



PRESS RELEASE

High End Munich MOC 10 May 2018. FinkTeam's Karl-Heinz Fink today confirmed, at a press conference, that the team had developed a new, more affordable, loudspeaker called Borg.

Borg is two-way floor standing design featuring a 10.25 inch high-power mid/bass driver and an Air Motion Transformer (AMT) tweeter will be available for sale in July at a cost of €24,000 a pair in the standard finishes.

Borg is a significant design exercise, as knitting a 10.25 inch mid/bass, albeit an extremely fine one, with a HF unit is never easy. To combine the two drivers to achieve a flat frequency response and, more importantly, a slow even mid/HF roll off in the power response is a significant feat of engineering. There is no off-axis hole in the middle effect.

MID/BASS UNIT

As one would expect the mid-bass driver of Borg is custom designed and manufactured exactly for the purpose.

10.25 inch mid/bass units are relatively unusual and crossing them well to HF units is not trivial but FinkTeam is relatively unusual: a technical challenge is just a design exercise that may take a little longer to solve. The benefits of a 10.25 inch mid/bass once heard are difficult to forget. A level of dynamics and naturalness around voices that is unusual and a richness to the sound without bloom or boom (in a well-designed system) that just sounds right. Smaller 2-way systems sound anaemic after hearing a '10 incher'.

The Borg's mid/bass unit features similar thinking to the WM-4's bass driver: low hysteresis surround (it too looks like a pro driver), a large three-inch voice coil for better control and power handling and a light stiff paper cone.

Of course, it includes all the normal FinkTeam design essentials: an aluminium shorting ring on the centre pole to reduce voice coil inductance change with position and to reduce flux variation as a function of voice coil current.

The die-cast aluminium chassis is fully vented for low air speed, as is the voice coil former, both reducing distortion and compression. All this brings a dynamic low-coloration drive unit with high power handling and very low thermal compression.



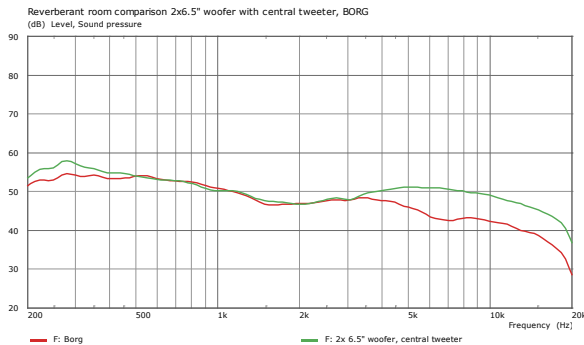


HF Unit

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.

Crossover

As can be seen from the power response curve, the drive to the room is totally even, reducing slowly with frequency. Comparing this with a classic modern 2-way which shows some of the uneven room drive. The crossover is 4th order acoustic Linkwitz-Riley with a time delay addition between LF and HF.



At the same time the impedance of Borg has not been compromised to gain false sensitivity. At 87dB at 1m for 2.83V and with relatively gentle phase angles, it is an easy load for an amplifier.

Power response measured in a all echoic chamber of Borg and a modern two-way MTM speaker

Flexibility of response

Even the best loudspeaker design needs some help in a difficult room. FinkTeam understand that we can't all have totally treated listening rooms with ideal reverberation times and controlled bass.

To help with this there are controls on the rear of Borg allowing some subtle settings of response

Damping:

Allows a degree of adaptation to suit different amplifier damping factors.

Mid:

With the mid position, the position of the virtual stage can be changed from back behind the speakers to closer to the listener. It can also compensate for more or less lively rooms.



Presence:

The presence control will mostly be used to adapt to amplifier or source characteristics. A softer amp or cable would need a plus setting, a somewhat brighter setup should have a minus setting. This setting can be also be combined with the mid setting to adjust for room characteristics.

High:

Changes the tweeter level slightly for general balance adjustments and to compensate for rooms.

Cabinet

Typical loudspeaker cabinets have pronounced structural resonances which are very audible and reduce the speaker's 'signal-to-noise ratio'. At FinkTeam we take this aspect of loudspeaker performance very seriously because we know that a quiet cabinet allows the reproduction of low-level detail in a recording which is otherwise swamped by spurious cabinet output. Coloration and time smear are reduced, stereo image focus is improved, and listener fatigue avoided.



The design emphasis is on panel damping. It is impossible to force all the panel bending resonances above the passband so instead they are damped to reduce their amplitude to below audibility. This is achieved using a multilayer construction that combines multi-thickness MDF panels with a damping layer whose internal friction converts vibration into heat. FinkTeam developed algorithms help specify ideal material thicknesses to achieve the best results, but the ultimate determination is made by subjective assessment.

Enthusiasts spend thousands buying quieter equipment - products that seem to generate (or not in fact) more space between notes to ultimately have the effect considerably reduced by noisy loudspeaker cabinets. FinkTeam's COMSOL modelling and Laser Scanning allow prediction and measurement of the results of cabinet designs.

An example of this was the cabinet opening to mount the 10.25 inch mid/bass driver. Even with the drivers rigidly mounted there was some unwanted vibration. Almost invisible to the touch test it was obvious under the laser scanner. A solid metal ring behind the driver mounting solved the problem and hence increased the signal to noise ratio.



Distortion

Besides linearity and signal-to-noise the other key parameter the FinkTeam fight for is low distortion.

Low distortion just makes it easier to listen for longer and for instruments to sound more natural.

Compare brass instruments live to that reproduced by the average hi-fi system and to a system with low distortion and it's clear that low distortion is far more natural.

Summary

Borg is designed as a more domestic friendly loudspeaker than the WM-4. Borg's low frequency tuning is designed to deliver weight and drama to music but without making it a total diva when it comes to room positioning.

For more information contact

Images from www.finkteam.com

A Borg White Paper will be available in July at the same time as review samples

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About FinkTeam

For those of you who don't know FinkTeam, it is 'what it says in the name'. A team of talented experts in their respective fields who decided, with Karl-Heinz Fink as their head, to create a brand and to design products that they wished to. Their day jobs, in general, are as specialists working for Fink Audio Consulting, Europe's leading acoustical consultancy.

FinkTeam products are designed combining the skills of the team to allow designs that deliver more than the sum of their parts.

Their first commercial product was the WM-4 – a behemoth of a speaker – designed initially as a reference. The WM-4 allowed them to hear small differences in set up/optimization, of other products they were designing, that would have been missed on less revealing loudspeakers.

For more information on the team members and more detail on Borg and WM-4 visit

www.finkteam.com