

GIVE YOUR FAVOURITE
MUSICIANS THE FREEDOM
OF YOUR OWN HOME



INSIDE EVERY BOX IS THE NATURAL SOUND STRUGGLING TO GET OUT

B&W have invented a totally new and quite revolutionary speaker cabinet.

It is called the B&W Matrix. You can see and, more importantly, hear it in the B&W Matrix series of Digital Monitors.

The sound, to borrow the cliché used every time a new loudspeaker is launched, is like no other you've ever heard.

Yet, unlike previous loudspeakers, the B&W Matrix is not merely close to live sound. It's the closest likeness yet to the sound you can hear in the concert hall.

The bass has depth and body and no resonant boom.

The mid and high frequencies have a new sparkle and definition.

No longer is the thought always at the back of your mind that the sound is really coming from two loudspeakers. The spaces between and above them maybe, but definitely not the speakers themselves.

Close your eyes and you are there with the musicians.

The Limits of Engineering Endeavour. It has already taken 50 years for man to get as close to natural sound as B&W have with the Matrix.

Obviously, there have been giant steps forward from time to time. Stereo and, more recently, the Compact Disc spring readily to mind.

There have also been massive improvements in the quality of drive units. Especially over the last twenty years or so.

These vital components, which convert the electrical energy from your amplifier into sound, now reproduce the signals fed to them with an astonishing degree of accuracy.

Likewise, the crossover network, which divides the different areas of the musical spectrum has undergone refinement and sophistication.

But, however far people have taken the development of drive units and crossover networks, and B&W have taken it further than most, they always come up against the same old brick wall.



Or rather the wooden or wood-effect veneer and chipboard wall of the speaker cabinet.

The Barrier to Pure Sound. However pure the sound coming from the drive unit, it sufficiently excites the cabinet to affect the sound coming from the whole speaker.

Bass frequencies are influenced by the stiffness of the cabinet panels, high frequencies by their mass, and



middle frequencies, the area of resonances, by their damping properties.

So while the driver radiates pure sound, it makes the cabinet radiate distorted sound.

Just how distorted depends on what the cabinet is made of and how it's designed. Some frequencies will be accentuated, others will be diminished. And, of course, there will always be the familiar, but much

unloved, hangover effect.

The overall effect is called colouration. To give yourself a clearer idea, think of the way canned food usually tastes slightly of the tin.

You can very easily imagine just how much the recorded sound from even the most sophisticated of drive units and crossover networks can be tinged with that tell-tale flavour of the speaker cabinets.

This isn't to say that the resulting sound is not extremely palatable. Your current speakers are probably ample proof of this. But the sound they make still isn't a patch on the fresh, crisp, unadulterated sound of the real thing.

The speaker cabinet has always been a barrier to pure sound reproduction. In inventing the Matrix, B&W have finally broken it down.

THE INVENTION THAT SET NATURAL SOUND FREE

When he set out to tackle these problems once and for all, B&W's Chief Electronics Engineer and audio visionary, Laurence Dickie, could be sure of only one thing.

You may well be able to do without the sound of a speaker cabinet, but you certainly

cannot do without the cabinet itself.

Drive units need to be enclosed in a cabinet so that sound waves radiating from the front aren't cancelled out by those radiating out of phase from the rear.

So the answer to colouration had to lie in the shape of something inside the cabinets.

Until now, most cabinets were lined with acoustic foam or packed with wool as some sort of attempt to create a partially anechoic environment.

What was needed was something that not only made the panels much stiffer, but also created the effect of increasing their damping properties to rid the mid-range of resonances.

This complex necessity was eventually the mother of Laurence Dickie's outstandingly simple invention. The B&W Matrix.

The Ultimate Anechoic Environment. He built a cellular, honeycomb-like structure.

Then he built a cabinet of high quality particle board, the inner walls of which were grooved. The cellular structure fits into the grooves and slides neatly into the cabinet to make it more solid, more stable and give it an exceptionally high degree of stiffness.

