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JBL HDI-3800

Promising the 'iconic JBL sound' from modern cabinets, we hear the flagship HDI floorstander

Review: James Parker Lab: Paul Miller

Some speakers are large, but manage to conceal their bulk through clever styling, but the £4000 HDI-3800 flagship of JBL's 'High-Definition Imaging' series manages to do exactly the opposite. It may only stand 1.1m tall, yet the combination of width and depth – 30cm and almost 42cm respectively – and a particularly upfront driver array makes this a rather imposing speaker to have in the room, with echoes of the company's PA range.

OK, so it's not pretty, and you can hide those drivers with the magnetically-attached grilles supplied, but there are signs the designers have at least tried to make these big, heavy (38kg), bluff speakers more acceptable in a domestic location. The radiused edges of the front baffle softens things a little, and the grey oak wood veneer finish seen here, while unusual, does lighten things a bit, giving the enclosures a more contemporary feel.

LITTLE WELLY

Moreover these large, if not huge, speakers need more care with positioning than in choice of partnering amplifier. They might not quite have the suggested 92dB 'party mode sensitivity' [see PM's Lab Report, p49] but the HDI-3800 still doesn't need a lot of power to 'go loud'. Having cranked up the Classé amplification [*HFN* Jun '21] to high levels for last month's review of the huge PMC Fenestria speakers [*HFN* Aug '21], I was amused to discover just how little welly these JBL boxes required to fill the room with sound at high levels. A 75W/8ohm amplifier is perfectly sufficient.

The HDI-3800 sits atop the HDI range, above the £1499 HDI-1600 standmount and a more compact £2999 HDI-3600 floorstander. There's also a hefty five-driver HDI-4500 centre speaker (£1399) and matching subwoofer – the £1900 HDI-1200P, complete with a 30cm driver and 1kW amp – available to complete a surround sound system.

Common to all but the sub is JBL's 2410H-2 25mm compression tweeter, mounted in the waveguide from which the

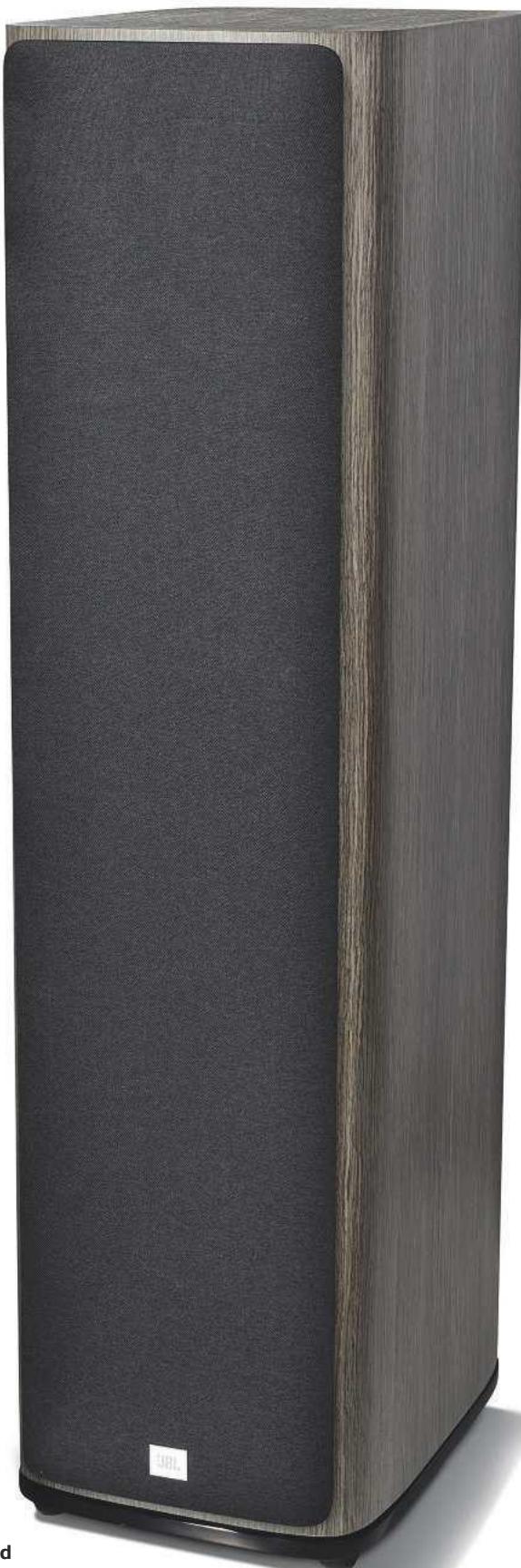
HDI range takes its prefix [see PM's boxout, p47]. Meanwhile the model numbering indicates – well, almost – the number and size of the mid/bass drivers used: the HDI-1600 uses a single 165mm unit, and the HDI-3600 three of the same; the centre speaker has four 130mm drivers; and the HDI-3800 we have here sports a trio of 8in/200mm units.

