



# HH Humble Homemade Hifi

L' Orfeo Series Concert Series Tips and Tricks Components Services About us  
Concertante Concertino Concerto II Concert Sub



## Concerto II



The Concerto II is a very high-grade 2.5-way loudspeaker using two 15cm midwoofers centred above and below a 27mm dome tweeter in a so called MTM-configuration. The crossover-point between the top glass-fibre cone midwoofer and the soft-dome, wave-guide loaded tweeter is at 1600Hz. The bottom glass-fibre cone midwoofer is filtered out very gradually from 180Hz. The cabinet is a so called "Mass Loaded Tapered Quarter Wavelength Tube" or to put it short: ML-TQWT. Quite a long name for a rather simple and efficient enclosure. In principle it is a sort of reversed transmission-line in which the cross-section increases towards the end unlike the classic transmission-line that decreases. In this case the two midwoofers are placed at about 1/3 and 1/2 of the line - this helps reduce the amount of standing waves compared to a single woofer that is placed at the beginning of the line. The position of the drivers is also chosen so that the tweeter is exactly at ear-height (very important) and the remaining height is used for a separate compartment in the base for the crossover. This TQWT is terminated (mass-loaded) with a large 100mm diameter, low-noise, trumpet shaped opening.

The Concerto II is available as a very high-grade DIY loudspeaker kit. The kit is sold with all components except the cabinet and comes with the [Scanspeak 15W/8434G00](#) midwoofers, a special Seas 27mm Prestige soft-dome, ferrofluid free tweeter with double magnet and rear chamber, a [Visaton WG 148 R](#) wave-guide, Supra 5N internal-wiring, gold-plated bindingposts, Jantzen Audio damping felt, Intertechnik Sonofil-S damping material, Intertechnik Jet Set-100 ports, black mounting screws and a pre-assembled crossover that uses high-grade Mundorf and Jantzen Audio components. Furthermore WBT-0703-Cu Nextgen binding-posts are available as an option at a small surcharge. On our [download](#) page you will find free CAD-drawings of the cabinets.