While this came close to perfection, it didn't go far enough towards the total eradication of standing waves inside the cabinet.

So each cell was filled with bars of acoustic foam. And, at last, B&W's invention was complete.

The Tests. Of course, it's all very well knowing you've invented a near perfect speaker cabinet, but the world still needs convincing with scientific proof.

And where better to get that proof than B&W's own laboratory? Even the competition acknowledge it as one of the finest in Europe.

Matrix was exhaustively tested alongside cabinets of standard particle board, and more exotic materials such as sandwich construction, concrete and Aerolam. Not only did Matrix show lower vibration over the whole musical

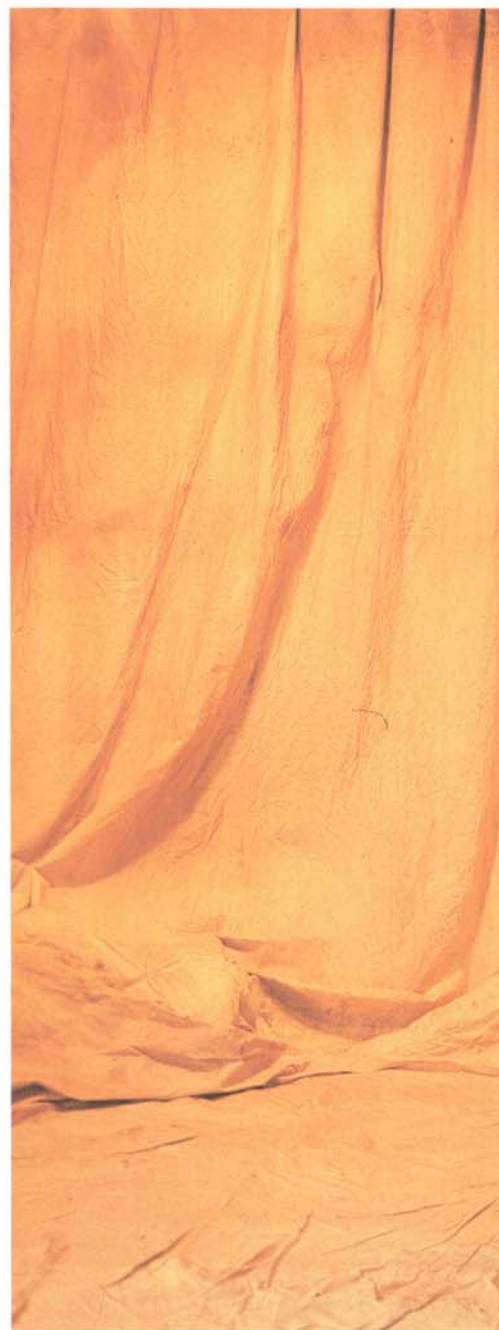
spectrum, it also had the fastest decay time.

The hangover effect was finally dead. Long live Matrix.

The Demand for New Components. It is a common fact that if you improve the performance of a car engine, you also need to upgrade the brakes and the suspension.

Similarly, B&W discovered that when they took away cabinet colouration they needed to upgrade the drive units and crossovers to match the improved performance of Matrix.

Not that this posed much of a problem for B&W. Being such a progressive company, their research programme never stops. During a recent project, the perfect material for the Matrix drive unit cones had come to light. That material was polypropylene. Not the copolymer used so extensively by other manufacturers. A homopolymer that had almost twice the stiffness, made specially for the Matrix's driver.



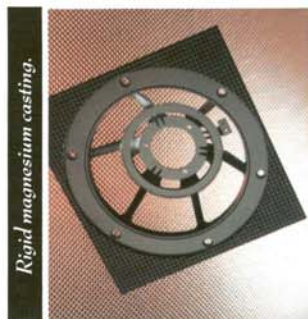
Matrix cut-away.



Cells filled with acoustic foam.



Section of Matrix drive units.



Rigid magnesium casting.

