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*»The Special Forty is one of
the best compact loud-
speakers in the forty years
of Dynaudio's history.«*

The terrific custom edition modell:

Dynaudio Special 40



DYNAUDIO



Whoever thinks that faith is a stranger to science, is wrong. One only needs to read the super exciting book on the »Big Bang« by Simon Singh to quickly realise how also the realm of objectivity shows a deeply human side. Even Einstein once believed in a static universe, although his formulas already suggested other conclusions. In the history of high fidelity, which is so closely tied to the evolution of the now omnipresent dynamic loudspeaker, we can also find paradigms that are subject to change. Already the hi-fi pioneers were aware of the fact that no driver would be able to cover the entire audible frequency range, and so, after the loudspeaker »box«,

Exclusive Review: Dynaudio Special Forty Loudspeaker

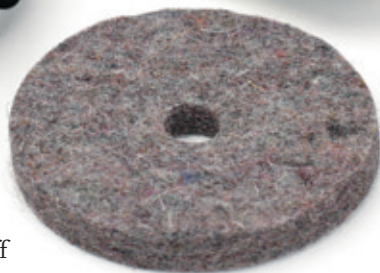
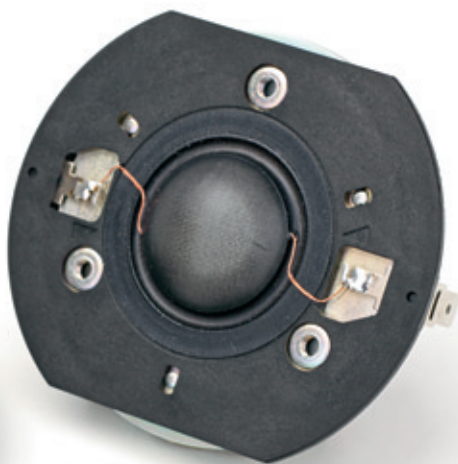
Dynaudio also celebrates a jubilee and allows the world to join in with a custom edition model: the Special Forty.

Edgar Vilchur from Acoustic Research invented the dome tweeter, which he presented in 1958 and had patented four years later: the multiway loudspeaker which combined two different driver designs – cone and dome – was born.

Two, until this very day, groundbreaking events were soon to follow. In the USA Bill Hecht developed something in 1967 that was unbelievable in those days: a dome tweeter which used a soft, coated textile material. At the beginning of his trials, Hecht was still convinced that very high frequencies could only be radiated by a rigid diaphragm. But to his own amazement, his prototype went up above 12 kilohertz. »That was quite a shock«, Hecht later recalled. The low-resonance soft dome speaker with its good radiation pattern toppled the old belief and started its triumphal march. The second historic fundamental work was done in England at the BBC. The Britons gave their attention to the low-mid drivers, analysing more than 300 materials for their suitability as diaphragm material in a cone driver. The result was the modern synthetic cone, initially made of bextrene which, however, was soon superseded by polypropylene that was patented for loudspeaker applications by Dudley Harwood. A striking overlap of both concepts is that

Congratulations

A must for every Dynaudio: the large coated textile dome tweeter with rear damping chamber.



neither the textile dome nor the synthetic cone follow the theoretical ideal of a diaphragm as hard and stiff as possible, polypropylene has even the lowest physical density of the normally used plastic materials. Nevertheless, or just because of this, the history of Dynaudio begins with these two.

When Wilfried Ehrenholz founded the company as a young man, many textile

domes were neither heavy-duty nor did they offer a constant series quality. But a Dynaudio tweeter

was supposed to deliver a transient behaviour as close to perfection as possible and not die from overheating, even at higher levels. This worked out impressively well, the large textile dome tweeter with 28 millimetres in diameter became a trademark – with famous types such as the D28, the Esotec and the top-of-the-line model Esotar.

The crossover with the typical six decibel edge steepness, which Dynaudio is known for, is also due to their ambition to improve the transient behaviour. From an acoustical point of view, it's simply the effective edge steepness of crossover and driver »roll-off« that counts, but electrically only a first order filter will not affect the transient behaviour, any others would leave clearer marks with increasing steepness (by the way, it doesn't make sense to me that we are discussing the acoustic benefits of a less steep filtering at 50 or 100 kilohertz cut-off frequency and beyond in the digital domain while completely ignoring this topic in loudspeaker design, where the frequency division takes place right in the audible range). This causes even

higher demands on the tweeter and its power handling, but it's definitely worthwhile. Particularly as Dynaudio doesn't use minimalist crossovers with just three or four parts, but compensates voicecoil inductances, straightens the phase response and linearises the impedance. The 6 dB crossover of the Special Forty pictured on the right has been designed accordingly sophisticated.

