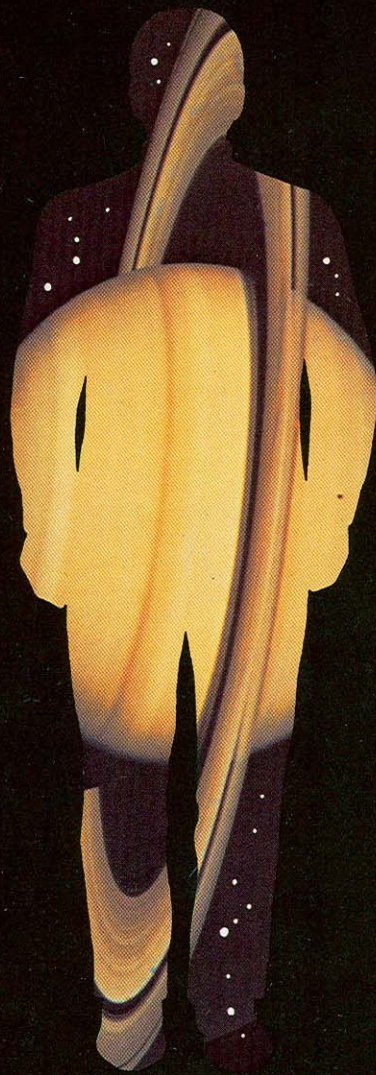


B&W DIGITAL MONITORS



DM2000 & DM3000

LISTEN AND



DM3000



DM2000



YOU'LL SEE

All the vast knowledge and expertise gained from the experience of building loudspeaker systems that have led the world for two decades has gone into the creation of models DM2000/DM3000. They are at the top of the exciting new generation of B&W Digital Monitors.

DM2000 is a floor-standing model incorporating completely new, inter-related concepts in enclosure styling, drive units and equalisation. A true digital monitor with performance and appearance further enhanced by the most recent advances in B&W loudspeaker technology.

- Sensitivity: 87dB.
- Extended linear response to the accepted standard set by our famous professional monitor, Model 801.
- ETD: electronic time delay.*
- ETD supersedes physical stepping, permits a flat front baffle.

- Optimisation of the diminishing sound source as frequency increases.†

Two completely new acoustic drivers plus an acoustically driven radiator (ADR) to further augment drive unit area in the extreme bass.

DM3000 pushes the sound frontier an appreciable further step towards reality with the addition of another (identical) bass/midrange drive unit, with a first order difference filter between the two.

The sensitivity achieved is 89dB.

* ETD (electronic time delay) realisation of an ideal



Several years ago, our DM6 was the precursor of all linear-phase loudspeakers and it is still widely copied around the world.

Meantime, our design team has been quietly working towards an elusive ideal: the correction of inter-unit time delay without the disadvantages – acoustical and cosmetic – of the stepped baffle configuration.

That ideal is now realised in ETD (electronic time delay) in which cumbersome physical time delay is replaced by

automatic delay of the signals. This is another world first for B&W, which is built into DM2000/DM3000. The technological requirements of the acoustics engineer are at last reconciled with the desire for loudspeakers with the elegance of distinctive furniture.

Acoustically, sharp boundary changes are advantageously avoided and we come nearer to minimum phase transfer characteristic between bass, midrange and tweeter.



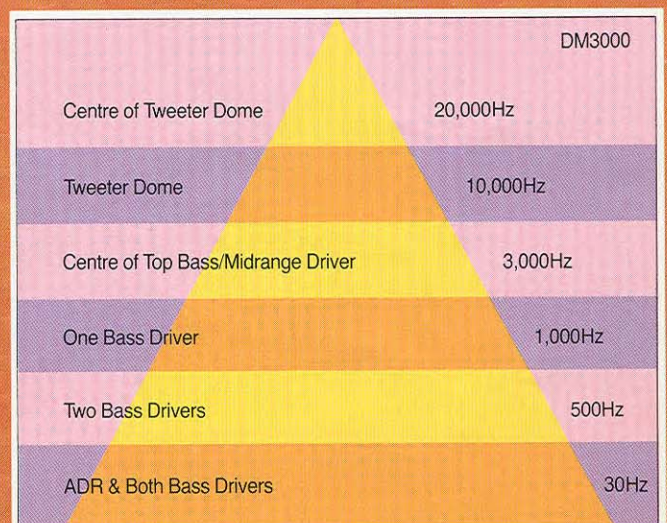
† Principle of the acoustical triangle and another significant advance

DM2000/DM3000 embody another significant advance towards an acoustical ideal. The new drive units are laser-optimised to behave as a source which diminishes in size as frequency increases. This results in:

- Smoother directivity index.
- Better-defined stereo perspective.
- Improved depth imagery.
- Broader options for seating.

Behind this development is the principle of the acoustical triangle. *The higher the sound frequency, the smaller the source of that sound.*

At the base of the acoustical triangle are the ADR and bass drivers, which take care of the very lowest frequencies (say bass drum). At its apex is the centre of the tweeter dome, which handles the very highest frequencies (triangle for example).



