

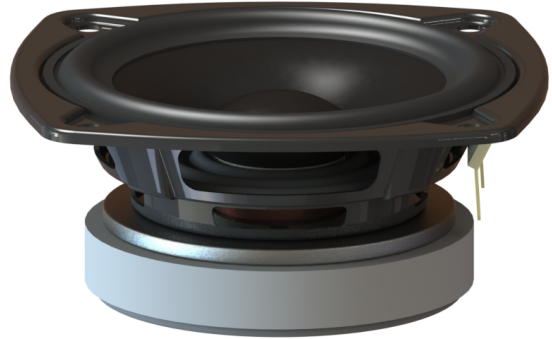
SPECIFICATIONS

WF090WA01/02 3½” paper cone mid/woofer, 4/8 ohm

The 3½” transducers WF090WA01 (4 ohm) and WF090WA02 (8 ohm) were designed especially for high quality multimedia and lifestyle speakers, where small size is required while still obtaining sound reproduction without compromises.

FEATURES

- Vented voice coil former for reduced distortion and compression
- Vented chassis for lower air flow speed reducing audible distortion
- Voice coil wound with Copper Clad Aluminium Wire for higher efficiency and better dynamics
- Heavy-duty black fiber glass voice coil bobbin to increase power handling and reduce mechanical losses resulting in better dynamic performance and low-level details
- Low-loss suspension (high Qm) for better reproduction of details and dynamics
- Black magnet parts for better heat transfer to increase power handling
- Progressive suspension with specially designed CONEX damper (spider) for long durability under extreme operating conditions
- Gold plated terminals to prevent oxidation for long-term reliable connection
- Delivered with foam gasket attached for hassle-free mounting and secure cabinet sealing



NOMINAL SPECIFICATIONS

Notes	Parameter	WF090WA01		WF090WA02		Unit
		Before burn-in	After burn-in	Before burn-in	After burn-in	
	Nominal size	3½		3½		[inch.]
	Nominal impedance	4		8		[ohm]
	Recommended max. upper frequency limit	5		5		[kHz]
1, 5	Sensitivity, 2.83V/1m (average SPL in range 400 - 6,000 Hz)	86.5		84		[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					[W]
	Effective radiating area, Sd	36		36		[cm ²]
3, 5, 7	Resonance frequency (free air, no baffle), F _s	115	109	117	110	[Hz]
	Moving mass, incl. air (free air, no baffle), M _{ms}	3.45		3.35		[g]
3	Force factor, B _{xl}	2.9		3.5		[N/A]
3, 5, 7	Suspension compliance, C _{ms}	0.55	0.62	0.55	0.62	[mm/N]
3, 5, 7	Equivalent air volume, V _{as}	1.02	1.14	1.02	1.14	[lit.]
3, 5, 7	Mechanical resistance, R _{ms}	0.39	0.39	0.39	0.39	[Ns/m]
3, 5, 7	Mechanical Q, Q _{ms}	6.4	6.1	6.3	6.0	[-]
3, 5, 7	Electrical Q, Q _{es}	0.92	0.87	1.11	1.04	[-]
3, 5, 7	Total Q, Q _{ts}	0.81	0.76	0.94	0.89	[-]
4	Voice coil resistance, R _{DC}	3.1		5.5		[ohm]
6	Voice coil inductance, L _e (measured at 10 kHz)	0.14		0.22		[mH]
	Voice coil inside diameter	22		22		[mm]
	Voice coil winding height	8.5		8.5		[mm]
	Air gap height	3		3		[mm]
	Theoretical linear motor stroke, X _{max}	±2.75		±2.75		[mm]
	Magnet weight (dual neodymium)	135		135		[g]
	Total unit net weight excl. packaging	0.34		0.34		[kg]
3, 6	K _{rm}					[mohm]
3, 6	E _{rm}					[-]
3, 6	K _{xm}					[mH]
3, 6	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 20 deg. C

