

# SPECIFICATIONS

## SW178WA01 7" alu-cone subwoofer, 8 ohm

SW178WA01 is a woofer designed for dedicated subwoofer applications. It works equally well for high-end hi-fi, high quality home theater systems, and top multimedia setups.

### FEATURES

- Very rigid aluminium cone to ensure piston motion at high levels and for better heat transfer at high continuous power levels
- Vented voice coil former for reduced distortion and compression
- Vented center pole with dual flares for reduced noise level at large cone excursions
- Vented chassis for lower air flow speed reducing audible distortion
- Heavy-duty black fiber glass voice coil bobbin to reduce mechanical losses resulting in better dynamic performance and low-level details
- Large motor system with 1½" voice coil diameter and 110mm magnet for better control and efficiency
- Built-in alu field-stabilizing ring for reduced high-level distortion
- Long linear stroke motor for reduced distortion at high levels
- Linear suspension with specially designed CONEX damper (spider) for long durability under extreme operating conditions
- 4-layer voice coil for increased control and better small-cabinet performance
- Gold plated terminals to prevent oxidation for long-term reliable connection
- Sealing gasket pre-attached for hassle-free mounting and secure cabinet sealing



### NOMINAL SPECIFICATIONS

Notes	Parameter	Before burn-in	After burn-in	Unit
	Nominal size	7		[inch.]
	Nominal impedance	8		[ohm]
	Recommended max. upper frequency limit	600		[Hz]
1, 3	Sensitivity, 2.83V/1m (calculated from T/S parameters)	85		[dB]
2	Power handling, short term, IEC 268-5, no additional filtering			[W]
2	Power handling, long term, IEC 268-5, no additional filtering			[W]
2	Power handling, continuous, IEC 268-5, no additional filtering	100		[W]
	Effective radiating area, $S_d$	131		[cm <sup>2</sup> ]
3, 6	Resonance frequency (free air, no baffle), $F_s$	38	36	[Hz]
	Moving mass, incl. air (free air, no baffle), $M_{ms}$	35		[g]
3	Force factor, $B_{xl}$	12.0		[N/A]
3, 6	Suspension compliance, $C_{ms}$	0.50	0.56	[mm/N]
3, 6	Equivalent air volume, $V_{as}$	12.2	13.6	[lit.]
3, 6	Mechanical Q, $Q_{ms}$	19.3	18.4	[-]
3, 6	Electrical Q, $Q_{es}$	0.37	0.35	[-]
3, 6	Total Q, $Q_{ts}$	0.365	0.346	[-]
4	Voice coil resistance, $R_{DC}$	6.4		[ohm]
5	Voice coil inductance, $L_e$ (measured at 1 kHz)	2.2		[mH]
	Voice coil inside diameter	39		[mm]
	Voice coil winding height	16		[mm]
	Air gap height	6		[mm]
	Magnet weight	680		[g]
	Total unit net weight excl. packaging	1.81		[kg]
3, 5	$K_{rm}$			[mohm]
3, 5	$E_{rm}$			[-]
3, 5	$K_{xm}$			[mH]
3, 5	$E_{xm}$			[-]

Note 1 Measured in infinite baffle.

Note 2 Tested in free air (no cabinet).

Note 3 Measured using a semi-constant current source, nominal level 2 mA.

