

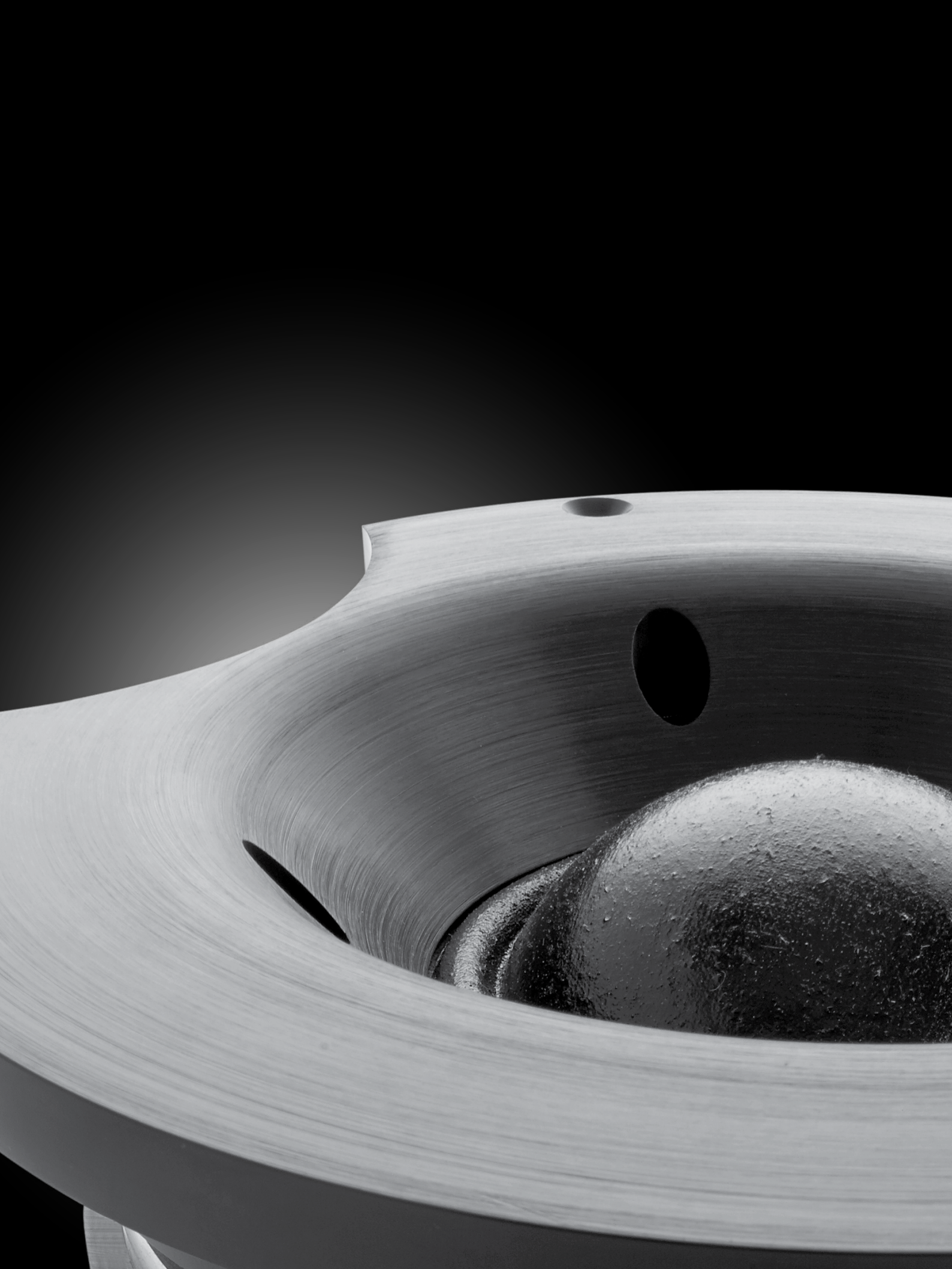


PMMC[®]

MAIN MONITORS
QB1-A &
QB1 XBD-A

PMMC

Unparalleled speed, depth and accuracy



QB1-A

Unparalleled speed, depth and accuracy

Of the numerous challenges faced by the designers of reference monitoring, achieving sufficient range and resolution are two of the most important. The ideal main reference monitor has to present listeners with microscopic detail at all amplitudes and frequencies, from whisper-quiet to the kind of levels you feel in your chest as well as your ears, and from the most delicate bell overtone to profound sub-bass. At the same time, the monitor must provide balanced, uncoloured overall reproduction for mix assessment and general listening.

These are not tasks to which every loudspeaker is ideally suited, and leading artists, producers and engineers are often forced to use different monitors for recording, mixing, mastering and playback. PMC's QB1 Active, the result of intensive research and development, brings together the latest in bespoke driver and Class-D amplifier design, DSP control and PMC's patented **ATL™** bass-loading technology. The result is a single-cabinet reference monitor with analogue and digital inputs (up to 96kHz) that has the transparency, resolution, dynamic range, frequency response, forensic sense of detail, and wide, consistent imaging demanded by the international audio elite. For the last word in dynamic range and smooth in-room response, there is also the twin-cabinet QB1 XBD-A, which adds an extra bass cabinet with a further four piston drivers and independent amplification per channel. The resulting stacked design drives the entire acoustic environment in which it is installed for a smoother in-room response, and offers power-users an invaluable further 3dB of headroom.

In either version, the QB1-A offers discerning professionals the sense of scale and headroom they need to craft their audio at all stages of production. From macro to microscopic, instantly and effortlessly, whenever required.

Insight

Both the QB1-A and the twin-cabinet version, the QB1 XBD-A, can certainly produce level, with both reaching 132dB at one metre. But this carefully engineered maximum output is not achieved at the expense of accuracy or distortion-free performance. Each single-cabinet channel has an expansive 5625W of PMC's Class-D amplification at its disposal, while the QB1 XBD-A offers a staggering 10,425W of power per channel.

Whether you choose the single- or twin-cabinet variation, the latest iteration of PMC's **ATL™** technology ensures a faithful low-frequency response down to 20Hz. The cutting-edge onboard DSP provides driver EQ and carefully designed crossover optimisation, while the wired RJ45 desktop control provides user-friendly access to user EQ settings via its backlit display and jog wheel, with the ability to store up to four user setup presets.

- Available as QB1-A and QB1 XBD-A twin-cabinet versions
- Extremely dynamic, low distortion and high resolution
- Vast headroom – 5625W of PMC's Class-D power per channel in the QB1-A, and 10,425W in the QB1 XBD-A
- Maximum SPL of 132dB @ 1m
- Ultra-wide dispersion – an accurate balance over a huge listening area
- PMC's **ATL™** bass loading for linear low frequency extension to 20Hz
- Cutting-edge DSP for ultra-precise EQ & driver optimisation
- Remote control of EQ, custom EQ settings, level & input selection
- Analogue and digital inputs (96kHz)



The RJ45 wired remote features a jog wheel making remote set up, input switching, 4 personal EQ settings and overall EQ quick and easy.



