SPECIFICATIONS

WF259PA01/02 10¼" die cast frame, paper cone PA mid/woofers, 4/8 ohm

The 10.25" transducers WF259PA01 (8 ohm) and WF259PA02 (4 ohm) were the first products by Wavecor dedicated for Public Address audio systems. They merge the well-known audiophile sound qualities of a typical Wavecor transducer with the common virtues of PA transducers with high sensitivity, high power handling, low distortion, and true-to-the-source sound reproduction.

FEATURES

- Balanced Drive motor structure for optimal drive force symmetry resulting in largely reduced even order harmonic distortion
- Alu shorting ring on center pole below and above air gap to reduce voice coil induction, reduce variation of voice coil induction as a function of voice coil position, and reduce flux variation induced by voice coil current. All with the purpose of reducing large-signal distortion
- Large motor with 3" voice coil diameter for better control and power handling
- Cone made of light and stiff paper formula for high efficiency and uncoloured sound
- 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 compression 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
- 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 long-term stability and better durability under extreme conditions

NOMINAL SPECIFICATIONS

Notes	Parameter	WF259PA02		WF259PA01		Unit
		Before burn-in	After burn-in	Before burn-in	After burn-in	
	Nominal size	10¼		10¼		[inch.]
	Nominal impedance	4		8		[ohm]
	Recommended max. upper frequency limit	2		2		[kHz]
1, 3	Sensitivity, 2.83V/1m (calculated from T/S parameters)	95		92.5		[dB]
2	Power handling, short term, IEC 268-5, no additional filtering	1,100		1,100		[W]
2	Power handling, long term, IEC 268-5, no additional filtering	450		450		[W]
2	Power handling, continuous, IEC 268-5, no additional filtering	300		300		[W]
	Effective radiating area, S_d	370		370		[cm²]
3, 6	Resonance frequency (free air, no baffle), F_S	54	52	55	53	[Hz]
	Moving mass, incl. air (free air, no baffle), M_{ms}	55		53		[g]
3	Force factor, Bxl	14.1		16.8		[N/A]
3, 6	Suspension compliance, C_{ms}	0.16	0.17	0.16	0.17	[mm/N]
3, 6	Equivalent air volume, V_{as}	31	33	31	33	[lit.]
3, 6	Mechanical resistance, R_{ms}	1.32	1.32	1.32	1.32	[Ns/m]
3, 6	Mechanical Q, Q_{ms}	14	13.6	13.8	13.4	[-]
3, 6	Electrical Q, Q_{es}	0.29	0.28	0.36	0.35	[-]
3, 6	Total Q, Q_{ts}	0.29	0.28	0.35	0.34	[-]
4	Voice coil resistance, R_{DC}	3.1		5.6		[ohm]
5	Voice coil inductance, L_e (measured at 1 kHz)					[mH]
	Voice coil inside diameter	76		76		[mm]
	Voice coil winding height	17		17		[mm]
	Air gap height	8		8		[mm]
	Theoretical linear motor stroke, Xmax	±4.5		±4.5		[mm]
	Magnet weight	2.75		2.75		[kg]
	Total unit net weight excl. packaging	7.3		7.3		[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), 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 17/29 VRMS (4/8 ohm version). The unit is not burned in before shipping.

