

# Castle Windsor Duke

No citadel in the sky, these latest Castle speakers are firmly grounded in great sound courtesy of the FinkTeam  
 Review: Adam Smith Lab: Paul Miller

What do you get if you take a venerable British loudspeaker marque, mix with the (from 2007) owners' fabrication facility in China, stir in a highly respected German loudspeaker designer and top the whole creation with British assembly? In this case, it's the Castle Windsor Duke loudspeaker, an elegant £4500 standmount design that's the fruit of a truly worldwide network.

Along with their smaller £3850 Windsor Earl brothers, the Dukes are the latest Castle products from the IAG stable. However, while IAG's Director of Acoustic Design, Peter Comeau, has been overseeing new creations for Wharfedale, plus the new Mission 770 [HFN Jun '22] and 700 models, the 'Castle project' was outsourced to none other than Essen-based loudspeaker guru Karl-Heinz Fink.

## GUN FOR HIRE

Alongside his own FinkTeam [HFN Feb '21] and EPOS [HFN Jul '23] loudspeakers, Karl-Heinz has an enviable track record with third-party designs for many loudspeaker manufacturers including ALR Jordan, Q Acoustics [HFN Apr '22], Mordaunt Short, Naim and Tannoy. He has also worked before with IAG (on the Wharfedale Diamond 12 series), and there are apparently further collaborations planned.

Karl-Heinz even has past form with Castle Acoustics; for the first incarnation of the company he worked his magic on the Compact series and the highly successful Richmond 3i. But for the new models, he has stated he had no desire to pick anything from the old Castle back catalogue and bring it up to date. Rather, his intention was to create a new speaker that 'followed the routes of classic British designs but without cloning any particular model. Straightforward engineering was the idea, with well-balanced sound quality, but using modern technology in drivers and cabinets'. When you hear it put like that, it sounds so easy...

As a result, the Windsor Duke is an ostensibly simple two-way design featuring a 200mm bass/mid driver and 28mm tweeter in

a ported, 26 litre cabinet. The Windsor Earl takes a similar form but uses a slightly smaller 165mm bass/mid driver in a more compact 15.8 litre cabinet. Said cabinet is a braced, dual-layer MDF laminate, with the two layers separated by thin, flexible glue, chosen to damp resonances in the midrange region. On the outside, the enclosures are finished in a sustainably sourced real walnut veneer [pictured here] or a somewhat darker, red-hued mahogany veneer. Each pair has a matched wood grain, and is hand-finished, sealed and waxed over a period of several days.

## A TALE OF TWO DRIVERS

The main drive unit is based around a polypropylene cone. However, rather than simply using a pressure-formed polymer cone, the polypropylene is cut into thin strips which are woven back together and bonded to create a new sheet. This material is then used to form the cone which, thanks to the variable stiffness of the woven construction, offers far better control over resonances [see PM's Lab Report, p71]. A low-hysteresis rubber surround joins the cone to a metal chassis, firmly bolted through a chamfered recess in the wooden baffle. The driver's voice coil is wound onto a glass-fibre former and the motor unit includes an aluminium compensation ring that reduces the reactive impedance, and distortion, at higher frequencies.

The Windsor Dukes' tweeter is also a customised unit. The soft 28mm polyester dome is attached to a voice coil of the same diameter, feeding into a standard ferrite magnet and pole piece with a copper cap. And the tweeter follows Fink's trend for not using ferrofluid damping/heat control in

**RIGHT:** Available in 'architectural-grade' walnut or mahogany veneer finishes, the Windsor Duke's two-layer MDF cabinet is ideally partnered with Castle's optional open-frame stand, priced at £500 per pair



the voice-coil gap, pushing the resonance frequency down to a relatively low 800Hz.

The crossover is a fourth-order Linkwitz-Riley type set at a moderate 2.1kHz and featuring air-cored inductors. While it is more common to use iron-cored inductors in the bass arm of the crossover for their reduced copper turns, the slightly higher resistance of these air-cored types is allowed for in the design of the bass/mid driver. The result, according to Castle, is 'a flat response with an easy load for amplifiers and low distortion', claims that are largely backed up by PM's independent measurements [p71].

Fit and finish of the loudspeakers is immaculate, and they are glorious pieces of furniture in their own right. Magnetically attached grilles are supplied but they are best left in the box, for reasons I'll return to. Dedicated open-frame metal stands are available for an additional £500 but these were not supplied for review, so the Dukes were auditioned atop mass-loaded Atacama SL-600 stands, and connected to my regular Yamaha C/M-5000 pre/power amplifiers [HFN Aug '20].

