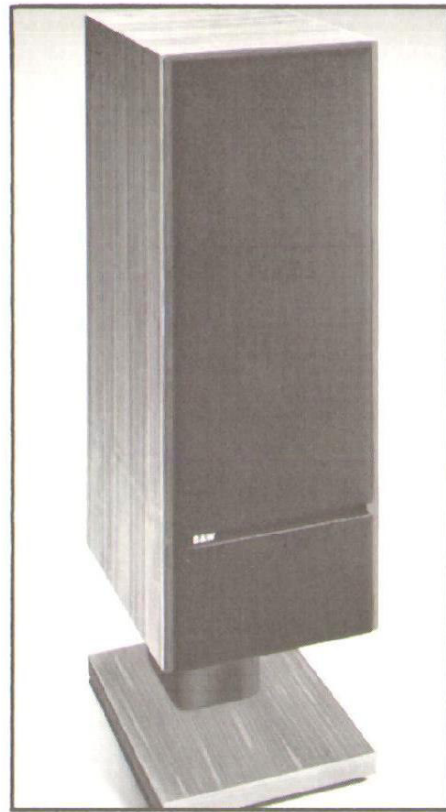


# B&W DM2/II



**The loudspeaker  
with so much to live up to**

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# The musical family—a new generation

## B&W DM2/II

On its introduction back in 1972, the original B&W DM2 quickly earned its place as the loudspeaker of choice in studios and music-lovers' homes where the need is for a medium-size speaker system providing natural sound reproduction. Ever since, demand for the DM2 has been consistent and world-wide.

In the meantime, B&W have been actively pursuing a policy of continuous investment in sophisticated research facilities and adding to the design engineering staff. Today, the B&W factory at Worthing houses one of the best equipped design departments in Europe. This was the background to the extraordinarily successful launch of the B&W DM6 (Britain's first linear phase loudspeaker system) and even more recently, the beautifully engineered DM7.

Now we present the DM2/II loudspeaker; as its name suggests, this may be regarded as the new generation DM2. But it is a completely new speaker design, making the very fullest use of all B&W's technical expertise, while at the same time conforming to a specific brief to produce a classically simple piece of furniture in the modern idiom. In fact, the elegant cabinet is available (with stand or plinth) in a choice of five different finishes, so that it will fit happily and unobtrusively into almost any furnishing environment.

Here then is the B&W DM2/II. Performance-wise an excellent loudspeaker of medium size – and altogether a worthy

heir to the internationally esteemed model it replaces. In this speaker, we believe we have achieved a fine balance between the demands of acoustic design on the one hand and conventional good taste in furniture on the other.



Computer-aided research in the B&W laboratory. Tektronix visual display unit in the foreground, B&K analogue equipment behind.



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# The two faces of DM2/II

An unusually attractive feature of the DM2/II is that it offers a choice as to whether it should be mounted on the pedestal Stand (below left) or the wedge-shaped Plinth (right). Both alternatives are completely integrated with the overall design – yet each has a noticeably different visual effect from the other.

The intention was (and we have to admit that it succeeded beyond expectations) to provide two different 'looks' to the speaker, seen as an item of furniture: both of them in the modern idiom, but each with a character of its own.

## The Stand

Height 188 mm (7<sup>3</sup>/<sub>8</sub> in)