The QB1 XBD-A offers power-users an extra 3dB of operating headroom over the single-cabinet QB1-A, and the smoothest in-room response.



POWER - CONTROL -

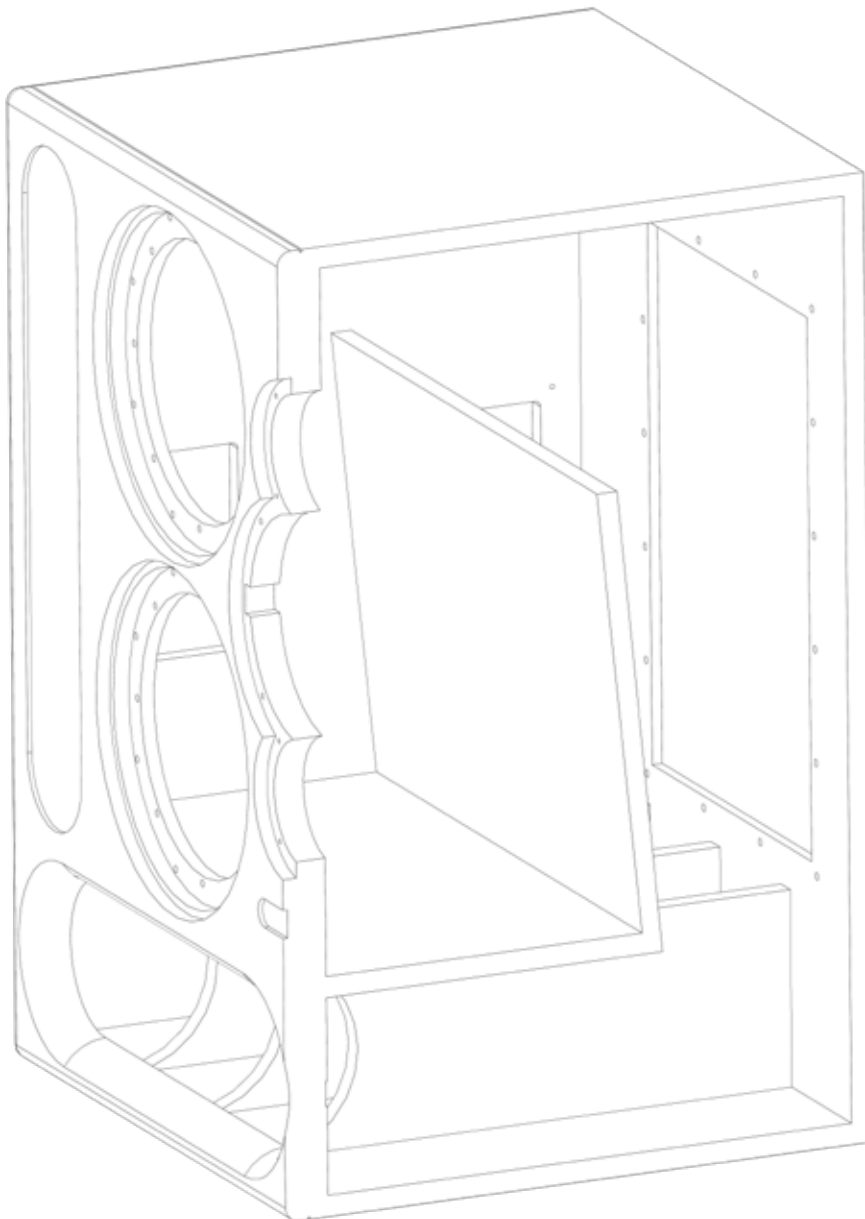
QB1-A & **twotwo.8** monitors in Capitol Studios,
Studio A, LA, USA



SCALE - CONFIDENCE

Construction & craftsmanship

The construction of the QB1-A attests to PMC's craftsmanship and attention to physical details. The front baffle is constructed from extra-thick 36mm Medite® to reduce colouration, while extra bracing and damping inside the speaker cabinet prevents noise and reduces resonance to insignificant levels beyond the limits of human audibility. Inside the transmission line, newly introduced vertical strakes add further bracing and simultaneously reduce turbulence in the throughput airflow, making it laminar and contributing to the QB1-A's faster, more dynamic sound. Even the speaker's dimensions have been carefully considered: at 1092 x 820 x 523 millimetres (WHD), the single-cabinet QB1-A will retrofit into almost all existing studio soffits. Alternatively, its **ATL™** design means that free-standing use has no impact on its effortlessly smooth bass response.



ATL™

Advanced Transmission Line

ATL™ bass-loading technology offers the following advantages over ported monitors:

- Exceptional LF extension with no colouration
- Identical tonal balance at all levels
- Higher SPLs without compression or listener fatigue
- A truly accurate response that translates



The smallest example of an **ATL™** – the tiny DB1S

Technically superior bass loading

PMC's unique **ATL™** (Advanced Transmission Line) enclosures have taken loudspeaker design to the highest level, using sophisticated cabinet construction, proprietary drive units, and patented absorption materials and techniques. The benefits are enormous compared to the relatively simple sealed and ported designs currently available elsewhere.