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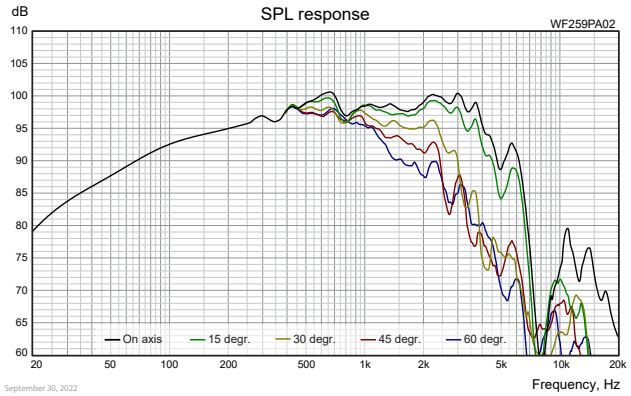
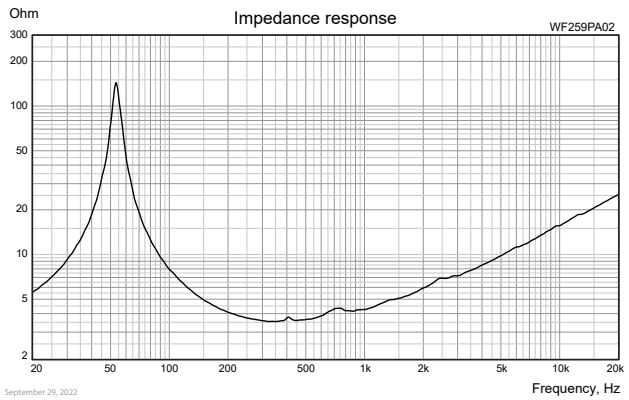


Important!

Please observe that graphs on the left side of this page and the below text files for download are actual measurements of the drivers measured in infinite baffle and without any enclosure. Measuring the drivers in a finite baffle (like the baffle of most speaker cabinets) and in any size of enclosure will lead to different response curves.

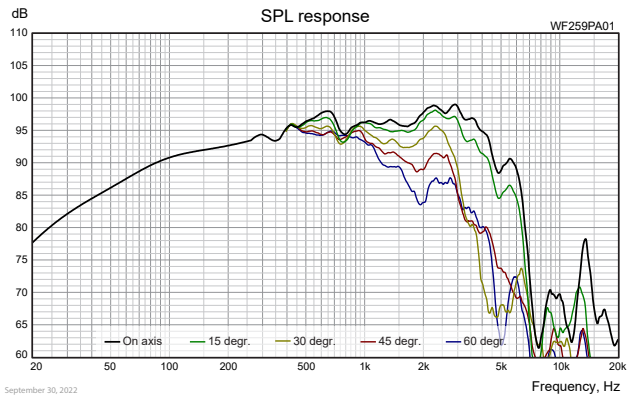
Download WF259PA02 on-axis SPL response as .txt file

Measuring conditions, SPL
Driver mounting: Flush in infinite baffle, back side open (no cabinet)
Microphone distance: 1.0 m
Input signal: 2.83 V_{RMS} LogChirp, 64k, Hanning/2
Smoothing: 1/6 oct.



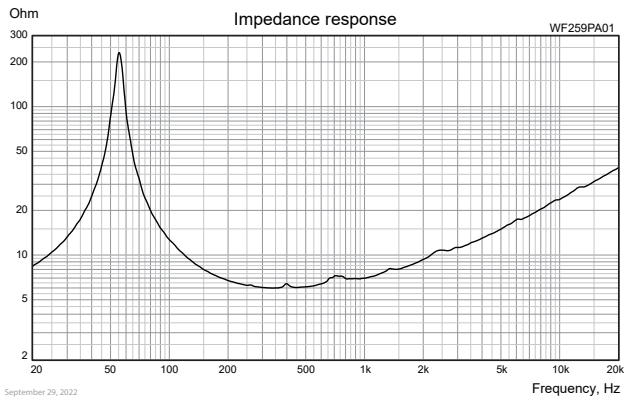
Download WF259PA02 Impedance response as .txt file

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



DownloadWF259PA01 on-axis SPL response as .txt file

Measuring conditions, SPL
Driver mounting: Flush in infinite baffle, back side open (no cabinet)
Microphone distance: 1.0 m
Input signal: 2.83 V_{RMS} LogChirp, 64k, Hanning/2
Smoothing: 1/6 oct.



