

# SPECIFICATIONS

## WF223BD01/02 8¾" die cast, paper/glass fibre cone mid/woofers

The 8¾" transducers WF223BD01 (4 ohm) and WF223BD02 (8 ohm) were designed as high performance bass/midrange units for monitors and high-end hi-fi speakers. They offer outstanding deep bass performance and dynamic and detailed midrange.

Ideal for 3-way constructions they additionally offer designers the rare opportunity of working with 8" 2-way solutions if paired with a suitable tweeter like for instance some of the Wavecor 30 mm units.



### 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 and compressions 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 1½" 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 plated 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	WF223BD01		WF223BD02		Unit
		Before burn-in	After burn-in	Before burn-in	After burn-in	
	Nominal size	8¾		8¾		[inch.]
	Nominal impedance	4		8		[ohm]
	Recommended max. upper frequency limit	2		2		[kHz]
1, 3	Sensitivity, 2.83V/1m	89.5		86.5		[dB]
2	Power handling, short term, IEC 268-5, no additional filtering	1,200		1,200		[W]
2	Power handling, long term, IEC 268-5, no additional filtering	300		300		[W]
2	Power handling, continuous, IEC 268-5, no additional filtering	150		150		[W]
	Effective radiating area, S <sub>d</sub>	213		213		[cm <sup>2</sup> ]
3, 6	Resonance frequency (free air, no baffle), F <sub>s</sub>	32.6		33.1		[Hz]
	Moving mass, incl. air (free air, no baffle), M <sub>ms</sub>	34		33		[g]
3	Force factor, B <sub>xl</sub>	7.7		9.5		[N/A]
3, 6	Suspension compliance, C <sub>ms</sub>	0.70		0.70		[mm/N]
3, 6	Equivalent air volume, V <sub>as</sub>	45		45		[lit.]
3, 6	Mechanical resistance, R <sub>ms</sub>	0.48		0.48		[Ns/m]
3, 6	Mechanical Q, Q <sub>ms</sub>	14.5		14.3		[-]
3, 6	Electrical Q, Q <sub>es</sub>	0.40		0.47		[-]
3, 6	Total Q, Q <sub>ts</sub>	0.39		0.46		[-]
4	Voice coil resistance, R <sub>DC</sub>	3.4		6.2		[ohm]
5	Voice coil inductance, L <sub>e</sub> (measured at 1 kHz)	0.13		0.20		[mH]
	Voice coil inside diameter	39		39		[mm]
	Voice coil winding height	18		18		[mm]
	Air gap height	5		5		[mm]
	Theoretical linear motor stroke, X <sub>max</sub>	±6.5		±6.5		[mm]
	Magnet weight					[g]
	Total unit net weight excl. packaging	2.5		2.5		[kg]
3, 5	K <sub>rm</sub>					[mohm]
3, 5	E <sub>rm</sub>					[-]
3, 5	K <sub>xm</sub>					[mH]
3, 5	E <sub>xm</sub>					[-]

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.

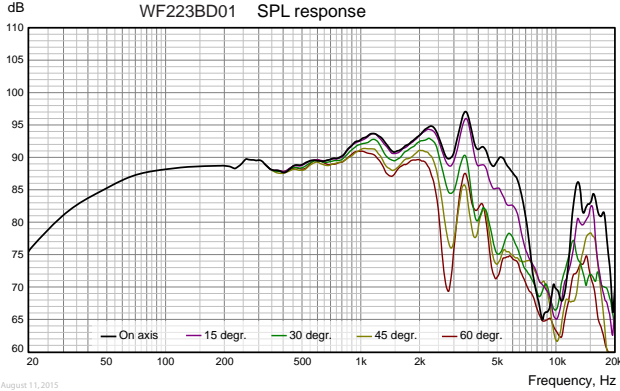
Note 4 Measured at 25 deg. C

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<sub>rm</sub>, E<sub>rm</sub>, K<sub>xm</sub>, and E<sub>xm</sub>. This more accurate transducer model is described in a technical paper [here at our web site](#).