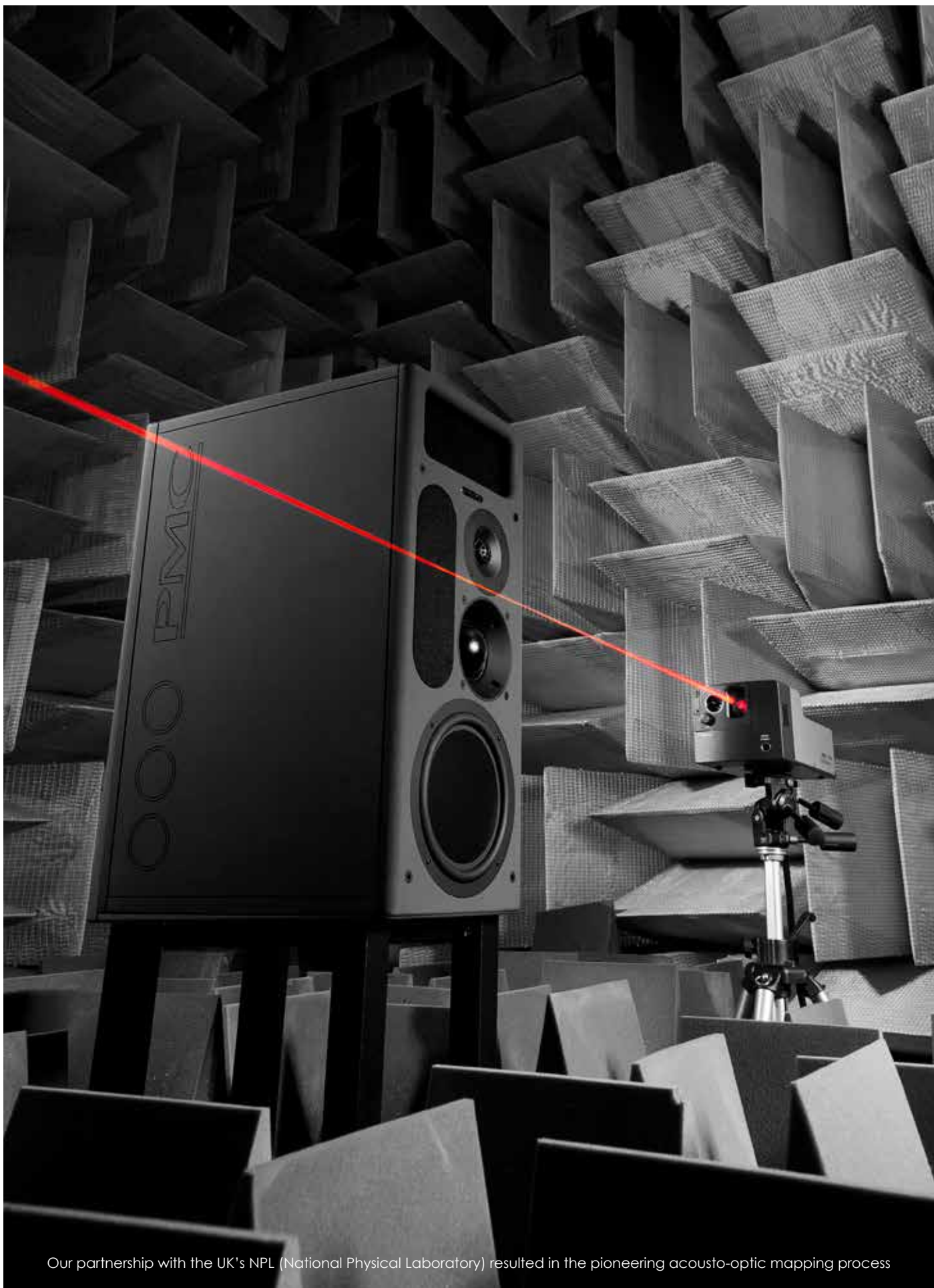
PMC's innovative approach places the bass driver near one end of a long cavity **ATL™** (the Advanced Transmission Line). This cavity is heavily damped with acoustic material specified carefully to absorb the upper bass and higher frequencies radiating from the rear of the bass driver. The lowest frequencies are allowed to pass down the line and emerge from the large frontal vent in the same polarity as the driver's direct radiation, the vent acting essentially as a second bass driver.

An important benefit of the approach is that the air pressure inside the cabinet, which loads the bass driver,

remains consistent. This helps to maintain control of the driver over a wide frequency range and significantly reduces LF distortion. Consequently, the upper bass and mid-range detail is not masked by harmonic distortion and the result is PMC's characteristically transparent mid-range, fast, attacking bass, and outstanding clarity.

A further advantage of the **ATL™** design approach is greater bass extension and higher SPL capability compared to typical ported or sealed designs of a similar size – even if similar drivers were used.

Moreover, the very consistent bass driver loading brings the welcome benefit that the frequency response remains consistent regardless of listening level, and analytical auditioning can be conducted without needing high replay volumes just to achieve an optimal bass response. This is a unique and very valuable characteristic of PMC's Advanced Transmission Line.



Our partnership with the UK's NPL (National Physical Laboratory) resulted in the pioneering acousto-optic mapping process

Pioneering driver R&D

For over 20 years, PMC has been manufacturing drive units for the most analytical and critical professional clients, for whom quality and reliability are of paramount importance. The QB1-A's handmade, individually matched drive units are the results of pioneering research into driver performance carried out using opto-acoustic laser interferometry techniques at the UK's National Physical Laboratory, and subsequent development to create designs of an even higher standard.

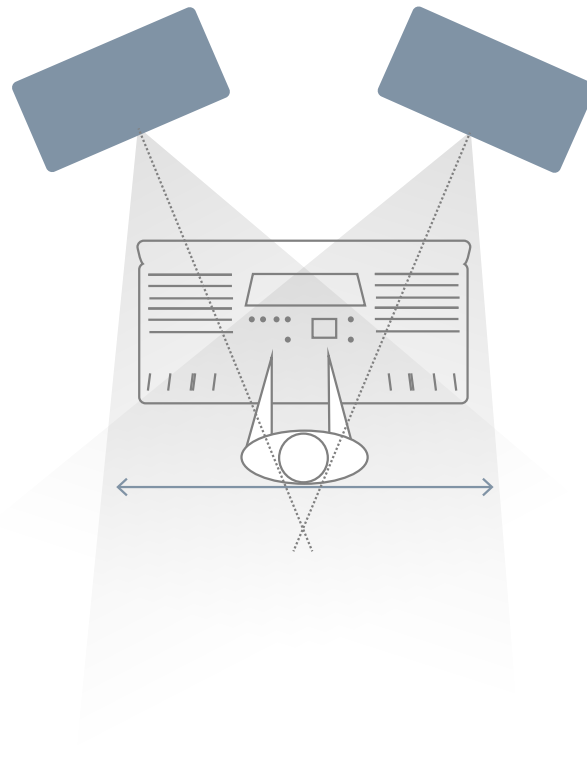
Laser interferometry allows the soundfield around a loudspeaker to be mapped out using light, relying on the fact that sound waves affect the refractive index of the air they travel in. By accurately measuring the delay of a laser beam passing a speaker as it generates audio, an accurate picture of the speaker's acoustic dispersion pattern can be built up with speed. Once this is done, it is easy to carry out comparative studies with different crossover, cabinet and driver designs, directly observe the effects on dispersion and performance, and make appropriate refinements. The QB1-A has benefited greatly from access to these techniques.

At the time of writing, PMC remain the only monitor manufacturer worldwide to have made use of opto-acoustic laser interferometry as part of their R&D processes.



Impeccable drive

Each QB1-A employs three proprietary driver types. PMC's renowned soft-dome 34mm HF driver produces a natural, transparent sound with super-low distortion and a wealth of headroom, while its perforated acoustic lens extends the high-frequency response beyond 25kHz and controls dispersion to ensure integration with the mid-range driver. The latter is the highly efficient (94.5dB for 1W at one metre) 75mm soft-dome MF driver widely respected for its use in the award-winning MB2, IB2 and BB5. In the QB1-A, it presents music of all kinds, and vocal performances in particular, with grace and transparency, and at high SPLs where required, but without inducing fatigue during extended listening sessions. The QB1-A also adds a hand-brushed, anodised MF dispersion flange milled from solid aluminium to perfect the MF unit's integration with the HF driver at the crossover point. Depending on client requirements regarding the height placement of the QB1-A, the HF driver may be placed above or below the MF driver as needed.



