

Eton HEX 28/HEX 165: Premium speaker system with Hexacone cone



Return of a legend

► With the HEX system Eton recalls a classic that in no small way laid the foundation for the reputation of the brand. Here we put the HEX 28 tweeter and the HEX 165 woofer to the test.

„HEX is back!“ can be read just now right at the top of the Eton Homepage. Naturally what they mean is „Hexacone“, the cone patented by Eton that enjoys a thunderous reputation in the loudspeaker world. It is already quite a few years when it was felt all high-end speakers in the home audio segment that were worth their salt deployed Eton Hexacone chassis. From the mid-range down to the subwoofer everything was originally in bright yellow because the Kevlar fibers could only be colored with difficulty. Later there were also more eye-pleasing understated dark Hexacone cones—naturally also for in-car audio. Anyhow the Eton units were among the best that money could buy. All of which

did not ultimately prevent marketing from finding the technology boring and taking it out of the product range. But now there is the good news that Eton has reissued the Hexacone technology: naturally not 1-to-1 like earlier, but as a completely new development. To make it exciting, let's first look at the HEX 28 tweeter. This is not based on the ER4 (home audio playmate of the Hexacone driver AMT), but we do have a classic woven fabric dome here. Nevertheless, it is something special that stands out from the crowd even after taking a brief look. Voice coil and cone measure 28



Premium die-cast basket elaborately machined like the neodymium driver

mm in diameter, giving the HEX 28 a plus on balance for the cone area compared with standard solutions having a 25 mm coil. In the same direction is the generously large coupled volume, which makes for a low resonant frequency and makes the tweeter usable at low frequencies. Also, for use of a first-order flat filter as recommended by Eton it is necessary to have speaker chassis that can work over a wide band. The dome assembly is made of a hand-coated tissue thin woven fabric and a newly designed dome geometry helps to optimize the radiation. The surround is extra wide: no need to save space with this tweeter—only performance counts here. Through the woven fabric can be seen the concentrically formed damping on the upper pole plate, where otherwise (if you are lucky) a felt dome sits to dampen reflections from the hard smooth pole plate. Ventilation to the rear resonance chamber is apparently not via the central borehole so as to prevent standing waves, which in the case of a tweeter unfortunately „fit perfectly through the bore“. Instead we find two rings of generously sized ventilation openings—one directly at the gap under the voice coil, the second somewhat further out—so that both the dome and the resonance chamber are ventilated below the surround. But now to the star of the show: the HEX 165, which makes a high-end impression, and not



The HEX cone has an AWI (developable) form, recognizable as a straight cone contour



For the tweeter there are sturdy aluminum top-mount enclosures

just with its cone. The build quality is of the very highest level. The typical Eton die-cast basket has of course been once again relaunched specially for the HEX with appropriate labeling. For the driver there is high-grade expensive neodymium and—once again for a top-end Eton woofer—a specially lasered look. Like the tweeter, the driver of the 165 is similarly ventilated with a circle of holes in the space under the voice coil. The indicated pole-piece hole is of course fake: fitted on the front of the pole-piece is a metal phase plug with a slotted surface, a tradition at Eton. The renowned Hexa-cone cone now comes in white. It has a developable form, so is actually straight-shaped with no trumpet opening. This form is the most stable that a cone can have. Also due to the acute cone angle there is a lot of installation depth. On the outside two glass fiber mats enclose the honeycomb structure giving rise to the name that was formerly made of Nomex. The cone is approx. one millimeter thick and enormously stiff, but also excellently damped. That is exactly the point of the exercise: stiffness, damping and the renowned „piston action“—all intended to produce a clean sound.

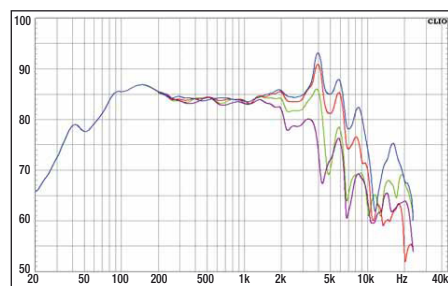
Measurements and Sound

The Hexacone was never the lightest of cones, and even the current incarnation at 18 grams is not among the lightweights in spite of there being no dust-cap. So it is good that the HEX 165 has a powerful drive system, and it is very usefully tuned with a resonant frequency at 52 Hz and a Q factor of 0.56. The Hexacone cone runs with perfection up to the first cone resonance at approx. 4 kHz, which makes it look like a typical hard diaphragm. In contrast to a metal cone the resonance at 7 – 8 dB above the useful level is relatively well

