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# HI-FI CHOICE

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COPLAND  
INTEGRATED VALVE AMPLIFIER CTA405

INPUT SELECT

TAPE

# Swede heart

*Copland's spirited new integrated valve amp delivers power and grace in equal measure*

**PRODUCT** Copland CTA405

**TYPE** Integrated stereo valve amplifier

**PRICE** £2,288

**KEY FEATURES** Size (WxHxD): 43x18.5x39cm

• Weight: 25kg • Inputs: Five single-ended (phono), plus MM phono stage • Output: tape monitor (phono) • Rated power: 50 watts per channel (8 ohms)

**CONTACT** ☎ 020 8971 3909 • www.copland.dk

**C**opland has long been recognised for its beautiful build quality and typically elegant Scandinavian industrial design. The brand epitomises the very best of Swedish cool, and in this respect nothing has changed over the years. But in other ways, the brand has moved on. With its amplifiers, Copland has concentrated on somewhat more upmarket

(though still reasonably priced) valve-based designs. The CTA405, a new integrated stereo amplifier, perfectly reflects the change of gear.

The amp is a follow-up to the decade old CTA401 and the similar, but remote controlled CTA402. The obvious headline change is that the CTA405 is more powerful, up from about 35 watts to 50 watts a side, thanks to the replacement of the EL34 output tubes with KT88s. But this is only one of the changes to the power amplifier section, which also includes a redesigned power supply based on a newly specified screened 600VA toroidal transformer (designed and wound by Copland themselves, as is their usual practice) feeding a 1000µF reservoir bank. The new supply is said to be good for 100 watts per channel across a 5Hz-100kHz bandwidth, which means it is

cruising well within its operating ceiling at the full output from the output stage, especially as the quoted frequency response is a slightly more conservative 10Hz-100kHz (-3dB).

Operating conditions are set manually with an adjustable bias control, and when the output tubes reach the end of their service lifetimes, they should be replaced in matched pairs.

The amplifier is equipped with a preamplifier section closely modelled on the CTA305 control amplifier, with five line-level inputs plus tape with off-tape monitoring. The Copland also has a moving magnet phono input, which at a pinch could also be used for high output moving coils. Certainly, there's enough gain available and noise levels are satisfyingly low. Power and input switching is by relay, which internally helps ensure short signal paths.



## “One feels no urge to sit and analyse what’s so good about it. It’s a great music player... and that’s all one needs to know.”

In terms of construction, this player features a swift CD-Audio transport that loads discs in as little as three seconds, plus an external servo board to control the transport and provide a stable source of digits for the DSP. All the various audio bits are contained on a single board, spanning the width of the player at the rear and filled with surface-mount components. Following the DAC chips, high performance op-amps perform what little analogue filtering is needed and buffer the signal for the balanced and unbalanced outputs. The power supply uses a toroidal transformer and a bank of filter capacitors.

The player’s standard of finish is good and the appearance smart and modern, although the dark-grey-on-light-grey liquid crystal display will not be everyone’s idea of beautiful. Frankly, we regard it as a bit of an anachronism, but there’s no denying it conveys the information perfectly well and very legibly.

### SOUND QUALITY

Cut to the chase – we found this player upliftingly excellent in almost every way. Indeed, we found ourselves thinking dark thoughts about just how much more the high end of audio can offer in real terms.

A possible criticism of the 840C is that it’s a bit boring. But in fact it’s just very, very realistic sounding. If you like your music reproduction enhanced in some way, you simply shouldn’t bother with the Cambridge Audio Azur 840C. This is life in the raw, as it comes.

Well, very nearly, at least. Just on the odd occasion, we were dimly aware that the merest hint of precision in images was lacking, with performers seeming ever so slightly vague around the edges where true ‘reference’ CD players had in the past shows them more clearly delineated. Yes, ‘dim’, ‘odd’, ‘mere’ and ‘vague’... this is subtle stuff. It is important to note, though, that nothing at or near the 840C’s price exceeds its performance in this regard, and we really are talking about the last ‘nth’ part of the performance envelope here.

Tonally, the player is highly neutral. It may have a smidgin of coloration in the upper midrange/lower treble, which probably relates to the filter limitations noted above. Then again it’s at least the equal of anything in its class. Bass is truly excellent, deep, powerful, tuneful, rhythmic and controlled, and extreme treble is crystalline and pure.