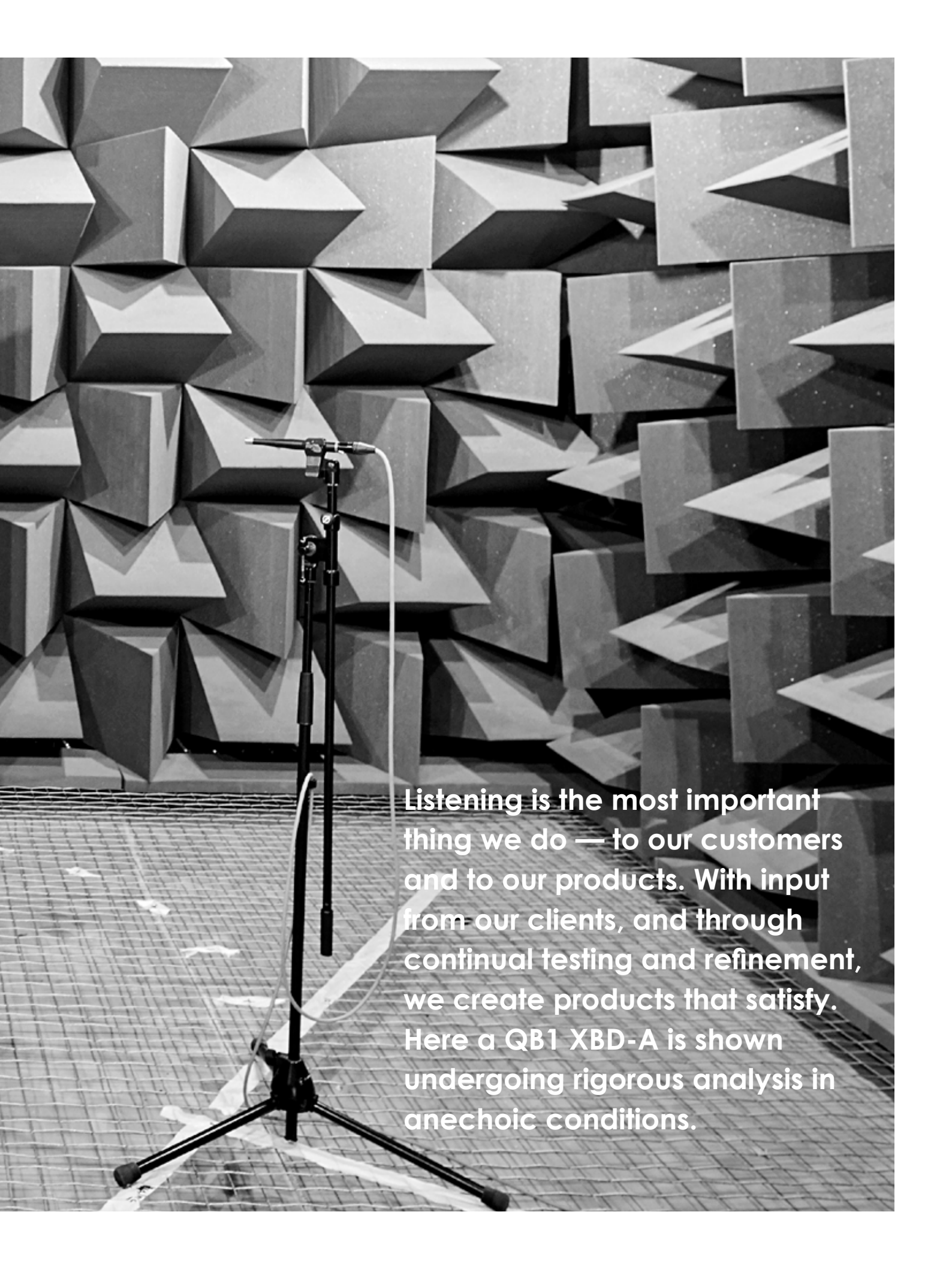
The QB1-A's ultra-wide dispersion provides both a vast image and perfect tonality over a larger area.



Piston power

No fewer than four handmade, individually matched low-frequency drivers are deployed to handle the QB1-A's low end in each cabinet, situated adjacent to the heavily damped, high-compression transmission line. On the QB1 XBD-A, there are no fewer than *eight* bass drivers per channel. All make use of PMC's proprietary 'honeycomb' carbon-fibre/Nomex® design in an extensively vented, cast-aluminium chassis. The light-but-rigid flat-faced 10-inch piston driver in each LF unit ensures a near-instantaneous, yet highly accurate transient response, while providing the sheer power required to drive the QB1-A's transmission line, which exceeds what an off-the-shelf cone driver can produce without deformation. The result reduces distortion, avoids power compression, and increases power handling and headroom, giving a bass response and performance that no other monitor can approach, with continuous reliability, and with unparalleled speed, depth and accuracy.





Listening is the most important thing we do — to our customers and to our products. With input from our clients, and through continual testing and refinement, we create products that satisfy. Here a QB1 XBD-A is shown undergoing rigorous analysis in anechoic conditions.

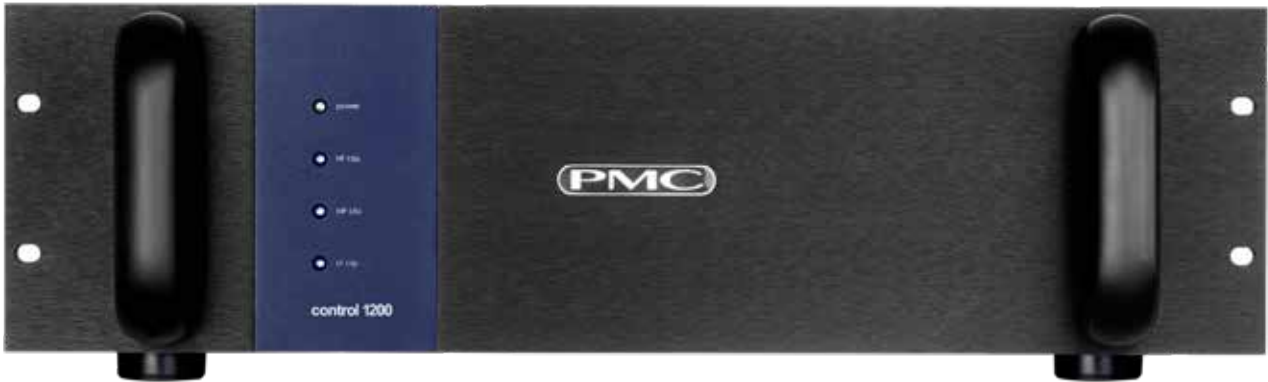


Per QB1-A channel (shown above)
1x **control 1200** (DSP management, 275W HF, 550W MF)
2 x **power 2400** (4800W LF)

