

Kaiser Kawero! Chiara loudspeakers

by Paul Messenger

The carrier refused to collect the Chiaras, claiming that they were 'too heavy'. A stand-mount 'too heavy'? I found this difficult to believe. However, the Editor stepped into the breach, somehow managing to struggle the package into his car. The Chiara is indeed a stand-mount, and a quite compact example in its way too, but it also incorporates an integral stand, and our samples came packed as a pair inside one already substantial flight case. Helping to unload them certainly went some way towards explaining the carrier's recalcitrance, especially once I'd figured out that the total weight of the package just topped 100kg

Priced from around £16,000/pair (depending on options), this must be one of the most costly stand-mounts on the planet, but there are plenty of far more costly floorstanders around these days, including other Kawero! models, and since all are designed to carry out the same basic task, there seems little authentic reason to make the distinction. Each type has advantages and disadvantages with respect to the other, and there's really no reason why a stand-mount can't compete directly with a floorstander, on sonic as well as price and presentation grounds.

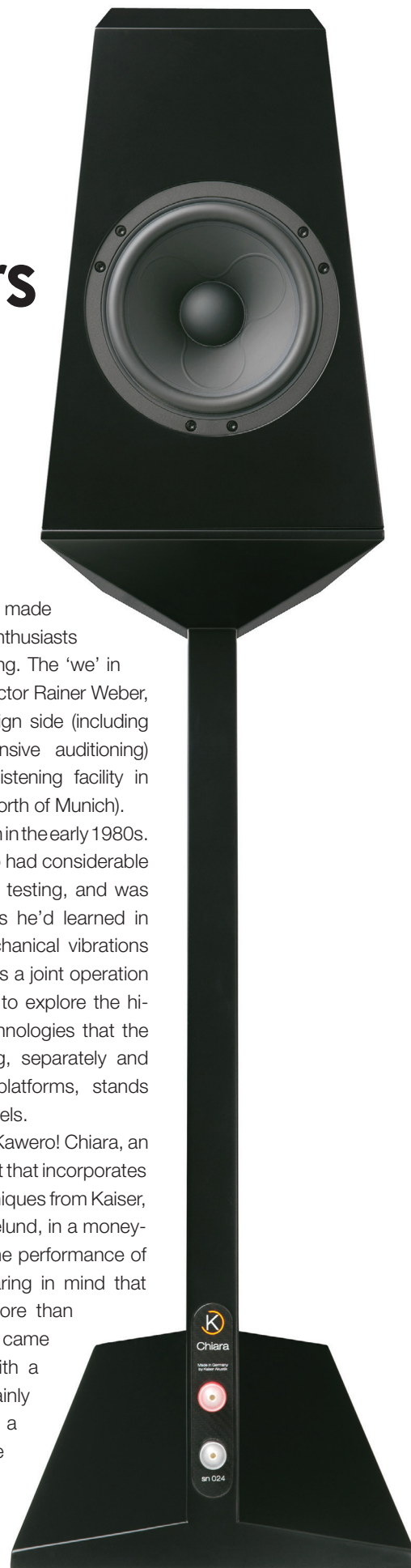
However, before getting down to the nitty gritty of the speaker itself, some explanation regarding the nomenclature is necessary, because it's all quite complicated. The speakers are actually manufactured by Kaiser Acoustics GmbH, a substantial family-owned operation founded in 1948 that specialises in advanced wood-based engineering and acoustic solutions, situated in the extreme south east of Germany.

The Kawero! brand name is a made up composite of the three hi-fi enthusiasts that initially inspired the whole thing. The 'we' in the middle refers to Technical Director Rainer Weber, who carries out most of the design side (including component selection and extensive auditioning) in a high quality purpose-built listening facility in Regensburg (a large city 120km north of Munich).

UK company Vertex AQ began in the early 1980s. It was set up by Steve Elford, who had considerable previous experience in ultrasonic testing, and was applying some of the techniques he'd learned in order to eliminate low level mechanical vibrations from hi-fi systems. LeadingEdge is a joint operation set up by Kaiser and Vertex AQ to explore the hi-fi applications of the various technologies that the two companies were developing, separately and together, including specifically platforms, stands and acoustic room treatment panels.

Which brings us back to the Kawero! Chiara, an exceedingly advanced stand-mount that incorporates a number of key engineering techniques from Kaiser, Vertex AQ, LeadingEdge and Duelund, in a money-no-object attempt to maximise the performance of the compact loudspeaker – bearing in mind that the whole is invariably rather more than the sum of its parts. Our samples came finished mostly in matt white with a carbon-fibre front panel, and certainly looked discreetly elegant, though a variety of alternatives are available (at various extra costs).

