SPECIFICATIONS

WF120BD05/06/09/10 4¾" die cast, paper/glass fiber mid/woofers, 4/8 ohm

The 4¾" transducers WF120BD05/WF120BD09 (4 ohm) and WF120BD06/WF120BD10 (8 ohm) were designed as high performance bass and midrange units for very compact monitors and high-end hi-fi speakers.
The only difference between WF120BD05 and WF120BD09 is the shape of the mounting flange of the frames. WF120BD06 and WF120BD10 differ in the same way.

Above: WF120BD05, WF120BD06
Below: WF120BD09, WF120BD10

FEATURES

- Balanced Drive motor structure for optimal drive force symmetry resulting in largely reduced even order harmonic distortion
- Copper cap on center pole to reduce voice coil inductance and to minimize variations in voice coil inductance as a function of voice coil position
- Cone made of a new paper/glass fiber mix with improved consistency and stability
- Rigid die cast alu chassis with extensive venting for lower air flow speed reducing audible distortion
- Vented voice coil former for reduced distortion and compression
- Vented center pole with dual flares for reduced noise level at large cone excursions
- Heavy-duty black fiber glass voice coil former to reduce mechanical losses resulting in better dynamic performance and low-level details
- Large motor with 1¼" voice coil diameter for better control and power handling
- Built-in alu field-stabilizing ring for reduced distortion at high levels
- Low-loss suspension (high Qm) for better reproduction of details and dynamics
- Black motor parts for better heat transfer to the surrounding air
- Conex spider for better durability under extreme conditions
- Gold plated terminals to ensure long-term trouble free connection

NOMINAL SPECIFICATIONS

Notes	Parameter	WF120BD05 WF120BD09		WF120BD06 WF120BD10		Unit
		Before burn-in	After burn-in	Before burn-in	After burn-in	
	Nominal size	4¾		4¾		[inch.]
	Nominal impedance	4		8		[ohm]
	Recommended max. upper frequency limit	3.5		3.5		[kHz]
1, 4	Sensitivity, 2.83V/1m (average SPL in range 300 - 1,000 Hz)	87		84		[dB]
2, 4	Power handling, short term, IEC 268-5, no additional filtering					[W]
2, 4	Power handling, long term, IEC 268-5, no additional filtering					[W]
2, 4	Power handling, continuous, IEC 268-5, no additional filtering	60		60		[W]
	Effective radiating area, S_d	54		54		[cm²]
3, 4, 6	Resonance frequency (free air, no baffle), F_S	52	48	54	50	[Hz]
	Moving mass, incl. air (free air, no baffle), M_{MS}	7.3		6.7		[g]
3	Force factor, Bxl	4.1		5.2		[N/A]
3, 4, 6	Suspension compliance, C_{MS}	1.29	1.50	1.29	1.50	[mm/N]
3, 4, 6	Equivalent air volume, V_{AS}	5.3	6.2	5.3	6.2	[lit.]
3, 4, 6	Mechanical resistance, R_{MS}	0.30	0.30	0.30	0.30	[Ns/m]
3, 6	Mechanical Q, Q_{MS}	7.9	7.4	7.6	7.0	[-]
3, 4, 6	Electrical Q, Q_{ES}	0.45	0.42	0.54	0.50	[-]
3, 4, 6	Total Q, Q_{TS}	0.43	0.40	0.50	0.47	[-]
4	Voice coil resistance, R_{DC}	3.2		6.4		[ohm]
5	Voice coil inductance, L_e (measured at 10 kHz)	0.087		0.16		[mH]
	Voice coil inside diameter	32		32		[mm]
	Voice coil winding height	12		12		[mm]
	Air gap height	4		4		[mm]
	Theoretical linear motor stroke, Xmax	±4		±4		[mm]
	Magnet weight	370		370		[g]
	Total unit net weight excl. packaging	1.0		1.0		[kg]
3, 4, 5	K_{rm}	40		109		[mohm]
3, 4, 5	E_{rm}	0.39		0.35		[-]
3, 4, 5	K_{xm}	61		145		[mH]
3, 4, 5	E_{xm}	0.32		0.27		[-]

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), 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 7.75/11 V_{RMS} (4/8 ohm version). The unit is not burned in before shipping.