Per QB1 XBD-A channel
1x **control 1200** (DSP management, 275W HF, 550W MF)
4 x **power 2400** (9600W LF)

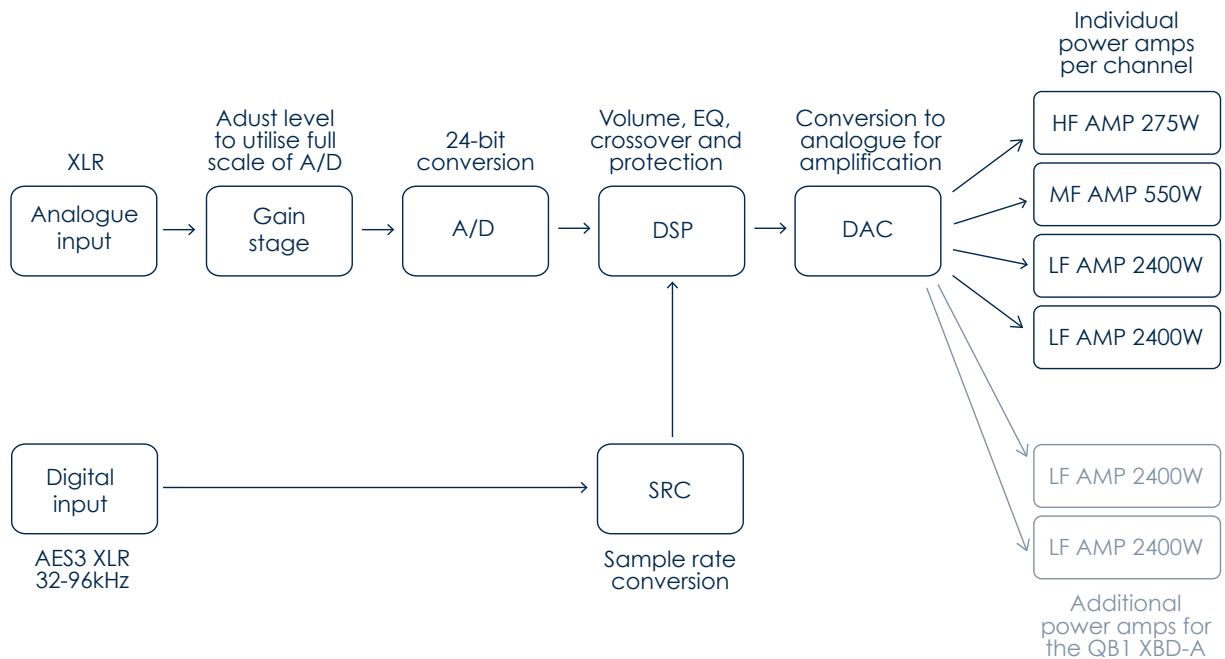
The power to deliver

The QB1-A drivers are powered by PMC's own cutting-edge DSP-controlled Class-D amplification, which is designed, like the drivers themselves, for maximum transparency, resolution and fidelity with ultra-low distortion. The DSP control is employed minimally, to fine-tune what are already high-specification electro-mechanical designs and thereby extract an even better performance from them. The QB1-A is powered by dedicated amplifiers, with 275W of power dedicated to the HF driver, 550W for the mid-range, and an awesome 4800W for the four bass drivers — that is, 1200W of power for each piston driver. On the twin-cabinet QB1 XBD-A, a total of 9600W of independent amplification is devoted to the LF drivers alone. The result is immense headroom and near-instantaneous, highly dynamic stop/start control over the bass units. The high-specification driver design also ensures that the QB1-A has a flat response at all levels and frequencies, no matter what impedance is presented to the amplifier by the drivers.

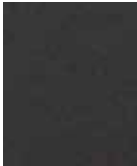


Intelligent use of DSP

As in all the other areas of the QB1-A's design in which it is employed, the DSP is used minimally to finesse already exceptional aspects of the design. The three-way crossover implemented by the powerful DSP engine, with steep 24dB-per-octave roll-offs, allows for the best possible match between the responses of the three driver types and their roll-off rates, and ensures that no drivers are fed with frequencies outside their linear, optimum performance range. Any minute anomaly within a driver's response can be recognised and compensated for, providing a flatter, more natural-sounding balance over a massive listening area.



QB1-A specifications per channel

Type	Active, single-cabinet reference monitor
Usable frequency response	20Hz - 25kHz
Maximum SPL	132dB @1 metre
Effective ATL™ length	2.7m (8.9ft)
Crossover frequencies	380Hz & 3.8kHz
Drive unit complement	LF 4 x PMC carbon fibre/Nomex™ 250mm/10" piston driver MF PMC hand-built 75mm soft dome driver HF PMC 34mm soft dome tweeter with acoustic radiator
Amplifier power	LF 2 x 2400Wrms, MF 1 x 550Wrms, HF 1 x 275Wrms
I/O	Balanced analogue input, digital AES3 input
Digital input	AES3, 96kHz 24bit
Analogue input sensitivity	Adjustable +4dB to +20dBu
EQ	LF shelf +/-8dB, HF shelf +/-8dB
Remote control	Wired via RJ45, rotary volume -48.5dB to +15dB
Operational voltage	115V/230V
Cabinet dimensions	H 820mm (32.2") W 1092mm (42.9") D 523mm (20.6") (max depth)
Weight	150kg (330lbs) (excluding electronics)
Finish	 Black