## SHEER SCALE

While the Windsor Dukes are certainly no 'bookshelf' standmounts, I was still unprepared for just how big they would sound. Partnered with a hefty amp, the sheer scale of their output is little short



## BUILT IN BRITAIN

Look around the rear of the Windsor Duke's cabinet [p71] and you'll see the 'Made in Britain' certification stamp. In the past, such logos have not necessarily distinguished between design, manufacturing or just plain 'assembly' in the UK so, for clarity, IAG has signed up to the not-for-profit business initiative at <https://www.madeinbritain.org>. An 'official' UK-centric campaign since 2013, the Made in Britain trade body also counts Monitor Audio [for its flagship Hyphn – HFN Jun '23] and Cyrus among its 2000 or so members. Eligibility requires that 'One hundred per cent of labour/human resource that makes the finished product carrying the mark is in Great Britain or Northern Ireland'.

For Castle's Chinese-owned parent group, IAG (International Audio Group), this has been expedited by the recent expansion of its premises in Huntingdon. With a new 9000ft<sup>2</sup> production facility now on stream, specially selected Mission, Wharfedale and Castle loudspeakers can be built on site. So while the Windsor Duke's drivers are made in IAG's Far East factory to designer Karl-Heinz Fink's exacting specifications, everything else, including cabinets, grilles, crossovers and even the packaging is sourced from the UK. All parts are assembled in-house and the final products undergo thorough QC testing before shipping. As IAG itself states, 'The Huntingdon site is not a high-volume manufacturing facility and none of the speakers lovingly made there will be produced in great numbers, which adds to their allure'.

of astonishing – they really do sound far, far bigger than they look. I must confess to having wondered why anyone would buy standmounts (and a stand), when floorstanders that occupy a similar footprint are still an option. The Windsor Dukes have made me re-think that opinion.

Not only is the scale on offer here impressive, but so is the level of low-frequency extension. It's not difficult to give an illusion of big bass from a small enclosure using port trickery, but this invariably comes undone when you eventually realise that the 'big bass' you are listening to is boomy, honky, one-note and completely devoid of insight. None of this afflicts the Windsor Dukes, though. Their bass is properly big, but also fast, taut and detailed. The port does work hard, however, so do keep them well away from rear walls – I found around two feet to be an absolute minimum.

## ON OR OFF?

The other caveat I must offer at this point regards the grilles. I generally prefer to listen with grilles on but

**LEFT:** Castle employs a 200mm reflex-loaded bass/mid driver with a rigid and lightweight woven polypropylene cone. This is partnered with a 28mm soft-dome 'ferrofluid-free' tweeter

I found those supplied with the Windsor Dukes slightly impinged on their imagery. Moreover, the magnets holding them are really not strong enough, as I was to discover during the review. Best treat them as dust protectors when you're not listening, but nothing more.

When positioned correctly and grille-free, however, the Windsor Dukes are superb performers. They have a uniformity to their sound across the entire frequency range and draw you into the music in an almost hypnotic manner, no matter what you are playing. Harriet's live solo vocals on 'Afterglow' from her *Piano Sessions* CD [self-released through website] gave me a proper 'hairs on the back of my neck' moment. I saw this British singer/songwriter on the tour during which this was recorded, and the Windsor Dukes captured the instrument layout and the emotion of the performance exquisitely.

## CHAIR-RAISING

In fact, harnessing the essence of a recording was something at which Castle's standmounts proved effortlessly competent. The bass guitar notes on the intro to Harry Connick Jr.'s '(I Could Only) Whisper Your Name' from his *She* album [Columbia 476816-2] rumbled ominously and, when the first drum strike came in, I nearly leaped off my chair. The dynamic range of the Windsor Dukes is quite remarkable and they capture everything from a whisper to a thunderclap with ease.

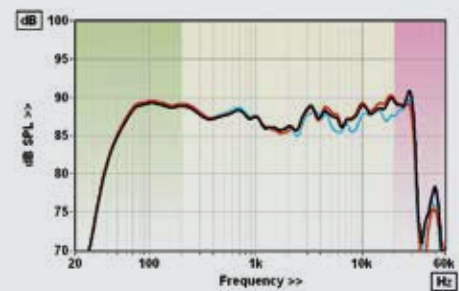
At the top end, the pleasing flatness of their measured response [again, see Lab Report, p71] means that the Windsor

## CASTLE WINDSOR DUKE

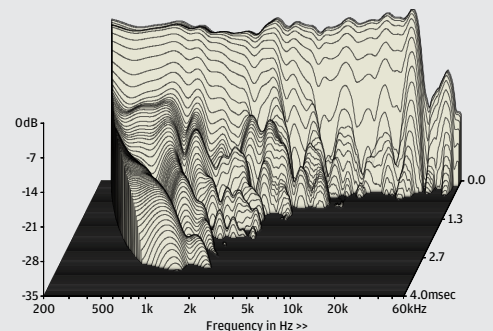
With Karl-Heinz Fink consulting on this loudspeaker, expectations are necessarily high, so it's reassuring to see the Duke delivering a 'clean' forward response [see Graph 1], free of notches or peaks and, aside from a shallow depression at 1kHz-2.5kHz near the top of the 200mm woven polypropylene cone's range, an essentially flat, perhaps slightly uptilted, response. Breakup modes are also craftily distributed and at a low level [see CSD waterfall, Graph 2] while conventional harmonic distortion is held to within ~0.3% from 100Hz-5kHz (re. 90dB/1m).