PORT AUTHORITY

In all but the standmount, the drivers operate in a 2.5-way configuration, with the uppermost 200mm driver here covering bass/mid up to 1.8kHz and the two lower units working up to 800Hz, down to a claimed 37Hz. These drivers use what JBL calls an Advanced Aluminium Matrix cone – combining stiffness and low mass – together with a long-throw voice coil, a flux stabilisation ring and a copper shorting ring, designed for maximum output without distortion. The HDI-3800's bass is tuned with two large-diameter ports on the rear panel, above the twin sets of terminals to allow for bi-wiring or bi-amping.

In other words, while the speaker uses no shortage of proprietary technology developed at JBL's design and engineering facility in Northridge, California, the overall design of the speaker is fairly conventional, this placing one significant constraint on their positioning in the listening room. While the instructions suggest the speakers be kept at least 50cm from the side walls,

RIGHT: The HDI-3800's curved and substantially braced cabinet is offered in auto-grade gloss black, satin walnut or gray oak wood [pictured] veneers and includes a full-height magnetically-attached grille





AROUND THE HORN

If there's one brand synonymous with horn-loaded loudspeakers then that's JBL, not least because of its footprint in the pro-audio/sound reinforcement industry where horns help achieve the high sensitivities and constant directivity necessary for controlled audience coverage. Continued research into optimum horn profiles, and the compression drivers at their throat, have also kept JBL at the forefront of domestic implementations, most notably with the flagship Project Everest DD67000 [HFN Aug '14]. The horn-loaded tweeter featured in the HDI-3800 is a little less sophisticated although its claimed range – down to 1.8kHz – remains ambitious [see Lab Report, p49].

The driver is based on JBL's iconic 2410 pro-series model, although the alloy diaphragm is replaced here with a softer (Teonex) dome that improves its efficiency by compressing the small volume of air trapped immediately in front. A concentric, exponential phase plug is placed just ahead of the dome in an effort to provide multiple, equal-length pathways for the sound waves to navigate out to the throat of the flared horn. In practice it's impossible to avoid unequal pathlengths out of the horn, just as non-ideal impedance matching with the air at the horn mouth causes reflections and resonance, but JBL is well versed in optimising what is inevitably an imperfect solution. PM

and the diagram indicates the distance from the wall behind them can be somewhat less, the time I spent listening to them suggests otherwise. If they're at all close to the rear wall, the massive bass of which they're capable will dominate the sound at the expense of the midrange and treble.

MAGNETIC IMAGING

For our listening, until we hauled the speakers to a position at least a metre clear of the walls, I was reminded of those massively-woofered Cerwin Vega models once all the go with a particular type of listener back in the age of hip-hop and rave. In other words, fun as party speakers, but not what you'd expect from a £4k design. Drag them out into the room, and things improve markedly.