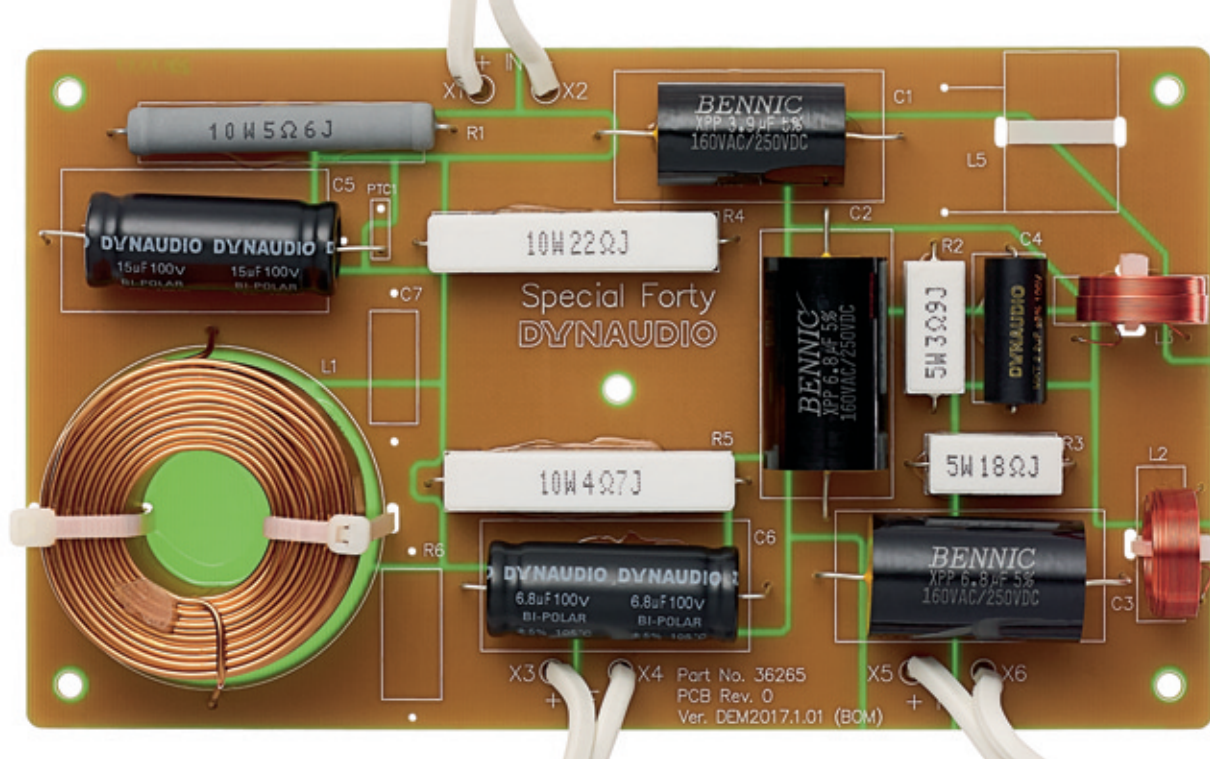
As to the diaphragms, over the years the majority of loudspeaker makers have switched to ever harder and more rigid hightech materials supposed to deliver an ideal, that is: »piston-like vibration behaviour«. At first in tweeters, later also in the cone diaphragms, aluminium, magnesium, Kevlar and carbon fibre, ceramic, titanium, beryllium and synthetic diamond have been used since then. The driving force behind it is the attempt to shift the inevitable self-resonances as far upward as possible, above the transmission or audible range. But in the end it's probably the faith of the perfect loudspeaker being achievable which underlies all this striving – the dream of a loudspeaker that performs best in everything.