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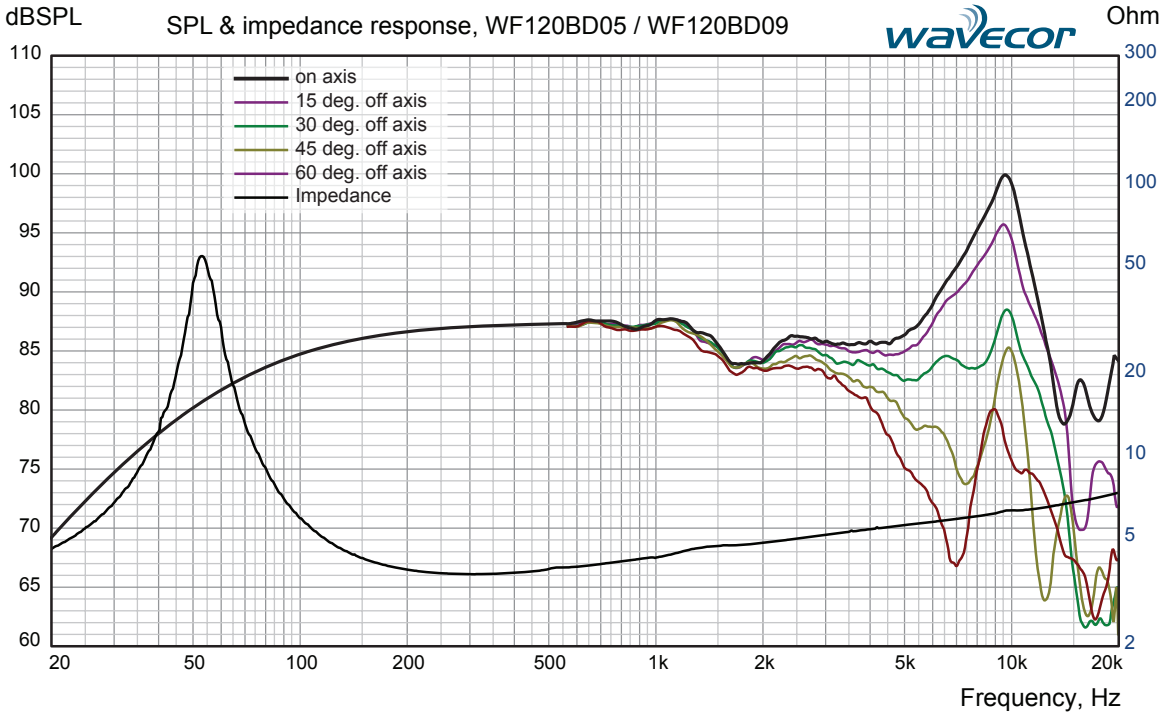
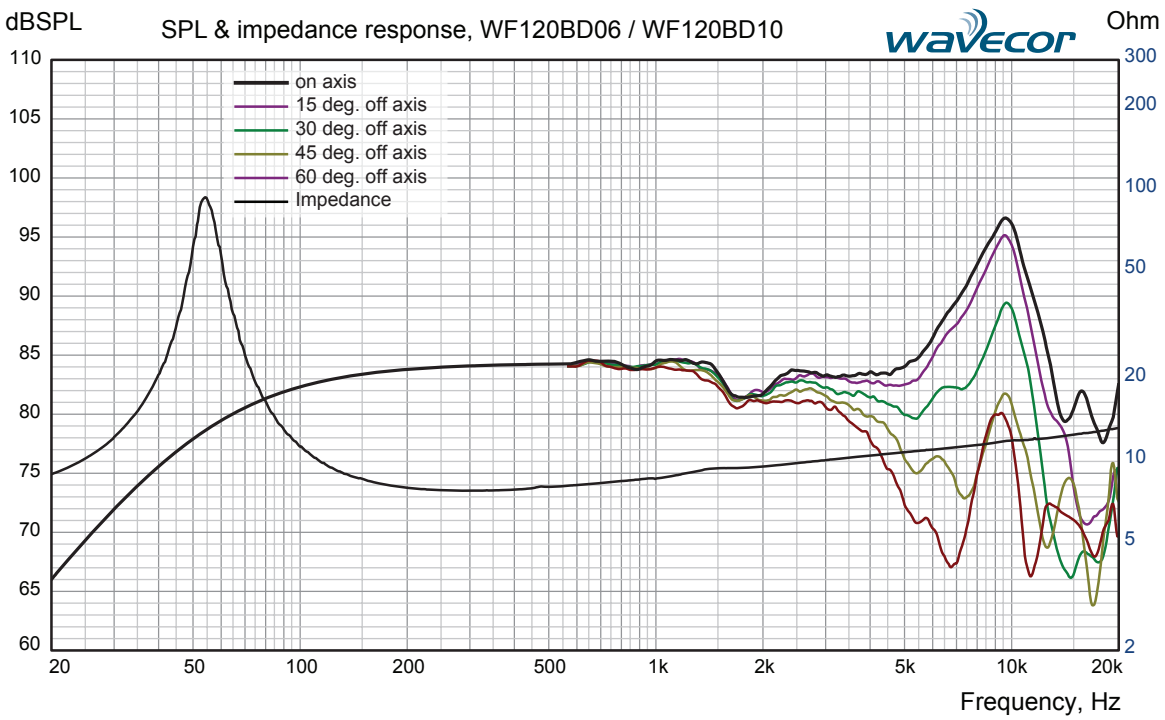


Measuring conditions, SPL
Driver mounting: Flush in infinite baffle, back side open (no cabinet)
Microphone distance: 1.0 m
Input signal: 2.83 VRMS stepped sine wave
Smoothing: 1/6 oct.

