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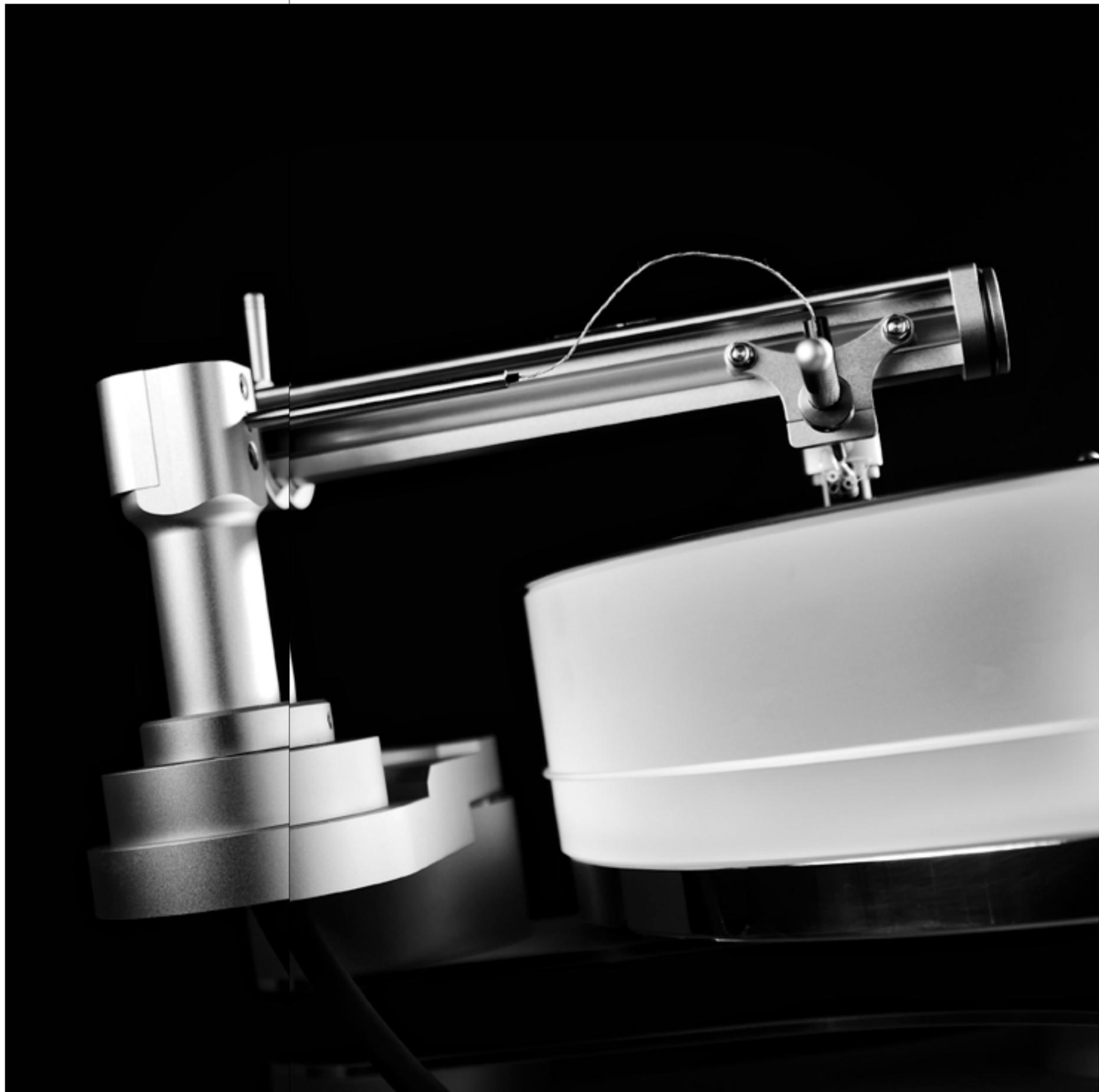


Clearaudio TT5

# STRAIGHT TO THE POINT

By Helmut Hack. Photos: Ingo Schulz

Many an analog fan dreams of owning a perfect, tangential tonearm. And with the new TT5 from Clearaudio, that dream just got a lot closer. ▶