Dynaudio and a group of like-minded manufacturers have never clung to this dream. One could say: Dynaudio is searching in a no-compromise way for the best compromise. In a cooperation with the University of Aarhus, the Danes once developed their MSP material. This is a not-too-soft polypropylene to which magnesium silicate (also known as talcum or French chalk) is added, and to which Dynaudio attributes the *optimum balance* between low weight, stiffness and inner damping (which is almost zero in metals). The mix ratio is, of course, a company secret and has remained untouched until today. But MSP had to prove itself over and over again; also under the recently hired designers it could prevail once more, says product manager Roland Hoffmann.

Over all these material discussions we often tend to ignore that the shaping of a diaphragm has at least the same impact.



A promise kept: at Wilfried Kress' office, Dynaudio founder Wilfried Ehrenholz is belatedly signing his »Special 25« from issue 1/2011.



A must for the jubilee model: the 6 dB crossover with correction elements and an MSP low-mid driver featuring a large 75 millimetre aluminium voicecoil.

In most cases other design features in a loudspeaker are compromise decisions, too – what is favourable to the lows, might be detrimental to the mids. Such factors include, for instance, the voicecoil diameter. Here Dynaudio had recently chosen a longer coil with a smaller diameter for the Contour 20 (issue 4/2016) and a conventional, external double magnet – a powerful propulsion for a precise bass. In the opinion of the Danes, a chassis with the larger voicecoil diameter and an internal neodymium drive would in turn yield midrange benefits. For a jubilee model it was soon clear that only the second variant came into question – which moves the Special

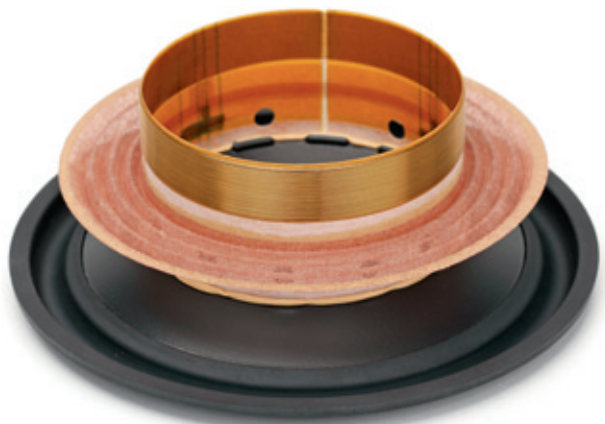
Forty into close proximity of a true gem in the Dynaudio range, the similarly equipped Confidence C1 Signature.

Compared to the latter, it may even have a minor advantage regarding the chassis, for the Danes refer to the low-mid driver of the Special Forty as the best 17W75 they've ever made. The Esotar Forty, in turn, has got the faceplate and the rear chamber of an Esotec, yet the heart of the tweeter, the dome and the neodymium magnet system, are Esotar technology – even with an optimised flow behaviour and an even lower resonance frequency. In order not to break the budget, one had to cut corners with the crossover parts; as opposed to the Confidence, a full equipping with foil caps and inductors of fine stranded wire were out of reach for the Special Forty at half the price. Unlike the Contour 20, it lacks the metal front and the WBT ter-

minals. Its beveled edges makes the Special Forty cabinet reminiscent of the Focus line, the special edition model comes with a high-gloss finish.

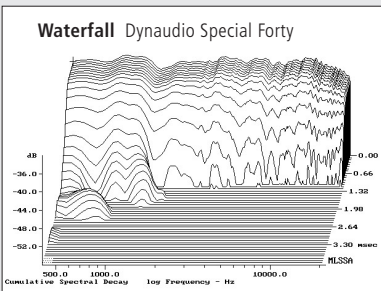
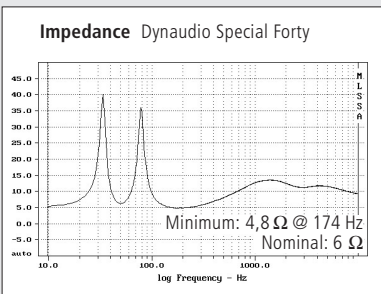
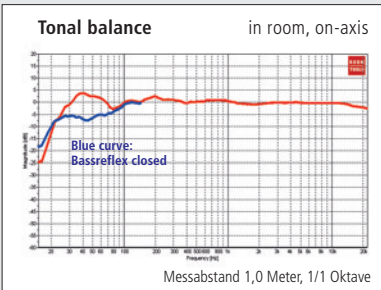
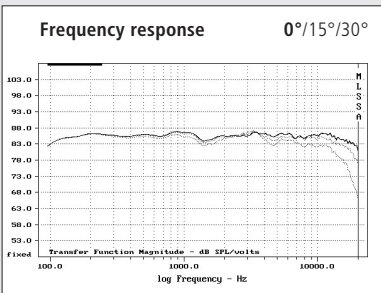
A thorough break-in is not an excuse with Dynaudio speakers, but indispensable, also with speakers that were not in use over a longer period of time (this has concrete mechanical, but probably also electrical reasons, I need to discuss those details some day in another article). So we allowed the contenders Contour 20 and Special 25 two more days before getting into the comparisons (since my speakers didn't have the signed label back then, Wilfried Ehrenholz now signed them personally). Fortunately we had the whole Accuphase chain on hand for this.