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



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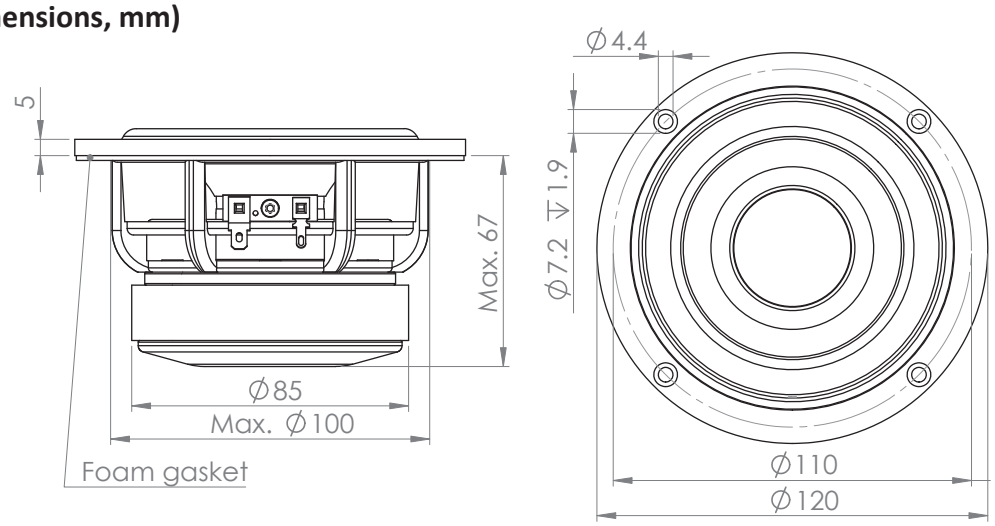
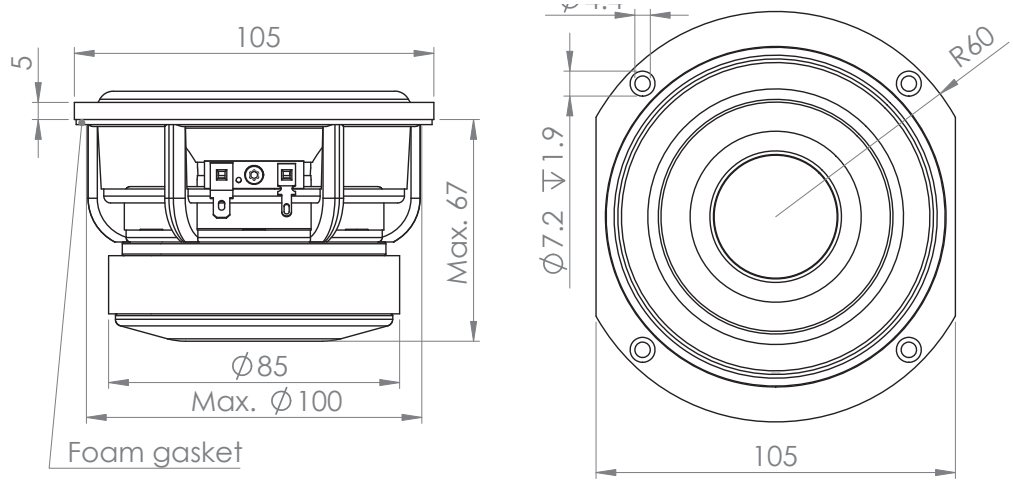
OUTLINE DRAWING
(nominal dimensions, mm)

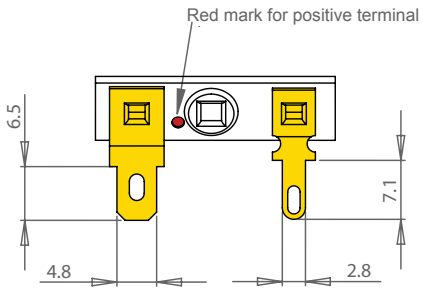
WF120BD05,
WF120BD06



WF120BD09,
WF120BD10



CONNECTIONS



Thickness, both terminals: 0.5 mm
Terminal plating: Gold

PACKAGING AND ORDERING INFORMATION

Part no. WF120BD05-01	4 ohm version, round, individual packaging (one piece per box)
Part no. WF120BD05-02	4 ohm version, round, bulk packaging
Part no. WF120BD06-01	8 ohm version, round, individual packaging (one piece per box)
Part no. WF120BD06-02	8 ohm version, round, bulk packaging
Part no. WF120BD09-01	4 ohm version, truncated, individual packaging (one piece per box)
Part no. WF120BD09-02	4 ohm version, truncated, bulk packaging
Part no. WF120BD10-01	8 ohm version, truncated, individual packaging (one piece per box)
Part no. WF120BD10-02	8 ohm version, truncated, bulk packaging

Latest update: August 15, 2014