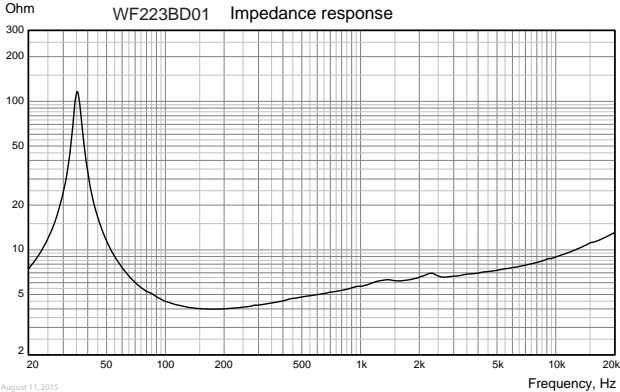
Note 6 After burn-in specifications are measured 12 hours after exiting the transducer by a 20 Hz sine wave for 2 hours at level 10/14.1 V<sub>RMS</sub> (4/8 ohm version). The unit is not burned in before shipping.

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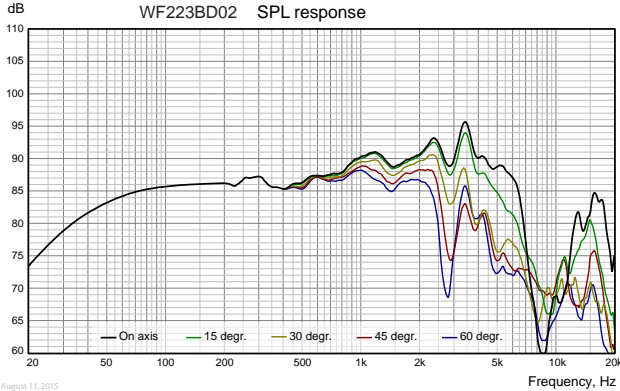
## WF223BD01/02 8¾" die cast, paper/glass fibre cone mid/woofers



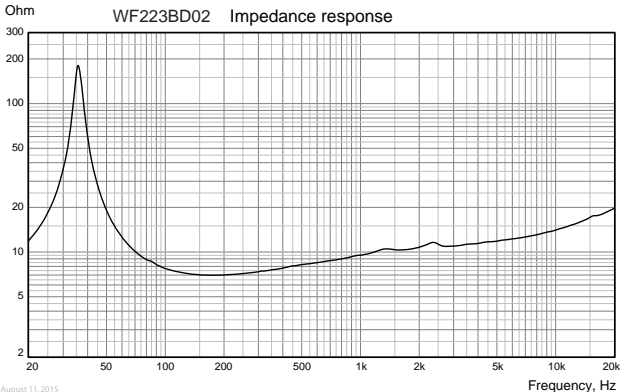
Measuring conditions, SPL  
 Driver mounting: Flush in infinite baffle, back side open (no cabinet)  
 Microphone distance: 1.0 m  
 Input signal: 2.83 VRMS stepped sine wave  
 Smoothing: 1/6 oct.



