



M40.1 – HARBETH'S MOST EXCITING LOUDSPEAKER, EVER



Designer with prototype in BBC chamber

EVERY Harbeth loudspeaker is the result of the most rigorous research and development. The Monitor 40.1 is no exception.

It began life in 1990 as a design to replace the famous BBC LS5/8, but using the latest technology based on Harbeth's unbeatable RADIAL™ cone material.

Worldwide hit

The Monitor 40 was an instant hit with broadcasters, and soon became a hi-fi legend around the world too, as more and more discerning consumers couldn't resist its huge box-less soundstage drawing them into

Intense development of the new speaker



the heart of the music. Technology advances with time. During ten years of making the original M40, Harbeth has researched and developed its own 12-inch bass unit. At the same time, the opportunity has been taken to upgrade the midrange driver to RADIAL™2. These two new units are at the heart of the M40.1, and allow it to be used in a wider range of domestic settings.

Another winner

Before creating a new Harbeth, designer Alan Shaw sets himself clear objectives – in this case to build on the clarity and involvement of the M40.

"Our customers' expectations for the new M40.1 were very high even before I began work on its design", says Alan. "This is why I invested over 18 months of intensive effort to guarantee we have another winner!"

The first step was the design of the new 12-inch bass unit, as the whole design pivots around the LF performance which determines sensitivity and room interaction – both critical for home listening.

Having perfected that, attention turned to a detailed analysis of the reasons why the original studio M40 worked so well in the home, too.

"It's really interesting that, for a 100-litre cabinet, the on

and off-axis responses were so extremely smooth", adds Shaw. "This creates the illusion of a cavernous soundstage, pinpoint imaging underpinned by a solid, warm bass. This is why these BBC-sized designs outperform trendy tower speakers, even in the home."

Perfectly at home

The Harbeth sound flows from the large and exclusive ultra-pure RADIAL™2 midrange unit, in the middle of the traditional baffle, below the tweeter.

The world-class tweeter is upgraded from the one found in the M40, and sports a new open-weave grille.

"I have seamlessly blended these superb drive units with a brand new crossover", explains the designer. "The M40.1 is really easy to drive and works with even modest amplifiers." ◀



M40.1 - HISTORY, PEDIGREE AND DEVELOPMENT



DESIGNING a three-way loudspeaker, such as the M40.1, is much more complicated than a traditional two-way model.

It is a multi-dimensional problem – blending the three drive units for their optimum sonic characteristics, on-axis (see above); tuning the cabinet for a smooth bass response; and maintaining an easy load for the amplifier. In addition, to create the illusion of a curtain of sound, the on and off-axis responses have to be profiled to simulate what one would hear moving

around in the concert hall or recording studio. This is where most loudspeakers fail.

Harbeth have been using loudspeaker development simulators for nearly 20 years. As with all computer systems, they require very accurate data from a precision microphone (pictured) but can present a 3D representation of how the speaker will drive the room. This allows the designer to explore limitless permutations of crossover design until the best overall room response is achieved, and is limited only by his imagination and specification.

Previous generations of speaker designers would have worked from an assortment of components which they had to solder and de-solder in a pseudo-random way until they struck upon a passable performance. This is the way some designers still choose to work today.

However, the simulator method used by Harbeth guarantees that for any given combination of drive units, cabinet, and crossover all options have been considered in favour of the best possible sound. Even this approach required two-man years of development time to produce the M40.1 ◀



MODERN loudspeaker development systems produce pretty graphs at the touch of a button. But this is a long way from creating a speaker which sounds 'right' in the typical domestic listening room. The way the ear interprets two loudspeakers filling a room with sound is a wholly different experience from what we would perceive at a concert. The real skill in speaker design is to give priority to the ear over the test equipment. This demands a very high degree of self confidence to move away from the rigid adherence to rule- flat lines and hard technical results ◀

Taking vital domestic room measurements



KEY IMPROVEMENTS OVER ORIGINAL M.40

- + Increased clarity in mid and top
- + Improved bass response in typical rooms
- + Much easier amplifier load
- + Simplification of crossover
- + Superb on/off-axis response
- + Enhanced image height
- + 3D soundstage depth and width

- + Heavier cabinet damping
- + New generation RADIAL™ midrange driver
- + New 12-in Harbeth bass unit
- + Improved tweeter with open-weave grille (pictured below)
- + Redesigned and simplified crossover
- + High efficiency crossover circuit
- + Gold-plated PCB

- + Single wiring for simplified connection
- + OFC cable
- + Long-life circuit components
- + Low distortion crossover coils
- + Ultra-smooth frequency response
- + Perfectly integrated drive units
- + Widened listening window
- + SuperWide™ stereo separation



www.harbeth.co.uk

Harbeth Audio Ltd,
3 Enterprise Park, Lindfield,
West Sussex RH16 2LH England
0870 803 4788 sound@harbeth.co.uk

Harbeth®