Please allow me to give you a basic advice first: never be impressed by the price tag of a loudspeaker. Never! Because even with a compact speaker, a manu-



Lab report

The Special Forty has an excellent linearity of ± 1.9 dB averaged over the horizontal directivity pattern (300 Hz - 10 kHz). Just like with the Contour 30 recently, it is the straightest on axis (± 1.5 dB), the overall high-frequency dose is thus a little lower than in earlier Dynaudios such as the Confidence line models or the Special 25. Their Esotar² dome tweeter reaches a little further up in the topmost octave than the Esotar Forty, the 6-ohm speaker has a sensitivity of 85.5 dB (2.83 V / 1m, 500 – 5,000 Hz) – an outstandingly crafted loudspeaker. ■



facturer can take that crucial range between the fundamental tone above 200 hertz and the highest frequencies to the limit (otherwise it's about bass and maximum sound pressure levels). Therefore I'd personally prefer with a cool smile a loudspeaker, which is as balanced in the mids as the Special Forty, to the majority of the so-called »ultra high-end« models with a six-digit price tag. Why? Well, in the first place, those dreadnoughts should try to replicate the voice rendition of the Forty.

To a certain degree this was even true of the Contour 20. A good loudspeaker that makes few mistakes and plays in a well-balanced manner. But the charme of the Special Forty, the flair which it exudes, the slightly more reserved 20 was unable to convey this in the same way. The Special Forty has more character – it is more Dynaudio.

Compared to the Contour, the special edition model is louder by a good 1.5 decibels, the larger Special 25 in turn puts another two decibels on top (we did, of course, adjust those level differences). The latter appeared more broadband, more direct and tighter, transported more monitor character – this is great with good recordings and such a fine system environment as the big Acuphase components. But like the Confidence C1 Signature in issue 3/2012 (which we regrettably didn't have at our



Good standard: the single-wiring terminals of the Special Forty. Dynaudio has traditionally done without bi-wiring.

disposal), also the Special Forty was able to win lots of sympathies in comparison with the Special 25. Less pronounced, maybe not quite as open, but softer, more rounded and with splendid tonal hues, it was playing its way right into the listeners' hearts. This is the loudspeaker for delightful hours of stress-free music listening. Moreover, it puts lesser electrical demands on the amp partners, and in terms of sound it comes to meet them on a slightly longer leash, whereas the Special 25 relentlessly reveals shortcomings.

The tonal balance of the Special Forty is almost perfect, the room imaging and the detachment from the speaker are absolutely top-notch, and the midrange simply sounds so wonderful. Even if you're not a classic fan: just dare to compare the reproduction of a female voice, no matter if alto or soprano, because here the Special Forty can eclipse loudspeakers which cost ten times as much or more. Hard to believe? But true.

Dynaudio Special Forty

WxHxD	19,8 x 36 x 30,7 cm
Warranty	5 years
Manufacturer	Dynaudio A/S Sverigesvej 15 8660 Skanderborg
Web	www.dynaudio.com

Result

It's a real windfall that Dynaudio has remained true to themselves and opted for an affordable jubilee model which combines finest home-made technology in an attractive package. The Special Forty is one of the best compact loudspeakers in the forty years of the company history, it embodies and transports what Dynaudio stands for. Hats off and happy birthday.

Wilfried Kress ■