

B&W DM7



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**Setting 'small' loudspeaker standards
for the next decade**

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**Revolutionary design, beautiful engineering –
born of B&W computer-aided technology**

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B&W DM7

The DM7 is the first in a new generation of the musical B&W family, incorporating many significant advances resulting from our computer-aided research programme.

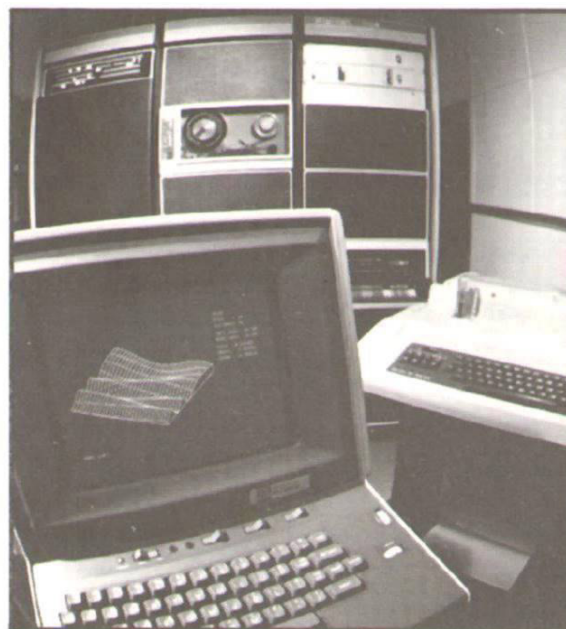
This is a compact, three-unit system employing entirely new purpose-built drivers stepped vertically in-line within a beautifully engineered enclosure. Almost certainly the finest small speaker of the 70's, DM7 is destined to set standards for the next decade.

Writing of the DM7, design consultant Kenneth Grange of Pentagram, said:

"... while we accepted the inevitable furniture role of the speaker, so B&W found another formula for unit relationship with enclosure. Like the best of everything, their solution is deceptively simple: take the units close to the cabinet edge and softly profile their junction - and still the sound eases around the sides of the whole enclosure. Consequently the cabinet is slim, with a startling performance.

The system includes a stepped choice of amplitude characteristics and this we wanted both to be, and seen to be, easily accessed. The high-frequency unit was left exposed to maximise the sound-smoothing effect ... A simple woven wire dome is visually reinforced by a thick aluminium top plate in which the amplitude control sits smoothly flush. This plate is reflected at the floor where another plate forms the foot."

The DM7 sound has an enhanced quality that is best described as an added "front to back dimension." Reports reaching us from all over the musical world reveal that the performance of this loudspeaker appeals particularly to opera lovers. This has indeed proved to be a speaker system to satisfy the most demanding perfectionist.



Fish-eye view of the PDP 11/35 computer installation which frees our design team to fulfil its vital creative function.



Measuring DM7 performance in the anechoic chamber at our factory.

“...considerable improvement in stereo imagery, which I can only compare with the sound of stacked Quad electrostatic speakers.”

“The overall sound quality is unusually open with excellent definition and integration. One is not conscious of the position of the speakers...”

“...overall performance is the smoothest that I have experienced under normal domestic conditions.”

John Gilbert in GRAMOPHONE

“...astounding both in the realism and the fulness of the sound.”

REVUE DU SON (France)

“The DM7 did not take long to convince us ...We are actually hearing a piano and not the sound of a piano.”

DIAPASON (France)

“If you are serious about your music, then we suggest that you listen seriously to a pair of B&W DM7's.”

