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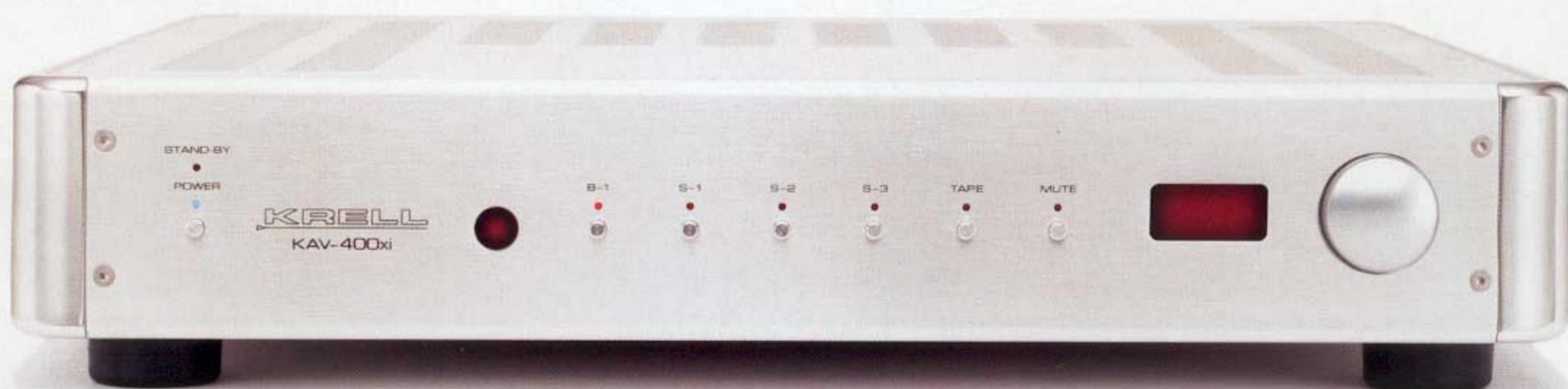
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Krell

KAV 400xi

amplifier

Speedy yet sweet, punch with panache, Krell's little integrated proves a killer



Krell KAV 400xi

PRICE	£2698
SUPPLIER	Absolute Sounds
CONTACT	020 8971 3909
WEBSITE	www.absolutesounds.com

Mention the name 'Krell' to certain audiophile diehards and their eyes are likely to glaze over. Krell has made a long line of highly desirable amplifiers, dating back to the original KSA 50, a pure Class A behemoth that consumed lots of continuous current at idle. This was as heavy as it was large and ran hot enough to supplement the central heating. Class A, of course, makes sure all output transistors conduct current at all times, but it's a highly inefficient use of electrical power. For this reason, Krell has pioneered its own proprietary techniques for achieving superior sound quality without resorting to pure class A (of which more later).

The KAV 400xi is a kind of entry-level Krell, but to write that does it an injustice. This is a serious piece of equipment – more like a scientific instrument in build quality – both inside and out than a domestic hi-fi amplifier. The shiny aluminium case, finished in deliciously sexy silver Krellcoat fairly gleams like a sleek silver flying machine – or those famous streamlined American Greyhound coaches. It's simply gorgeous and screams out to be touched.

Pick the amp up and you can feel the full 14.1kg, not just from the thick and precisely formed outer panels and supporting frame, but the internals, including heatsinks and beefy toroidal

mains transformer. Of course, the Krell's beauty is more than skin deep. Inside there's surface-mount technology from the company's KCT pre-amp, a separate power supply for the digital circuits and fully-balanced circuitry from input to output, which is also DC-coupled in order to eliminate pesky sound-spoiling capacitors.