Bass/Midrange Unit

This unit (BK200) is completely new in design and – like all B&W drive units – is made entirely in our own factory. Interesting features are:

Laser-optimised diminishing source (see 'The acoustical triangle').
30mm Kapton voice coil capable of withstanding temperatures of 250°C and more. This material also provides a better high-frequency extension than does aluminium.

The 160mm cone is formed in Kevlar (patented), which – with its high stiffness-to-weight ratio and inherent internal damping – produces the superb transient performance so highly acclaimed in our Model 801.

The pole piece in the magnet system is capped with a copper sleeve. This eliminates the usual rise in impedance with frequency due to voice coil inductance, reduces distortion and further extends the high frequency performance.

High Frequency Unit

Development work with the laser interferometer guided us in the optimised design of this new unit (TX26) which has an exceptionally efficient diaphragm.

The 26mm cone is formed in a new type of polyamide – inherently damped acoustically and airtight. This ensures consistent quality because no variables such as additional sealing or damping compounds are required.

The 26mm voice coil enables this unit to withstand 30% more power than could its predecessor.

Crossover

New techniques are employed to keep losses to a minimum.

All capacitors are of low leakage polyester construction and inductors employ heavy gauge copper with generous ferrite cores where necessary to keep down DC resistance.

Sources of loss in the harness have been reduced by means of heavy gauge wire; all connections are soldered to eliminate contact resistance.

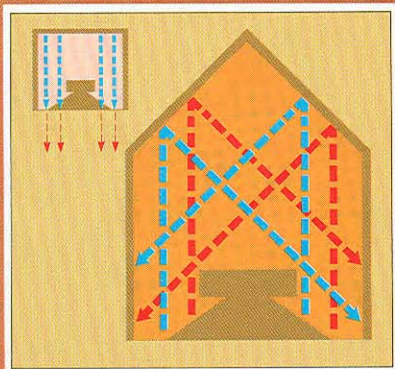
The all-pass network employs our new ETD approach to the problem of time-delay correction, permitting the system drive units to be mounted on a flat baffle.

The circuit has a perfectly flat amplitude response, but a phase shift which changes from 0° at low frequencies to 180° at high frequencies. This is then adjusted to give the required time-delay over the critical crossover region.

The Cabinets

The attractive cabinets are designed by Kenneth Grange of Pentagram and their functional styling produces positive acoustical advantages.

The internal geometry is so arranged as to reduce standing waves – in particular, those direct reflections off the back of the cabinet which can be heard through the cone of the bass/midrange unit of many loudspeakers.



Construction is to the usual B&W high standard, using 18mm high-density particle board throughout, with braces and bituminous pads to reduce vibrational modes in the walls.

Surface discontinuities and their resulting diffraction effects were closely studied during the design programme, with very beneficial results.

In particular, the fillet on the tweeter front plate is designed so that the tweeter does not 'see' the cone of the bass/midrange unit. An additional safeguard is the ring on the surround of the bass/midrange unit itself.

In addition, various cabinet dimensions in the tweeter area are critically adjusted to prevent those cancellations in response that can be caused by energy re-radiated from the cabinet edges.

A choice of four cabinet finishes is available for both models:

Walnut, rosewood, natural oak, black ash.

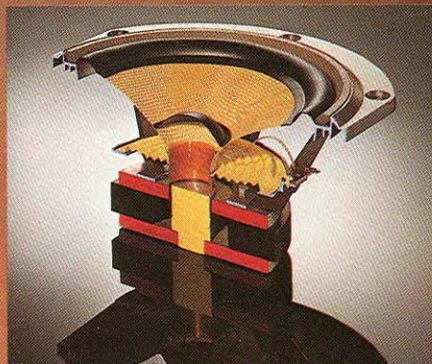
Grille

Those who prefer to use the grille covers will find that performance is virtually unaffected.

The patented B&W wire-framed grille is to exactly the same specification as that fitted to professional monitor 801. (Patent No. 2 068 6798.)

Overload Protection

DM2000/DM3000 are protected automatically against all forms of AC or DC overload. This is achieved by APOC – audio-powered overload circuit – the safety device pioneered and perfected by B&W. If and when the preset power level is exceeded, the drive units cut out and a visual indication is signalled by the LED on the cabinet. (Patent No. 2 038 574.)



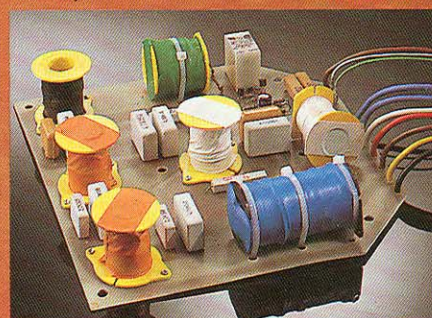
Cut-away driver shows the heart of the laser-optimised diminishing sound source.