But that honesty thing... it’s what kept us putting disc after disc in the player. It has that

rare knack of preserving the polish of a Haydn string quartet without prettying up the Sex Pistols, belting the bejaysus out of a dramatic finale in an Italian opera without fudging the simplicity of Nina Simone. It’s hard to put a finger on just what combination of technical qualities makes for this admirable characteristic, but in the end it’s clear that a quite effortless approach to detail lies behind it, together with (probably related to) a lack of the subtle grunge and noise that dirties up the sound of lesser reproducers.

The real joy of this player, though, is that one feels no urge to sit and analyse what’s so good about it. It’s a great music player... and that’s all one needs to know. Dig out some favourite discs, spin them up and don’t resist the urge to grin. This is technology transcending the merely technological, and we’re delighted to have encountered it. **HFC**

Richard Black



### VERDICT

#### SOUND >> 90%



#### FEATURES >> 90%



#### BUILD >> 88%



#### VALUE >> 96%



#### PRO

Fine tonality, fabulous bass quality, great detail – but above all a degree of musical honesty that really involves the listener.

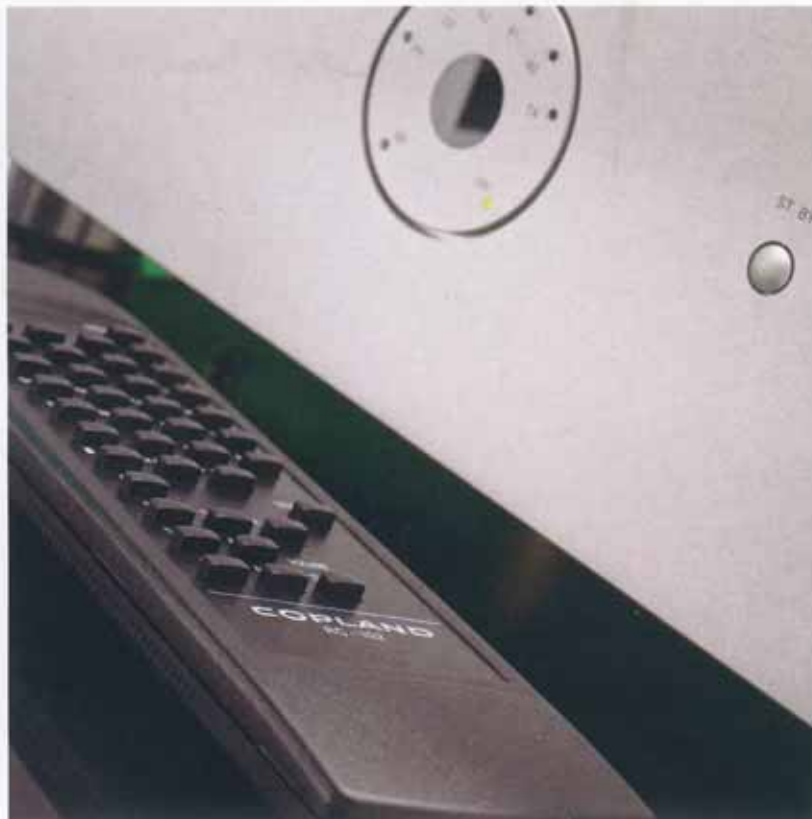
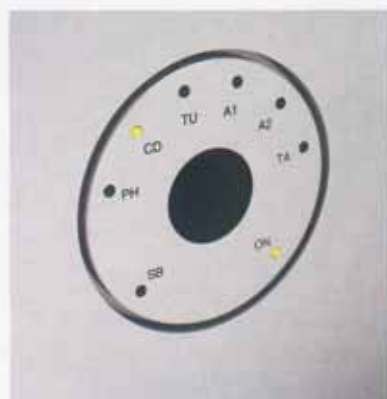
#### CON

Voices are minor in the extreme: a touch of upper midrange lift, a very slight smudging of images, both only audible in painstaking A/B comparisons.

#### CONCLUSION

One of the most involving and rewarding music replay machines we’ve come across at such a sensible price and an excellent partner to the fine 840A amplifier. There simply isn’t a CD player at the price that offers anywhere near as much!