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



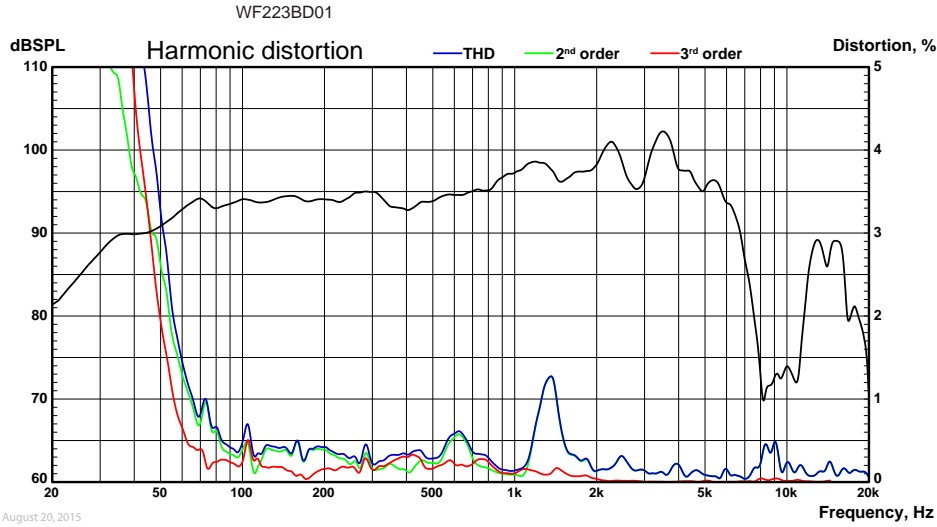
Measuring conditions, SPL  
 Driver mounting: Flush in infinite baffle, back side open (no cabinet)  
 Microphone distance: 1.0 m  
 Input signal: 2.83 VRMS stepped sine wave  
 Smoothing: 1/6 oct.



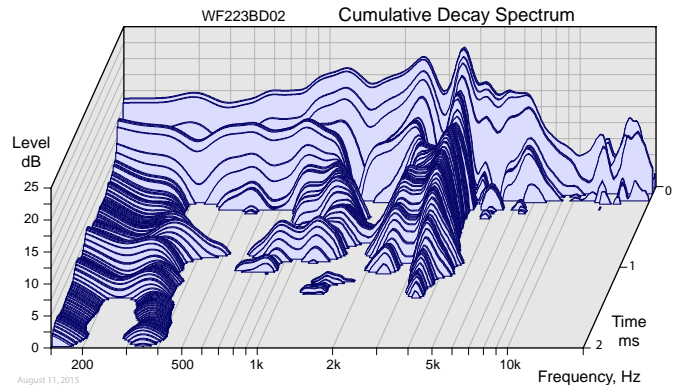
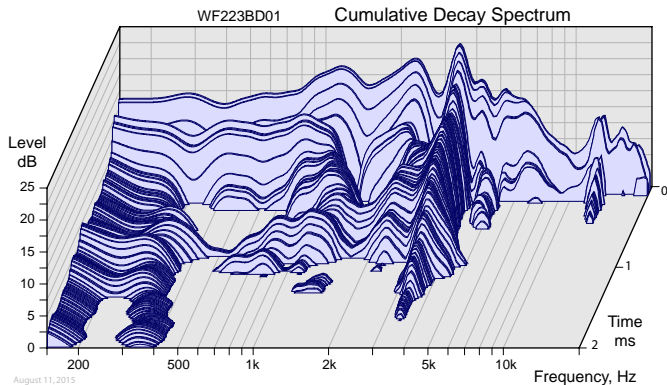
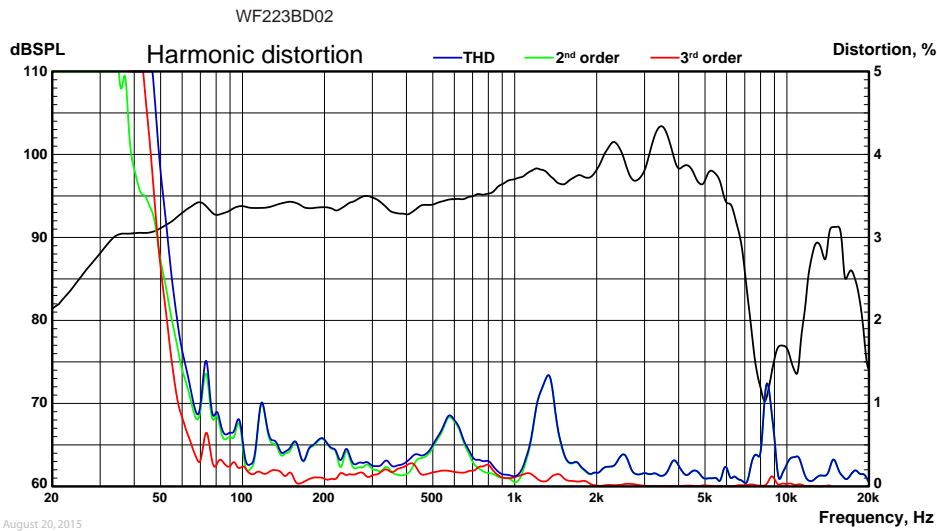
Measuring conditions, impedance  
 Driver mounting: Free air, no baffle, back side open (no cabinet)  
 Input signal: Stepped sine wave, semi-current-drive, nominal current 2 mA  
 Smoothing: None

