

# Hegel H390

A little over half the price of the mighty H590 amp, in a slimmer design and with very similar facilities and output, this new arrival from Norway is a sure-fire bargain  
 Review: **Andrew Everard** Lab: **Paul Miller**

They're clearly fans of the old buckled swash at Hegel: having evoked *Master And Commander* in announcing its £9000 H590 flagship amplifier [HFN Oct '18], the Norwegian company says it's calling the new H390 'Robin Hood'. Why? Well, it's all a matter of re-distribution of wealth, apparently, for the £4900 debutant takes much of the ability of its big brother, and makes it available to those of us of humbler means. Mind you, the company also describes the new amplifier as a 'Rebel', saying it justifies that title 'by offering so much of the performance and features from our Reference products, but at a lower price, [offering] in one integrated product what others do in two or three. It provides world class sound, jaw-dropping power, and services such as Apple AirPlay, Spotify, Roon, all in a single chassis'.

## MESSY BUSINESS

Think we've got the idea now, chaps – it does lots, very, very well, and it's much less expensive than your flagship model, to which it gets extremely close. Let's just hope not dangerously close, eh? That might get messy...

Launched at the 2019 High End show in Munich, [and see p22] the H390 replaces the H360, just as the H190 replaced Hegel's first EISA Award-winner, the H160. And it draws together elements of the H360 with technology from the H590, so while the H360-sized power supply is smaller than that in the flagship model, as PM's Lab Report [see p63] and boxout [p61] make clear, you'll never actually notice any lack of power except in extremis.

What you will notice is that the H390 shares the new Hegel streaming platform as seen on the H590 and H190 amplifiers. Yes, this isn't just a common or garden integrated amp with analogue and digital

**RIGHT:** Four pairs of ultra-fast high current power transistors are deployed per channel [heatsinks, left and right], fed from a toroidal transformer and linear PSU. The new digital board [top] offers USB, network access and MQA



inputs because the H390 is a full-blown network streaming device too. Also included in its inventory are RCA and XLR analogue ins (though no phono stage), fixed and variable analogue outs and BNC, coaxial, optical and USB-B digital inputs, with selectable volume bypass available for home theatre processors and the like.

The updated network facility means you can stream using UPnP/DLNA from NAS drives, access online services including Spotify, Tidal and Internet radio, all under the control of a third-party app such as Bubble UPnP or Linn's Kinsky/Kazoo. You can even stream music wirelessly to the amp via the network using Apple AirPlay. Hegel neatly swerves the lack of a dedicated app to drive the H190/390/590 by saying this 'is a rebellion against the establishment of "forcing" consumers

into a user interface defined by the amplifier/streamer manufacturer'. Rather conveniently this also saves Hegel the dosh in app development and certification, of course – but hey, this is far from the only company to follow this course.

## IN THE AIR

And there's more. In common with the H190 and H590, the new amplifier can be customised using a browser interface on a computer or tablet connected to the same network, and also receive 'over the air' firmware updates. These will allow it to be tweaked and improved over time, and also gain extra functionality. On the way, or available by the time you read this, will be AirPlay 2, Roon-ready capability and Control4 custom installation compatibility, while Hegel also says, 'We also look for



updates that may further improve the sound quality over Ethernet, without going to further details just yet'.

The custom streaming platform is engineered to have processing power in hand for these new additions, and is also more stable than Hegel's first-generation streaming design. The digital section here can handle up to DSD256 on USB, up to DSD64 on all other digital inputs (using DSD over PCM frames, or DoP), and MQA on all digital inputs. Hegel says that the DAC board is based on that in the H590, but simplified – described as a 'bit perfect' DAC, it unusually treats every incoming digital signal 'as is', with synchronous clocks and none of the upsampling prevalent elsewhere.

In the quest for this purity, Hegel says, 'we even design digital clocks that will follow the sampling frequency in the music and "down-clock" when receiving a low-resolution file. The result is a far more natural and "analogue" sound as well as

an unbelievable soundstage and realism'. Here's how Hegel explains what this does: 'We minimise noise, by reducing the system clock of certain circuits whenever possible. The effect this had was somewhat surprising to us, and may be "poor marketing" since it means we are reducing the computing power'.

And the main (power) amplification? Well, it's less powerful than that in the H590 – but not hugely so, rated at 250W/8ohm per channel against the 590's 310W – and uses Hegel's 'SoundEngine 2' topology, which the company explains as working in a similar manner to noise cancelling headphones. This is its own take on feedforward, or other compensation regimes, deriving an error signal from the difference between the amplifier input and output. Feeding this difference back to the output, with phase reversed, helps cancel distortion. That's the theory anyway, and PM discusses distortion performance in his Lab Report [see p63].