**HI-FI CHOICE** OVERALL SCORE >> **93%**



Input selection uses one of the two front panel rotaries, with a matching central area housing LEDs for power status and the selected input. There is also an LED for tape routing. The remaining rotary control is an ALPS analogue volume control, and the unit is supplied with a system remote control which can be used to operate a Copland CD player. Four- and eight-ohm taps are available for loudspeakers, but as with most valve amps, sound quality appears best with the eight-ohm taps, irrespective of the speakers used.

There are some minor practical considerations to watch, though. One is that loudspeaker polarity is inverted from nominal, a decision that arose because it apparently simplifies the construction of the case design. To maintain correct phase in a system that does not invert phase elsewhere, the connection to the speakers should be reversed at the amplifier or loudspeaker end. As Copland points out, connecting the speakers according to the instructions on the back of the amplifier ensures correct phase without additional electronics. The low-level line outputs are non-inverting. Also, the on/off power of an attached Copland CD player (the manufacturer suggests using the excellent CDA823) can be remote controlled from the 12V remote jack fitted to the back panel.

The amplifier includes an auto power off feature, which is triggered when the amp is not used for about eight hours. This is a safety requirement in some counties, though amps destined for other markets are manufactured without this function.

**“The CTA405 is no refugee from the 1960s, as so many valve amps appear to be. Instead, it is a vital, lively and agile sounding amplifier.”**

Build quality and finish are very high, and operational feel is up there with the best. But those who know Copland expect nothing less.

#### SOUND QUALITY

The company name was inspired by Olé Moller's love of the capricious music of Aaron Copland, which might seem out of character for a man who is famously quiet and self-effacing. But quiet and self-effacing are not how Copland amplifiers present themselves, and that's particularly true of the CTA405. Put another way, the CTA405 is no refugee from the 1960s, as so many valve amps appear to be. Instead, it is a vital, lively and agile sounding amplifier. If you didn't notice the illuminated bottles glowing inside (and in daylight you probably wouldn't), there's little to betray the thermionic valve heritage.

Of course, there is only one real way of evaluating the true worth of any hi-fi component. It is to answer this simple question: could we live with this product? Restating the question to take value into account, we could instead ask if someone had this much money to spend on an amplifier that does what this one does, could they live without it? The answer would be a simple affirmative in the first case, and a negative to

the second. This is one of the very best integrated amplifiers we know of at this price, and very possibly the best valve-based design of its ilk around at the moment.

It was clear that the Copland was this good virtually from the very first note, and it achieves this status as already suggested not by sounding quintessentially valve-like, but almost the exact opposite. There is no false warmth here, no soft, valve-like treble, and the midband is much bolder, more architectural and more fully formed than might be expected of a valve amp. More usefully, there is no obvious sign that the sound varies with different loads or that it responds differently as the volume level changes. The amp's performance remained consistent with a range of speakers, and across a broad volume range, even maintaining its *savoir-faire* when driven mildly into overload – the one respect in which the CTA405 conformed to valve stereotypes.

Perhaps the most impressive demonstration of the Copland's excellence was with a pair of speakers from Vienna Acoustics – a medium size floorstanding two-way called the Beethoven Baby Grand. We have learned to respect this speaker, despite a balance that's best described as 'uncommunicative', even a little cool. But with the Copland amplifier in

# [Review] Copland CTA405 integrated amplifier

## Q&A

We interviewed Olé Møller, Copland's designer and CEO, about the genesis of the CTA405



**HFC** What are the technical highlights of the CTA405?

**OM** Starting with the basics, the Copland CTA405 main circuit has been designed on a single PCB. High quality surface relays are mounted directly onto the input area to achieve a reliable switch function with a minimum of crosstalk. A selector on the front panel remotely controls the relays and an ALPS potentiometer is used for volume control. Star earthing minimises the influence of induced voltages in the earth lines. The passive complement of all audio stages are comprised exclusively of polypropylene capacitors and high tolerance resistors.

Then, the power supply is delivered from a custom-built 600VA toroidal, which feeds a substantial reservoir bank. The transformer is magnetically screened to minimise spurious leakages, and there are separate power supplies for the pre and power amplifier. The output is coupled to the load using output transformers, which are designed to minimise plate and screen current, and we found we could achieve very good performance with low level of feedback at the specified 2x50 watts output.

