

# SPECIFICATIONS

## TW022WA02 22 mm neodymium textile tweeter, 4 ohm

TW022WA02 is a compact 22 mm neodymium tweeter for applications, where small size is important, while still requiring the highest level of performance.

### The best of two worlds?

The design with 22 mm voice coil and wide surround caters for both applications that would normally require traditional ¾" tweeters and those, where 1" tweeters would usually be preferred.

### Innovation

In order to keep distortion and resonance frequency low the TW022WA02 is designed around a small external neodymium ring magnet to allow for a larger internal volume than that of traditional neodymium tweeters.

There is a version of TW022WA02 without face plate available for manufacturers, for building the unit directly into the cabinet baffle. The part number of this version is TW022WA01 and the electrical/acoustical specifications are identical to that of TW022WA02. Please [contact us](#) for more information.



## FEATURES

- 22 mm design for optimal compromise between on- and off-axis frequency response, resonance frequency, and power handling
- External ring neodymium magnet for lower resonance frequency and distortion
- Precision-coated textile diaphragm for improved consistency and high-frequency extension
- Vented voice coil former for reduced distortion and compression
- Copper-clad aluminium voice coil wire offering lower moving mass for improved efficiency and transient response
- Build-in cavities under dome/edge to equalize pressure - for lower distortion and lower resonance frequency
- High-stability ferro fluid for increased power handling
- Flexible lead wires for higher power handling and larger excursion
- Gold plated terminals to prevent oxidation and ensure long-term reliable connection
- Delivered with foam gasket attached for hassle-free mounting and secure cabinet sealing

## NOMINAL SPECIFICATIONS

Notes	Parameter	Value	Unit
	Nominal size	22	[mm]
	Nominal impedance	4	[ohm]
	Recommended frequency range	2.5 - 30	[kHz]
1, 4	Sensitivity, 2.83V/1m (average SPL in range 2 - 20 kHz)	88.5	[dB]
2	Power handling, short term, IEC 268-5, kHz@12dB/oct.		[W]
2	Power handling, long term, IEC 268-5, kHz@12dB/oct.		[W]
2	Power handling, continuous, IEC 268-5, 2.5 kHz@12dB/oct.	30	[W]
	Effective radiating area, $S_d$	6.1	[cm <sup>2</sup> ]
3, 4, 6	Resonance frequency (free air, no baffle), $F_s$	1,150	[Hz]
	Moving mass, incl. air (free air, no baffle), $M_{ms}$	0.28	[g]
3	Force factor, $B_{xl}$	1.33	[N/A]
3, 4, 6	Suspension compliance, $C_{ms}$	68	[µm/N]
3, 4, 6	Equivalent air volume, $V_{as}$	3.6	[mlit.]
3, 4, 6	Mechanical resistance, $R_{ms}$	1.33	[Ns/m]
3, 4, 6	Mechanical Q, $Q_{ms}$	1.53	[-]
3, 4, 6	Electrical Q, $Q_{es}$	4.1	[-]
3, 4, 6	Total Q, $Q_{ts}$	1.11	[-]
4	Voice coil resistance, $R_{DC}$	3.6	[ohm]
5	Voice coil inductance, $L_e$ (measured at 20 kHz)	36	[µH]
	Voice coil inside diameter	22	[mm]
	Voice coil winding height	1.6	[mm]
	Air gap height	2.5	[mm]
	Theoretical linear motor stroke, $X_{max}$	±0.45	[mm]
	Magnet weight		[g]
	Total unit net weight excl. packaging	0.06	[kg]
3, 4, 5	$K_{rm}$	2.5	[µohm]
3, 4, 5	$E_{rm}$	1.14	[-]
3, 4, 5	$K_{xm}$	3.0	[mH]
3, 4, 5	$E_{xm}$	0.56	[-]

Note 1 Measured in infinite baffle.

Note 2 Tested in free air (no cabinet, no baffle).

Note 3 Measured using a semi-constant current source, nominal level 2 mA.

