



Furutech NCF Clear Line

A cryogenic/demagnetisation process and proprietary piezoelectric crystals lie at the heart of Furutech's 'Clear Line' plugs. We cut through the noise. Review & Lab: **Paul Miller**

Cryogenic treatment is key to almost every Furutech cable and connector, as is the promise of exceptional build and finish quality [*HFN* Mar '18]. With cables, of course, the material engineering can easily be quantified, but with the Japanese brand's 'noise busting' NCF Clear Line plugs – supplied with RCA and XLR terminations for insertion into unused audio inputs – the science can easily lose some clarity. Prices are £205 for each RCA-equipped plug and £260 for the bigger male and female XLR derivatives.

KEEPING ITS COOL

NCF stands for Nano Crystal² Formula, an antistatic damping material that is injected into the signal pin and also used in the multi-layer carbon/non-magnetic stainless steel body of the plugs. Furutech's website states that NCF 'features a special crystalline material that has two "active" properties. First, it generates negative ions that eliminate static. Second, it converts thermal energy into far infrared'. Furutech mixes this material with ceramic and carbon powder for their 'additional piezoelectric effect damping properties'.

Furutech would not be drawn into providing additional details for this review but it would not be alone in leveraging the interesting piezo- and ferroelectric properties of, for example, a calcium zirconate-based material in an audio product offering noise suppression.

Cryo cooling, by contrast, can deliver clear-cut benefits. All metal parts in these connectors benefit from Furutech's



ABOVE: Inside the NCF plug it's possible to see two 'specially coated' ceramic capacitors that are lodged up against a nylon/NCF end cover



BELOW: Built with exquisite precision, Furutech's NCF plugs include cryogenically-treated/demagnetised/rhodium-plated conductors with a 'liquid crystal polymer resin' core. The multi-layer carbon fibre sleeve squeezes the connector tight onto the recipient RCA socket



two-stage 'Alpha Process'. This begins with cryogenic cooling to temperatures at or below -195°C before a gradual warming to room temperature that relieves microscopic stresses in the OCC copper's crystal structure, influencing both its mechanical and electrical properties. The final step in its conditioning involves a precisely-controlled (ring) demagnetisation.

Also tucked away inside the Clear Line's pressure-sealed cylindrical barrel are two 'hybrid ceramic capacitors' [see pic, below]. In practice then, NCF Clear Line are *not* shorting plugs but represent a 20Mohm termination (measured at 1kHz) with a parallel capacitance of 5.7nF. It's the latter that, potentially, provides a low impedance route for any high frequency noise, shunting RF to ground. However, I would not recommend plugging these devices into active line *outputs*.

TESTING TIMES

In Furutech's own literature the brand is very careful not to make any specific claims for its Clear Line plugs – gains in system performance are largely inferred by third-party quotes which, for example, include an 'overwhelming improvement in signal-

to-noise ratio'. No objective measurements or graphs are offered by Furutech.

Keen to land a repeatable test 'for the record', I measured the A-wtd S/N ratio of several recent MC phono stages (Musical Fidelity, Canor and Mola Mola) and DAC/preamplifiers (iFi Audio and Mytek) and could detect no meaningful difference in signal-to-noise with the NCF plug terminating a vacant RCA input (versus unterminated). I even plugged several 'noisy' wall-wart PSUs into adjacent AC mains sockets in an attempt to induce some local 'domestic' UHF noise, but to no avail.

PLUG, PLAY AND PONDER

However this one test does not discount the possibility of RF IMD [*HFN* Jun '89] or some other spawn of interference occurring within any of these, or other, products and over which the NCF Clear Line plugs may exert some small impact. But in my listening could I detect a deepening of dark backgrounds, a minute reduction of hash at the very edges of perception? Was there also a very slight softening of the sharpest transient detail, a minor suppression of musical panache?

Frankly, I would not commit myself one way or the other, but neither would I dismiss the opinion of trusted colleagues who swear by these devices. Hence our 'SQ rating' is entirely arbitrary in this instance! ↓

HI-FI NEWS VERDICT

Compared with typical *HFN* fare – including Furutech's own very fine cables – the NCF Clear Line termination plugs might not unreasonably be described as fringe devices. No repeatable evidence for their efficacy is offered but that, perhaps, is besides the point. If, in practice, you can discern a difference with the NCF plugs *in situ* then whether this uplift is a product of science or suggestion should really have no bearing on your satisfaction.

Sound Quality: 80%

