

PRESS RELEASE



High End Munich MOC 18 May 2017. FINKTEAM's Karl-Heinz Fink today confirmed, at a press conference, that the team was planning to make the new WM-4 loudspeaker a commercial reality.

From its humble beginnings as the WM-2, (nobody seems to know what happened to the WM-1) a working tool used for evaluation and as a design exercise, through to the WM-3, the Ken Ishiwata motivated finished system, that was demonstrated at last year's High End. Each outing and demonstration has increased the call and demand for the loudspeakers to be made available.

The WM-4 will be available in August/September at a price of €65,000 in a choice of wood finishes. As one would expect from a loudspeaker of this class, alternative finishes including piano gloss are possible at prices that reflect complexity.

FINKTEAM expect to support new owners of the WM-4 with significant advice on system matching, system optimisation and room acoustics. The team have listened in and measured hundreds of listening rooms and have the tools to evaluate, predict and advise for the best performance. A loudspeaker of the quality of the WM-4 deserves some TLC on installation even if it does weigh 135Kg.



Given the nature of the design team it's no surprise that it is a technical tour-de-force but the key objective was to combine accuracy and realism with fun. The team wanted to create a loudspeaker that was at home being a tool for evaluating system electronics as it was playing tunes from the 50s.

To achieve this two elements were critical: good signal to noise and low distortion. Aspects such as flat response wide dynamics, wide bandwidth and low colouration were just a given considering the design heritage.

Signal to Noise ratio

The ratio of enclosure surface area to drive unit radiating area is often huge and given the small movements and small size of all but bass drive units the enclosure panels in lesser designs can



move almost undetectably by eye or touch while producing a noise that is completely unwanted and significantly loud in relation to the drive unit output level. This noise detracts from the music and makes listening less enjoyable and less relaxing.

Once of the advantages of a loudspeaker in two cabinets is each can be optimised for the bandwidth it is supporting. In the case of the WM-4 the bass enclosure can be made stiff pushing any resonances significantly above the crossover point. Bracing can be dedicated to supporting the section of the panel needing it and not spreading energy where it is not wanted. The mid-high enclosure is constructed from multiple varying thicknesses of German precision MDF and damped with a very special material than converts kinetic energy to heat.

Low distortion

During the development process it became clear that low-distortion drive units and a quiet enclosure expose the fine details of crossover design and also the quality of the crossover components themselves. The improvements to the new FINKTEAM 15inch bass unit exposed the colourations introduced by silicon steel core inductors which had previously been found to be the best compromise between sound quality, price and mass. Now obviously in a loudspeaker design like the WM-4 the team were not focussed on price but mass does matter due to fitting securely and shipping considerations. The only primary inductor for the LF driver that delivered the performance necessary was the humongous Mundorf aircore which is approximately 150mm cubed.

Bass Drive Unit

There is a huge back story to the design of the FINKTEAM bass driver but to simplify it: Hi-fi woofers generally use half-roll rubber surrounds but the WM-4's is a triple-roll fabric type which, with the paper cone, gives it the appearance of a pro woofer. The difference is that the surround is co-optimised to the stiffness of the surround and spider (suspension) to achieve the linearity of a half-roll surround but without its high hysteresis. Subjectively this ensures 'quick', 'snappy' bass.



Flat Membrane Wide Dispersion Mid-Range Driver

Because the diaphragm is planar, the driver does not cause the diffraction effects that result when grazing radiation (sound travelling close to the baffle surface) encounters the cavity formed by a conventional cone diaphragm. This removes a distinctive coloration. The wide bandwidth allowed optimum choice of crossover frequencies and simplified crossover design.



HF Unit

The tweeter is an Air Motion Transformer (AMT) operating according to the principles developed by its inventor Oskar Heil. Developed and manufactured in-house by Mundorf with assistance from FINKTEAM, the AMT has a strong, 25µm-thick pleated Kapton diaphragm with 50µm aluminium strips. This material has extremely good internal damping, resulting in particularly low distortion. A special etching process was developed to produce it and the diaphragm configuration optimized through a large number of tests. This was chosen by FINKTEAM for its low distortion and dynamic ability combined with a beautifully clean sound that suited the objective of accurate and fun.

FINKTEAM

FINKTEAM products are designed combining the skills of the team to allow designs that deliver more than the sum of their parts. For more information on the team members and far more detail on the WM-4 please download the White Paper from www.finkteam.com

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Images from www.finkteam.com

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