KRELL CURRENT-MODE

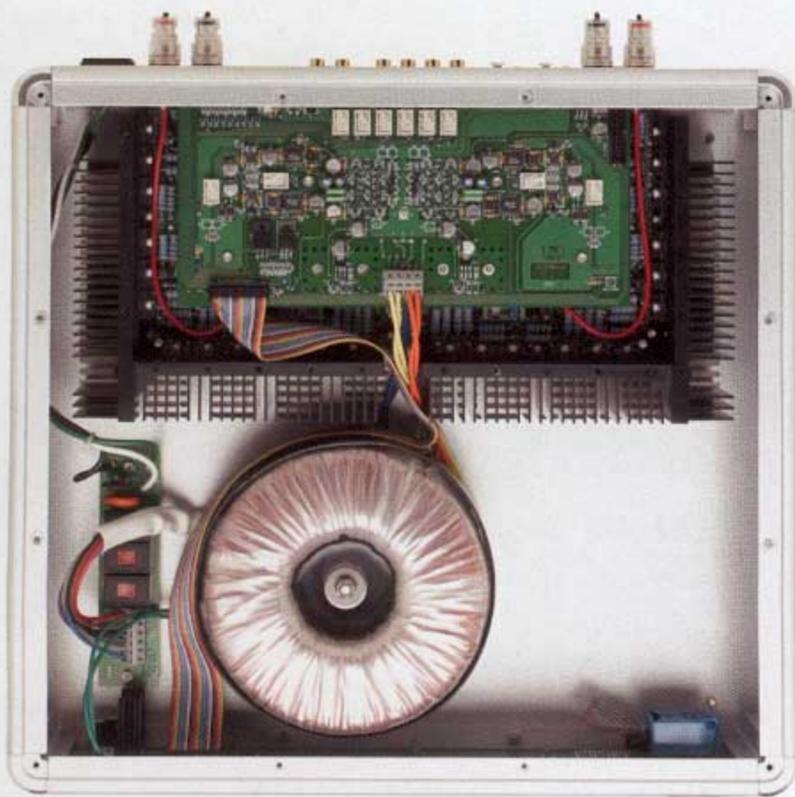
The KAV 400xi employs Krell Current mode circuitry, which is claimed to combine wide bandwidth, low distortion and superior stability by means of current-based, instead of the usual voltage-based, amplification. Krell gives little away about its proprietary Krell Current Mode circuit topology, which is used throughout the amplifier, but we did manage to discover a little about the design concepts applied in the KAV 400xi.

The voltage-gain section is claimed to operate in current mode, and the main feedback loop, which includes the output stage, uses a current-feedback signal. Krell spent a great deal of time and effort

optimising the open-loop characteristics (without feedback) of the entire output stage and then applied only a small amount of overall feedback. Krell claims it's the inherent speed and linearity of the current mode stage combined with the low output impedance of the output stage that combine to provide a nearly ideal voltage-source behaviour.

All this wizardry is packed into a small PCB area surrounded by no fewer than eight 50MHz bandwidth bipolar power output transistors, each rated at 14 amps and 150 volts maximum, which are fixed to internal heat sinks.

Unlike some of Krell's X series amplifiers, the KAV 400xi does not use their Sustained Plateau bias system, which employs a microprocessor to vary the output stage DC bias in step with the signal level and thus maintain operation in Class A from input to output. Instead, the KAV 400xi runs in good old class AB, which keeps the amplifier's bulk and heat output down compared to pure Class A. Nevertheless, the amplifier runs quite hot, after it's been on for a while, and draws 20 watts



Above: A single set of balanced as well as regular single-ended inputs are offered but beware of the usual step up in loudness between the two modes

Left: Massive 750VA toroidal transformer ensures the new 400xi has large reserves of power on tap for its eight bipolar output devices

even at idle, which implies a fair dollop of standing current. What it does bring from the X series amps is fully balanced circuitry from input to output (with the exception of the unbalanced inputs, of course), which is claimed to offer both lower noise and hum rejection.

The result of all this technology? Power delivery of 200 watts per channel into eight ohms, doubling to 400 watts into four ohms, which implies a 'stiff' low impedance power supply. Indeed, to supply this little lot with power, there's a 750VA toroidal transformer backed up with 55,000 microfarads of smoothing. As a safeguard against self-destruction from this stored energy, each output channel is protected by an eight-amp fuse on the back panel.

On a more practical note, Krell has one pair of balanced and four unbalanced inputs at the rear, together with both tape deck and pre-amp outputs.