The manual's guidance on toe-in is worth following, however. Setting the speakers so they form an angle of no greater than 60° at the listening position will give the most stable and focused stereo image – and imaging

LEFT: Three 200mm 'aluminium matrix' drivers dominate this tower, the lower pair working up to 800Hz, the upper to 1.8kHz before crossing over to a 25mm Teonex compression driver mounted into an 'HDI' waveguide

is one area in which these speakers excel when set up correctly, going a long way towards living up to that HDI billing.

Having tamed the bass, I found the speakers to be on the exciting side of neutral. The bass is still forceful, even with optimal positioning but it's well-controlled, contributing to rather than dominating the overall sound. Even with a minimal recording such as the Oyster Duo's *Stolen Pearls* [Channel Classics CCS43121], the HDI-3800s still remain a little bigger and bolder than one might wish for, bringing out the resonance of the double-bass and making the piano sound a little recessed despite the fine imaging.

On the other hand, they're on much more solid ground with the simplicity of 'Water Of Love' from the first Dire Straits album [Vertigo UIGY-9032]. There's a slight sense of Mark Knopfler's vocal coming from the corridor outside the studio, but the instrumentation has good bite, detail and character.

The impression that these are fine rock speakers is reinforced when playing Zappa's '88: The Last US Show [Zappa Records ZR 20036-2]. Here the live version of 'Peaches En Regalia' is powered on by the drums and bass, while Zappa's take on 'Stairway To Heaven' reveals good detail in the vocals and the oddball effects. It's not the cleanest sound, but then neither is the recording, but without a doubt these speakers rock – and yes, they'll go very loud without signs of distress. You don't have to ↗

'There's
deep bass
you hear and
also feel'



push them hard for them to sound exciting – but when you do...

With the medley of 'Steal Away' and 'Hidden In Plain Sight' on Paula Cole's *American Quilt* album [675 Records 538668572] there's perhaps a little too much sibilance on the singer's voice in the opening section, but when the track moves on there's fine ambience and good percussive punch as well as instrumental detail. I've heard this track sound subtler and more nuanced through comparably priced speakers, but there's no denying the 'JBL version' is highly involving.

Even at lowish levels, these speakers do the 'bass you feel as much as hear' thing, for example with the growing complexity of Porcupine Tree's epic 'Arriving Somewhere But Not Here' from

LEFT: JBL's compression tweeter is further isolated from the mid/bass drivers by its split crossover and dual sets of 4mm cable posts, supporting both bi-wiring and bi-amping. The woofers are reflex-loaded by two huge rear ports

Deadwing [KSCOPE 986], where the combination of information and scale serves well the almost symphonic scale of the track.

STATELY WEIGHT

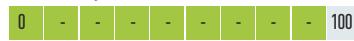
That said, there's a slight sense that the bass can be a tad slow at times – Andreas Bye's crisply forceful drumbeats opening 'In The Mountains', from the Espen Eriksen Trio's *Never Ending January* album [Rune Grammofon RCD2173] have a little of the 'plastic barrel' about them. However, the balance when the entire trio joins in is entertaining enough, Eriksen's piano having stately weight in the lower octaves and fine delicacy in the right hand, while Lars Tormod Jensen's bass is suitably sonorous, and the soundstage image unforced.

With the testing Britten 'Young Person's Guide To The Orchestra', from the Michael Stern/Kansas City Symphony *Britten's Orchestra* set [Reference Recordings RR-120], the HDI-3800s sail through the masses of detail, presenting a persuasive view of each instrumental section. The vivid percussion is particularly enjoyable, and all the while there's a well-realised picture of the orchestra as a whole. And the great fugue with which the piece concludes sounds magnificent, not least due to the drama the speakers deliver with massed forces and bass slams. ☺

HI-FI NEWS VERDICT

The HDI-3800 speakers may not be the purest-sounding, but their big, bold sound makes for an enjoyable listen – and not just with the rock music that's their obvious forte. You need some space to let them breathe if their prodigious bass isn't to dominate – perhaps JBL should consider some port bungs? – but they're undemanding when it comes to amplification, and many will like the way they play music.