Note 4 Measured at 25 deg. C

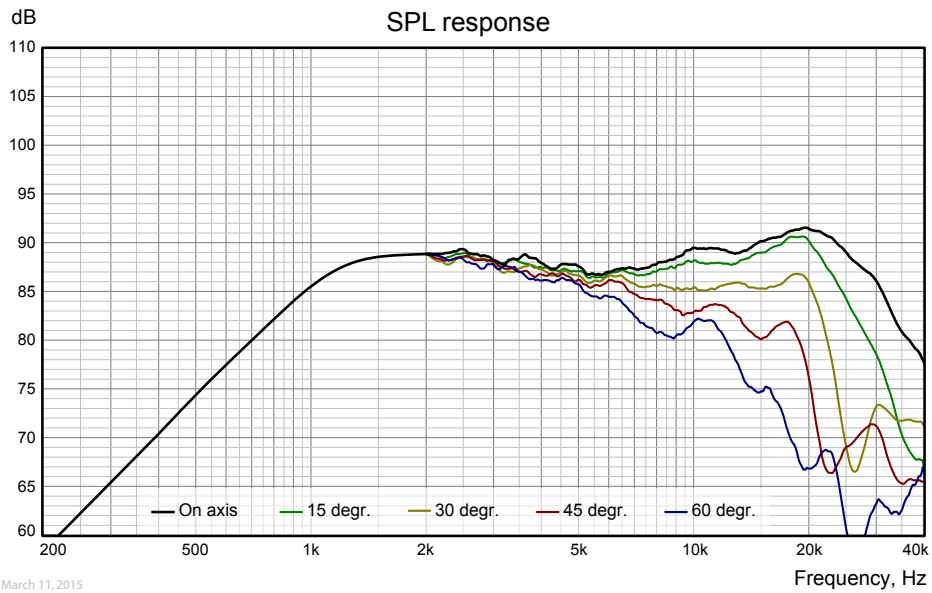
Note 5 It is generally a rough simplification to assume that loudspeaker transducer voice coils exhibit the characteristics of an inductor. Instead it is a far more accurate approach to use the more advanced model often referred to as the "Wright empirical model", also used in LEAP-4 as the TSL model ([www.linearx.com](http://www.linearx.com)), involving parameters  $K_{rm}$ ,  $E_{rm}$ ,  $K_{xm}$ , and  $E_{xm}$ . This more accurate transducer model is described in a technical paper [here at our web site](#).

Note 6 Measured before burn in. 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.



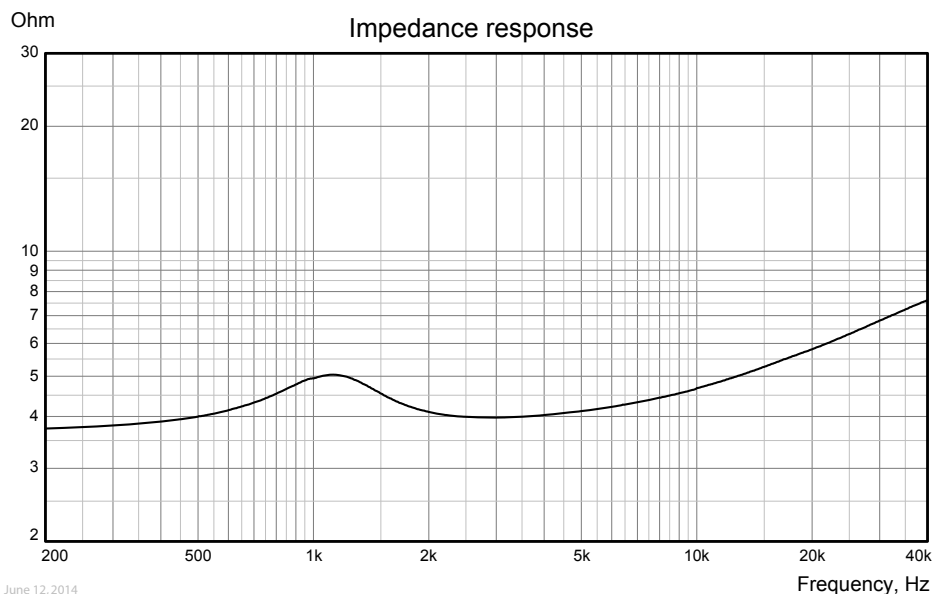
Download TW022WA02 on-axis SPL response as .txt file