Advanced laser technology plays a crucial part in the patented Kevlar cone assembly.



High-technology within the driver magnet system: the pole piece has a copper-laminated sleeve.



Computer-optimised crossover network ensures accurate classic 4th-order Butterworth characteristic.



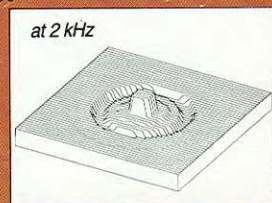
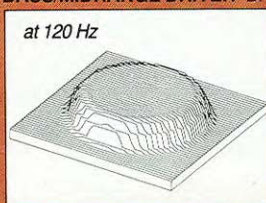
Super-heavy gauge hard-wired connecting harness with soldered terminations.



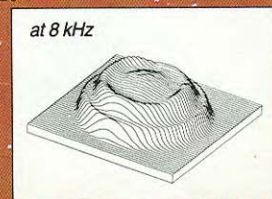
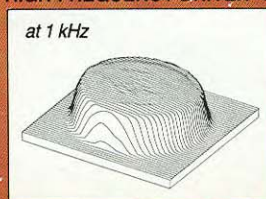
Patented wire-framed grille totally eliminates acoustic problems.

Diaphragm behaviour shown by laser interferometry computer-linked measurement plots.

BASS/MIDRANGE DRIVER BK200



HIGH-FREQUENCY DRIVER TX26



SPECIFICATION

DM2000**DM3000****Frequency response** (both models)

Frequency response: 20Hz to 22kHz.

50Hz to 20kHz \pm 2dB at centre of the listening window at 2m.

Bass response: -6dB at 35Hz, optimised to give essentially flat 3rd-octave response down to 20Hz with asymmetrical room loading.

Low-frequency system

Passive-radiator type, with one active bass driver.

Passive-radiator type with two active bass drivers.

Dispersion (both models)Vertical: \pm 1.5dB over 10° arc 20Hz to 10kHz.

Horizontal: +0, -2dB over 40° arc 20Hz to 10kHz.

Drive units

Three, vertically in-line.

Four, vertically in-line.

Both electronically corrected for minimum inter-unit time delay.

Bass/midrange driver BK200L**Bass/midrange drivers** BK200H

Diaphragm: 160mm dia. aromatic polyamide fibre matrix cone.

Voice coil: 30mm dia. high-temperature Kapton.

High-frequency driver TX26 (both models)

Diaphragm: 26mm dia. special polyamide, laser-optimised.

Crossover & filter network

True 4th-order acoustic Butterworth-squared characteristic, computer-optimised to greater than -40dB reference 0dB level, giving 24dB per octave attenuation in the stop band.

Crossover frequency 3kHz.

True 4th-order acoustic Butterworth-squared characteristic, computer-optimised to greater than -40dB reference 0dB level, giving 24dB per octave attenuation in the stop band.

Bass driver 1st-order difference filter. Crossover frequencies 500Hz and 3kHz.

Distortion (both models)

For a nominal s.p.l. of 95dB at 1m.

20Hz - 200Hz **200Hz - 20kHz**

Second harmonic: less than 3.0% 1.0%

Third harmonic: less than 1.0% 0.5%

Impedance (both models)

8ohms nominal throughout entire operating range.

Sensitivity

1 watt into 8ohms load for a s.p.l. of 87dB at 1m, sinewave input at 500Hz.

1 watt into 8ohms load for a s.p.l. of 89dB at 1m, sinewave input at 500Hz.

Power handling

Minimum amplifier 50 watts into 8ohms.

Minimum amplifier 80 watts into 8ohms.

Both models have no upper limit because of electronic overload protection device.

DimensionsHeight: 820mm (32 $\frac{1}{4}$ in).Width: 310mm (12 $\frac{1}{4}$ in).Depth: 400mm (15 $\frac{3}{4}$ in).Height: 985mm (38 $\frac{3}{4}$ in).Width: 310mm (12 $\frac{1}{4}$ in).Depth: 400mm (15 $\frac{3}{4}$ in).**Weight**

25kg (55lb).

35kg (77lb).

Cabinet finish (both models)

Selected veneers of walnut, rosewood, natural oak or black ash.

**Used by the major digital recording studios worldwide**

Behind the successful development of DM2000/DM3000 lies B&W's world leadership in the reproduction of digital recording.

The most famous conductors, orchestras, instrumentalists, recording companies and balance engineers worldwide selected Model 801 as their exclusive classical music monitor. Decca International alone have monitored and edited more than 18,000 hours of digitally recorded music on our 801 monitors.

The world's professional musicians and engineers put their trust in B&W 801 as their reference standard. This in turn was our standard as we designed and developed DM2000/DM3000. They are heirs to this vast experience. That is why they are so far in advance of anything near their price bracket today.



801's at a Polygram digital recording session in the Kingsway Hall, London.



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