Now it only remained to upgrade the crossover. Pure iron particle dust cores were used for the inductors to take distortion even lower. The connecting harness was made of mono crystal cable. And a new version of B&W's patented overload protection circuit (APOC) was now fitted.

B&W now had the drive units and crossover network to match their very nearly perfect enclosure.

The new Matrix Digital Monitor concept was complete.

The B&W Matrix Series. In all, three digital monitors have been created for the B&W Matrix series.



Drivers	Sensitivity	Enclosure Vol
Matrix 1 2	85dB	17 litres
Matrix 2 2	87dB	30 litres
Matrix 3 3	90dB	70 litres

They are different in size, maximum acoustical output and bass extension. But they feature in common enhanced stereo imagery, improved transient response, almost total freedom from colouration, and low distortion for high acoustical outputs.

Matrix 1, 2 and 3 replace old B&W models which themselves made history in their time. They certainly surpass any other speaker in the same price range.

Electronic speckle pattern interferometry.



After all, Matrix are the only speakers with a cabinet that is seen but not heard.

The Design to Match the Technology. B&W are acutely aware that it isn't enough for a speaker to sound good in the home. It also has to look good as a piece of furniture.

For this reason, they employ the services of Dr. Kenneth Grange of Pentagram, London. He is one of Europe's top designers, known for

his work for internationally recognised companies such as British Rail, Kenwood, Parker, Wilkinson Sword and Kodak.

In the Matrix Series, his work complements B&W's superbly.

The Optional Extras. Whilst Matrix 3 is a floor standing system, Matrix 1 and 2 are free standing models requiring separate stands for their proper operation.



Matrix 3 crossover.

B&W have designed and produced special stands for each model which complement their visual appearance and acoustical performance.

The base is of genuine black Italian marble. The columns are of filled steel, for non-resonant support and maximum stability.

For the best possible sound from the world's most advanced speakers.

SPECIFICATIONS

For more technical detail, including descriptions of the tests, test equipment, new drivers, crossover network and protection circuit, please ask your dealer for a copy of the B&W Matrix Series Design Story.

B&W MATRIX 1

FREQUENCY RANGE

(-0dB points) 55Hz to 35kHz

SYSTEM RESONANCE

60Hz. System 'Q' 0.7.

FREE FIELD RESPONSE

Listening axis ± 2 dB 80Hz to 25kHz.
 ± 30 degrees horizontal ± 2 dB to 10kHz.
 ± 5 degrees vertical ± 2 dB to 20kHz.

SENSITIVITY

85dB (1 watt 8 ohms).

DRIVE UNIT COMPLEMENT

Two: one 150mm (5⁷/₈in) bass/midrange driver with homopolymer polypropylene cone, 31mm (1¹/₄in) voice coil on Kapton former, phenolic-bonded and heat-cured; one 25mm (1in) Ferrofluid-cooled tweeter with laser-optimised polyamide dome.

DISTORTION

For 90dB s.p.l. at 1 metre:

	20Hz	500Hz
	to 500Hz	to 20kHz
2nd harmonic less than	3.0%	1.0%
3rd harmonic less than	3.0%	1.0%

IMPEDANCE

Modulus 4.5 ohms ± 0.5 ohms.
 Phase ± 5 degrees.

AMPLIFIER LIMITS

(Recommended) 50 to 120 watts
 at 4 ohms.

DIMENSIONS

Height: 41.0cm (16in).
 Width: 23.0cm (9in).
 Depth: 32.2cm (12⁵/₈in).
 Weight: 10.0kg (22lb).

CABINET FINISHES

Real wood veneers of walnut, black ash, natural oak, rosewood.
 To special order: high gloss lacquered finish within a choice of colours.



B&W MATRIX 2

FREQUENCY RANGE

(-0dB points) 51Hz to 35kHz

SYSTEM RESONANCE

51Hz. System 'Q' 0.6.

FREE FIELD RESPONSE

Listening axis ± 2 dB 80Hz to 25kHz.
 ± 30 degrees horizontal ± 2 dB to 10kHz.
 ± 5 degrees vertical ± 2 dB to 20kHz.