SOUND (Canada)

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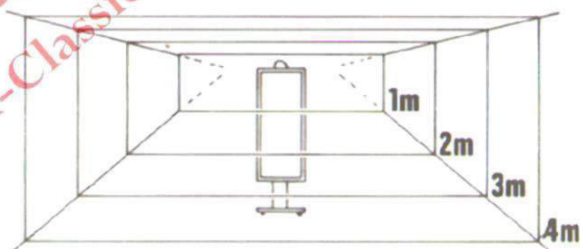
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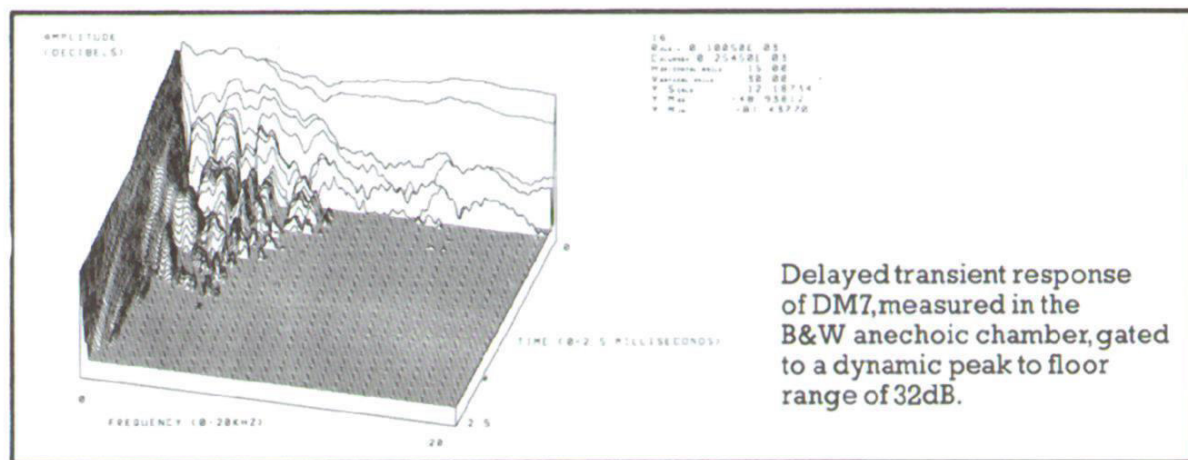
The DM7 is a remarkably compact three-unit system employing entirely new drive units in an enclosure engineered to exceptionally high standards. Many advances have been incorporated to reveal new horizons in loudspeaker performance, making possible a standard of musical reproduction unequalled in an enclosure of this size.

Amplitude linearity is almost perfect throughout the entire audio spectrum and phase-coherent sound is produced within a listening window of 10° vertical and 40° horizontal. This broad window ensures minimum variation for group listening.



The drive units are purpose-designed and manufactured entirely in our own factory, employing new technology in order to achieve incredibly low distortion levels – typically less than 1% THD from 30Hz to 200Hz and less than 0.5% above that frequency.

To show our confidence in this speaker's performance, we began to stage public demonstrations affording direct comparison between live solo clarinet and the recorded sound of the same instrumentalist reproduced by the DM7. The public are asked to draw their own conclusions from this, the ultimate test. These demonstrations have now become a regular feature of our exhibition appearances around the world.

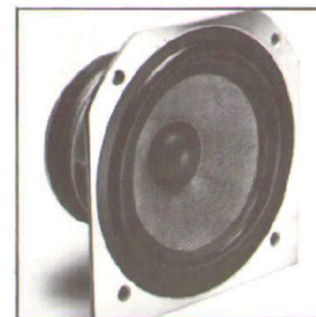


Delayed transient response of DM7, measured in the B&W anechoic chamber, gated to a dynamic peak to floor range of 32dB.

A useful feature of the DM7 is the variable energy control (located on top of the enclosure) which gives three additional frequency weightings. This control enables the owner to cater for widely varying acoustic conditions.

The cabinet has 25mm laminated walls which, together with internal bracing, produce an acoustical performance superior to 50mm reinforced concrete! The purpose-tooled front baffle and grille assembly are moulded from polystyrene structural foam to obtain smooth defraction.

BASS/MID-RANGE DRIVER



New materials are used for both the voice coils and rear suspension to give increased power-handling, plus a matrix cone of aromatic polyamide fibres for optimum transient performance. This unit is acoustically coupled to the...

DRIVE UNIT COMPLEMENT

To minimise time delay distortion, the DM7 drive units are stepped and arranged vertically in line to give a line source at mid-frequencies, resulting in a broad horizontal dispersion and reduced vertical dispersion.

