

WIN!
£1700 PMC SPEAKERS
page 99

Roksan turns the tables
Xerxes 20 record player: page 24

KEF's latest Ref
New 205 speakers: page 28

Affordable valves!
Consonance Cyber amp: p32

A classier cartridge
Benz LP Ebony tested: page 41

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Living Krell

Resolution 1
speaker has style!
page 18

EXCLUSIVE
Audio Note UK
Ongaku amp
in first lab test
page 48

**HOME
ENTERTAINMENT**
starts page 60

ON TEST
Harman's top AV amp,
NAD's new DVD,
Marantz projector



Oracle
CD player and
DAC on trial
page 42

iPOD ESSENTIALS: the must-have accessories, page 38

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08



Krell
Resolution 1

Tall and muscular, Krell's new loudspeaker is a heavyweight in more ways than one, reports Martin Colloms

Krell Resolution 1

Formerly only associated with electronics, Krell surprised the industry back in 2000 with a line-up of imposing all-aluminium loudspeakers. The 1.4m high LAT-1 [April 2002] was joined by a standmount design, the LAT-2 and a powerful centre channel design, the LAT-C. There was also the looming presence of the MRS, one of the world's heaviest and most powerful sub-woofers. This earthquake-grade device, specified down to a truly infrasonic 14Hz, employs 2.6kW of amplification and weighs a staggering 396lbs or 180kg!

Weight reduction is clearly not something the Krell design team take much into consideration, so it was no surprise to find that the larger model in Krell's new wood veneered speaker range, the Resolution series, weighed in at nearly 200lbs each, about 88kg. The price of this 'low cost' speaker is around \$11,000 a pair. High quality stereo reproduction is the main performance target, but if you are



Ring radiator tweeter by Vifa

bi-wired shrouded binding posts are fitted, with a superior WBT terminal bridge for single-wire operation. The cursory specifications include an above-average 90dB sensitivity (8 ohm watt), a 4 ohm rated impedance, and a wide yet believable 25Hz to 22kHz frequency response (± 3 dB). Surprisingly, no power handling indication was given, but a quick assessment of the driver complement and acoustic loading suggests that a 400W capacity (unclipped peak programme) would be fair enough, and that if used with discretion, even use of the FPB 700cx would not be out of the question – but not for a party!

I couldn't say that this is a handsome speaker in the raw – the appearance of the drivers and their layout are highly

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using the Resolution 1 in a home cinema arrangement and feel you are lacking bass there is a comparatively compact 50kg sub available, designed with a massive peak sound level capability of 117dB.

The Resolution 1 is tall, but its proportionately slim profile helps avoid total dominance of your room. Barely wider than the diameter of the low-frequency drivers, it measures 335mm wide, is built with attractively curved sides and is about 500mm deep. WBT

Bass frequencies are diverted to twin long-throw drivers

functional – but matters improve with the vertically corded 'grille' in place. First seen on the Guarneri reference compact a decade or so ago, Krell has licensed the style and grille from its creators, Sonus Faber. The grille slightly alters the sound, which is perceptibly less open and airy, but the difference is a subtle one. Moreover, the quality of perspective layering in the depth planes of the stereo image is actually better with the grille in place, never mind the benefit of covering up the disparate assemblage of drivers.

I reckon a current-capable, load-tolerant amplifier will be required to drive the Resolution 1 effectively. A 400W design will allow it to deliver thrilling 110dB in-room sound levels over the listening area, and as with the Sonus Faber





Magnesium alloy low-range driver sits at the top of the Krell

Main driver array is presented inverted to the listener

I welcome audio components that aren't temperamental and make the best of what resources are available

Stradivari, large rooms present no problems. This is especially true in view of the likely bass capability with the low-frequency drive system, equivalent to a high power 380mm, 15in diameter driver, twin port loaded.

SOUND QUALITY

I welcome audio components that aren't temperamental, don't need fussy setting-up, and that make the best – not the worst – of what resources are available. Certain

demanding designs may ultimately reward the listener, but products that settle in quickly can often be more accurate, better tuned and with more of their fundamental performance attributes in balance.

Following their delivery and despite a chill from overnight warehousing, these humungous Krells fitted in with minimum fuss. From the start they demonstrated a friendly, generous and communicative nature and I felt instinctively they were welcome to stay for the duration. Over the

The tall story: technology

Taken from one viewpoint, the Resolution 1 is a medium-sized three-way system built so tall that the main driver array is presented inverted to the listener. In use, time delays to the listener from each driver are thus partly compensated and the high-frequency unit is aligned closely to the listener axis.

At the top of each cabinet is mounted a powerful 200mm low-range driver, a magnesium alloy cone design from SEAS in silver grey distinguished by an open pole terminated with a pure copper phase plug. While phase is not an issue in the range for this driver some benefit from the copper plug is audible.

