



COVER REVIEW/POWER AMPLIFIERS

NUFORCE REFERENCE 9 > Welcome to the revolution!



INTRO

Amplifiers used to be either valve-based, or solid state. Then along came the digital age, and with it the eventual birth of the Class D digital amplifier. Now, **NuForce** has created a completely new category of amplifier that draws from existing technologies. The result? The best of all worlds...

PEAKS

VERDICT: Innovation, technology and musical integrity meet in a compact, unassuming package that belts out anything from Mozart to Metallica with compelling, jaw-dropping gusto. They may be small, but these monoblocks are the business, even by high-end standards. **Deservedly meet reference standards.**

PRICE: R28 000,00 for the pair

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Californian audio company **NuForce** has every reason to believe that there's more to its corporate identity than a catchy trademark. If its claims about a new generation of amplifiers utilising so-called analogue switching technology are true, it may well end up being the new force its name implies -- **and one to be reckoned with.**

Don't worry if you haven't heard of **NuForce** before. It's still a relatively new player on the high-end audio block, even though its primary products -- a two-strong family of monoblock power amplifiers -- have already attracted considerable attention around the globe.

I was admittedly a little taken aback when the Reference 9 flagship power amps were delivered: not only were the boxes unusually compact, but their weight was so low that you could carry one under each arm. Try that with a Mark Levinson or a Krell...

So, these are not the behemoths so typical of the high-end world. And it immediately poses the question whether such slim, svelte designs are able to deliver the sonic weight expected of them. But before taking a closer look -- and listen -- to the **NuForce** Reference 9 monoblocks, it's worth considering the technology they embody.

After several false starts, the Class D digital amplifier is now an everyday reality, serving up a host of benefits that include running very cool, and not requiring massive power supplies. The result has been a new generation of smaller, lighter and (some would say) more user-friendly amplifiers.

But the big question has always been whether Class D amps can compare with the aristocracy of the high-end world. At **NuForce**, the answer must have been an emphatic 'no'.

The company has adopted a somewhat different approach to the accepted principles and core technologies of typical Class D amplifiers -- an approach it has dubbed and patented as analogue switching digital amplification.

With a background in aerospace and weapons control systems, **NuForce** chief designer Tranh Nguyen is an expert in power conversion circuit topologies with a few patents to his name, and who also happens to have a more than a passing interest in audio. The combination of the two has found a home in the **NuForce** power amplifier.

Okay, so if it's not a conventional Class D amp, what is it? At the core of the **NuForce** amplifier is a Nguyen-developed pulse-width modulation (PWM) controller based on self-oscillating principles, which has been applied to traditional Class D amplifier switching amplifier design.

Normal Class D designs only have a limited useable bandwidth, and use a fixed, sawtooth waveform for audio signal modulation, which the **NuForce** claims causes jitter that masks or even corrupts low-level music signals.

By comparison, the **NuForce** amplifier uses a naturally occurring analogue modulating signal, said to be compatible with the flow of the music, and not displaying the propensity for jitter. It also switches at an astonishing 500 kHz -- more than double the sampling rate of SACD.

The results are several noteworthy performance improvements over 'normal' Class D amps. Firstly, the **NuForce**'s extended bandwidth delivers a ruler-flat frequency response of 20 Hz to 50 kHz: perfect for today's so-called high-resolution, extended bandwidth formats, including SACD and DVD-A.

Next, the **NuForce** achieves an exceptionally high damping factor of more than **4000** -- quite unbelievable, compared to the 200 or so considered excellent in normal amp design. It allows the **NuForce** to remain stable into very low speaker loads of up to 2 ohms.

Further benefits of the **NuForce** design include zero phase shift and ultra-low distortion, both of which should result in greater clarity, resolution and detail. Also, the **NuForce** power supply is smaller and much, much faster than normal power supplies, and thus is able to provide big dollops of power instantaneously.

So confident is **NuForce** about this technology that it believes its amplifiers are likely to pioneer a major industry shift to switching amplifier design.

Okay, so we have a compact, lightweight power amplifier that's highly efficient (around 85 percent), doesn't suffer from heat build-up, and yet claims to be able to take on the best of the traditional, high-end designs. **Does that sound too good to be true?**

There was only one way to find out -- and was to listen to them.

Unpacked, the Reference 9 monoblocks are every bit as compact and lightweight as **NuForce** promises. Resplendent in brushed, extruded aluminium, they measure 216 x 46 x 356 mm (WxHxD), and weigh a measly 3,8 kg.