HIGH-FREQUENCY DRIVER



Spheroidal in shape and mounted on top of the speaker in a woven wire dome. Has excellent transient response and high power-handling capability. Frequency response extends almost completely linearly to beyond audibility.

ULTRA-LOW FREQUENCY RADIATOR



Employing an entirely new diaphragm material – cross-linked polyethylene foam – to reduce the usual 'read-out' problems of such a unit.

CROSSOVER & FILTER NETWORK

A thirteen-element LCR network accurately controls phase and frequency response of the units – giving good matching accuracy to the true third order Butterworth high- and low-pass characteristics. All components are of the highest quality and polyester (not electrolytic) condensers are used throughout.

FREQUENCY RESPONSE

± 2dB 70Hz to 20kHz, on HF axis at 2 metres.

DISPERSION

Vertical: ± 1dB over 10°

Horizontal: ± 1.5dB over 40°

Amplitude and phase response preserved to the highest degree within the listening window.

PHASE CHARACTERISTIC

Accurately optimised inter-unit time delay with third order Butterworth high- and low-pass sections on filter network give a substantially accurate 'first order all-pass' system phase characteristic.

DISTORTION

Third harmonic: less than 1% for a s.p.l. of 95dB at 1 metre from 40Hz to 20kHz.

Second harmonic: less than 3% for a s.p.l. of 95dB at 1 metre from 40Hz to 20kHz.

IMPEDANCE

8 ohms nominal throughout entire operating range.

TRANSIENT RESPONSE

Of the highest order as shown by the B&W computer readout.

SENSITIVITY

10 volts r.m.s. for a s.p.l. of 95dB at 1 metre.

POWER HANDLING

Suitable for amplifiers 50 to 200 watts r.m.s. into 8 ohms nominal impedance.

CONTOUR CONTROL

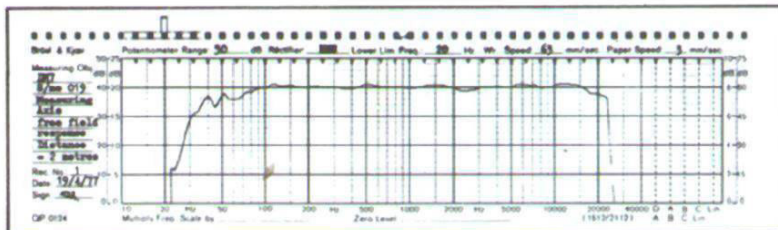
A multi-way contour control allows frequency weighting, in addition to the linear position provided.

OVERLOAD PROTECTION

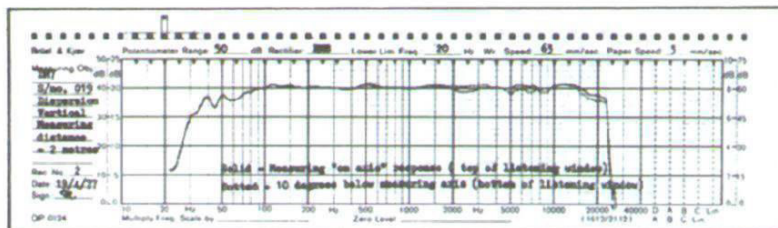
Both system and high-frequency unit are fuse-protected.