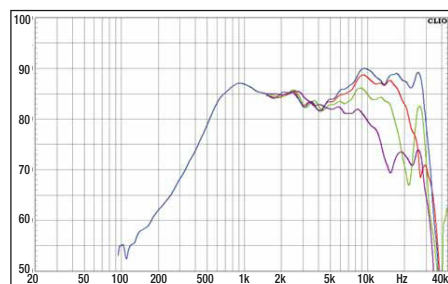
The tweeter works with a large 28 mm dome cone together with a wide surround



damped. However it does not make for perfect distortion figures: softer cones can do that better. On the other hand complete perfection is to be had from the tweeter. With resonance at a low 760 Hz it pushes from below like there is no tomorrow. The large 28 mm dome has no desire to stop at all at the top end: with an upper cut-off frequency approaching 30 kHz it gets our applause. Sonically the system impresses with its great class. We have taken a close look at the acoustics that reveals every music detail imaginable, but also like a speaker system playing from a single source. And it sounds anything but boring. A sort of micro dynamics can be identified in the reproduction that takes every detail of the recording seriously. Corners and edges are maintained even when that sounds less pleasing than with less precise speaker systems. However, rejecting making things sound better than they are does not mean that beautifully recorded pieces of music do not also sound beautiful: the HEX can do that very well, from deep bass to shimmering highs.



The HEX 165 shows a faultless, perfect behavior up to its cone resonance at 4 kHz. Above that it simply becomes unusable. A positive is the very good behavior off axis, so the resonances become less alarming



The HEX 28 tweeter dome delivers a flawless performance from under 2 kHz up to 30 kHz, something rarely seen

Summary

The best speaker system for everyone? More likely not, and cheap is also different. The Eton HEX is certainly something for audiophiles: it captivates from the very first note, without pandering.

SOUND-TIP
Absolute Top-Class
CAR & HiFi 3/2025

Eton HEX 28/HEX 165

| | |
|-------------|-----------------------|
| Price | about 1.300 Euro |
| Distributor | ACR, CH-5330 Zurzach |
| Hotline | info@eton-caraudio.eu |
| Internet | www.eton-audio.com |

Summary

| | | | |
|--------------------|------|-----|---------|
| ▶ Sound quality | 55 % | 0,9 | ■■■■■■■ |
| Bass | 11 % | 1,0 | ■■■■■■■ |
| Neutrality | 11 % | 1,5 | ■■■■■■■ |
| Transparency | 11 % | 0,5 | ■■■■■■■ |
| Soundstaging | 11 % | 1,0 | ■■■■■■■ |
| Dynamics | 11 % | 0,5 | ■■■■■■■ |
| ▶ Lab | 30 % | 1,3 | ■■■■■■■ |
| Frequency response | 10 % | 1,0 | ■■■■■■■ |
| max. volume | 10 % | 1,5 | ■■■■■■■ |
| Distortion | 10 % | 1,5 | ■■■■■■■ |
| ▶ Workmanship | 15 % | 0,5 | ■■■■■■■ |

Technical Data

| | |
|---------------------------------|------------|
| Basket diameter | 166 mm |
| Mounting diameter | 146 mm |
| Mounting depth | 80 mm |
| Magnet diameter | 70 mm |
| Tweeter dome diameter | 28 mm |
| Tweeter housing diameter | 53 mm |
| highest cut off frequency W | 3,5 kHz |
| lowest cut off frequency TW | 1,8 kHz |
| Cut off frequency while testing | 2,3 kHz |
| EQ while Testing | – |
| Grills | – |
| other | – |
| Nominal impedance | 4 ohms |
| DC resistance Rdc | 3,22 ohms |
| Coil inductivity Le | 0,44 mH |
| Coil diameter | 32 mm |
| Cone surface Sd | 137 cm² |
| Resonance frequency Fs | 52 Hz |
| Mechanical quality Qms | 4,69 |
| Electrical quality Qes | 0,63 |
| Total quality Qts | 0,56 |
| Equivalent volume Vas | 13,7 l |
| Moving mass Mms | 18,0 g |
| Rms | 1,25 kg/s |
| Cms | 0,52 mm/N |
| B*I | 5,47 Tm |
| Pressure 2 V, 1 m | 86 dB |
| Power handling | 30 – 200 W |

Eton HEX 28/HEX 165

Absolute Top-Class 1,0

CAR & HiFi 3/25

Price/performance: very good

“Exquisitely built speakers with extraordinary sound quality.”