SENSITIVITY

87dB (1 watt 8 ohms).

DRIVE UNIT COMPLEMENT

Two: one 200mm (7⁷/₈in) bass/midrange driver with homopolymer polypropylene cone, 31mm (1¹/₄in) voice coil on Kapton former, phenolic-bonded and heat-cured; one 25mm (1in) Ferrofluid-cooled tweeter with laser-optimised polyamide dome.

(1in) Ferrofluid-cooled tweeter with laser-optimised polyamide dome.

DISTORTION

For 95dB s.p.l. at 1 metre:

	20Hz	500Hz
	to 500Hz	to 20kHz
2nd harmonic less than	2.0%	0.5%
3rd harmonic less than	1.5%	0.5%

IMPEDANCE

Modulus 4.5 ohms ± 0.5 ohms.
 Phase ± 5 degrees.
 (Essentially resistive).

AMPLIFIER LIMITS

(Recommended) 50 to 150 watts
 at 4 ohms.

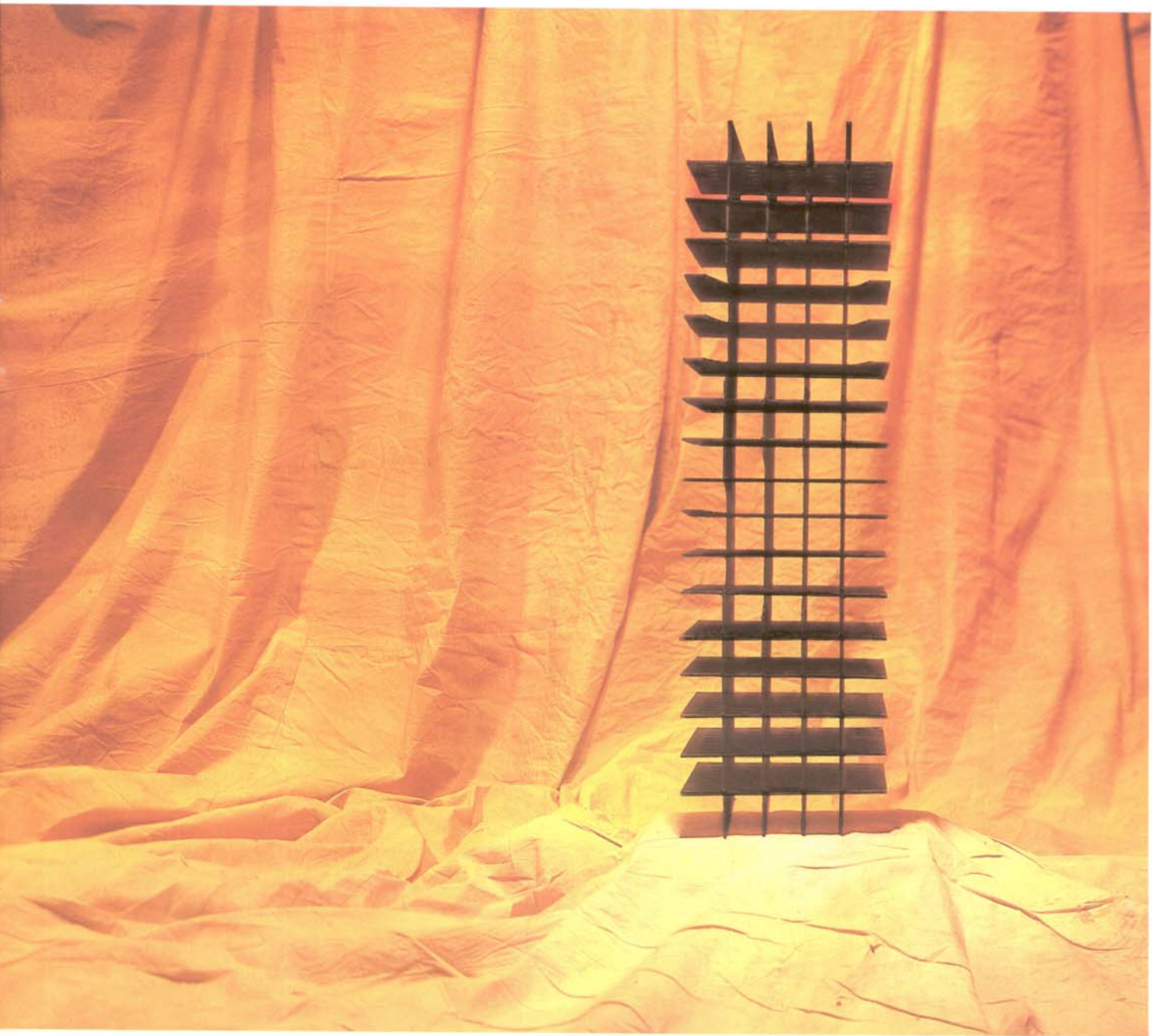
DIMENSIONS

Height: 60cm (23¹/₂in). Width: 20cm (10¹/₄in).
 Depth: 32cm (12¹/₂in). Weight: 16kg (35.2lb).

CABINET FINISHES

Real wood veneers of walnut, black ash, natural oak, rosewood. To special order: high gloss lacquered finish within a choice of colours.





B&W MATRIX 3

FREQUENCY RANGE

(-0dB points) 43Hz to 35kHz

SYSTEM RESONANCE

43Hz. System 'Q' 0.5.

FREE FIELD RESPONSE

Listening axis ± 2 dB 70Hz to 25kHz.
 ± 30 degrees horizontal ± 2 dB to 10kHz.
 ± 5 degrees vertical ± 2 dB to 20kHz.

SENSITIVITY