**How do you go about designing output stages?**

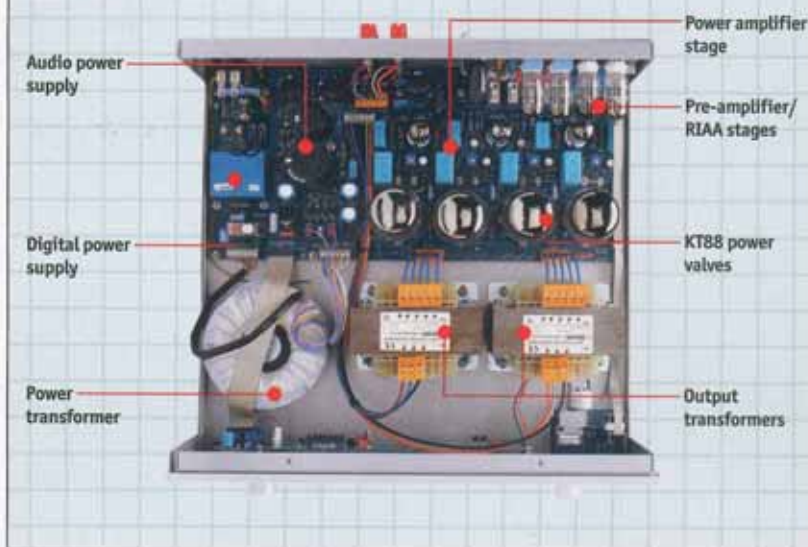
We design the output stage transformers at Copland, with segmented windings for low leakage losses. These provide low distortion and high stability through the bandwidth. The output stage is low in impedance, though of course it will not be as low as many solid-state designs, despite fairly low levels of overall negative feedback.

**What about the active valve stages?**

ECC83 double triodes are used in the RIAA phono section, and the line-level stage is built around 6990 active triodes. The drivers for the power amplifier also use ECC83s, and two double-triode 12BH7 are used as phase splitters to feed the two pairs of KT88s, which operate in push/pull.

The sound is similar to previous Copland integrations, but it sounds more powerful, and it has a tighter, more disciplined feel, due mainly to the new power supply and the use of KT88s.

## Detail



charge, a remarkable transformation occurred. It was lively and agile where previously it was leaden. The Copland, which simply sounded in control, did not prejudice the analysis and discipline of its music making. In combination, this amp and speaker managed to say more about music than many more demonstrative counterparts.

That at any rate is one interpretation; a more simple minded analysis is that the sheer liveliness of the amp helped counteract a lack of the same qualities in the loudspeaker – but as it turns out there was no obviously reciprocal effect with differently balanced loudspeakers. The always lively and exquisitely detailed Mordaunt-Short Performance 6, for example, sounded close to neutral and completely in command with the Copland in charge of proceedings. In part, this may be because the Copland is successful in areas where other valve amps are weak. The bass, in particular, is solid and muscular, and doesn't suffer audible signs of overhang or excess. Stereo imagery is also impressively realised. Not because it always sounds especially wide or deep, but because it can do both of these

things, and does so when the source material demands, making a solid construction around the plane of the loudspeakers when the recording is good enough.

The point to bear in mind here is that the Copland is subtle and responsive. It goes a long way to making the most of the material it is fed, and it is adept at making the end result enjoyable without rounding off too many of the rough edges which are often essential to the worthwhile reproduction of great music. It doesn't do what many valve amps do, which is to make music listenable at the expense of its internal structure. It does its job honestly, and without smothering fine musical detail. In short, the CTA405 is simply an excellent amp, irrespective of its enabling technology. **HFC**

*Alvin Gold*



## VERDICT

**SOUND >> 92%**



**FEATURES >> 76%**



**BUILD >> 93%**



**VALUE >> 89%**



### PRO

A fine, expressive amplifier, but it is also highly detailed and has more real world power than the numbers suggest. It performs consistently with a range of different speaker designs.

### CON

Speaker polarity should be inverted (see main text), and it runs quite hot, so plan ventilation carefully.

### CONCLUSION

This amp turns the tables on other valve amplifiers by refusing to display the typical limitations, yet offering all the benefits. This is an engaging and vital sounding amplifier, grain free and subtle, with backgrounds as quiet as most solid-state amps.

**HI-FI CHOICE**  
OVERALL SCORE >> **91%**