



Eton HEX 165/80/28: 3-way system with Hexacone technology

# New Reference

► Last year Eton celebrated the return of the Hexacone loudspeaker legend under the motto „HEX is back!“. Now, with the HEX 80 mid-range driver, we have received the eagerly awaited addition for a high-end 3-way system.

It is some decades since Eton effectively reinvented the speaker cone. Soon after, the patented Hexacone technology made its way into home audio high-end speakers, for which Eton had been supplying speaker chassis over many years to top-tier manufacturers. And naturally

the car audio sector also got its Hexacone speakers right down to the fully-fledged subwoofer. This excellent reputation was not based on fancy materials or loud campaigns: the speakers simply sounded outstanding. The idea behind Hexacone was (and still is) to combine

the advantages of a hard, stiff cone with the desirable damping characteristics of softer diaphragms. Hard metal cones behave almost ideally at low and mid frequencies, if they break into partial oscillations, this will be undamped and violent. These are bending oscillations, during which the cone deforms and no moves longer back and forth in a purely „piston-like“ manner. There is almost nothing you can do about it, as all structures capable of oscillation tend to do

For the tweeter there are sturdy aluminum surface mounted enclosures



so; naturally even a soft diaphragm—only in that case it's not so unpleasant. Now you can reinforce the structure, which may shift the resonant frequencies outside the usable range of the speaker. However that leads to more weight, and so is undesirable. Eton's approach with Hexacone is a sandwich structure. This is enormously stiff but at the same time light and can also „flex“ a little bit, leading to internal friction and hence damping. That was by no means a given at the time and the result is legendary. The honeycomb-shaped lattice core which gives the structure its name sits between two paper-thin polyimide layers. It ensures stiffness while saving weight, as it consists largely of air. The core is also made from a similar polyimide so that in terms of brand names, we're looking at a Kevlar/Nomex/Kevlar sandwich. To manufacture these diaphragms is not an easy matter. Therefore all Hexacone diaphragms are strictly of conical form (developable or unfoldable) and not like most paper and plastic diaphragms curved like a

trumpet opening (NAWI is not developable). As before, Eton manufactures the Hexacone speakers in Germany and in the case of our test speakers the company has gone all out and delivered a really beautiful speaker. Like the HEX 165 woofer, the new midrange HEX 80 also relies on an aluminum phase plug and neodymium drive magnet. However the design is not really compact, but uncompromisingly focused on functionality, unfortunately with quite sizeable installation depth requirements. The die-cast baskets, designed specifically for the HEX series, are—like the speakers themselves—a true feast for the eyes; the HEX drivers are almost too beautiful to install and would look great in a display case. The same goes for the tweeter, which for this high-end system must naturally also give its all. The choice fell on an extra large 28 mm woven fabric dome with wide surround. With its generous cone area it promises excellent dynamics, even at relatively low frequencies. The additional resonance chamber with aerodynamically formed interior lowers the resonant frequency, which also benefits the reproduction of lower frequencies. Ventilation is not via a large central borehole in which standing waves could build up. Rather Eton uses two rings of generously sized ventilation openings - one directly at the air gap under the voice coil, the second somewhat further out - so that both the

dome and the resonance chamber are ventilated below the surround.

### Measurements and Sound

In front of the measurement microphone the HEX tweeter shows that it pays off when developers are able to draw on a wealth of resources. The large dome effortlessly manages the balancing act between full power at the lower end of the frequency range and top performance at the ultra high end. At 760 Hz the resonant chamber makes a noticeable difference; without it the maximum would be 1200 Hz. Even if somewhat academic here in a 3-way system, it is a nice-to-have. At the top end, you do definitely want top performance. After all, it is a tweeter, and here we are pleased about the 28 mm dome, which runs up to approx. 30 kHz. The HEX 165 pleased us with a perfect amplitude frequency response to about 4 kHz with well chosen parameters. The new star in the HEX lineup is however the mid-range speaker, which also runs faultlessly. Admittedly, it doesn't go much higher than 4 kHz, but in practice that is perfectly adequate. At the low end, the HEX 80 achieves a cutoff frequency as low as 300 Hz at full level—respectable for an 80 mm driver, though this, as always, depends on the installation conditions. Soundwise we were already convinced by the two-way system, which sounds divine and does a wonderful job of



The perfectly finished HEX chassis do not compromise on installation depth despite their neodymium drive magnets



The new mid-range speaker fits seamlessly into the HEX series; naturally it also features a Hexacone cone

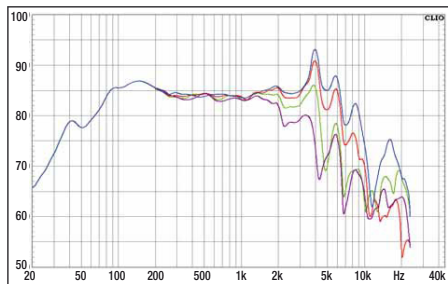
bringing out the subtleties of the recording. For that reason alone the three-way system is a great success because it doesn't alter the character and preserves its strengths. With the mid-range driver, the sound is a little bit richer, especially when it comes to dynamics. Even heavy drum hits from the snare and low toms come through clearly, and the vocal reproduction impresses with its authentic timbre. Once again Eton's HEX system shows itself as an acoustic magnifier, revealing every detail of the recording. That is exactly the right speaker system for listeners: like a giant headset for your car that makes you feel you're right in the middle of the action.

### Summary

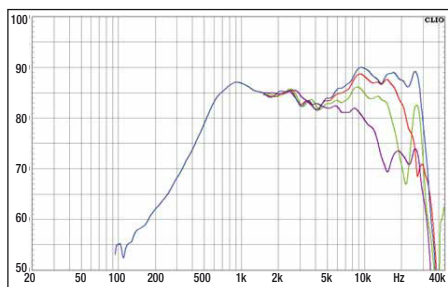
The Hexacone three-way system conveys to the listener a sense of immediacy that you would not find anywhere else. It sounds genuinely honest, yet without any embellishment. If that's your kind of thing, you are sure to be happy with the HEX speakers.



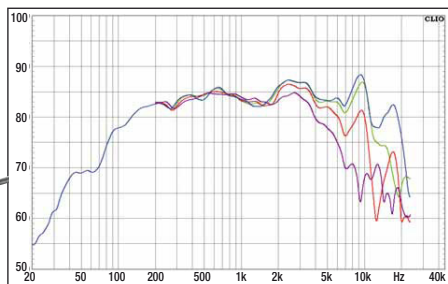
The tweeter works with a large 28 mm dome together with a wide surround



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, as the resonances then lose their intensity



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



The Hexacone cone of the HEX 80 exhibits exemplary behavior from 200 Hz to 5 kHz. Resonances do not appear until 8.5 and 15 kHz and are relatively well damped.

**SOUND-TIP**  
Absolute Top-Class  
**CAR & HiFi** 3/2026

### Eton HEX 165/80/28

Price about 1.780 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
Basket diameter M	94 mm
Mounting depth M	40 mm
Tweeter dome diameter	28 mm
Tweeter housing diameter	53 mm
highest cut off frequency M/TW	3,5 / 4 kHz
lowest cut off frequency W/M/TW	300 / 1,8k Hz
Cut off frequency while testing	300 / 2,8k Hz
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 cm <sup>2</sup>
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*1	5,47 Tm
Pressure 2 V, 1 m	86 dB
Power handling	30 - 200 W

### Eton HEX 165/80/28

**Absolute Top-Class 1,0**

**CAR & HiFi** 3/26

Price/performance: very good

"Exquisitely built speakers with extraordinary sound quality."