00dB (1 watt 8 ohms).

DRIVE UNIT COMPLEMENT

Three: one 200mm (7⁷/₈in) bass, one
 200mm (7⁷/₈in) bass/midrange with
 homopolymer polypropylene cones,
 31mm (1¹/₄in) voice coils on Kapton

formers, phenolic-bonded and heat-cured;
 one 25mm (1in) Ferrofluid-cooled tweeter
 with laser-optimised polyamide dome.

DISTORTION

For 95dB s.p.l. at 1 metre:

	20Hz to 500Hz	500Hz to 20kHz
2nd harmonic less than	2.0%	0.5%
3rd harmonic less than	1.5%	0.5%

IMPEDANCE

Modulus 4.5 ohms ± 0.5 ohms.
 Phase ± 5 degrees. (Essentially resistive).

AMPLIFIER LIMITS

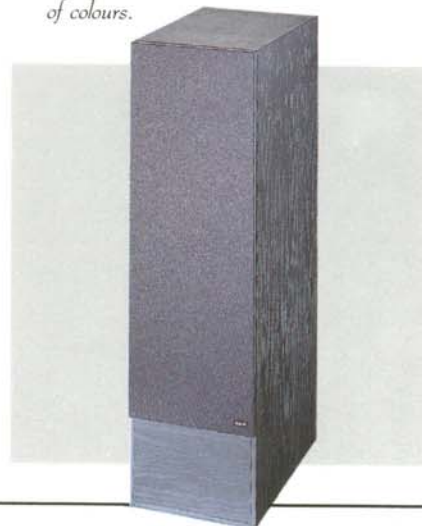
(Recommended) 50 to 200 watts
 at 4 ohms.

DIMENSIONS

Height: 91cm (35³/₈in). Width: 20cm (10¹/₄in).
 Depth: 41cm (16in). Weight: 20kg (04lb).

CABINET FINISHES

Real wood veneers of walnut, black ash,
 natural oak, rosewood. To special order:
 high gloss lacquered finish within a choice
 of colours.



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

B&W Matrix bass and bass/midrange drive units, which have a propylene homopolymer cone assembly, are manufactured under license from CBS Inc. Patent numbers available from CBS Inc. upon request.



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