



Press release

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Above Castle Windsor Duke (left) and Windsor Earl (right) in mahogany

Noble Castles perform with peerless poise

Classic British loudspeaker brand Castle brings manufacturing back to the UK for the new Windsor Earl and Windsor Duke, combining gorgeous wood-veneered cabinets with captivating sound

Cambridgeshire, England – Since its formation 50 years ago, Castle Acoustics has been famed for the quality of its hand-crafted cabinets, the ability to make the key components in-house rather than buying off the shelf, and – crucially – the wonderfully engaging sound produced by its loudspeaker systems. Castle's current range includes various highly reputed speakers, including the latest versions of the classic Richmond and Avon models, but there hasn't been an all-new Castle range since the Knights charged forth in 2010.

Now, Castle is ready to unleash two entirely new standmount speakers, the Windsor Earl and Windsor Duke, which together form the Windsor Series. Their sumptuously veneered, classically proportioned cabinets evoke the golden age of hi-fi, as well as perfectly fitting Castle's long-held reputation as a maker of speakers that mirror the craftsmanship of fine wooden furniture. The Windsor Earl is the

smaller of the two models, measuring 43x24x26cm (HxWxD), while the Windsor Duke expands the cabinet in all directions to 47x28x31cm.

To ensure the Windsor Series is truly something special, Castle has harnessed the talents of world-renowned speaker designer Karl-Heinz Fink and his Fink Audio team. Built over decades, Fink's track record of developing excellent loudspeakers is exceptional, right up to the current, highly successful Diamond 12 Series from Castle's sister-brand Wharfedale. He was recently described as "today's most influential speaker designer" when presented with the Outstanding Contribution Award at the What Hi-Fi? Awards 2022 – a fitting tribute to the success of his designs.

Fink has always been a keen admirer of Castle speakers, for their attractive craftsmanship, accomplished technical design and inherent sense of musical engagement. In fact, he has worked with the brand before, having designed the much-admired Castle Richmond 3i in the early 2000s. Almost 20 years later, the chance to work with Castle's in-house team to develop two new speakers was an opportunity he seized with alacrity.

In keeping with Castle tradition, every critical part of the two Windsor models has been developed and manufactured in-house, from the drive units to the cabinet to the crossover network. In addition, these are the first Castle speakers for many years to be not only designed but also made in the UK.



Left The badge on the back of these Castle Windsor Duke speakers proclaims their 'Made in the UK' status

Key elements: mid/bass driver

Both Castle Windsor models feature mid/bass cones made from a polypropylene-based material. However, instead of being produced by simply forming a foil under a vacuum, the polypropylene is precision-cut into thin strips, woven back into a sort of fabric, and bonded together again to form a solid foil. This foil is pressed into the final shape and cut to size.

This is a much more complex way of creating a polypropylene cone, but it has significant sonic benefits. The process creates a material with different properties of rigidity, at different directions between the voice coil and the surround. This helps to minimise resonances, which produces a flatter response curve – a desired characteristic of any drive unit designed for high-performance audio.

The resulting cones, with diameters of 165mm in the Windsor Earl and 200mm in the Windsor Duke, feature surrounds fashioned from low-hysteresis rubber which will not deteriorate over time. The voice coils are made from glass fibre, bonded with high-temperature resin – the stiffness and rigidity of this material is extremely close to that of aluminium, but it doesn't generate eddy currents like aluminium would. Thus, it maintains signal purity by its very design.

The mid/bass drivers' magnet system includes an aluminium compensation ring, which helps to minimise impedance variations during operation. As a result, the harmonic and intermodulation distortion values are reduced, contributing greatly to an open and expressive midrange performance.

Key elements: treble unit

The high-frequency unit used in both Windsor models follows the classic formula of a high-consistency exposed polyester dome, with a pressure-equalised ferrite magnet system and a metal front plate. No ferrofluid is used in the tweeter to guarantee the highest possible dynamic range; this also keeps the resonant frequency below 800Hz, for optimum performance.

The treble unit's voice coil has a diameter of 28mm and is equipped with a copper cap on the pole piece of the magnet. This reduces distortion and intermodulation, delivering a tangible increase in audible detail at very high frequencies.



Left Both Castle Windsor models benefit from open-frame speaker stands, tailor-made to match

Key elements: cabinet engineering

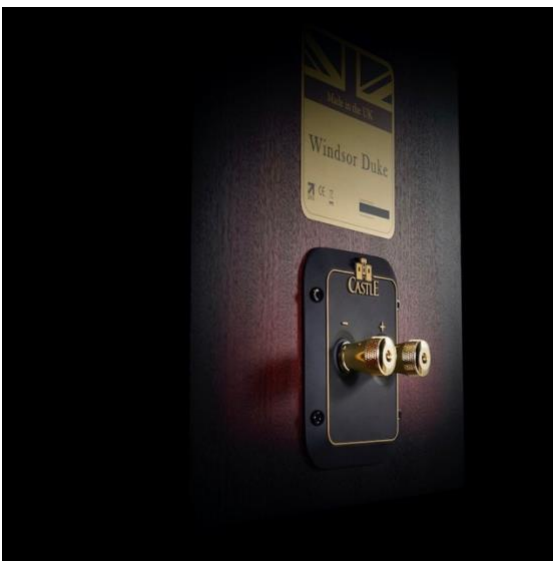
Drive unit development has progressed markedly in recent times, yet the principles that govern loudspeaker cabinet design have remained constant for decades. The most important research for low-colouration cabinets was conducted by the BBC some half a century ago, and loudspeaker enclosures are still manufactured in accordance with these findings to this day.