Sound Quality: 83%

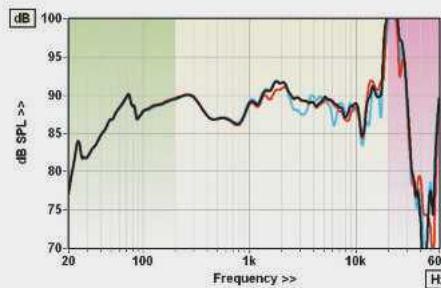


LAB REPORT

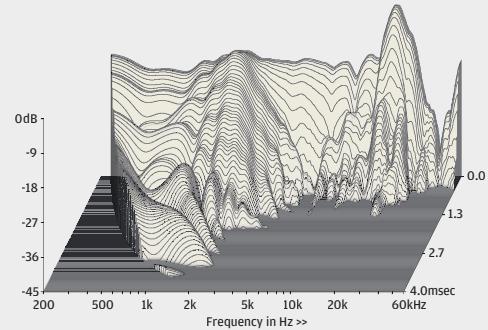
JBL HDI-3800

The breakup mode of the Teonex compression driver, or its interaction with the horn throat, is clearly illustrated just outside of the audioband [pink shaded area, Graph 1] at 22kHz, rising some +15dB above the mean midband output of the HDI-3800. The CSD waterfall [Graph 2] suggests this is short-lived but it also reveals a broader mode/reflection around the 1.8kHz crossover frequency at the limit of the topmost 200mm alloy-coned woofer (-6dB bandwidth of 45Hz-1.4Hz). The midband emphasis between 1-3kHz is visible on the forward response [yellow shaded area, Graph 1], which looks smoother thereafter *without* the diffraction of the grilles in place [blue trace], but the high ±8.4dB and ±8.1dB response errors are due to the lift at 20kHz. The errors fall to a more respectable ±2.8dB/±2.5dB between 200Hz-10kHz while the pair matching remains tight at 1.3dB.

Sensitivity, rated at 92dB, is still very generous at 89.0dB, both at 1kHz or averaged between 500Hz-8kHz. However, as anticipated from JBL's '4ohm nominal' specification, this has not only been achieved by the surfeit of reflex-loaded woofers and horn-loaded top but also by a moderately current-hungry load. The latter drops to a minimum of 4.4ohm/129Hz (sub-8ohm) from 75Hz-2.08kHz and with an ultrasonic dip to 3.4ohm/30kHz and with maximum phase angles of -60°/66Hz/16.2ohm, getting tougher in the midband at +55°/2.1kHz/8.1ohm. The paralleled pair of lower woofers operate over a narrower 48-410Hz (-6dB), rolling off steeply below 72Hz, but the output of this trio, with the low 25Hz port(s) tuning, delivers a bass extension of 35Hz [-6dB re. 200Hz; green shaded area, Graph 1]. PM



ABOVE: Response inc. nearfield summed driver/port [green], freefield corrected to 1m at 2.83V [yellow], ultrasonic [pink]. Left, black; right, red; w. grille, blue



ABOVE: Woofer breakup mode/horn mouth reflection at 1.6/2.9kHz with treble dome resonances thereafter

HI-FI NEWS SPECIFICATIONS

Sensitivity (SPL/1m/2.83V – 1kHz/Mean/IEC)	89.0dB / 89.0dB / 87.0dB
Impedance modulus: minimum & maximum (20Hz-20kHz)	4.4ohm @ 129Hz 36ohm @ 59Hz
Impedance phase: minimum & maximum (20Hz-20kHz)	-60° @ 66Hz +55° @ 2.1kHz
Pair matching/Resp. error (200Hz-20kHz)	4.6dB/ ±8.4dB/±8.1dB
LF/HF extension (-6dB ref 200Hz/10kHz)	35Hz / 18.5kHz/17.9kHz
THD 100Hz/1kHz/10kHz (for 90dB SPL/1m)	0.2% / 0.2% / 2.0%
Dimensions (HWD) / Weight (each)	1101x300x418mm / 38kg