

# SPECIFICATIONS



## FR070WA03/04 2¾" alu cone fullrange, 4/8 ohm

The 2¾" transducers FR070WA03 (4 ohm) and FR070WA04 (8 ohm) were designed especially for high quality multimedia and lifestyle speakers, where sound reproduction without compromises is required.

### FEATURES

- True full-range design with on-axis output to beyond 25kHz
- 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
- Black anodized alu cone for better heat transfer
- Optimized off-axis response
- Vented polymer chassis for lower air flow speed reducing audible distortion
- Vented voice coil former for reduced distortion and compression
- Heavy-duty black fiber glass voice coil bobbin to reduce mechanical losses resulting in better dynamic performance and low-level details
- Large motor with 22 mm voice coil diameter for better control and power handling
- 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	FR070WA03		FR070WA04		Unit
		Before burn-in	After burn-in	Before burn-in	After burn-in	
	Nominal size	2¾		2¾		[inch.]
	Nominal impedance	4		8		[ohm]
	Recommended max. upper frequency limit	full range		full range		[kHz]
	Sensitivity, 2.83V/1m (average SPL in range 200 - 10,000 Hz)	86		83		[dB]
	Power handling, short term, IEC 268-5, no additional filtering					[W]
	Power handling, long term, IEC 268-5, no additional filtering					[W]
	Power handling, continuous, IEC 268-5, no additional filtering	10		10		[W]
	Effective radiating area, Sd	21		21		[cm <sup>2</sup> ]
	Resonance frequency (free air, no baffle), F <sub>s</sub>	121	114	124	117	[Hz]
	Moving mass, incl. air (free air, no baffle), M <sub>ms</sub>	2.0		1.9		[g]
	Force factor, Bxl	2.3		2.9		[N/A]
	Suspension compliance, C <sub>ms</sub>	0.87	0.97	0.87	0.97	[mm/N]
	Equivalent air volume, V <sub>as</sub>	0.54	0.61	0.54	0.61	[lit.]
	Mechanical resistance, R <sub>ms</sub>	0.11	0.11	0.11	0.11	[Ns/m]
	Mechanical Q, Q <sub>ms</sub>	13.8	13.1	13.4	12.7	[-]
	Electrical Q, Q <sub>es</sub>	0.99	0.94	1.13	1.07	[-]
	Total Q, Q <sub>ts</sub>	0.92	0.87	1.04	0.98	[-]
	Voice coil resistance, R <sub>DC</sub>	3.45		6.4		[ohm]
	Voice coil inductance, L <sub>e</sub> (measured at 10 kHz)	71		110		[μH]
	Voice coil inside diameter	22		22		[mm]
	Voice coil winding height	7		7		[mm]
	Air gap height	3		3		[mm]
	Magnet weight (dual neodymium)	115		115		[g]
	Total unit net weight excl. packaging	0.29		0.29		[kg]
	K <sub>rm</sub>					[mohm]
	E <sub>rm</sub>					[-]
	K <sub>xm</sub>					[mH]
	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 20 deg. C

Note 5 Measured at 25 deg. C

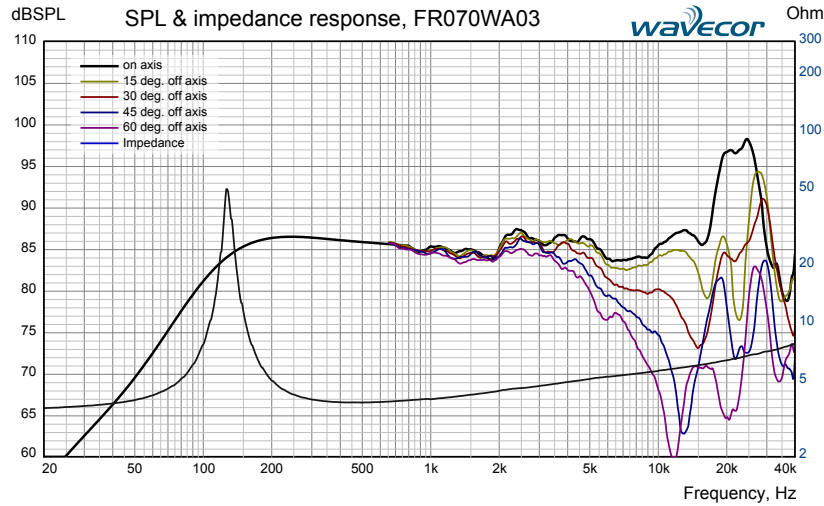
Note 6 It is generally a rough simplification to assume that loudspeaker transducer voice coils exhibit the characteristics of an inductor. Instead it is a far more accurate approach to use the more advanced model often referred to as the "Wright empirical model", also used in LEAP-4 as the TSL model ([www.linearx.com](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 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 VRMS (4/8 ohm version). Units are not burned in before shipping.