One key technology is that the enclosure proper is built from something called



'tankwood' (a translation from the original German panzerholz, that maybe refers to its use in bulletproofing VIP limousine doors). It's made by a German company, and starts life as a form of beech plywood. The layers are then impregnated with resin under very high temperature and pressure, which halves the original's thickness and bonds the cellulose together at a molecular level, effectively forming a composite. The result is a material with considerable and non-frequency-specific internal damping characteristics. [See <http://www.lessloss.com/page.html?id=80> for some interesting background info]

Tankwood is very dense. Drop a piece into water and it will sink, not float. As a result, it's very difficult indeed to machine, and rapidly wears diamond-tipped tools. This adds significantly to the cost of using it, though it can take a bolt thread without needing an insert. The tankwood enclosure, with an additional damping layer, goes a long way towards explaining this speaker's 34kg weight, which is very substantial for a stand-mount, and invariably a surprise when handling it.

The Chiara – an Italian word meaning 'clear' – has numerous other interesting features. The enclosure itself carefully avoids any parallel surfaces throughout: only the top, back and front are flat; the sides are made from two pieces set at a wide angle, while the base has three facets. Furthermore, the stand is much more than merely integral with the speaker, and is actually far more complex internally than it appears to be on the surface. It has a hefty shaped base with a single narrow but deep vertical spine. The speaker 'head' is designed to drain vibration efficiently away from the driver mountings, following paths that continue down towards two 'impedance matched' tankwood spigots. These extend down into the stand into three built in acoustic labyrinths arranged in series and designed to absorb the vibrations. A single pair of high quality multi-way terminals is conveniently located low down on the spine of the stand, feeding a crossover with Duelund components and Vertex AQ anti-vibration, -EMI and -RFI techniques.

Three spikes may allegedly be fitted to the base of the stand, but were not supplied in this instance, and didn't seem to be a serious prospect in practice: the front spike socket worked fine with a 6mm spike, but the two socket threads at the rear seemed to be too large for 6mm spikes, and too small for the 8mm variety. Listening was therefore carried out with the speakers simply placed flat on a wooden floor, backed up by using sets of Townshend Seismic Corners.

This is actually a two-way design, as what looks like an extra rear-mounted bass driver is actually an ABR (auxiliary bass radiator) – an entirely passive device that behaves rather like a port, while offering rather greater flexibility in tuning and operation. Both these are made by Scan Speak specifically for Kawero!: the flush-mounted 150mm Illuminator-based bass/mid driver on the front has a 95mm paper sandwich diaphragm, while the 180mm ABR (also Illuminator-based) uses a 125mm aluminium alloy cone.

The tweeter is recessed by about a centimetre behind the carbon fibre front panel. It's a dedicated version of the Mundorf AMT (Air Motion Transformer) drive unit, with a radiating surface that's approximately 28x60mm. (An AMT is a variation on a ribbon transducer, where the use of a heavily pleated diaphragm considerably enhances the available headroom.)

Two years ago I reviewed a floorstanding Kawero! Vivace in these pages. While it was a very impressive (if costly) loudspeaker in nearly every respect, I did find it a little too bass heavy in my 3.3x2.6x5.5m listening room, which


indicated it was probably better suited to larger or more bass-absorbent locations.

That was one reason why I was keen to try this Chiara stand-mount, as it seemed likely to offer much of the performance of the Vivace alongside the advantages of a stand-mount, with less bass excess and a smaller pricetag too. The only likely disadvantage might be some reduction in maximum loudness capability.

That's pretty much how things turned out, to some extent at least. One interesting observation is that bass extension appears to have been increased by sacrificing some sensitivity. This actually seems rather sensible in the context of a costly compact loudspeaker such as this. According to our in-room far-field averaged traces, the 'real world' sensitivity is around 86dB here, a relatively modest figure, while output is maintained at this level right down to 25Hz, thanks to the ABR being tuned to a low 33Hz. Impedance minima are around 5 ohms, so the amplifier loading should be easy enough to handle. The pair match is truly excellent.

The measured frequency balance (again in-room far-field averaged) is pretty well ordered overall, though it might have been smoother below 1kHz, and does have a couple of distinctive characteristics that will certainly influence the overall presentation. The bass region (25-60Hz) is quite strong, to ▶

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some extent compensating for a tendency towards upper bass leanness. However, the most striking feature is that output in the presence band (2.5-5.5kHz) is decidedly laid back and restrained, reaching -5dB 3.5-4.5kHz; the consequent freedom from aggressive tendencies will favour turning up the volume.

First impressions are nearly always important, as is the contrast with the loudspeakers that were being used previously. In this case, the Chiara followed a couple of crossoverless speaker systems with solitary full-range drive units. Such speakers tend to have a lightweight 'forward' tonality that's the complete opposite of that shown by the Chiara, alongside an overall coherence that two- and three-way speakers struggle to match. While the change in tonal balance was obvious, dramatic (and clearly favoured the Chiara), the surprise was that its overall coherence also seemed as good as the single driver system. That in turn suggests that the crossover network design and components (from Danish maker Duelund), and their operating environment (the addition of Vertex AQ treatments) are unusually transparent and effective.