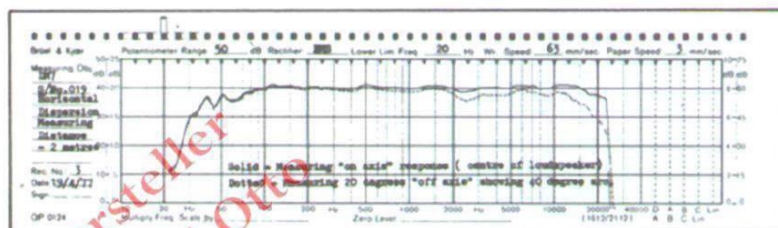
1. Unique spheroidal high-frequency unit to give smooth dispersion and excellent transient response.
2. H.F. unit position for optimum time delay correction.
3. Double protection from two metal grilles. Outer grille can be removed if desired.
4. Variable energy control with four frequency weightings to accommodate widely varying room acoustics.
5. Bass/Mid-range unit employs the patented B&W aromatic polyamide fibres matrix cone developed originally for the Model DM6.
6. High-temperature voice coil and rear suspension assembly allow exceptionally safe high power-handling capacity.
7. Critically tuned ultra-low frequency acoustic drive radiator.
8. Terminal panel incorporating protection fuses for both system and H.F. unit.
9. Tailored open cell polyurethane foam pads eliminate all internal cabinet reflections.
10. Large cross section ferrite-cored inductors in crossover unit reduce distortion and ensure optimum amplifier damping to drivers.
11. The cabinet has 25mm laminated walls, together with internal bracing, producing an acoustical performance superior to 50mm reinforced concrete.
12. To obtain smooth defraction the purpose-tooled front baffle and grille assembly are moulded from polystyrene structural foam.
13. Pedestal stand purpose-designed to give correct listening height.



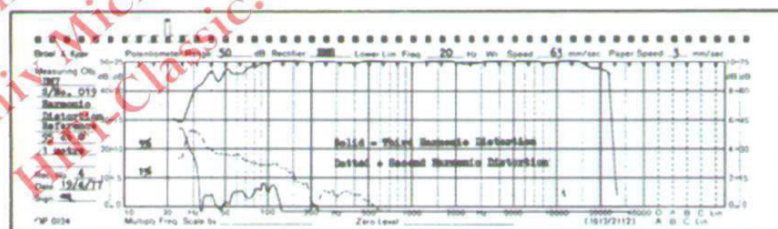
Frequency response on measuring axis at 2 metres



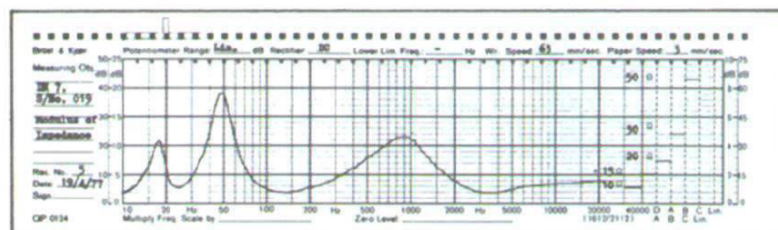
Vertical dispersion showing almost perfect agreement within the listening window



Wide horizontal dispersion shown by amplitude coherence for 40 degree arc to above 15kHz



Extremely low harmonic distortion with reference to a s.p.l. of 95dB at 1 metre



Modulus of impedance

B&W Loudspeakers Ltd reserve the right to amend details of their specifications in line with technical developments

Cabinet height
900mm (35⁷/₁₆ in)

Width
270mm (10¹/₁₆ in)

Depth
382mm (15in)

Weight
29kg (64lb)

Cabinet finish

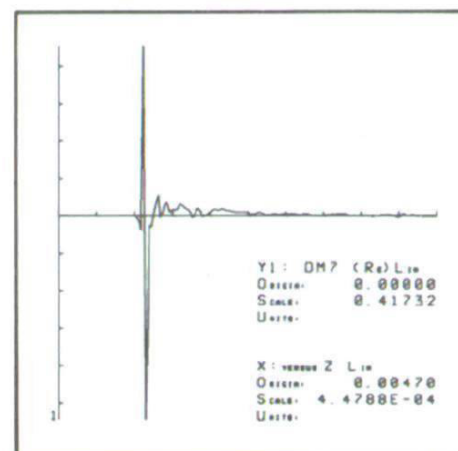
Standard:
selected veneers of teak or walnut

Special:
satin white or selected veneers or rosewood or black ash

Enclosure top and baseplate:
thick aluminium plate, brushed and anodised

Pillar:
matt black

Design
by Kenneth Grange of Pentagram Design Partnership



Averaged response of 5 microsecond pulse train

B&W Loudspeakers

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