Brazilian Standard).

³ AES Standard (60 - 600 Hz).

THIELE-SMALL PARAMETERS

Fs	32.7	Hz
Vas	178.2(6.3)	l (ft ³)
Qts	0.90	
Qes	1.02	
Qms	8.16	
η ₀ (half space)	0.60	%
Sd	0.0860 (133.3)	m ² (in ²)
Vd (Sd x Xmax)	516.0 (31.48)	cm ³ (in ³)
Xmax (max. excursion (peak) with 10% distortion)	6.0 (0.23)	mm (in)
Xlim (max. excursion (peak) before physical damage)	18 (0.71)	mm (in)

Atmospheric conditions at TS parameter measurements:

Temperature	24 (75.2)	°C (°F)
Atmospheric pressure	1022	mb
Humidity	45	%

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

ADDITIONAL PARAMETERS

βL	14.4	Tm
Flux density	0.684	T
Voice coil diameter	46 (1.8)	mm (in)
Voice coil winding length	32.6 (106.9)	m (ft)
Wire temperature coefficient of resistance (α ₂₅)	0.00372	1/°C
Maximum voice coil operation temperature	170 (338)	°C (°F)
θ _{vc} (max. voice coil operation temp./max. power)	0.85 (1.69)	°C/W (°F/W)
H _{vc} (voice coil winding depth)	20.0 (0.78)	mm (in)
H _{ag} (air gap height)	8.0 (0.31)	mm (in)
Re	6.7	Ω
Mms	135.6 (0.29)	g (lb)
Cms	170.0	μm/N
Rms	3.42	kg/s

NON-LINEAR PARAMETERS

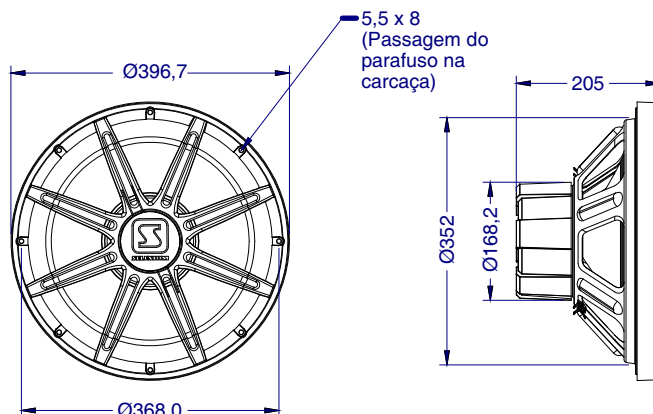
Le @ Fs (voice coil inductance @ Fs)	8.143	mH
Le @ 1 kHz (voice coil inductance @ 1 kHz)	3.471	mH
Le @ 20 kHz (voice coil inductance @ 20 kHz)	1.641	mH
Red @ Fs	0.566	Ω
Red @ 1 kHz	10.885	Ω
Red @ 20 kHz	147.471	Ω
K _{rm}	5.4	mΩ
K _{xm}	30.9	mH
E _{rm}	0.87	
E _{xm}	0.75	

ADDITIONAL INFORMATION

Magnet material	Barium ferrite
Magnet weight	895 (31.5) g (oz)
Magnet diameter x depth	134 x 8 (5.27 x 0.31) mm (in)
Magnetic assembly weight	2,885 (6.36) g (lb)
Frame material	Steel
Frame finish	Black epoxy
Voice coil material	Brass
Voice coil former material	Kapton
Cone material	Long fiber pulp
Volume displaced by woofer	5.6 (0.19) l (ft ³)
Net weight	4,220 (9.3) g (lb)
Gross weight	4,910 (10.82) g (lb)
Carton dimensions (W x D x H)	40.0x39.2x22.5 (15.7x15.4x8.8) cm (in)

MOUNTING INFORMATION

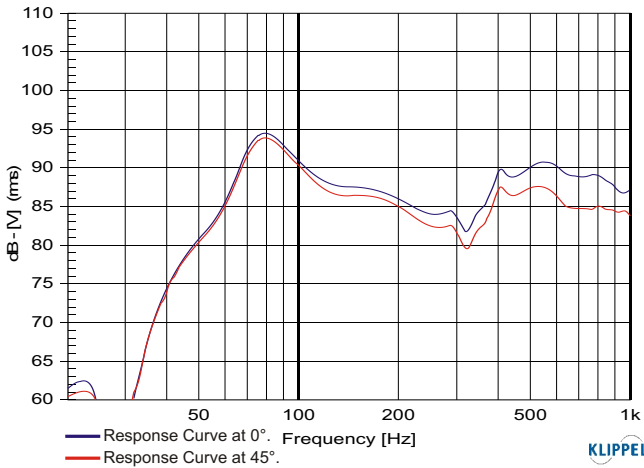
Number of bolt-holes	8
Bolt-hole diameter	5.5 x 8 (0.21 x 0.31) mm (in)
Bolt-circle diameter	368 (14.48) mm (in)
Baffle cutout diameter (front mount)	352 (13.85) mm (in)
Baffle cutout diameter (rear mount)	348 (13.7) mm (in)
Connectors	Silver-plated push terminals
Polarity	Positive voltage applied to the positive terminal (red) gives forward cone motion
Minimum clearance between the back of the magnetic assembly and the enclosure wall	75 (3) mm (in)