However, while the principles of acoustically optimised cabinet design are well-founded, it remains a complicated process to ensure that a speaker's enclosure is ideally matched with the mounted drive

units. After many hours of analysis, development and consideration of the established principles, a new methodology was chosen for the optimisation of the Castle Windsor cabinets.

The main cabinet structure uses dual-layer MDF panels separated by a flexible, but thin, layer of specially engineered acoustic glue. This glue has been specially developed to dampen resonance in the critical midrange frequency region.

Point-to-point bracing is applied to achieve optimum rigidity at lower frequencies, joining opposing panels without spreading resonance to other parts of the cabinet. The result is a 'quiet' cabinet, without prominent peaks, delivering a controlled output – a cornerstone of the Castle brand philosophy. This is simple in theory but intricate in design and engineering.



Left Both Windsor models are made with Castle's traditional care and attention to detail, right down to the gold-plated binding posts

Key elements: crossover network

Following driver design and cabinet engineering, the crossover is the final critical stage of loudspeaker design. Both Windsor models utilise a 4th order LKR (Linkwitz-Riley) crossover that allows the best integration of the purpose-designed drive units.

Developed using a combination of advanced computer modelling and many hours of listening tests, the core aims were to achieve a flat response, an easy load for amplifiers and a low distortion measurement. All critical inductors in the crossover design are of the 'air core' type – this means there are no metal cores present in the circuit, preventing hysteresis or distortion through the network. The main inductor resistance is compensated in the mid/bass driver's magnet system, so there is no disadvantage from the slightly higher resistance of this air coil.

Key elements: wood-veneer finish

Castle has long been famed for the craftsmanship evident in its wood-veneered loudspeaker cabinets and the new Windsor Series is no exception. Their cabinets sport a choice of high-quality walnut or

mahogany veneers sourced from sustainable timbers; only deep-figured slices are used, cut from real trees rather than reconstituted mush. Each pair of speakers is hand-finished with mirrored, book-matched veneers, sealed and waxed in a process that takes several days. Only when a depth of character and lustre that befits the Castle name is reached are they released for final testing.

Made in the UK

Like most British audio brands, manufacturing of Castle speakers moved to East Asia some two decades ago – essential to maintain retail prices at the level the market demanded – while design functions such as R&D and industrial design remained in the UK.

Last year, Castle’s parent company IAG unveiled a new ‘Made in the UK’ initiative to enable the manufacturing of specific products to be brought back to the UK without skyrocketing costs. IAG has expanded its facilities at its base in Huntingdon, Cambridgeshire, incorporating key manufacturing, assembly and finishing processes for specially selected products in addition to the R&D function already located there. A 9,000ft² production facility has been added to the existing building, including a new anechoic chamber, making a total of 25,000ft² of office, lab and manufacturing space.

The Windsor Earl and Windsor Duke are the latest models to benefit from this new facility, following the entirely re-engineered new versions of classic speakers from Castle’s sister-brands Mission and Wharfedale – the highly acclaimed Mission 770 and just-launched Wharfedale Dovedale. These are the first speakers from Castle, Mission and Wharfedale to be officially ‘Made in Britain’ for many years.

The Castle Windsor Earl and Windsor Duke loudspeakers are available from April at RRP’s of £3,850 and £4,500 per pair respectively, in a choice of walnut or mahogany real-wood veneers. Both models can also be purchased with a pair of dedicated, open-frame stands, tailor-made for optimal positioning and performance – these stands add £400 to the price of the Earl, and £500 to the price of the Duke. For discerning music lovers seeking their next pair of speakers, nothing stands prouder than a Castle.



Specifications	Castle Windsor Earl	Castle Windsor Duke
Speaker type	Two-way standmount	Two-way standmount
Enclosure type	Bass reflex, rear ported	Bass reflex, rear ported
Treble driver	28mm microfibre dome	28mm microfibre dome
Mid/bass driver	165mm woven polypropylene cone	200mm woven polypropylene cone
Sensitivity (2.8V @ 1m)	89dB	90dB
Impedance	8 ohms nominal; 4.3 ohms minimum	8 ohms nominal; 4.2 ohms minimum
Recommended amp power	25-100W	30-150W
Frequency response (+/-3dB)	58Hz-22kHz	52Hz-22kHz
Bass extension (-6dB)	45Hz	39Hz
Crossover frequency	2.2kHz	2.1kHz
Cabinet volume	15.8L	26L
Cabinet dimensions (HxWxD)	430x240x260mm	470x280x310mm



Formed in 1973 by a group of Wharfedale engineers, Castle Acoustics has always been renowned for the quality of its craftsmanship, from the drive units it manufactures to the real-wood cabinets in which they are installed. Castle joined the IAG family of audio brands in 2006 and its high-level of craftsmanship has continued to set it apart from the loudspeaker crowd, delivering spellbinding sound from speakers with the visual appeal of high-quality wooden furniture.

Castle has always prided itself on making the component parts of its speakers in-house, rather than buying 'off the shelf' parts from third parties. The same philosophy is true for all the famous audio marques in the IAG brand family, and Castle benefits from IAG's exceptional resources in this regard. Castle classics like Richmond and Avon continue to be made in their latest forms, alongside the Knight Series that launched in 2010. The Windsor Earl and Winsor Duke are the first new Castle speakers since the Richmond IV five years ago, and the first to be made in the UK for far longer.

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