Below this can be found a 100mm polypropylene cone mid driver with a wave-terminated foam suspension, whose main role is to acoustically bridge the gap between the 200mm unit and the now-popular 28mm ring radiator tweeter from Vifa, derived from sister company Scan design.

The midrange driver has a light, fast voicecoil, and to preserve dynamic range has ferrofluid cooling: it operates from about 450Hz to 2.9kHz, roughly 2.5 octaves. The 200mm pure piston unit carries the bulk of the low midrange impact and the two octaves from about 110Hz to 440Hz. While the latter is capable of extended bass in its own right, the low frequencies are instead diverted to the pair of alloy cone long-throw bass drivers in the lower section of the enclosure. The rear-facing ports are designed for high playing volume, with deep flaring to minimise turbulence. There is sufficient internal volume to properly tune the bass drivers for an extended low-frequency power bandwidth.

Build and finish were both exemplary, right down to the well-dimensioned satin chrome foot coupling hardware, with a choice of spikes or firm polymer pads. The review pair were in dark cherry, and lighter veneers are also available.





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Lab report

The load matching shown here is difficult, and only the finest high-current amplifiers will give of their best with this speaker. It really did fall below 2 ohm, with a 1.8 ohm worst case recorded value at 61Hz, mid-bass, and it averaged 3 ohm through the remaining treble. I am driven to rate it at an all-time low of 3 ohm [Fig 1]. Driven to full power, it will draw current peaks of the order of 42 amps. No wonder it uses very low resistance crossover components!

The effect of the grille looks worse than it is, although there is a significant change to the sound. Fig 2 shows a fair impression of the axial frequency response. The upper range response is actually $\pm 0.75\text{dB}$ from 800Hz to 10kHz, remarkably uniform, this reading unsmoothed. There is a faint roll-off above this band -1.5dB at 20kHz, and then to -6dB at an extended 28kHz. Add the grille and periodic errors of $\pm 2\text{dB}$ are the result on-axis, these only partially ameliorated by aural-sensitivity-weighted 1/3 octave band averaging. There is about 1.5dB of treble attenuation, with a trough at 3kHz and a peak at 6.5kHz. However, on the best listening axis, about 10° lateral, the disturbance is rather less, though audible. Off-axis this speaker

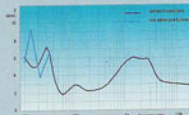


Fig 1. Impedance characteristic

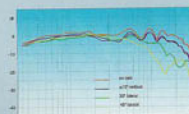


Fig 3. Off-axis response family, 2m

performed very well, particularly so in the more awkward vertical axis.

Notwithstanding measurement difficulties with this large immovable box, the acoustic outputs are skillfully tailored to generate fine consistency, aiding stability of both timbre and imaging [Fig 3]. Measured axial sensitivity was very close to the specification at 89.5dB while the adverse amplifier loading has already been noted. With a compatible amplifier, genuinely high 110dB sound levels will be possible in medium to large rooms. In-room the bass response extended to at least 20Hz, an excellent bandwidth.

Fig 4 shows the weighted summation of the listening region of 64 measurements for located left and right speakers driving the listening region of the room, and with the grille in place. Some ripple can be seen at high frequencies plus some roll-off, -10dB by 12kHz instead of the usual -6dB.

Remembering room interaction, resulting in a dip at around 200Hz, the prime 50Hz to 6kHz range fits $\pm 5\text{dB}$ limits, albeit with clear and audible bass lift of about 4dB. Yet this is one of the few examples where the sound is significantly better than you might try to predict from the spatial average.



Fig 2. On-axis response, 1m

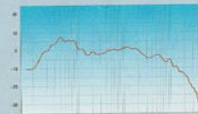


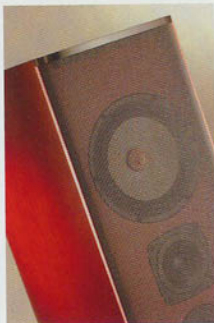
Fig 4. Room averaged response

next few days the speakers ran in a little as they reached room temperature. The bass opened up and gained speed and expression, while the midrange seemed to relax and open out. And I consistently heard a seamless, well-balanced blend of good sound, despite that extended vertical array of disparate drivers. Nothing stuck out, no part was exaggerated or out of place, with no sense of false presence or plateau projection.

The midband sounded well integrated; voices sang evenly through the range and

were well proportioned, free sounding and with proper scale, judged to be articulate, highly natural, and neither sibilant nor nasal. Fed a diet of multiple voices including massed choral material, it did not clog up. Fine levels of resolution and separation were shown. Percussion was dynamic, well differentiated but never edgy or 'hard'.