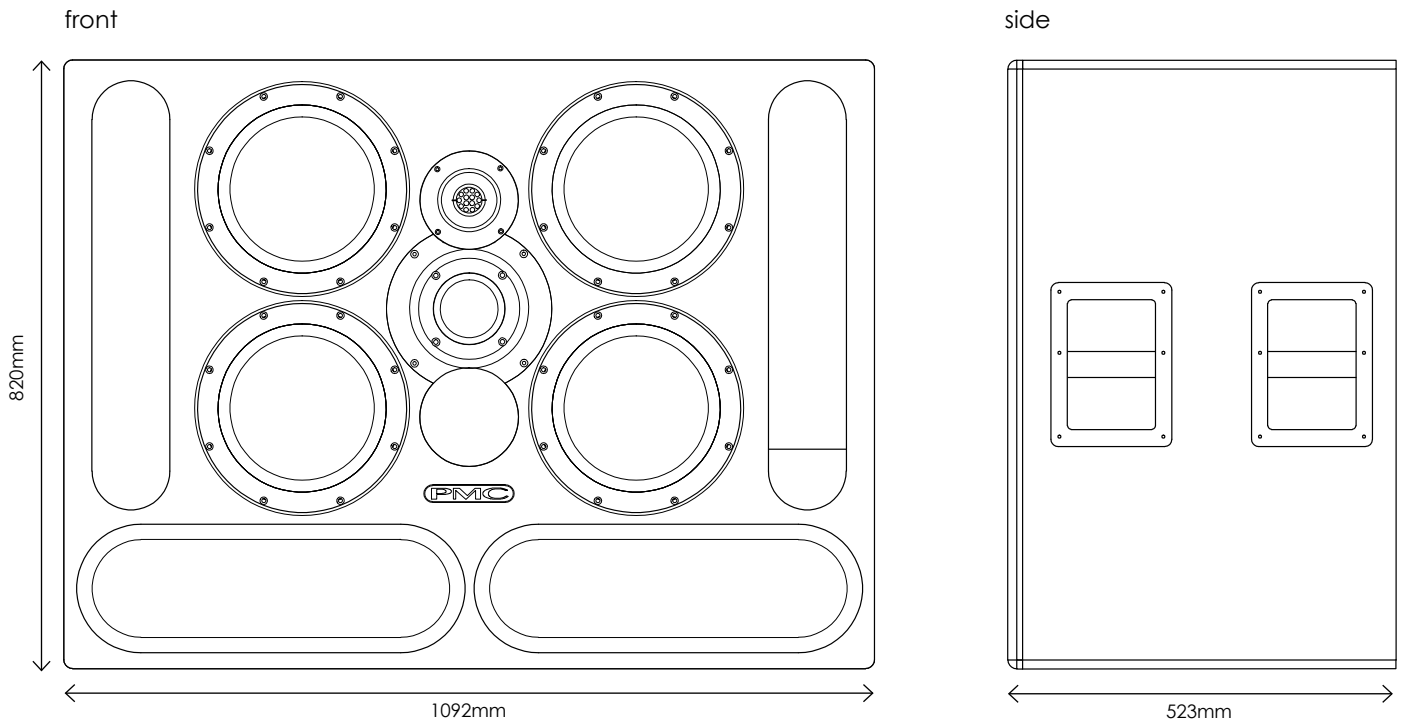
NB: Bespoke finishes are available on request

Subject to change without notice

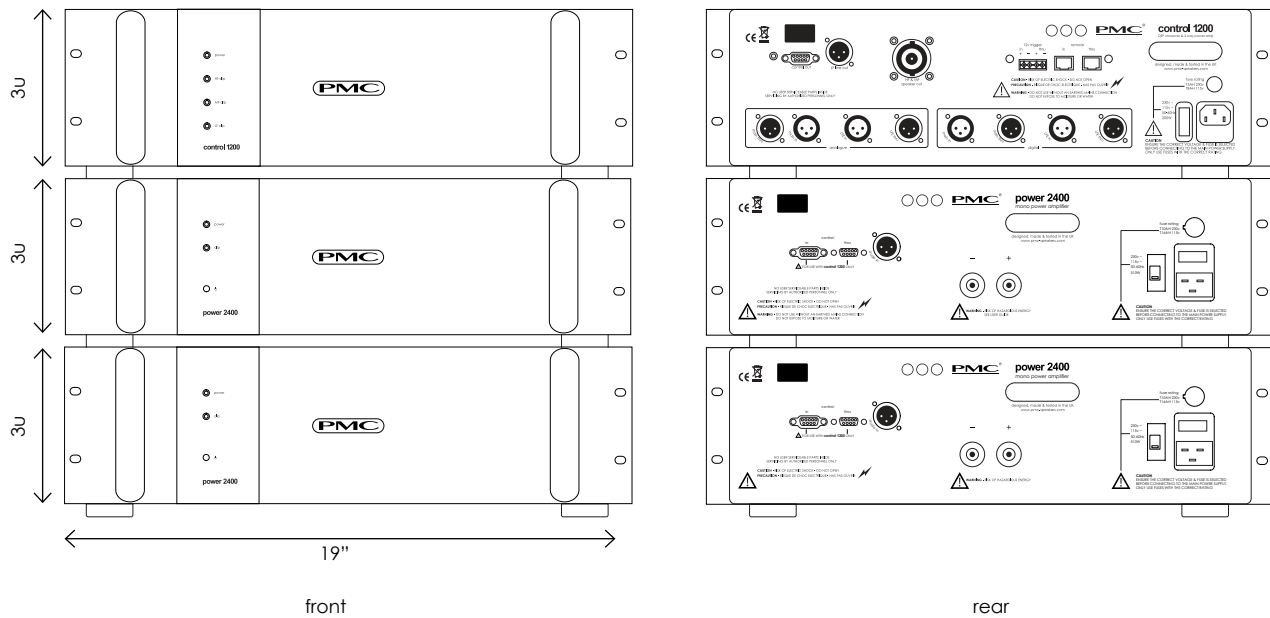


QB1-A

QB1-A system configuration



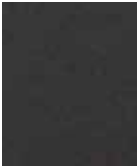
DSP and power amplification per channel





QB1-A & **result6** monitors in Metropolis Studios,
Studio A, London, UK

QB1 XBD-A specifications per channel

Type	Active, twin-cabinet reference monitor
Usable frequency response	20Hz - 25kHz
Maximum SPL	132dB @1 metre
Effective ATL™ length	2 x 2.7m (8.9ft)
Crossover frequencies	380Hz & 3.8kHz
Drive unit complement	LF 8 x PMC carbon fibre/Nomex™ 250mm/10" piston driver MF PMC hand-built 75mm soft dome driver HF PMC 34mm soft dome tweeter with acoustic radiator
Amplifier power	LF 2 x 2400Wrms, LF (XBD) 2 x 2400Wrms, MF 1 x 550Wrms, HF 1 x 275Wrms
I/O	Balanced analogue input, digital AES3 input
Digital input	AES3, 96kHz 24bit
Analogue input sensitivity	Adjustable +4dB to +20dBu
EQ	LF shelf +/-8dB, HF shelf +/-8dB
Remote control	Wired via RJ45, rotary volume -48.5dB to +15dB
Operational voltage	115V/230V
Cabinet dimensions	H 1640mm (64.6") W 1092mm (42.9") D 523mm (20.6") (max depth)
Weight	290kg (638lbs) (excluding electronics)
Finish	 Black