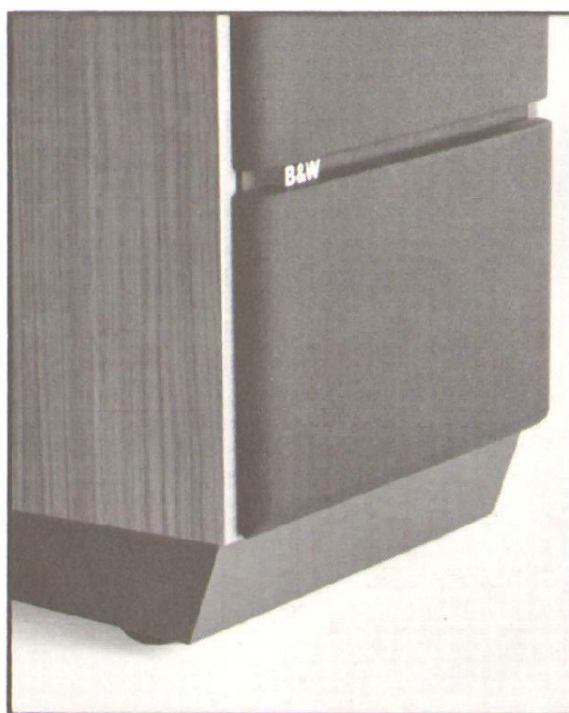
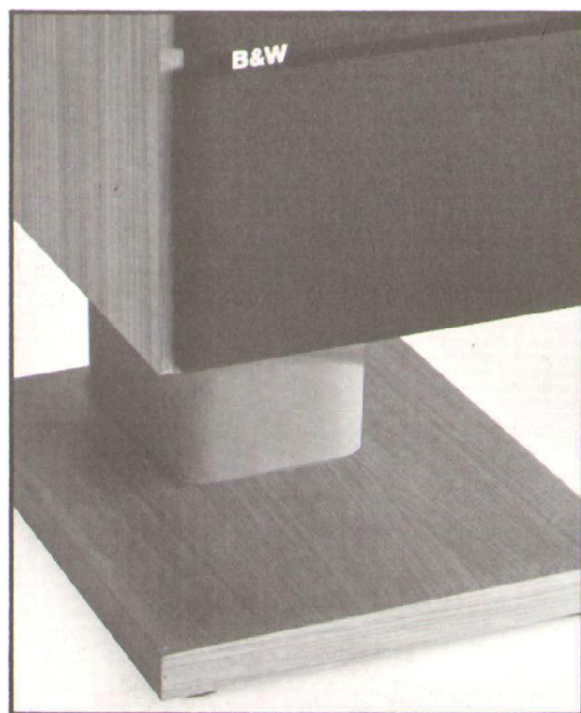
Mounted on this Stand, the general effect is quite strongly functional; the speaker positively proclaims its presence. Pillar and baseplate relieve the visual weight so that the whole achieves the feeling of sculptured form. The baseplate matches the chosen cabinet finish; the pillar is brown for teak and walnut cabinets, matt black for all others.

## The Plinth

Height 60 mm (2<sup>3</sup>/<sub>8</sub> in)

Standing on the subtly wedge-shaped matt black Plinth, the DM2/II is at its most amenable in the furnishing sense. Elegant, unobtrusive – above all, very liveable-with. The Plinth imparts a barely perceptible rake to the speaker cabinet, which is in fact 3° from the perpendicular.

Stand and plinth are available as optional extras.



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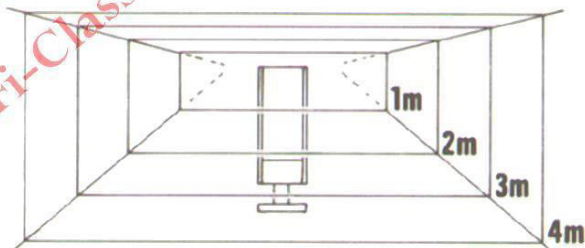


# B&W DM2/II

The DM2/II is a three-drive unit system of some 47 litres capacity; free-standing, with either a purpose designed pedestal stand or angled plinth (see page 4).