Indeed, the only aspect of performance where the Chiara falls a little short is in dynamic grip and expression. This is hardly unexpected, as it seems to be endemic in small speakers with modest sensitivity. As with all loudspeakers, some degree of compromise is involved, but I should add that in this case the compromises are unquestionably amongst the very best I've ever encountered.

The laid back presence might not be to every taste, it has to be said, though it does have some interesting implications. On the one hand, because consonants and sibilants are a little restrained, one tends to play the system a little louder than one would if the speaker system had a more stronger presence output; however, this approach is very effective in avoiding any tendency towards aggression, even when playing upfront recordings at a relatively high level.

The dynamic situation is more complex. Although I've come to the conclusion that 'going large' (in terms of sensitivity and/or driver area) is the only way to achieve true dynamic 'grip', it's also true that it's much harder to control enclosure coloration in large loudspeakers. Here the small loudspeaker does have an inherent advantage, especially with the extra techniques and treatments that have been applied to the Chiara in order to reduce unwanted low level sound radiation. The Chiara might lack the vigorous dynamic expression of a large horn system, but it has a different ace up its sleeve. By minimising the amount of low level background 'hash' or 'noise' in the reproduction, it becomes more than a match in overall dynamic range.

That effective elimination of low level 'hash' is the key to the Chiara's indisputably excellent performance. Although it actually sounds like a large speaker in several

respects, it also has all the advantages of a small loudspeaker, delivering pinpoint stereo imaging with a superb freedom from box colorations. Central images, such as monophonic speech, are rendered with great stability and precision, and whatever the source, one is never aware of the location of the speakers – just the image that they create.

The Chiaras were tried directly on the floor (with no spikes, as explained above), and also supported by Townshend Seismic Corners. Although some might prefer the warmer, richer tonality of the former, the latter sounded cleaner and less congested, with less boxiness and superior imaging. That said, the Seismic Corners did look aesthetically rather clumsy.

The bottom line is that this is one of the finest loudspeakers I've ever had the pleasure of reviewing. There's no such thing as a 'perfect' speaker, but the Chiara ticks more boxes than any alternative I can recall, somehow managing to combine many of the best features of both large and small loudspeakers, albeit at a substantial price. Provided the laid back presentation is considered acceptable, the wide dynamic range and bandwidth plus exceptional freedom from boxiness unquestionably makes this speaker one of the great allrounders.

► And it even looks very good too.



RIGHT TO REPLY: RAINER WEBER, KAISER ACOUSTICS

The Chiaras have some very innovative features that contribute significantly to their performance - two of which we can shed a bit more light on.

The dip in the presence band is deliberate. We do not design to flat frequency response in that band, rather we design to the Fletcher-Munson curves of equal loudness perception. This dip only occurs on axis - by 30 degrees off, the response is very smooth (+/- 1dB in that range) and by changing toe-in of the speaker, you can actually 'set' the frequency response at the listening seat for individual preference.

Secondly, in a conventional design, dynamic intermodulation back into the driver motors (of all that energy through the structure) would become a significant factor smearing the time domain, and RFI intermodulation with the complex signal would severely modify the tonal content of the output. The Chiara is doing substantial work when the music is in full flight, draining signal-related 'real time' energy down into the stand labyrinths from both the drivers and the crossover, and the EMI treatment is killing the signal/RFI intermodulation products too.

Ultimately, it's about achieving good behaviour in the time domain, fighting against intermodulation products. If we made exactly the same speaker with MDF and without all the Vertex components, we would certainly have the same frequency response, but the sound would collapse as energy levels build.

This technology is so revolutionary that at first it's not obvious why it's there. But it's the major key to a big sound out of a small speaker (less harshness, more clarity, improved dynamic range). This is really why the speaker behaves like it does – time domain coherence and the ability to keep a stable and detached image (phase accuracy), as energy levels increase, is the differentiator here.

TECHNICAL SPECIFICATIONS

Drive units: SEAS 150mm bass/mid with paper sandwich cone
28x60mm Mundorf AMT tweeter
180mm ABR

Sensitivity ref 2.83V (claimed; measured):
87dB; 86dB

Measured frequency response (in-room far-field averaged): 20Hz – 20kHz ±8dB;
60Hz-20kHz ±5dB

Impedance (claimed; measured):
4 ohms; 5 ohms min

Max power: 150W max

Dimensions (WxHxD): 25x47x36 (head, max) cm.

Total height inc stand: 116 cm

Weight: 34kg

Price: from €16,220/pair

Manufactured by: Kaiser Acoustics GmbH

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