Download WF259PA01 Impedance response as .txt file

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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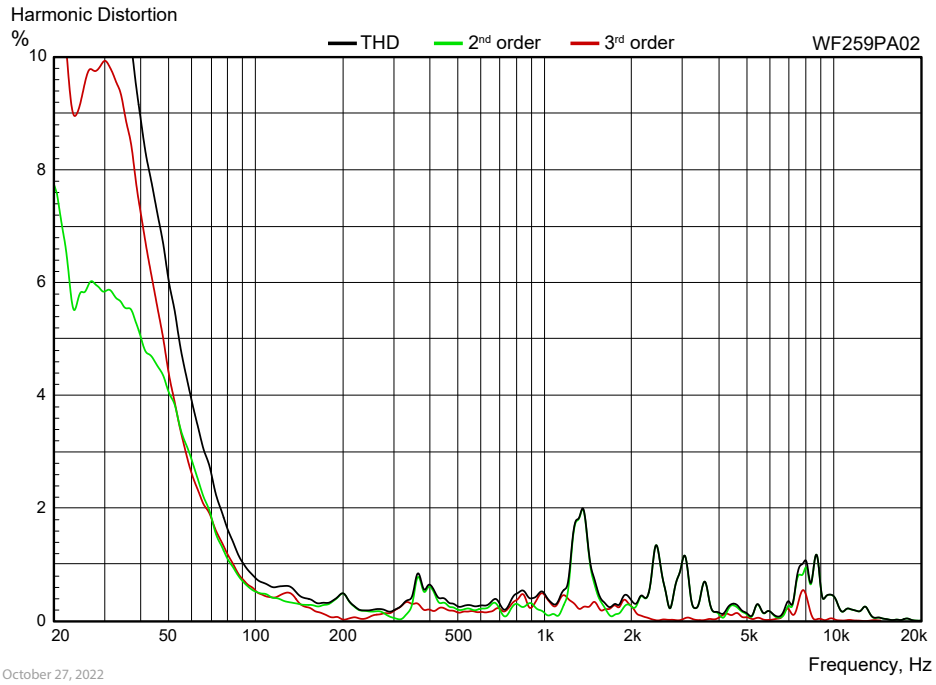
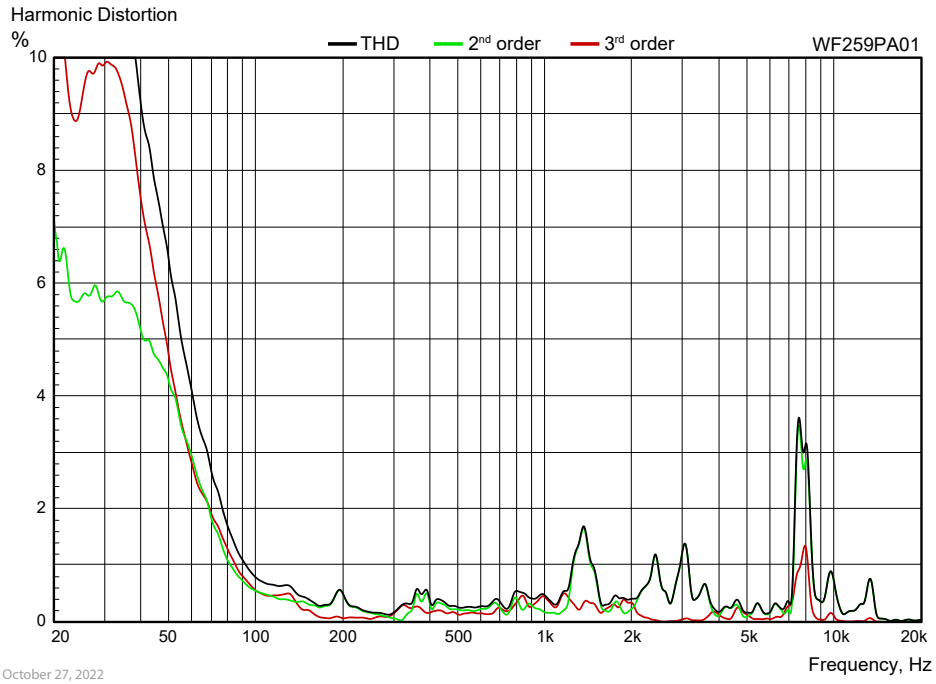


October 27, 2022

Measuring conditions, distortion
Driver mounting: Flush in infinite baffle, back side open (no cabinet)
Input voltage: 11 VRMS
Smoothing: 1/12 oct.