It's the sheer listenability of this amp – that can't be expressed in percentages and decibels – which puts a smile on your face

There's also a unity-gain 'throughput' option for use with surround-sound processors in home cinema systems. Also included is an RC5 input for wired remote control, an RC5 input and 12V DC input/output sockets to allow the amplifier to be used in custom installations.

The rotary volume control has a digital readout and is adjustable, along with the various inputs, by means of a wafer-thin infra-red remote handset seemingly hewn from solid metal. Thankfully, despite the digital display, volume levels are set

internally via a bank of decidedly analogue resistors. Krell says this arrangement makes for optimum sound quality.

Balanced inputs are ideal for the small, but significant, amount of equipment that comes with balanced outputs, but the drawback here is a sharp step in loudness levels between the two modes. One would have thought this could have been compensated by means of software.

SOUND QUALITY

The Krell is one of those amplifier which, once fully warmed up and run in, sounds thoroughly entertaining. Perhaps it's the bass, which is powerful, deep and tuneful. Perhaps it's the midband, which is both forthright and subtle, or the treble, that's both sweet and crisp. Or perhaps it's the punch, drama and impact and sheer sense

of speed that this amplifier can re-create, while simultaneously singing sweetly. Or perhaps it's the apparent lack of grit, fizz or grain in the treble. Many modern transistorised designs seem to sneak a trace in even when otherwise producing very good sounds – you know, the sort of thing which make you run for the nearest valve amplifier.

But this is no surrogate valve amplifier: you get all the power and dynamics one could wish for from the transistorised genre, without the drawbacks. It really does bring home the porcine slices in terms

of both clarity and definition, yet it's not at all laid back, so if you want a warm, distant or soft sound, then look elsewhere.

Take the Shostakovich Second Piano Concerto [Hyperion CDA67425]. This energetic work is performed with real power in this recording and the Krell certainly lets you hear it. Switch from a lesser amp and it's rather as though the pianist and orchestra finds top gear. Shostakovich on steroids no less! The piano has real weight and impact, especially in the left hand, and the orchestra flies like there's no tomorrow. This is a big sound from bass to treble, with impressively natural dynamics. Bass is deep, fast and well paced, string tone is excellent too, being full of microdetail, while the horns and snares sound alive and and free.

It's a similar story with the Andante from Mendleson's *Violin Concerto* [Sony Classical SK87740]. Not only is there a lovely 'feathery' tone to the strings but even in the *fortissimos* there's not a trace of harshness to be heard.

Meanwhile, the Krell handles Jamie Cullum's debut album *Twentysomething* [UCJ, 9865574] with true dexterity. His voice, which certainly has plenty of character, is very clear and definitely to the fore on the recording. It's an intimate and up-front presentation for sure, and no one could accuse this amplifier of shrinking from its duties. Those who yearn for a gentler presentation may want to consider rival designs, but when the Krell is on a roll, you may as well enjoy it.

The joy here is that the Krell manages this palpable presence without ever becoming the least bit overbearing, fatiguing, thin or harsh sounding – which in my view is a rare achievement. In short it's the sheer listenability of this amp – something that can't be expressed in decibels and percentages – which puts a smile on your face. So, perhaps all that balanced, current-mode, capacitor-less, circuit widgetry really does work its magic. I, for one, certainly came away entranced. ■

David Berriman

Technology

The KAV 400xi measures 500 x 89 x 432mm (whd) and weighs just over 14kg. Frequency response is cited at 20Hz–20kHz +0dB, -0.07 dB and power consumption is 20W when idle, rising to a maximum 1800W. Both balanced and single-ended inputs are provided. The balanced input is via XLR connectors while three pairs of single-ended inputs are offered via RCA connectors. The unity-gain option for use with surround-sound processors Krell dubs its 'Theater Throughput' mode, available on any input. Speaker terminals are WBT binding posts. As well as the silver Krellcoat finish of the review sample, the 400xi is available in a 'luxurious' black finish.

Features

- Big, powerful yet grain-free sound
- Unity-gain option for AV applications
- Current mode electronics