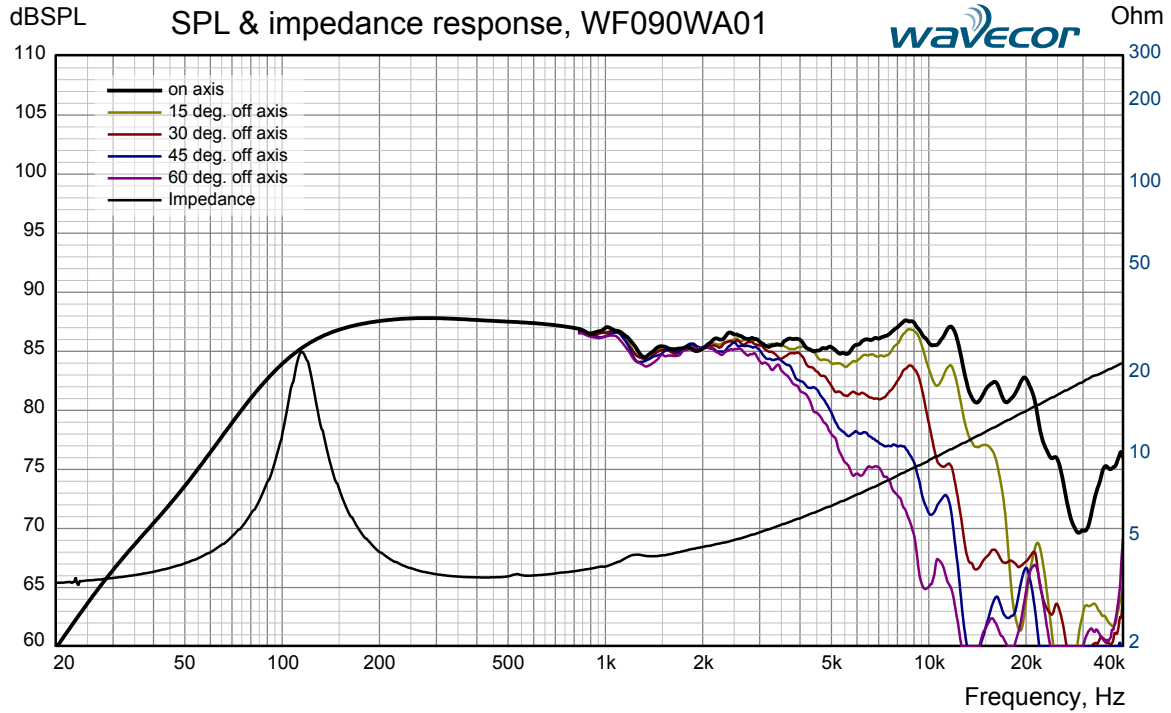
Note 5 Measured at 25 deg. C

Note 6 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), 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 7 After burn-in specifications are measured at least 12 hours after exiting the transducer by a 20 Hz sine wave for 2 hours at level 2.83/4.0 V_{RMS} (4/8 ohm version). Units are not burned in before shipping.

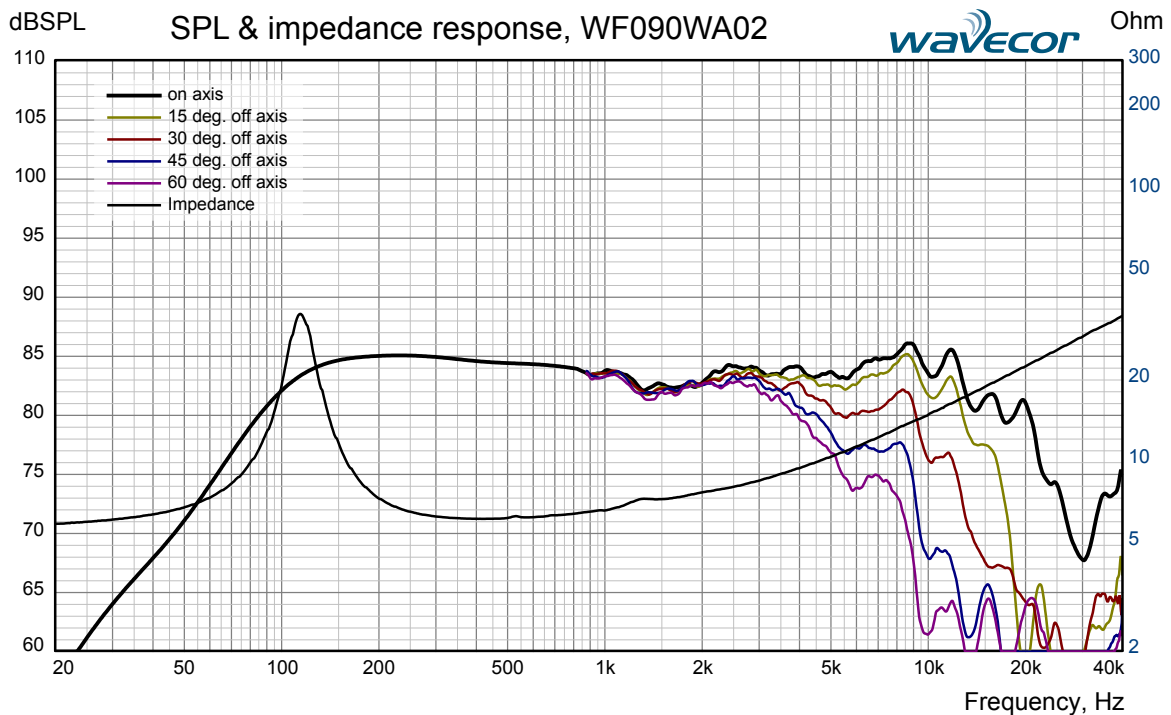
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Measuring conditions, SPL
 Driver mounting: Flush in infinite baffle, back side open (no cabinet)
 Microphone distance: 1.0 m
 Input level: 2.83 VRMS
 Smoothing: 1/6 oct.

