The nine-pointed star of Lower Franconia

Originating from the small town of Mellrichstadt in the South of Germany the Manger Sound Transducer is one of the most fascinating loudspeakers of all time. Here we take a close look at the two-way version.

by Holger Barske

It is a common misconception that there is nothing wrong in placing "compact loudspeakers" on shelves. Even if we disregard the acoustic problems that this involves, could someone please show me a shelf that can easily support the 23 kilogramme Manger Zerobox at a price per pair of 3,200 euros? And let's not forget the not exactly compact dimensions. Our photo here might be slightly misleading. In fact the smallest Manger loudspeaker has a height of almost 50 centimetres and a depth of 40 centimetres, and therefore has absolutely nothing in common with a shoebox. It is also something completely different, namely a well-developed full-range loudspeaker.

But it is not one intended for the audiophile equivalent of a telephone box, but designed to fill larger rooms with considerable amounts of sound pressure. The reason for this is the 20 cm woofer from Scan Speak providing an unusually powerful "bass pump" that would normally never find its way into a two-way system. The mid-tone capabilities of this driver can be described as modest to non-existent, because its speciality is exclusively in the low bass range. This fits perfectly into this arrangement as the Manger sound transducer starts assuming control at 140 Hertz and the woofer only needs to do what it does best. The Scan Speak works with a closed cabinet, which helps it to achieve clearly better impulse behaviour than would be possible with any type of ventilated design.

And on top is the Manger transducer, one of the most-discussed drivers in the history of hi-fi, because it functions in a totally different way to conventional drivers. Whereas "normal" cone loudspeakers generate the sound using an ideally piston-like movement of a rigid diaphragm, the Manger sound transducer, known as the MSW for short, is one of those rare creatures called bending-wave transducers. It works on the principle of a tough elastic diaphragm that practically never vibrates as a whole, but only in annular partial areas. What would spell the end of any coordinated reproduction in conventional cone loudspeakers is exactly the way the MSW works. At lower frequencies a large surface vibrates, and only a small area at higher frequencies, but to an exactly defined amount. The advantage of this arrangement is its extreme impulse precision, because the mass to be set in motion decreases as the frequency increases.

The optically dominating star on the diaphragm has a central task to perform. It damps the "bending waves" in a precisely defined way, at the edge more than in the centre. Without this "brake" the MSW wouldn't be in a position to produce coordinated sound propagation. The principle is not new, the transducer being patented by the system's pioneer Josef W. Manger as long ago as 1969, but it has taken over 30 years to fully mature. We took an in-depth look at the Manger technology in STEREO 11/2000, when we tested the large "Zerobox 103" and time hasn't stood still in the meantime.

Josef Manger's daughter Daniela, who was already the boss of the family-run company, has with her father's help now ironed out even the last inconsistencies in this extreme resonator and moved its efficiency factor into a range where conventional loudspeakers are also to be found. The tonal peculiarities of the MSW, the infamous "Manger Gap", has been a thing of the past for ages with the result that the Zerobox 109 can and must be measured against the competition of classic loudspeakers without its "exotic bonus". As we had been carefully attuned to the topic of "Limitations of compact speakers" in our report on the Focal Micro Utopia Be (STEREO 12/03), after we had adapted the test system for the Manger, we were expecting a qualitatively good, but totally different characteristic sound pattern.

The result was not quite as expected. Anyone expecting high-pitched meagre fare from the bending-wave transducer because of the extremely open and free sound impression of the beryllium tweeter, is pleasantly surprised. The current version of the Manger transducer presents every event in this frequency range with an amazing amount of energy and substance. The times are long past when the MSW was regarded as extremely high resolution and sensitive, but at the same time as rather reserved. In this regard it is more than a match for the extreme metal dome. The opposite end of the frequency range is the second absolute highlight of the Zerobox. This bass is one of these utterly superior and highly unassuming types. It is not loud and booming, and doesn't stand out as dry and dusty - it's presence is simply there. The enclosed cabinet design is excellently suited, and the woofer range starts its descent pretty early, but it is clearly slower than with reflex designs. For this reason the Manger sounds much more like a full-blown floorstanding speaker.

On very rare occasions, especially at higher volumes, you think that you notice a minimum colouring in the vocal range, but that varies from recording to recording. Due to its solid foundation and the fact that almost the complete important frequency range is radiated by a single driver, the 109 is capable of producing super-precise spatial depiction. It can cause events with sharp contours to occur at almost any location of the soundstage - you can't get much better than that.

So in the final analysis we have to say that the nine-pointed star from Lower Franconia is a particularly bright one. In the set-up described here it even deserves the special accolade of being rated just below the STEREO top reference models.

Glossary:
Ventilated cabinet is the common term for loudspeakers using bass-reflex, passive diaphragm or transmission line technologies, i.e. those generating extra bass via an opening in the broadest sense of the word

Inserts:
S. 51
The Manger Zerobox 109 is a two-way performer of extremes: deep bass capacity and low separating frequency
S. 52
The Manger curiosity has lost its exotic status: The mid-tone/tweeter range is simply world class

TEST CHAIN
CD PLAYERS: Audia Flight CD-One, Accuphase DP-67
AMPLIFIERS: Symphonic Line RG 14 Edition 2004, Burmester 032, Accuphase E-308
PRE/POWER AMP: Audio Flight Pre/Flight 50, Accuphase C-2400/P-7000
LOUDSPEAKERS: Focal Micro Utopia Be, Dynaudio Special 25/Contour C1
CABLES: Nordost, HMS, Silvercom

Picture signatures:
S. 51
Excellent filtering: Daniela Manger separates the two protagonists of the Zerobox 109 with Mundorf components of absolutely top quality.
S.52
Specialist: The Scan-Speak woofer is a true prize and performs particularly well in enclosed cabinets.
No more metal connectors: The WBT terminals are connected up using decent cable jumpers.

Manger Zerobox 109
Price pre pair: from around € 3,200
Dimensions: 26 x 50 x 40 cm (WxHxD)
Warranty: 3 years
Tel.: +49 (0) 9776/9816
www.manger-msw.de

Abstract:
Thanks to the excellent bending wave transducer, a solid woofer section and the now matured concept the Zerobox 109 is nowadays one of the best compact loudspeakers on the market, and its performance is just as convincing as a fully-blown pedestal loudspeaker.

Laboratory

Frequency response / Impedance

Step response (milliseconds)

Due to the enclosed cabinet design the frequency response below 50 Hertz only drops slowly and indeed reaches as low as 30 Hertz. The tweeter range goes beyond the range of human hearing. In the mid-tone treble range there is a certain amount of ripples. The efficiency factor is at around 86 decibels, and the impedance plot shows a perfect four-ohm behaviour. Even for tube amplifiers a highly pleasant loading. The step response demonstrates the perfect integration of both drivers, without a trace of irregularities.

STEREO Test
Sound level 98%
Value for money: **** Excellent