Baffle configuration and enclosure height are designed to ensure that:

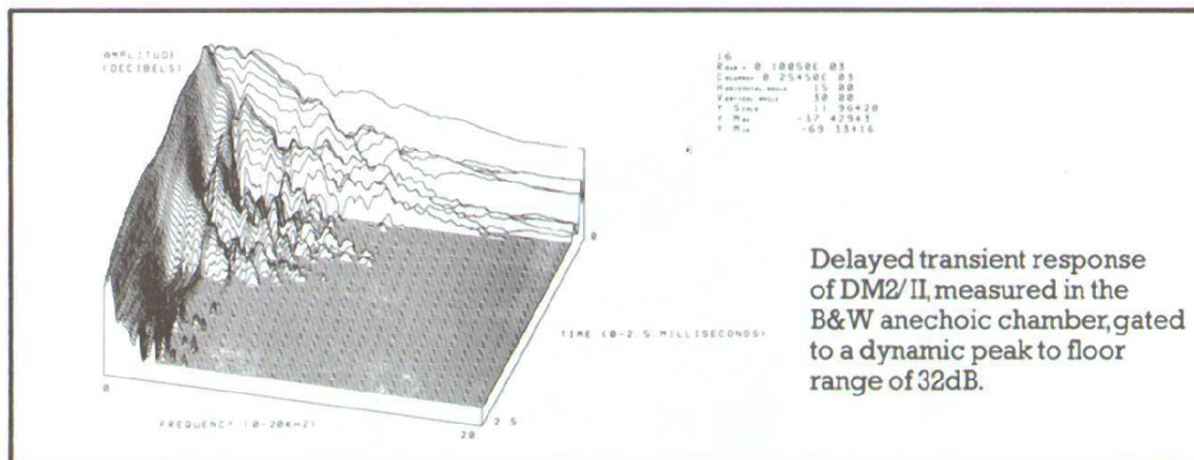
- 1 The central axis of the 'listening window' is correct for normal seated height.
- 2 Both vertical and horizontal dispersion offer highly accurate amplitude and phase coherence within a 10° vertical and 40° horizontal listening window. This not only allows group listening with minimum variation, but also leads to more natural reproduction, because the indirect (reverberant) information enjoys a similar characteristic to the direct or first arrival information.



The three separate drivers were purpose-designed – as were the system and enclosure – to an integrated brief. By employing the latest measuring techniques, the design team enjoyed the freedom to investigate not only the usual parameters of amplitude, phase and distortion – but time-dependant behaviour also.

Continuous developments in the B&W in-house computer programmes allow the time-dependant information to be presented with an amplitude-gated floor, quantifying this measurement more precisely than was previously thought possible.

However sophisticated the measuring techniques, direct comparison between



Delayed transient response of DM2/II, measured in the B&W anechoic chamber, gated to a dynamic peak to floor range of 32dB.

live and reproduced sound must represent the ultimate test. At recent public exhibitions on both sides of the Atlantic, B&W have been giving visitors the opportunity to hear the DM2/II put to this ultimate test, and inviting them to judge for themselves.

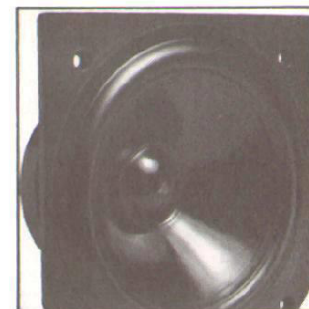
The confidence that inspired us to stage such a series of public tests stemmed from the fact that the technique of carefully recording and reproducing the human voice, musical instruments and other sounds was regularly employed at all stages of DM2/II design. In this way, B&W designers never lose sight of the final objective: the re-creation of the original sound.

Integration of the design concept involves rigid control, not only of driver parameters, but also of the enclosure design. Shape, construction and materials all vitally affect the performance of the final loudspeaker system.

The technique of laminating high-density particle board with bituminous pads – so successfully employed for our DM6 and DM7 speakers – has again been used to produce an enclosure that is truly neutral. Bearing in mind that the area of cabinet surfaces is some twenty-nine times that of the total cone area, the importance of this development to the overall sound radiation will readily be appreciated. Moreover, with the help of time information from the computer, the rear loading and absorbents of the separate midrange enclosure were optimised to give minimum readout through the cone structure.