*'You know what I mean about vanishing – it's a sonic thing'*

**ABOVE:** Instantly recognisable – the H390 is an exemplar of Hegel's trademark simplicity. Source and volume controls flank the display and a power button is hidden under the fascia

Quoting Hegel further, it says that in tests with internal and external listeners, some themes emerged: that the H390 makes the amp it replaces, the H360, sound 'like there is something wrong', and that the scale of difference from the H190 is such that the H390 makes the lesser amp 'look stupid'. But it addresses the closeness to the H590 by quoting a comment that 'as good as the H390 is, when you switch to the H590 you just lean back and go – OK. That is something else'.

## NORDIC BUT NICE

So, I bet there were some sighs of relief in Oslo when that last rejoinder came in, but I wouldn't be so sure on that point. I didn't have an old H360, an H190 or an H590 to hand for direct comparisons, but I did have my listening notes from last October's H590 test, and I have to say what I was hearing through the H390 was very similar indeed to what I'd written. I even played some of the same tracks by way of reference, so I'm pretty confident anyone in the market for an upscale integrated would be more than satisfied with the H390.

I used the amp in a variety of configurations, fed from my usual Naim ND555/555PS network player [HFN Apr '19] employed as an analogue source, with the Melco N100 [HFN Jun '19] used both as a UPnP store via the H390's onboard streaming section and as a source for the USB audio input. In every case the H390 came up shining across a range of loudspeakers from a pair of little B&Ws, passing through at the time, on to my usual Neats and PMCs. What this amp does is the 'Hegel thing' – it vanishes.

Of course, that's easier for the slimmer H390 than it is for the AV-receiver-sized

## ROBIN WHO?

At little over half the price of Hegel's flagship H590 [HFN Oct '18], this new H390 really does look like it's 'robbing the rich to serve the poor (audiophile)'. On the other hand, £4900 is hardly a pouchful of loose groats, if you'll pardon the historical analogy, but for the outlay you do get a hugely capable amplifier. Clearly based on the H590, the H390 has the same 'SoundEngine 2' power amp, albeit with four rather than six pairs of devices per channel and a commensurately smaller toroidal-based linear PSU [see inside picture, p60]. So while the H590 pumps out 2x310W and 2x590W into 8 and 4ohm, respectively, the H390 is not so far behind with 2x270W/8ohm and 2x490W/4ohm with 279W, 544W and 1.04kW into 8, 4 and 2ohm loads under dynamic conditions. The H590 delivers 325W, 640W and 1.24kW into the same 8, 4 and 2ohm which, again, is less than 1dB more grunt for an additional £4000. The H590 reveals its true colours only into exceptionally low (1ohm) loads where its 2.285kW (47.8A) capacity dwarfs the H390's 1.16kW (34.1A). So, unless you are using a pair of insanely low impedance speakers, it looks more like the H390 will be robbing the limelight from Hegel's own H590! PM

# LAB REPORT

## HEGEL H390

Its quartet of substantial feet lift the H390 sufficiently off the deck that the meatiest of audiophile hands can still reach the on/off rocker switch located beneath. Discount those pins and the H390 is uncommonly svelte for what is a hugely capable design. In practice, it delivers in excess of its 250W/8ohm rated output to the tune of 2x270W/8ohm and 2x490W/4ohm with 279W, 544W, 1.04kW and 1.16kW available at <1% THD under dynamic conditions into 8, 4, 2 and 1ohm loads [see Graph 1, below]. This power is delivered through a low 0.014-0.048ohm source impedance and a response that's flat to within -1dB from 6Hz-75kHz (-1.6dB/100kHz). Noise is very low too, the H390 matching the H590's sensibly 'low' +32.6dB gain (balanced inputs) and contributing to a generous 90dB A-wtd S/N ratio (re. 0dBW). Distortion is equally low and climbs only gently with increasing output from 0.0022%/1W to 0.003%/10W, 0.008%/100W and 0.015%/200W through bass and midrange. Versus frequency, THD increases beyond 5kHz although it still only reaches 0.02%/20kHz at 10W/8ohm.

The digital board, based on the H590, features the same AKM AK4490 DAC with its minimum phase/fast roll-off filter. Distortion is just 0.0004-0.0028% (20Hz-20kHz, 0dBfs), with a minimum of 0.0001% [see Graph 2, below] and with response limits of +0.1dB/20kHz, +0.3dB/45kHz and +0.5dB/55kHz (to -1.7dB/90kHz) with 48kHz, 96kHz and 192kHz media, respectively. The fixed preamp offers 2.43V from a high 951ohm source impedance, but the 106dB A-wtd S/N ratio is creditable. With all digital inputs routed through via the USB DSP section here, jitter is fabulously low at <10psec with all sample rates. PM



**ABOVE:** Substantial 4mm speaker outlets, plus fixed and variable preamp outs are joined by three line inputs (one balanced on XLR). The row of digital ins includes three optical, two coax (RCA/BNC), USB-B and an Ethernet port. A digital out (BNC) is added

H590, although the smaller amp does sit on almost comically tall feet, which at least make it easier to access the power switch hidden under the front panel. But you know what I mean about vanishing: it's not a physical thing, as after all the H390 is still a sizeable chunk of 'Nordic noir', but rather a sonic one.