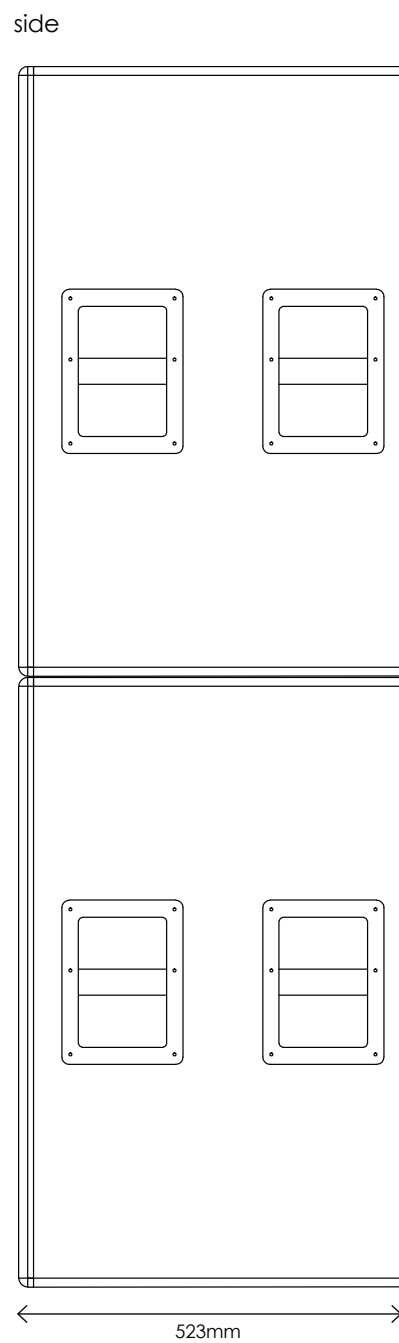
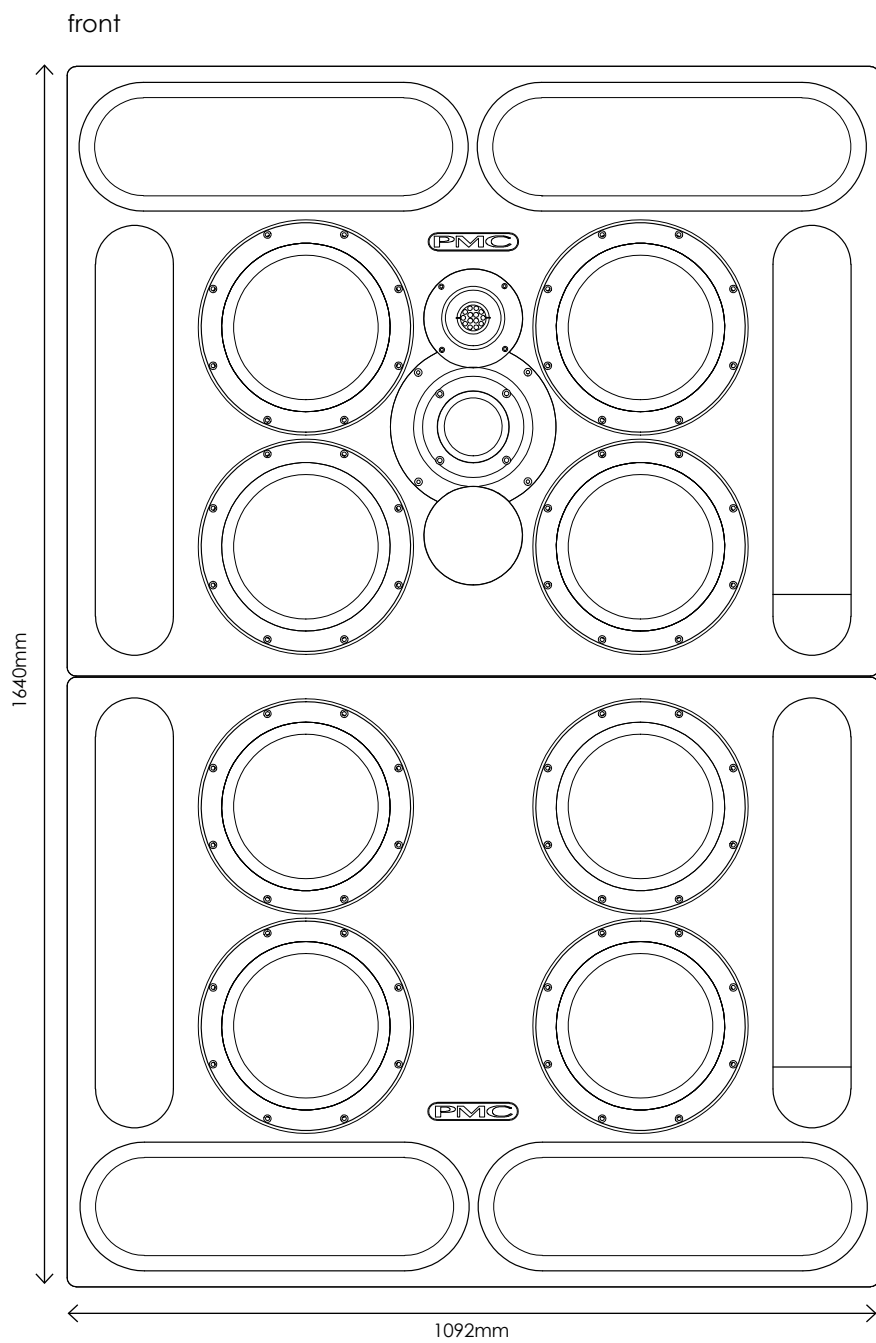
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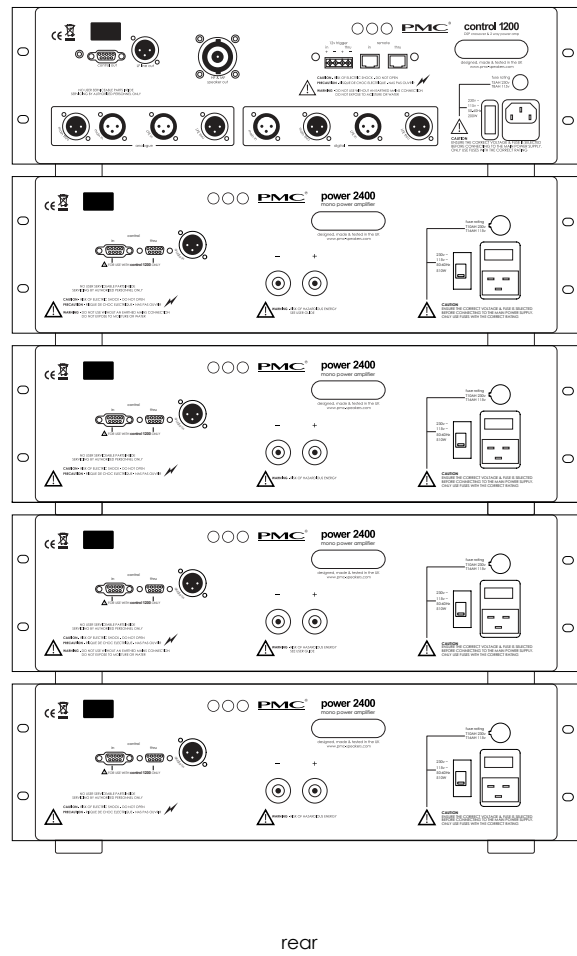
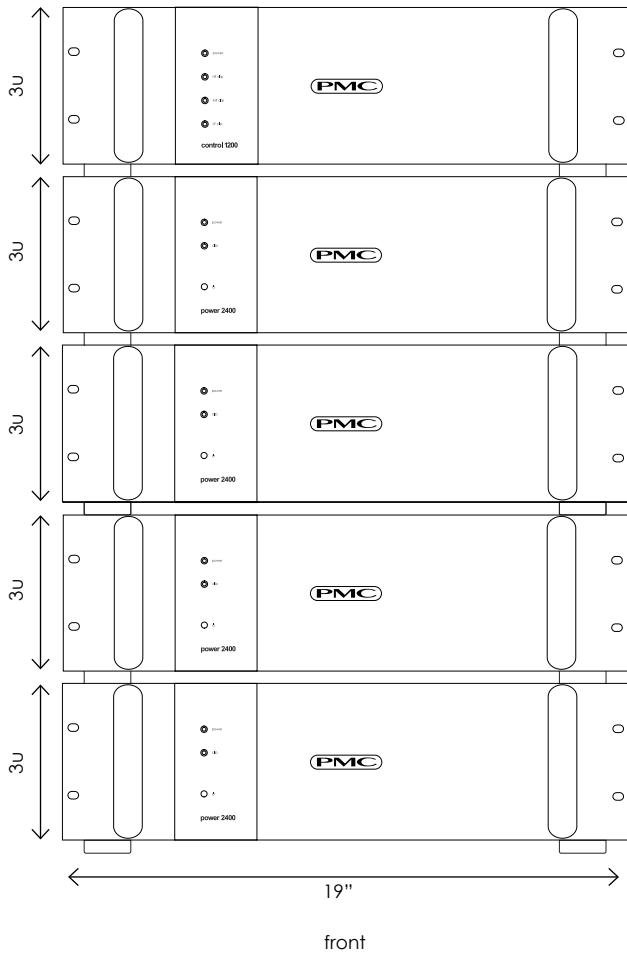