At face value, they're pretty but plain little beasts, with a fascia boasting nothing more than a blue LED, a bevelled vanity line and the **NuForce** logo. The rear panel is rather more interesting, offering a choice of single-ended RCA and balanced XLR inputs, with a tiny toggle selector to specify the preferred socket.



There's also a kettle-type power cable socket, a rocker switch for power on/off, and a pair of nicely engineered binding posts, although I felt they could have been just that little bit further apart.

Pertinent technical data not already mentioned elsewhere includes a rated RMS maximum output of 160 watts into 8 ohms, 300 watts into 4 ohms, and 350 watts into 2 ohms **with a peak power of 1.352Kilowatts!**; THD of only 0,05% at 10 watts from 20 Hz to 20 kHz, and a signal-to-noise ratio of 100 dB at 100 watts.

The Reference 9s were used in conjunction with both my regular Revel M22 reference monitors, and a pair of Vivid Audio V1p monitors -- the latter a subject of a separate review in an upcoming issue, but already confirmed as permanent inhabitants in my listening room.

I used Electrocompaniet's EC 4.6 pre-amp, together with my stalwart Rotel RCD-991 CD player, operated in balanced mode. Also on source duty was my Linn Sondek LP12/Ittok/Ortofon Kontrapunkt B record deck, running via an Electrocompaniet ECP-1 phono stage.

Having given the pair of **NuForce** Reference 9s a good three to four days to settle in, I'd already gained some idea about what to expect. **Even so, nothing prepared me for the sheer impact and majesty of these amplifiers once serious listening commenced.**

I started off with Pat Metheny's 'We Live Here' on CD, and was blown away by the way these little amps seemed to have added at least a half-octave of extra bass to the Vivids' delivery, together with such snap, punch and pace that I almost didn't recognise my system at all!

Metheny's guitar is deceptively effortless, but poses a real challenge in both tonal and rhythmical terms. However, the monoblocks had little trouble coping with the

multilayered recording, effortlessly translating everything from the underlying bass lines to the lead guitar's intricate, shimmering embellishments.

Nor were the amps intimidated by the recording's inherent energy -- and especially, the complex percussion runs and accompanying, agile electric bass riffs. These really showcased the sheer speed and cracking pace the Reference 9s are capable of.

They revelled in the electricity and excitement of it all, and managed to communicate the music's energy so successfully that even this studio recording exuded a certain patina of liveliness -- as if I had somehow managed to sneak my way into the studio.

From Metheny, the music used for the remainder of the audition included the Dire Straits classic, 'Love Over Gold', Keith Jarrett's live (and lively) 'At The Deer Head Inn', the original 'Friday Night In San Francisco' featuring Al di Meoli, John McLaughlin and Paco de Lucia, and Pink Floyd's seminal 'Dark Side Of The Moon'.

If you still believe that digital glare is a handicap of digital sources and amplifiers, think again. The Reference 9s sound so effortlessly fluid and tonally liquid that there was never any danger of sonic aggression: even upper treble remained approachable and in complete harmony with the overall balance of the delivery.

Tonal range was impressive: the depth of the bass already mentioned was matched by a seamless progression from low to high, embracing a muscular, incisive midrange along the way. Indeed, the Reference 9s showed no blips or dips that could have spoilt the linearity of the performance.

But I've left the best for last. The Reference 9s paint a sonic picture of such grandiose dimensions that the soundstage seems almost utterly unfettered by any physical surroundings. Music that I know well was delivered on such a vast, open and deep soundstage that the music took on an altogether different, more communicative character.

The sense of depth and dimension, and the pin-point positioning of each instrument and each voice did much to boost realism and that always elusive sense of becoming immersed in the performance, rather than merely listening to it. Delivered here with such effortless verve, and coloured in an infinite spectrum of tonal hues, the music had rarely sounded so visceral, so immediate -- so real!

It's very hard to equate such a performance to both the physical dimensions of the monoblocks, and their asking price. Both delicate and powerful, equally intimate and expansive, with a real empathy for the music, **the NuForce Reference 9s are the power amp arena's ULTIMATE GIANT KILLERS!**

But regardless of the money, these are also fine examples of the amp maker's art and the inventor's innovation -- as much musical instrument as technical tour de force. The Reference 9 monoblocks easily achieve reference standard -- and, I suppose, that proves exactly what **NuForce** claims: the amplifier revolution is here!

Deon Schoeman (Chief Editor) – Audio Video South Africa magazine (March 2006 issue)