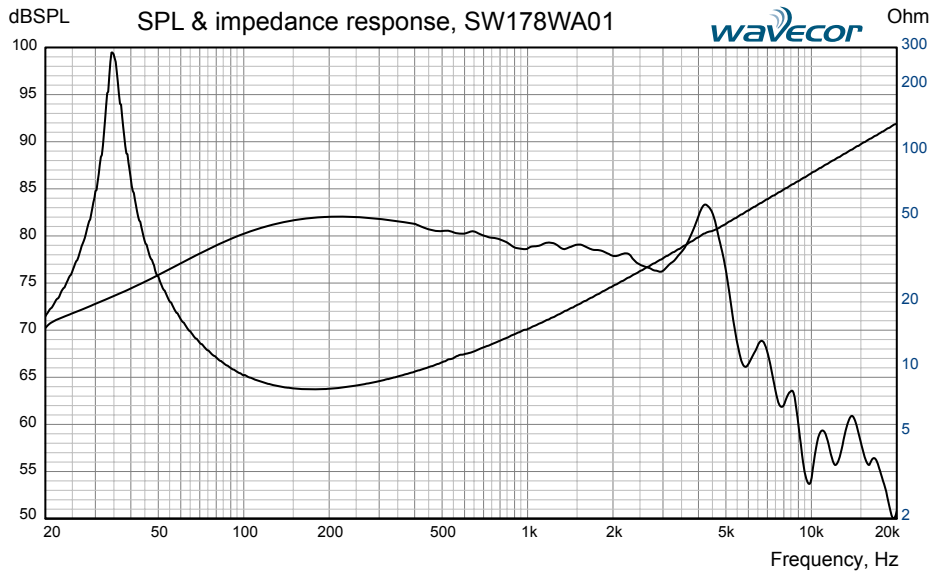
Note 4 Measured at 25 deg. C

Note 5 It is generally a rough simplification to assume that loudspeaker transducer voice coils exhibit the characteristics of an inductor. Instead it is a far more accurate approach to use the more advanced model often referred to as the "Wright empirical model", also used in LEAP-4 as the TSL model ([www.linearx.com](http://www.linearx.com)), involving parameters  $K_{rm}$ ,  $E_{rm}$ ,  $K_{xm}$ , and  $E_{xm}$ . This more accurate transducer model is described in a technical paper [here at our web site](#).

Note 6 After burn-in specifications are measured 12 hours after exiting the transducer by a 20 Hz sine wave for 2 hours at level 14.1 VRMS. The unit is not burned in before shipping.

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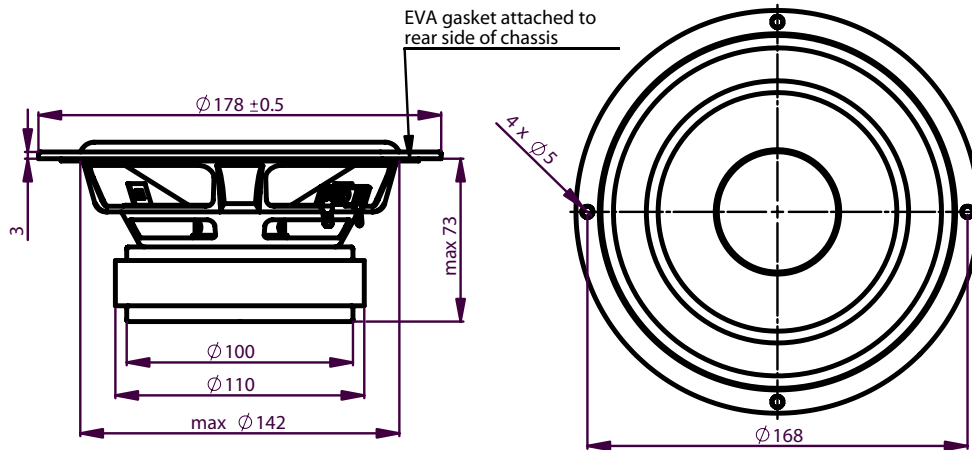
Measuring conditions, SPL

Driver mounting: Flush in infinite baffle, back side open (no cabinet)  
 Microphone distance: 1.0 m  
 Input signal: 2.83 VRMS stepped sine wave  
 Smoothing: 1/6 oct.

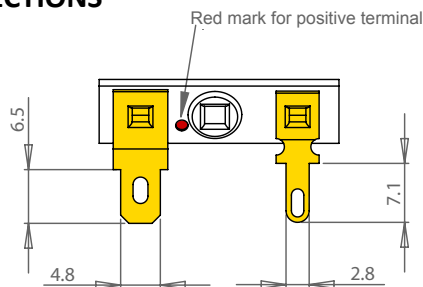
Measuring conditions, impedance

Driver mounting: Free air, no baffle, back side open (no cabinet)  
 Input signal: Stepped sine wave, semi-current-drive, nominal current 2 mA  
 Smoothing: None

### OUTLINE DRAWING (nominal dimensions, mm)



### CONNECTIONS



Thickness, both terminals: 0.5 mm  
 Terminal plating: Gold

### PACKAGING AND ORDERING INFORMATION

Part no. SW178WA01-01	Individual packaging (one piece per box)
Part no. SW178WA01-02	Bulk packaging

Latest update: July 5, 2012