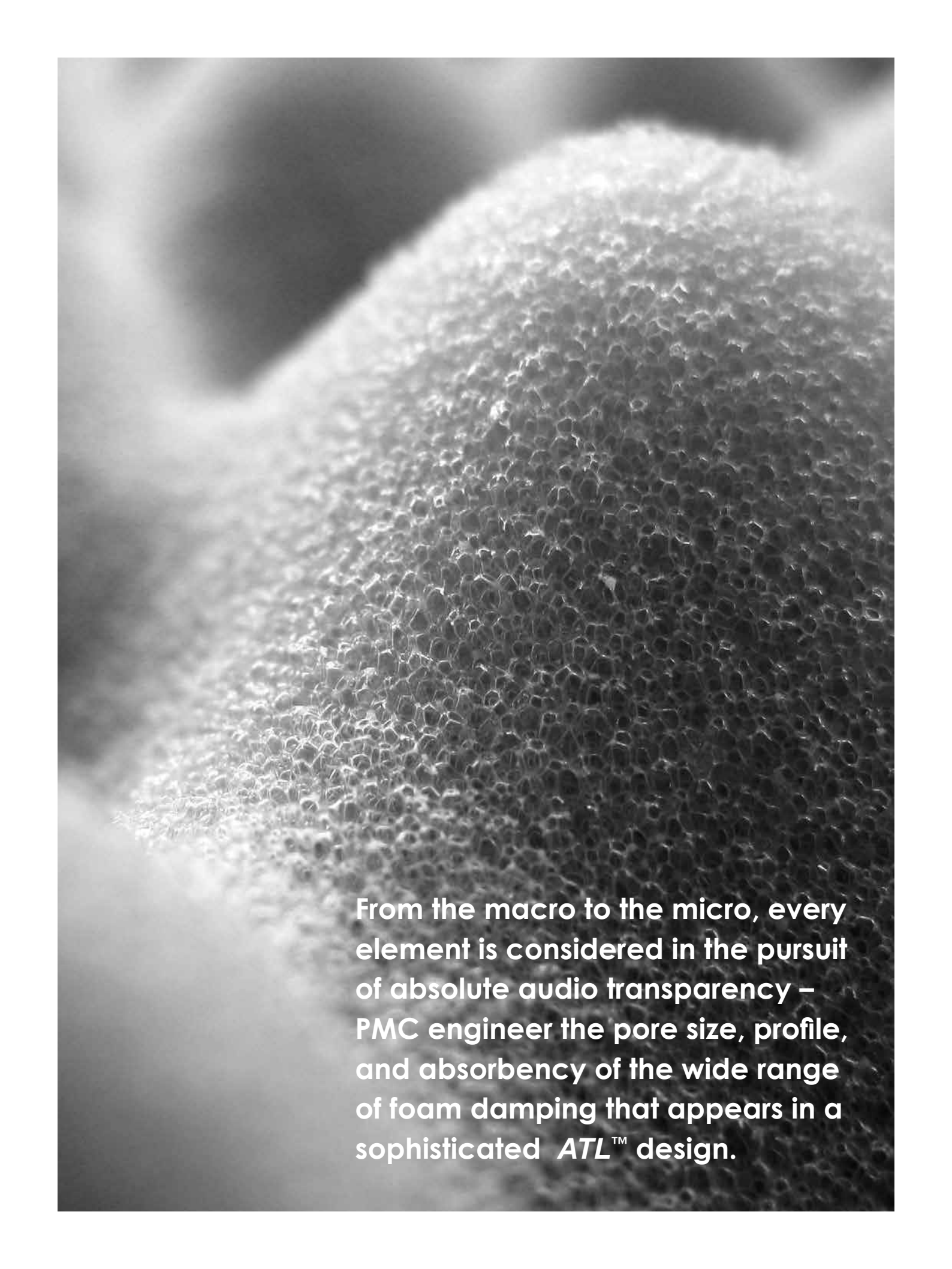
QB1 XBD-A

QB1 XBD-A system configuration



DSP and power amplification per channel





From the macro to the micro, every element is considered in the pursuit of absolute audio transparency – PMC engineer the pore size, profile, and absorbency of the wide range of foam damping that appears in a sophisticated *ATL*[™] design.



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