Despite the evidently powerful bass, this speaker was upbeat, did not slow subjective musical pace and played well on both jazz and classical material. It easily did justice



Grille style is licensed from Sonus Faber

to a full symphony at full volume. This cultured genuine high-fidelity design could also kick really hard on rock, absorbing massive amounts of power with ease to outplay much of the competition.

Enclosure coloration was held to very moderate levels and never became obtrusive, and whether from this or otherwise, the speaker did have a mildly dark quality which I found appropriate. In fact these speakers were so generally accomplished that they proved remarkably self-effacing. They don't seek to impress, but rather let the music do the job for them, with a big and generous sound. When required, top quality bass is launched at the listener and into the room, from long, slow and deep sustains to propulsive percussive pedal drum pressure waves, impacting the listener.

Deep low-distortion bass was achieved with an accurate, clearly differentiated and expressive upper bass - a rare combination indeed. I consider that the bass offered was better than subwoofer quality because it was provided in stereo and because it integrated so well with the demonstrable fine midrange.

Cathedral organ enthusiasts will delight in the genuinely extended low-frequency output; the 25Hz reach is no idle boast, available at levels which convey the heroic scale of the instrument. You can hear the performer properly dance over the pedals. The bass line is also quick and tenuous, providing the right rhythmic foundation for the rest of the frequency range. I really didn't expect this from such a large and extended bass reflex such as this. Listening to the speakers as I write this assessment, I

The listening system

Partnering equipment used for this review included the following: Naim CDS 3, Marantz CD-7 CD players; Linn LP12/ Naim ARO/Koetsu Rosewood Signature II analogue player with Audio Note ANS-4 phono stage; Conrad-Johnson ACT 2 pre-amplifier; Krell FPB400CX, Conrad-Johnson Premier 350SA and Naim NAP 250 power amplifiers; Transparent XL Reference interconnect and speaker cables, Cardas Golden Reference interconnect and Kimber KS 3035 speaker cables. Equipment supports were the Finite Elements, Pagode series.



Superior WBT bridge, and terminals

am still trying to find their measure, some aspect where they don't quite hit the spot – but so far I can't!

Both orchestral and jazz bass instrumentals were handled very well, while string tone was just fine, with vocals placed in good perspective; they flow through their range with very natural articulation and clarity. Delicate and well-resolved, the treble was never obtrusive, it just does a great job and aligns very well with the system as a whole. Very easy on the ears, this speaker will play from whisper-soft to numbingly loud, remaining tonally balanced, highly controlled and well mannered.

After some acclimatisation I found the initial perception of the slightly broad stereo image settled down well, with listening distances over a 2.5m recommended, together with a toe-in of a few degrees or even placed straight ahead.

who heard it. A tribute to its inherent accuracy and resolution, it proved eminently capable of disseminating between numerous audiophile components, from cables to power amplifiers. While it will happily cruise in a home cinema or swing capably with a powerful integrated stereo amplifier, this design is of audiophile quality and would benefit from a great supporting system if you feel ambitious.

In addition to room placement, the dual ports provide some scope for tailoring the low frequency output. For a 'faster' bass, I plugged the upper ports with a tight fitting



Satin finish floor-coupling hardware

This is US engineering at its best – generous, weighty, powerful, capable and indestructible

Central mono images were commendably stable – not over-critical of height nor presented overly high, with fine stage width and depth layering. While not quite as obviously transparent as say the Sonus Faber Stradivari or as micro-detailed as an Avalon Eidolon, this Resolution did have a commendably good depth of image and retrieved lots of detail – usually the province of rather more costly designs.

This speaker simply doesn't get in the way of the music, which is just how it should be. Considered easy going from the outset, this Resolution was liked by all

roll of polyester fibre. For a smaller, more enclosed room you might consider blocking both for a near-infinite baffle result.

CONCLUSION

This is US engineering at its best – generous, weighty, powerful, capable and indestructible. It makes no silly demands on its owner, apart from a very loud tolerant amplifier. Too large for respectably accurate measurement, the results I obtained tended to confirm the very good listening opinion. Nevertheless the low impedance is verging on the

ridiculous and I call on designers to please mend their ways in this respect.

Krell has delivered a generally audiophile performance, at a comparatively modest price. Even given the inevitable sizeable shipping and import costs, the Resolution 1 constitutes fine value and is highly recommended for larger rooms. ■

Supplier

Absolute Sounds Ltd
020 89713909
www.krellonline.com

Hi-FiNews verdict

With its 1.8 ohm minimum/3 ohm average impedance, this heavyweight loudspeaker demands a massive, high-current amplifier but is otherwise unfussy, easy going in character. Recommended for larger rooms.