## DRIVE UNIT COMPLEMENT

### BASS DRIVER: 35Hz to 400Hz



The bass driver, housed in a critically vented enclosure, has a crossover point of 400Hz where the vent tuning is so designed to extend the low frequency half power point to 45Hz. By lowering the port resonance to 15Hz the objectionable aspects sometimes associated with vented designs were removed. The result is a useful extension of low frequency performance and a reduction in harmonic distortion.

A long throw motor system on the bass driver, giving a free excursion of 20mm, ensures safe high level low frequency performance.

### MID-RANGE DRIVER: 400Hz to 3kHz

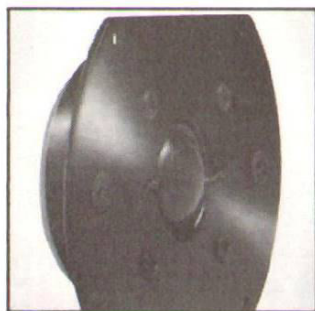


The vital mid-band frequencies are handled by a 100mm unit housed in a separate enclosure – critically damped with long-haired natural wool – completely isolated from the bass unit. This enclosure – of "line" tapered contour driven

from a third order band pass section – gives reduced inter-modulation distortion.

Both Bass and Mid-range units employ vacuum-formed Bextrene cone assemblies, critically laminated with viscose-elastic damping layers to ensure lowest colouration.

#### **HIGH-FREQUENCY DRIVER: 3kHz to 20kHz**



Frequencies above 3kHz are handled by a 25mm multi-filament weave polyester dome unit, critically damped with PVA compounds.

#### **CROSSOVER UNIT**

Integration of the three drive units into a complete loudspeaker system is performed by a 19-element Crossover Unit with true third-order Butterworth filters employed on all sections. These filters are accurately contoured to conform to the idealised Butterworth characteristic. The result is (1) significantly lower inter-modulation distortion and therefore noticeably cleaner reproduction of complex orchestral and choral sounds; (2) broad polar distribution and (3) excellent phase and amplitude characteristics throughout the whole audio spectrum.

In-house computer measurements throughout all development stages ensure excellent transient performance with minimum discrete resonances in the time domain.

#### **FREQUENCY RESPONSE**

50Hz to 18kHz  $\pm$  3dB at centre of listening window.

#### **DISPERSION**

Vertical:  $\pm$  1dB over 10°.

Horizontal:  $\pm$  2dB over 40°.

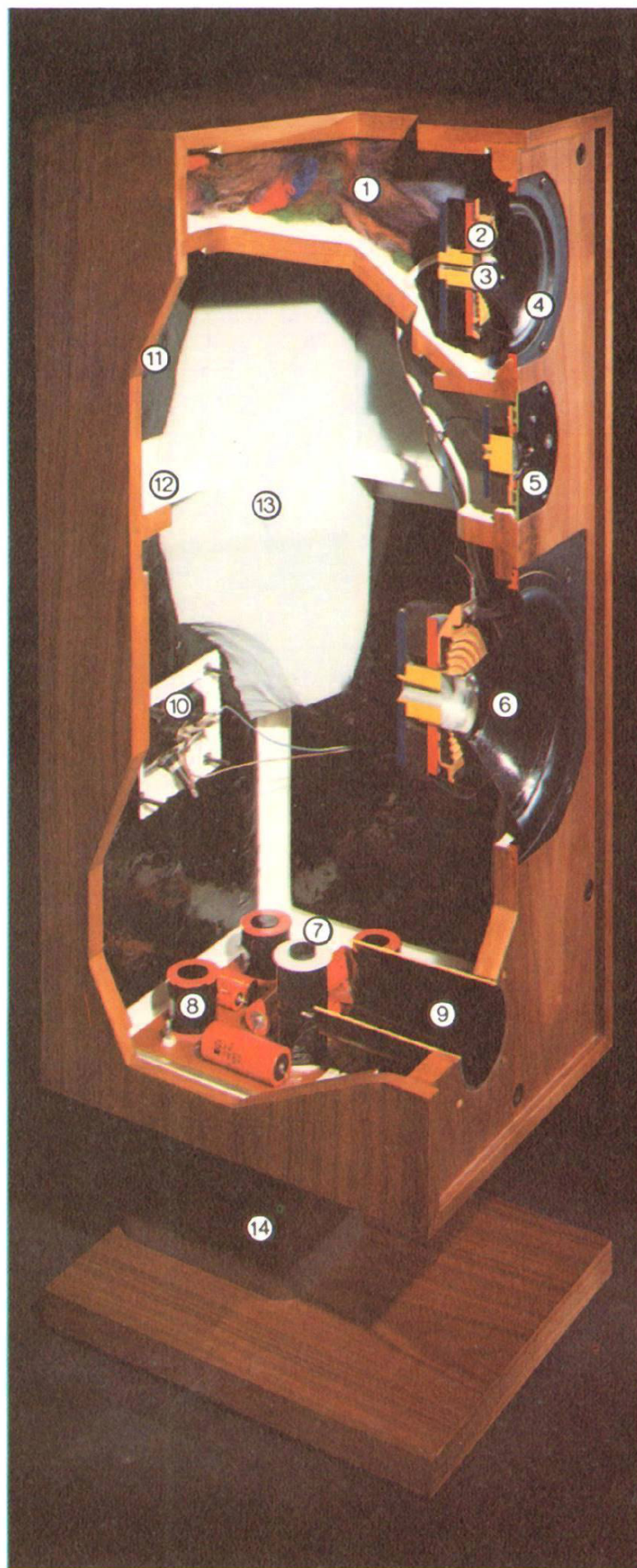
Accurate amplitude and phase coherence to free-field response within the listening window.