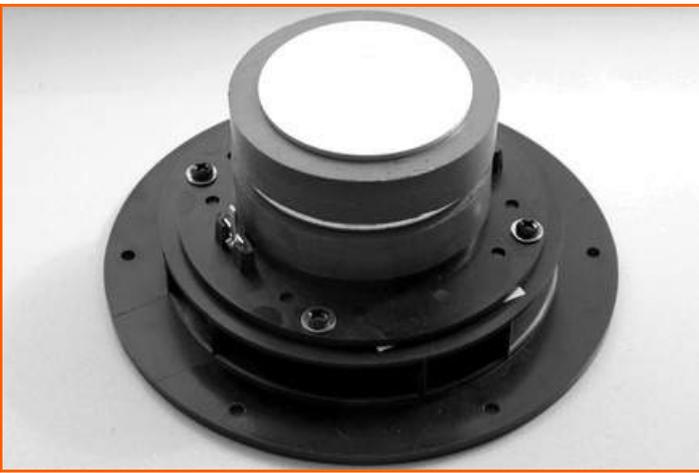


### Specifications

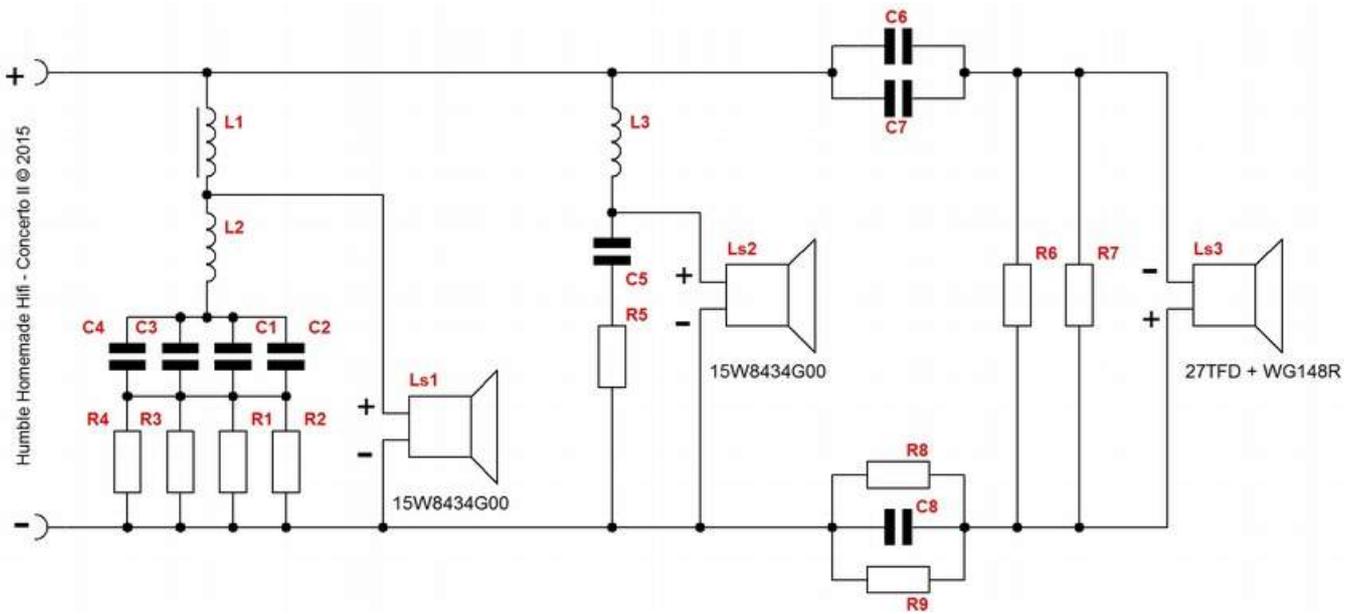
Sensitivity	87 dB / 2,83 volts
Impedance	4 ohms nominal
Frequency response	35 - 25.000 Hz (-3dB)
Dimensions (W x H x D)	200 x 1188 x 374 mm
Weight (finished product)	30 kg each
Price DIY loudspeaker kit (all parts except wood)	EUR. 495,- each (includes ready-made and tested crossover)

### The Concerto II in detail





The crossover is basically a very simple first-order parallel network. The low-pass function for the two midwoofers is formed by L1. Parallel to the woofers is an LCR-network that tames the cone break-up peak at 6kHz so that the midwoofers have a very constant and smooth roll-off. The high-pass function for the tweeter is done by capacitor C1. Furthermore the tweeter level is lowered to match that of the woofers by means of resistor R1. Notice that there is only a parallel resistor, no series resistor, meaning that there is just one single component in the tweeters direct signal-path! The tweeter also has a notch filter parallel to its terminals that flattens the impedance peak at its resonance frequency of 750Hz so that the first-order crossover works correctly, even way below the crossover-point. As you might know, I like to "cook" when designing a crossover. All the crossover components have therefore been chosen not only for tight production tolerances, high sonic and build quality but have also been selected for maximum synergy with each other and with the drivers used.



### Inductors

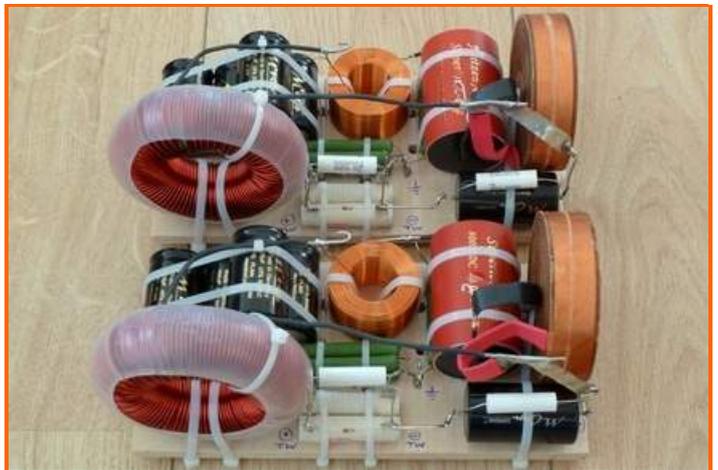
- L1 = Jantzen Audio 13AWG C-Coil toroidal core inductor
- L2 = Jantzen Audio baked varnish air-core / 0,70mm wire
- L3 = Jantzen Audio 16AWG Wax Coil copper foil / paper in beeswax