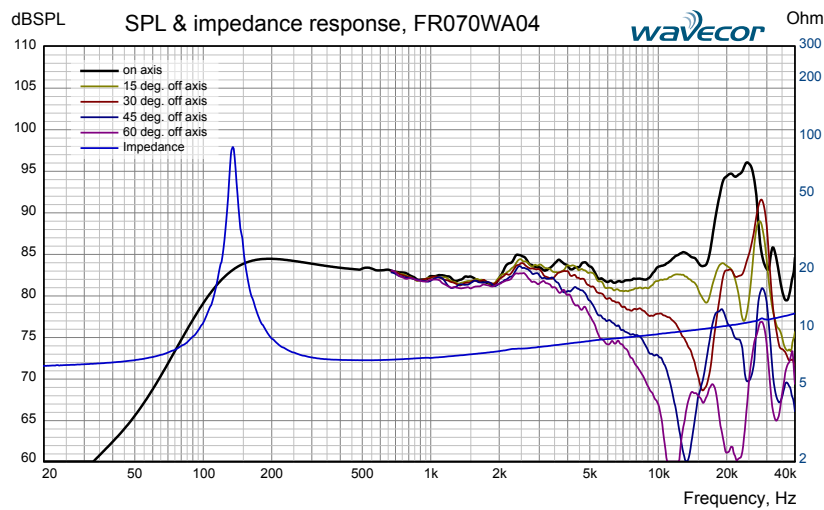
# SPECIFICATIONS



## FR070WA01/02 2 3/4" alu-cone fullranges, 4/8 ohm

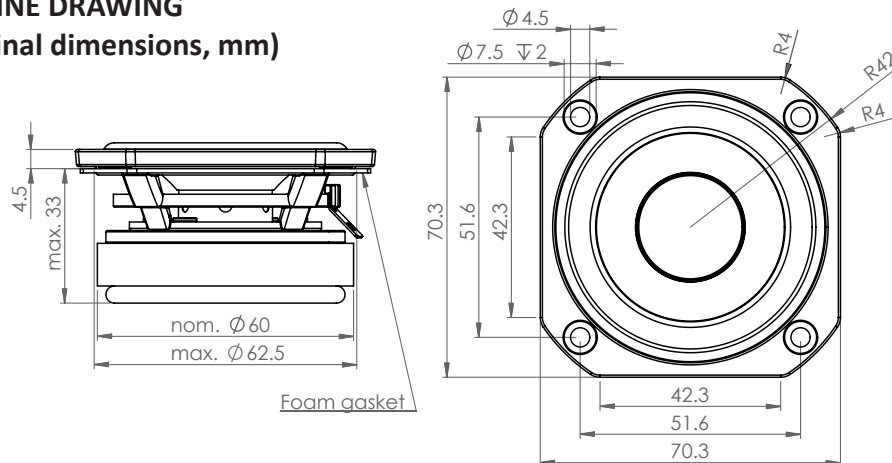


**Measuring conditions, SPL**  
 Driver mounting: Flush in infinite baffle, back side open (no cabinet)  
 Microphone distance: 1.0 m  
 Input level: 2.83 V<sub>RMS</sub>  
 Smoothing: 1/6 oct.



**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

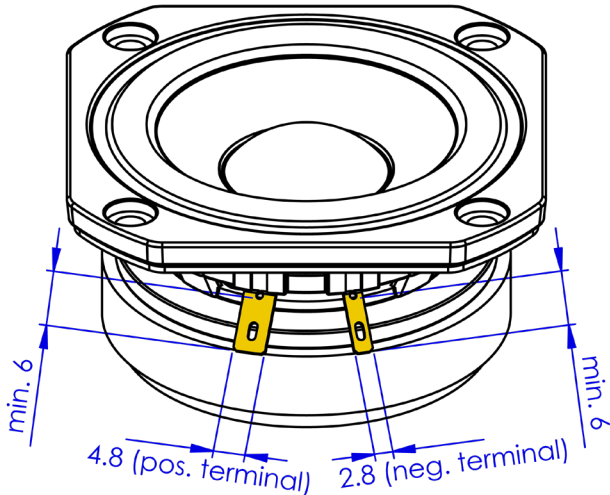
### OUTLINE DRAWING (nominal dimensions, mm)



# SPECIFICATIONS

**FR070WA03/04 2<sup>3/4</sup>" alu-cone fullranges, 4/8 ohm**

### TERMINAL NOMINAL DIMENSIONS (mm)



Both terminals gold plated

### PACKAGING AND ORDERING INFORMATION

Part no. FR070WA03-01	4 ohm version, packaged in pairs (two pieces per box)
Part no. FR070WA03-02	4 ohm version, bulk packaging
Part no. FR070WA04-01	8 ohm version, packaged in pairs (two pieces per box)
Part no. FR070WA04-02	8 ohm version, bulk packaging

Latest update: November 25, 2019