#### **SENSITIVITY**

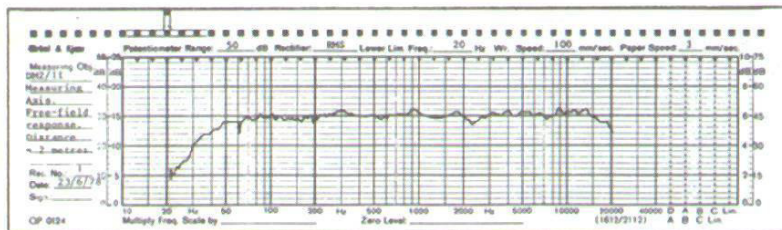
9 volts into 8 ohms = 95 dB at 1 metre (free-field).

#### **POWER HANDLING**

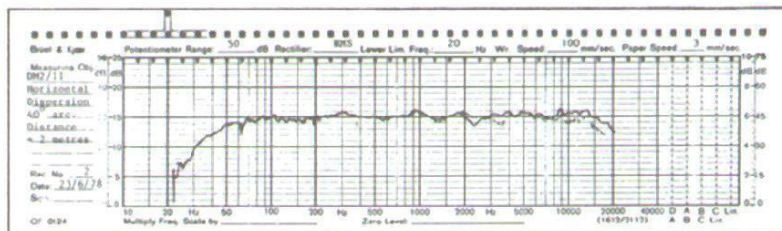
Entirely suitable for amplifiers delivering 25 to 200 watts into 8 ohms.