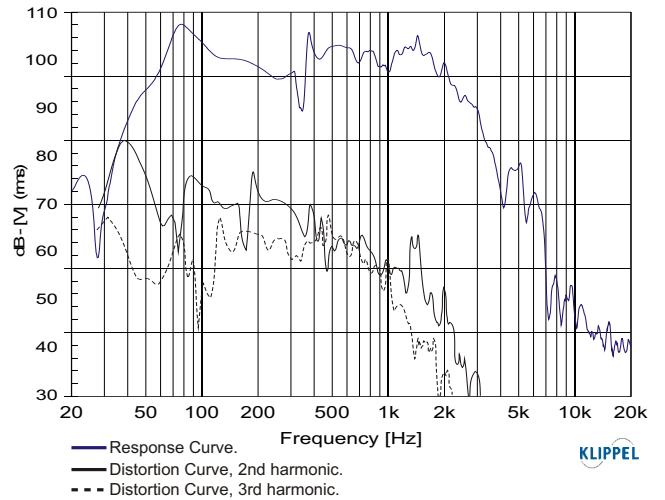
Dimensions in mm.

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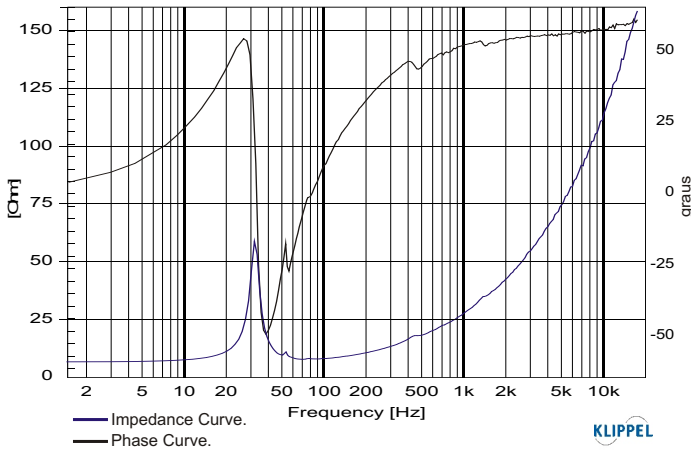
RESPONSE CURVES (0° AND 45°) IN A TEST ENCLOSURE INSIDE AN ANECHOIC CHAMBER, 1 W / 1 m



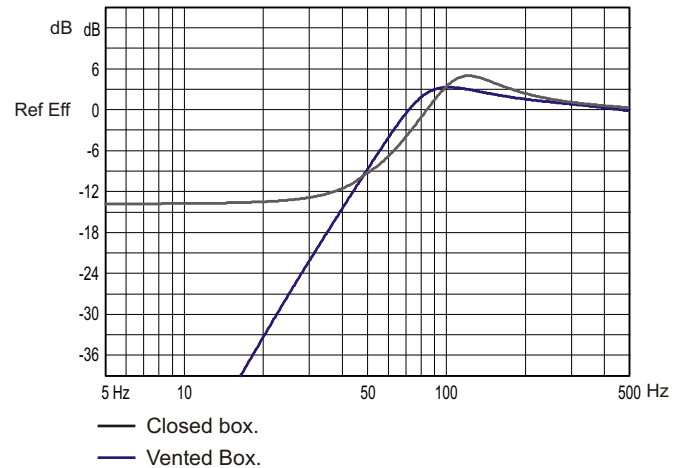
HARMONIC DISTORTION CURVES MEASURED AT 10% AES INPUT POWER, 1 m



IMPEDANCE AND PHASE CURVES MEASURED IN FREE-AIR



SOFTWARE SIMULATED RESPONSE CURVE



SUGGESTED ENCLOSURES

MODELS	CLOSED BOX		VENTED BOX	
	Internal Volume (liters)	Internal Volume (liters)	Duct (s)	
			Qty	Diam. x Length (cm)
15SW14A DVC	50	65	2	10 x 17

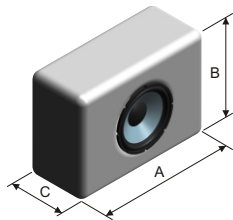
The suggested enclosure volumes are related to only one speaker, including woofer and duct(s) displaced volume.
For enclosure with more than one speaker, it is necessary to multiply the suggested volume and duct(s) by the quantity of speakers and build them with separated chambers (internal division).
Box volumes considering the bass lift inside the car with closed apertures.

ENCLOSURES INTERNAL VOLUME CALCULATION INSTRUCTIONS

RECTANGULAR BOX

$$\text{Internal Volume} = \frac{A \times B \times C}{1000}$$

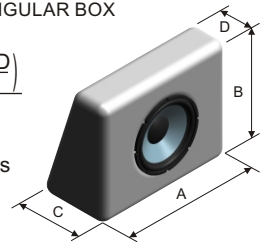
A, B and C are internal dimensions (in cm). The internal volume result is given in liters.



TRAPEZOID RECTANGULAR BOX

$$\text{Internal Volume} = \frac{A \times B \times \left(\frac{C + D}{2}\right)}{1000}$$

A, B, C and D are internal dimensions (in cm). The internal volume result is given in liters.



TEST ENCLOSURE

64-Liter volume with a 2 ducts ø 4" by 0.8" length.