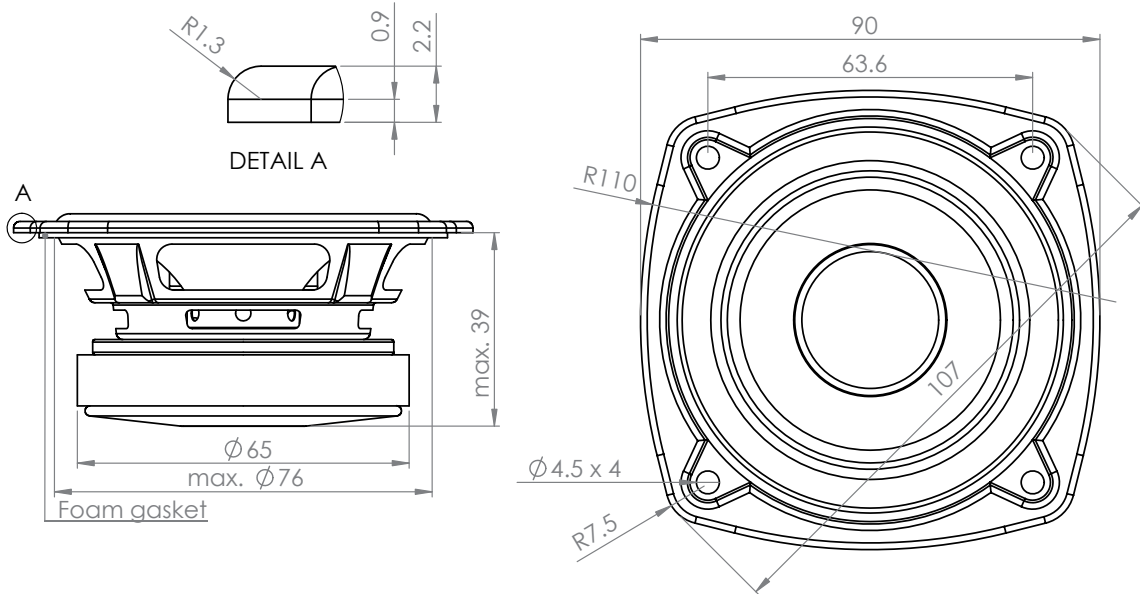
Measuring conditions, impedance
 Driver mounting: Free air, no baffle, back side open (no cabinet)
 Input signal: Semi-current-drive, nominal current 2 mA
 Smoothing: None



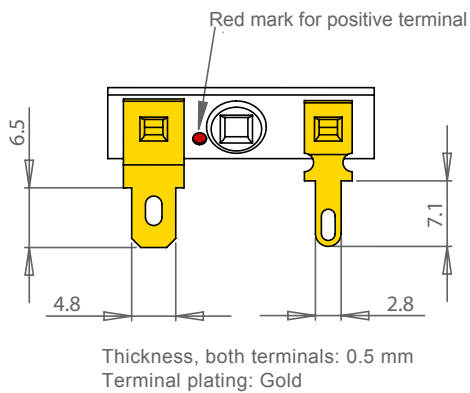
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OUTLINE DRAWING (nominal dimensions, mm)



CONNECTIONS (nominal dimensions, mm)



PACKAGING AND ORDERING INFORMATION

Part no. WF090WA01-01	4 ohm version, packaged individually (one piece per box)
Part no. WF090WA01-02	4 ohm version, bulk packaging
Part no. WF090WA02-01	8 ohm version, packaged individually (one piece per box)
Part no. WF090WA02-02	8 ohm version, bulk packaging

Latest update: October 9, 2011