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Measuring conditions, distortion
Driver mounting: Flush in infinite baffle, back side open (no cabinet)
Input voltage: 13.3 VRMS
Smoothing: 1/12 oct.

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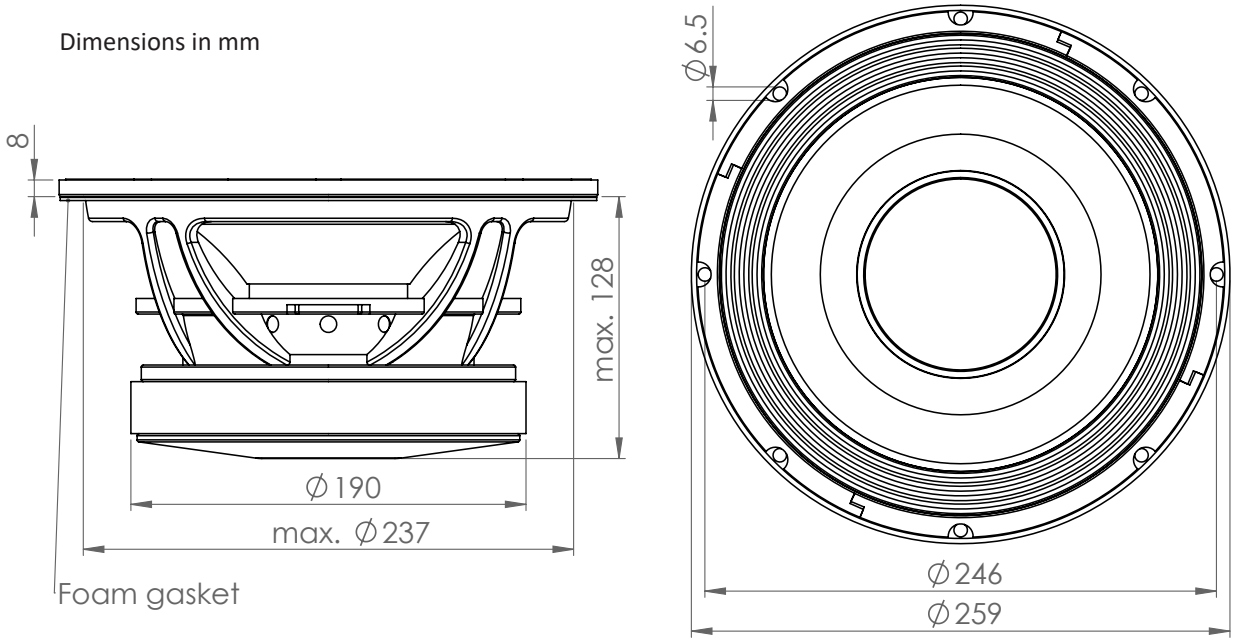
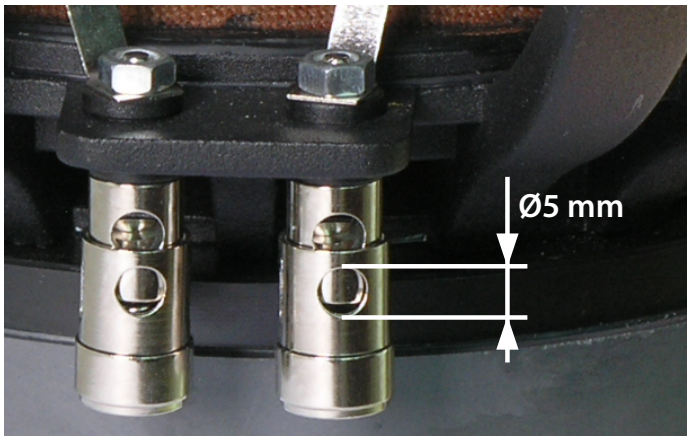
OUTLINE DRAWING (nominal dimensions)

Dimensions in mm



CONNECTIONS



PACKAGING AND ORDERING INFORMATION

Part no. WF259PA02-01	4 ohm version, individual packaging (one piece per box)
Part no. WF259PA01-01	8 ohm version, individual packaging (one piece per box)

Latest update: October 27, 2022