### 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



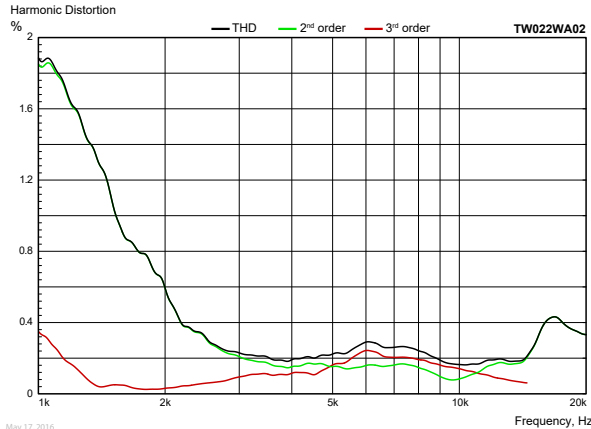
Download TW022WA02 impedance response as .txt file



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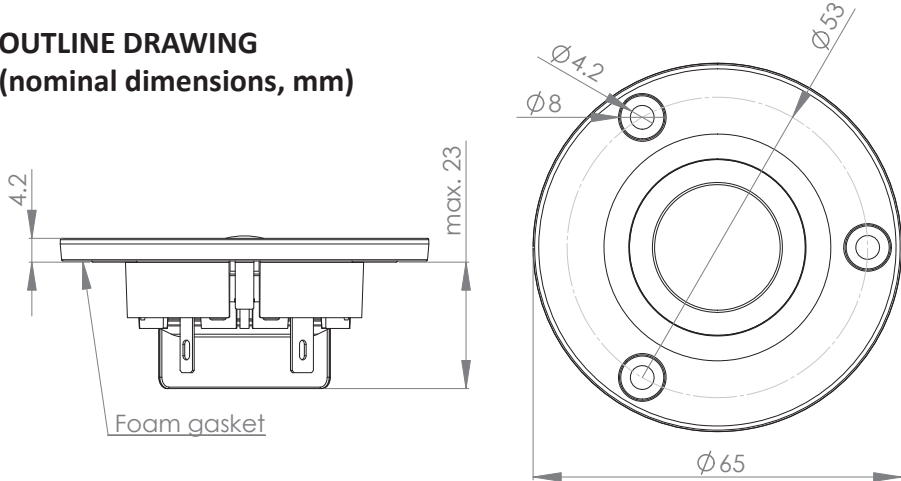
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### HARMONIC DISTORTION

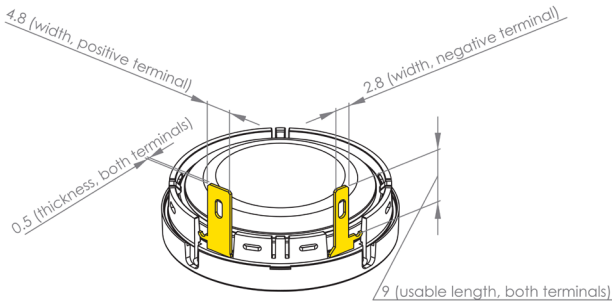


Measuring conditions, harmonic distortion  
 Driver mounting: In "infinite" baffle  
 Microphone distance: 0.5 m  
 Input signal: Stepped sine wave, 2.83 VRMS  
 Smoothing: 1/6 oct.

### OUTLINE DRAWING (nominal dimensions, mm)



### CONNECTIONS



### PACKAGING AND ORDERING INFORMATION

Part no. TW022WA02-01	Packed in pairs (two pieces per box)
Part no. TW022WA02-02	Bulk packaging

Latest update: Apr. 21, 2018