### JAW-DROPPING

Simply, this amp – like the H590 that preceded it in these pages – just delivers music without any hint of processing, mechanics or effort going on. There's that old saying about 'playing music with disdainful ease', but that's not quite what's happening here for, instead, the H390 has an enthusiasm, a vitality and sheer style about its sound that conveys the sense of an amp very comfortable in its skin.

Playing A J Croce's vibrant *Cantos* set [Seedling Records SDL0003] the Hegel H390 sounds sparky, fast and punchy, yet with good weight in both the left hand of the piano and the backing band, while Croce's voice has fine intimacy and presence, especially in the cover of 'Maybe I'm Amazed', while the chiming piano figure underpinning

'All I Have' glows out of the mix. By contrast, the explosive orchestrations of the final movement of Copland's Third Symphony [Orchestra Of The Americas/Prieto; Linn CKD604 192kHz/24-bit]



**LEFT:** Hegel's system handset partners with its other separates, offering input, volume, mute and display adjust here

are delivered with breathtaking slam, that opening phrase presaging 'Fanfare For The Common Man' suddenly bursting into full orchestral life and then redoubling its efforts to become even more massive. The recording is jaw-dropping and this new Hegel amp is more than up to the task – and then some!

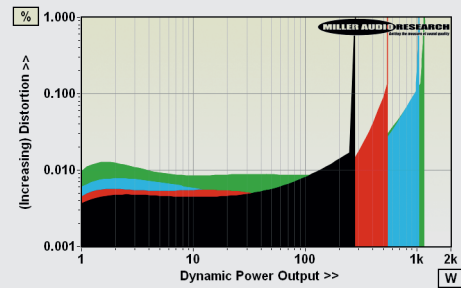
Getting to the heart of the music is what this amplifier does without fail, and never is this more obvious than with the remarkable live field recordings of Alan Lomax on the 2003 *Blues Songbook* compilation [Rounder Select 82161-1866-2]. These tracks have amazing immediacy, which the H390 communicates in a very satisfying manner. The same goes for a similar, if more recent project, Billy Bragg and Joe Henry's *Shine A Light* railway odyssey, recording as they went [Cooking Vinyl COOKCD623], which again shows how well this amp can deliver ambience and atmosphere.

Yes, the H390 can turn on the drama with the best of them: the recent Prince compilation, *Originals* [NPG Records] is packed with big, lush arrangements and snappy, deeply-extended rhythms, but even when played at very high levels all of this fazes the Hegel not one jot. H590? It's snapping at your heels! ☺

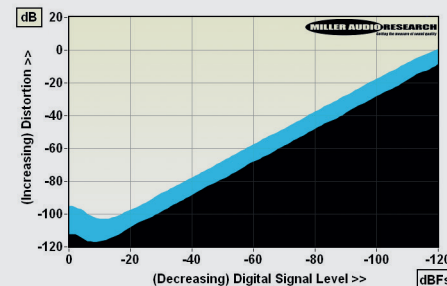
### HI-FI NEWS VERDICT

When building a range of products, it's always advisable to have some clear model differentiation, but Hegel may just have dropped the ball on this one: the H390 is sensationally good value, with a clean, powerful sound and bags of musicality, not to mention exceptional flexibility including onboard network streaming. And all this for just over half the price of the H590 flagship...

Sound Quality: 86%



**ABOVE:** Dynamic power output versus distortion into 8ohm (black trace), 4ohm (red), 2ohm (blue) and 1ohm (green) speaker loads. Max. current is 34.1A



**ABOVE:** Distortion versus 24-bit digital signal level over a 120dB range at 1kHz (black) and 20kHz (blue)

### HI-FI NEWS SPECIFICATIONS

Continuous power (<1% THD, 8/4ohm)	270W / 490W
Dynamic power (<1% THD, 8/4/2/1ohm)	279W / 544W / 1.04kW / 1.16kW
Output impedance (20Hz-20kHz)	0.014-0.048ohm (951ohm, pre)
Freq. resp. (20Hz-20kHz/100kHz)	+0.0 to -0.15dB/-1.6dB
Digital jitter (S/PDIF at 48kHz/96kHz)	10psec / 5psec
A-wtd S/N ratio (re. 0dBW/0dBfs)	90.5dB (Analogue) / 105.6dB (Dig)
Dist. (20Hz-20kHz; 0dBW/-20dBfs)	0.0025-0.01%/0.0001-0.0005%
Power consumption (idle/rated o/p)	67W / 830W (27W 'Eco' mode)
Dimensions (WHD) / Weight	430x150x380mm / 22kg