# SPECIFICATIONS

## WF223BD01/02 8 3/4" die cast, paper/glass fibre cone mid/woofers



Measuring conditions, distortion  
 Driver mounting: Flush in infinite  
 baffle, back side open (no cabinet)  
 Input voltage adjusted to 94 dB SPL  
 Smoothing, SPL: 1/6 oct.

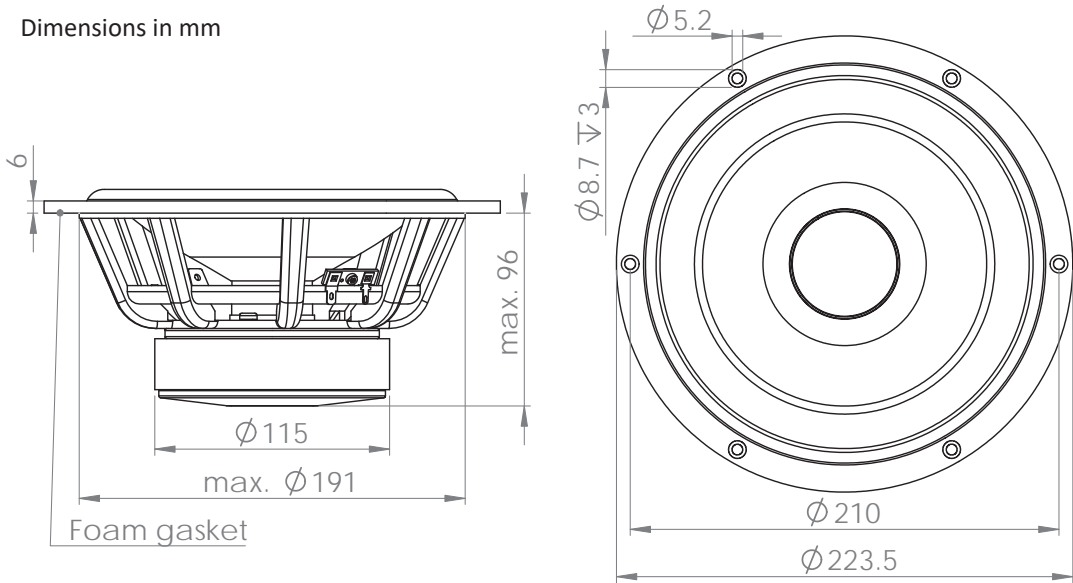


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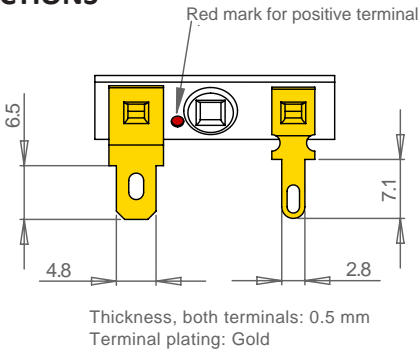
## WF223BD01/02 8¾" die cast, paper/glass fibre cone mid/woofers

### OUTLINE DRAWING (nominal dimensions)

Dimensions in mm



### CONNECTIONS



### PACKAGING AND ORDERING INFORMATION

Part no. WF223BD01-01	4 ohm version, individual packaging (one piece per box)
Part no. WF223BD02-01	8 ohm version, individual packaging (one piece per box)

Latest update: Apr. 19, 2018