Surprisingly, the magnetic frame grille exerts little adverse influence – there are no obvious cancellation notches [blue trace, Graph 1] – instead almost uniformly reducing the 28mm fibre dome's output by ~1.5dB and, in effect, 'flattening' the forward response still further. *Sans* grilles the response errors amount to just ±2.1dB and ±2.5dB, respectively, while pair matching is a creditable 0.7dB (re. 200Hz-20kHz). Note that the HF output falls rapidly above 30kHz [pink shaded area, Graph 1].

Sensitivity is rather lower than Castle's optimistic 90dB at 87.6dB/1kHz/1m, and 87.1dB across 500Hz-8kHz, but then the Duke does not punish its partnering amplifier with an especially tough load. Although the minimum impedance of 4.3ohm/165Hz suggests the Duke warrants a nominal 4ohm rating, rather than the suggested '8ohm', the biggest swings in impedance phase occur through the bass at +52°/22Hz and -59°/79Hz and contribute to a moderate EPDR of 1.9ohm/106Hz. The 38Hz port tuning and 59Hz-450Hz/-6dB woofer bandwidth produce a corrected LF extension of 43Hz (-6dB re. 200Hz). 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: Cabinet resonances are well controlled while all cone modes are held to an impressively low level

**LEFT:** The 26 litre cabinet includes a substantial reflex port for the 200mm woofer while the 4th-order Linkwitz-Riley crossover (operating at 2.1kHz) is not split – hence the single 4mm cable posts

The focus and solidity of the Duke's stereo imaging is a particular pleasure. At first I set them up with a small amount of toe-in, but experimentation led me to conclude that they performed best when pointed straight ahead. This did not affect their magnificent central image stability in any way, but did help expand the lateral spread of the soundstage further out, well past the edges of the cabinets.

### THUNDER AND LIGHTNING

Finally, I have to come back to that bass. I could regale you with tales of the woody realism that they imparted upon the double bass backing Diana Krall on 'Peel Me A Grape' from her *Love Scenes* CD [Impulse! IMP 12342]. Equally, I could espouse at length on the fluid and tuneful sound of the Larkin upright bass solo on Frances Black's 'Intuition', from the *Talk To Me* album [Dara Records DARACD056].

Ultimately, however, the experience that will stick with me for a long time is the absolutely storming rendition the Windsor Dukes offered when it came to Propellerheads' 'Take California' from *Decksanddrumsandrockandroll* [Wall of Sound WALL CDO15] at neighbour-annoying volume. It was deep, it was tight, it was positively thunderous and it made one of the magnetically attached grilles fall off. Now that's my kind of loudspeaker. ☺

### HI-FI NEWS VERDICT

The Castle Windsor Dukes are a masterclass in speaker design by Karl-Heinz Fink and the IAG team. Robustly made and beautifully finished, they turn in an impeccable performance across all genres of music. If you think floorstanders are king but space dictates you need standmounts, then listening to these loudspeakers will more than turn your head. They've certainly converted me.

Sound Quality: 88%



Dukes have no artificial lift in frequency to try to impress. As a result, treble quality is solely down to the design of the tweeter and, again, the Dukes turned in a clean and insightful performance.

Percussion was crisp and fresh and both piano and violin from the Allegretto movement of Mozart's 'Piano Quartet No.2 in E Flat', performed by the Beaux Arts Trio and Bruno Giuranna [Philips 410 391-1], were a veritable masterclass in instrument reproduction. The piano key strikes had real form and the stringed instruments sounded exactly as one would expect them to. There wasn't the slightest hint of 'screech' just as the atmospheric of the recording were vividly revealed.

### HI-FI NEWS SPECIFICATIONS

Sensitivity (SPL/1m/2.83V - 1kHz/Mean/IEC)	87.6dB / 87.1dB / 85.9dB
Impedance modulus: minimum & maximum (20Hz-20kHz)	4.25ohm @ 165Hz 35.7ohm @ 69Hz
Impedance phase: minimum & maximum (20Hz-20kHz)	-59° @ 79Hz +52° @ 22Hz
Pair matching/Resp. error (200Hz-20kHz)	0.7dB/ ±2.1dB/±2.5dB
LF/HF extension (-6dB ref 200Hz/10kHz)	43Hz / 31.8kHz/31.4kHz
THD 100Hz/1kHz/10kHz (for 90dB SPL/1m)	0.20% / 0.15% / 0.7%
Dimensions (HWD) / Weight (each)	470x280x310mm / 10kg