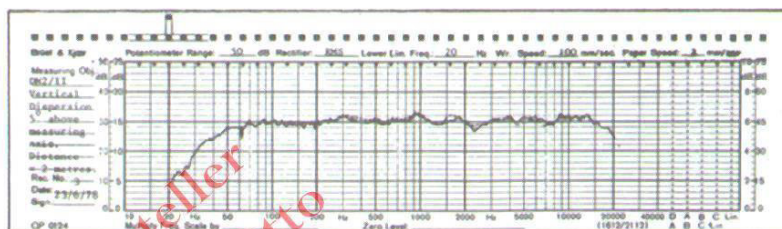
1. Mid-range enclosure – separate "line" tapered and critically damped with natural long-haired wool
2. High-temperature voice coil and rear suspension assembly allow exceptionally safe high power handling capacity
3. PVC centre dome extends minimum phase behaviour
4. Computer-designed concave PVC front suspension absorbs cone wave front and provides minimum defraction from termination
5. High-frequency driver – 25mm polyester weave with high temperature coil assembly
6. Bass driver – extra long throw, with aluminium voice coil, soft PVC dome and linear front suspension. Gives high low-frequency performance with minimum distortion
7. Crossover and filter network – 19-element unit with true third-order band pass mid-frequency network. Other drivers have third order low- and high-pass networks. All accurately conform to Butterworth characteristic
8. Large cross section ferrite-cored inductors reduce distortion and ensure optimum amplifier damping to drivers
9. Critically tuned vent extends low-frequency performance
10. Terminal tray incorporates protective system fuse
11. Cabinet constructed from high-density particle board. All internal surfaces bonded with bituminous pads to eliminate resonances
12. Extensive bracing at critical points eliminates cabinet "readout"
13. Tailored open cell polyurethane foam pads eliminate all internal cabinet reflections
14. Pedestal stand purpose-designed to give correct listening height. Angled plinth also available



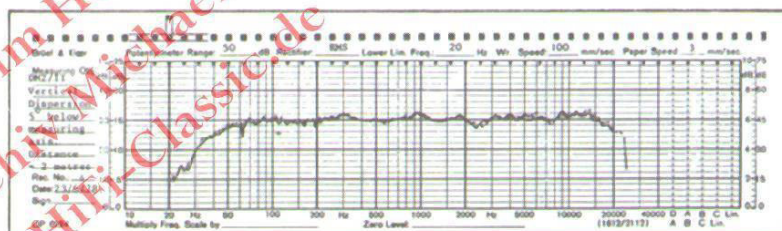
Free-field response on measuring axis at 2 metres



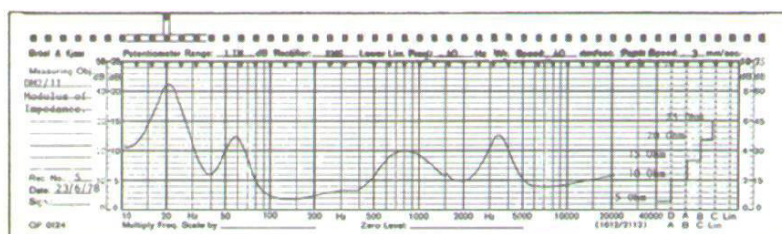
Horizontal dispersion for 40° listening arc at 2 metres



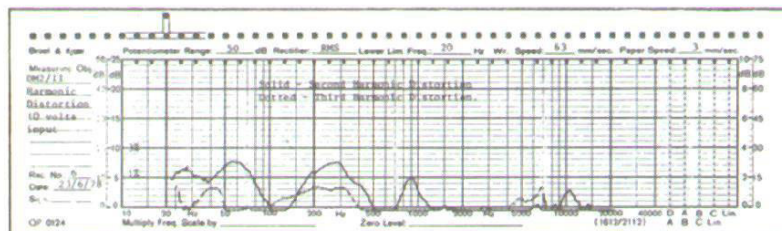
Vertical dispersion 5° above measuring axis at 2 metres



Vertical dispersion 5° below measuring axis at 2 metres



Modulus of impedance



Second and third harmonic distortion

**Cabinet height**

710mm (28in)

**Width**

270mm (10<sup>5</sup>/<sub>8</sub>in)

**Depth**

330mm (13in)

**Weight**

22kg (48<sup>1</sup>/<sub>2</sub>lb)

**Stand height**

188mm (7<sup>3</sup>/<sub>8</sub>in)

**Plinth height**

60mm (2<sup>3</sup>/<sub>8</sub>in)

**Cabinet finish**

**Standard:**

selected veneers of  
teak or walnut

**Special:**

satins white or selected  
veneers of rosewood  
or black ash

**Design**

by Kenneth Grange  
of Pentagram Design  
Partnership

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

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