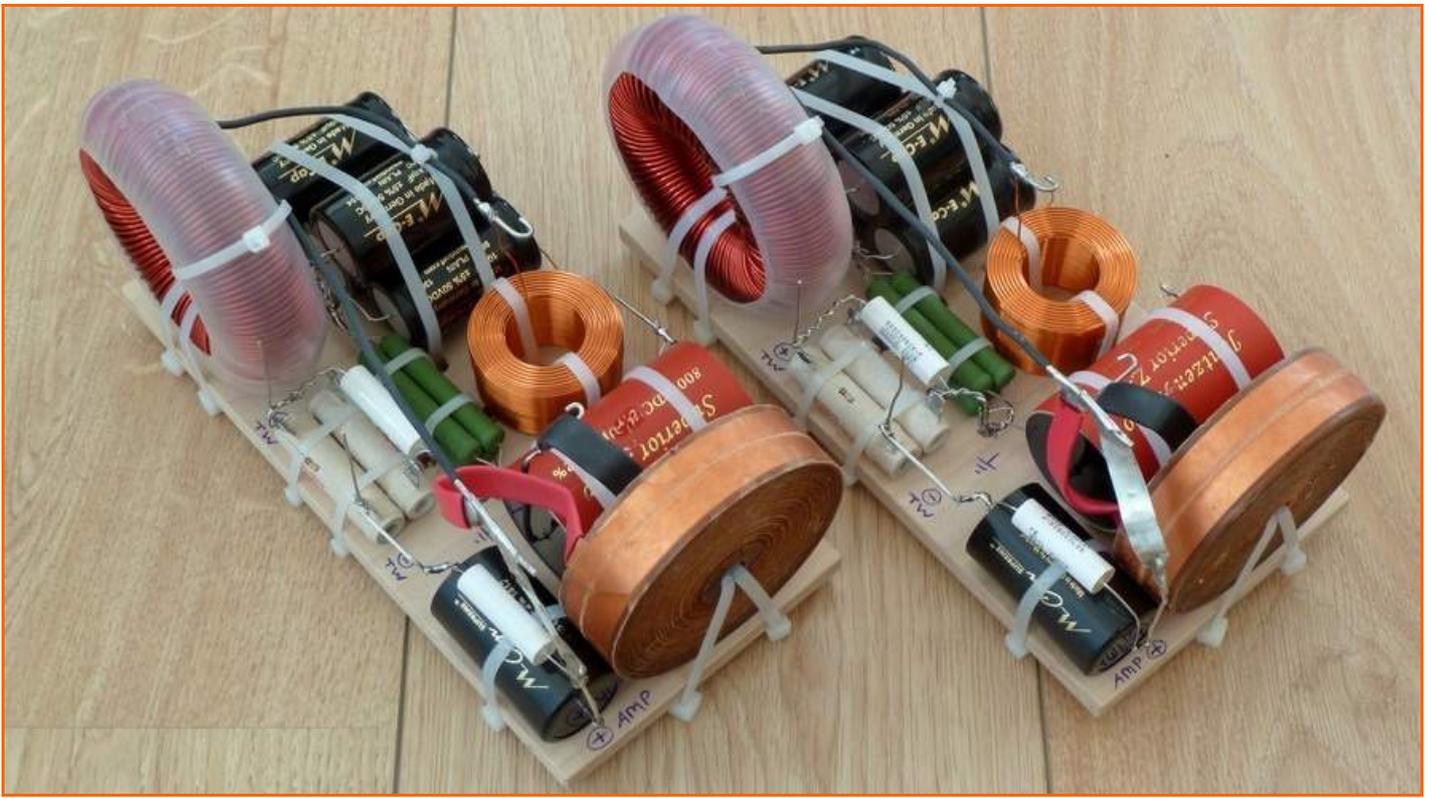
### Resistors

- R1 = Jantzen Audio Superes / 10 watts / 1%
- R2 = Jantzen Audio Superes / 10 watts / 1%
- R3 = Jantzen Audio Superes / 10 watts / 1%
- R4 = Jantzen Audio Superes / 10 watts / 1%
- R5 = Jantzen Audio Superes / 10 watts / 1%
- R6 = Mundorf M-Resist Supreme / 20 watts
- R7 = carbonfilm bypass resistor / 0,25 watts
- R8 = Mundorf M-Resist Supreme / 20 watts
- R9 = carbonfilm bypass resistor / 0,25 watts

### Capacitors

- C1 = Mundorf ECap plain / 50VDC
- C2 = Mundorf ECap plain / 50VDC
- C3 = Mundorf ECap plain / 50VDC
- C4 = Mundorf ECap plain / 50VDC
- C5 = Jantzen Audio Superior Z-Cap / 800VDC
- C6 = Mundorf MCap Supreme / 600VDC
- C7 = film & foil bypass capacitor / 3000VDC
- C8 = film & foil bypass capacitor / 3000VDC





Loudspeaker currently under development.



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