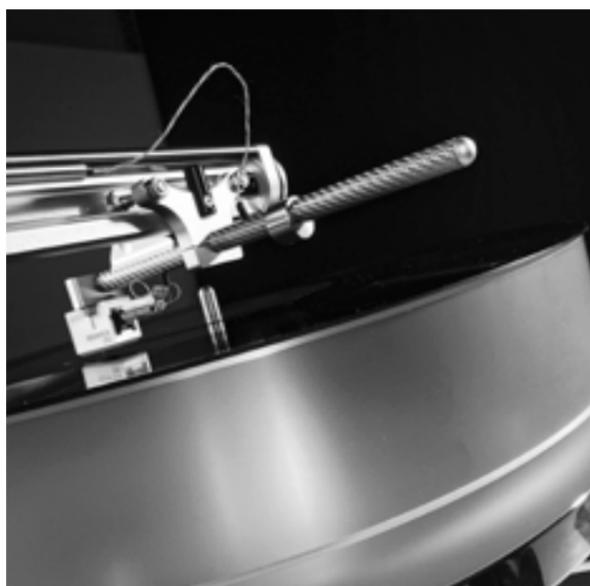


Zero-crossings lose their fear factor as soon as they no longer occur in pairs.

Tangential pickup is theoretically the best process as it is not subject to the tracking angle error inherent in radial tonearms. It isn't necessarily zero degrees, as often claimed, but is roughly zero degrees or so close that the difference is negligible, provided that the cartridge has been properly adjusted. However, tangential arms do have one real disadvantage: Even just the basic, entry-level models are extremely expensive. One of the serious alternatives up to now has been the Clearaudio TT3, a "real snip" at just EUR 3,000. But it's now got some competition from within the same company: The new "small" TT5 is already changing hands for two grand. For that, you get a very high-quality interpretation of the principle, which was introduced by Souther back in the 1980s. Clearaudio took over the American company a few years later and since then has been refining the design, primarily in terms of its choice

of materials. The first generation of the TQ-1 arm, in which the modern Clearaudio TT2 unmistakably has its origins, was still constructed in the USA at the time. With the TT5, this design of its dome, its superstructure has been ditched and heavily reduced but the way that it works remains unchanged. Even when you remove the (possibly exaggerated) issue of the tracking angle error with a tangential tonearm, on the other hand you encounter a few new ones: The pickup must still be moved as gently as possible over the record. Back when this technology was in its heyday, in the 1980s, a broad range of different types of control system with servomotors, chain drive or cable pulls were devised, in short, using active control. They all had one disadvantage that couldn't be ignored: Corrective adjustments were only ever made after the damage had been done. The approach adopted by Souther, or subsequently by Clearaudio, to use the minimal ▶





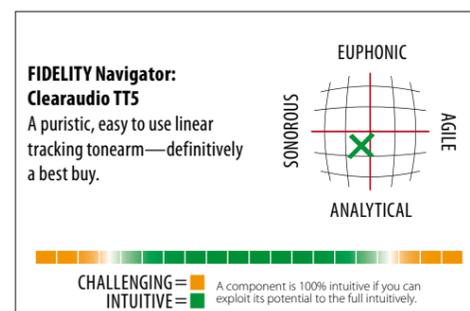
## ACCOMPANYING EQUIPMENT

**Turntables:** Technics SL-1200GAE (incl. tonearm), Feickert Analogue Firebird | **Tonearms:** Mørch DP-8, Brinkmann 12.1 | **Cartridges:** Clearaudio MC Essence and Da Vinci, Ortofon Quintet Bronze and 2M Black, Audio Technica 50ANV | **Phono preamplifiers:** Lehmann Black Cube Decade, MFE Tube One SE (integrated) | **CD player:** Revox C221 | **D/A converters:** Canever ZeroUno, PS Audio Digital Link III | **Preamplifier:** MFE Tube One SE | **Power amplifier:** DNM PA35 | **Integrated amplifier:** Genuin Straight | **Loudspeaker:** Steinmusic Masterclass SP 1.1 | **Cables:** Audiophil, Musical Wire, MFE, DNM | **Accessories:** Steinmusic, Sun-Leiste, Hannl, Audiophil

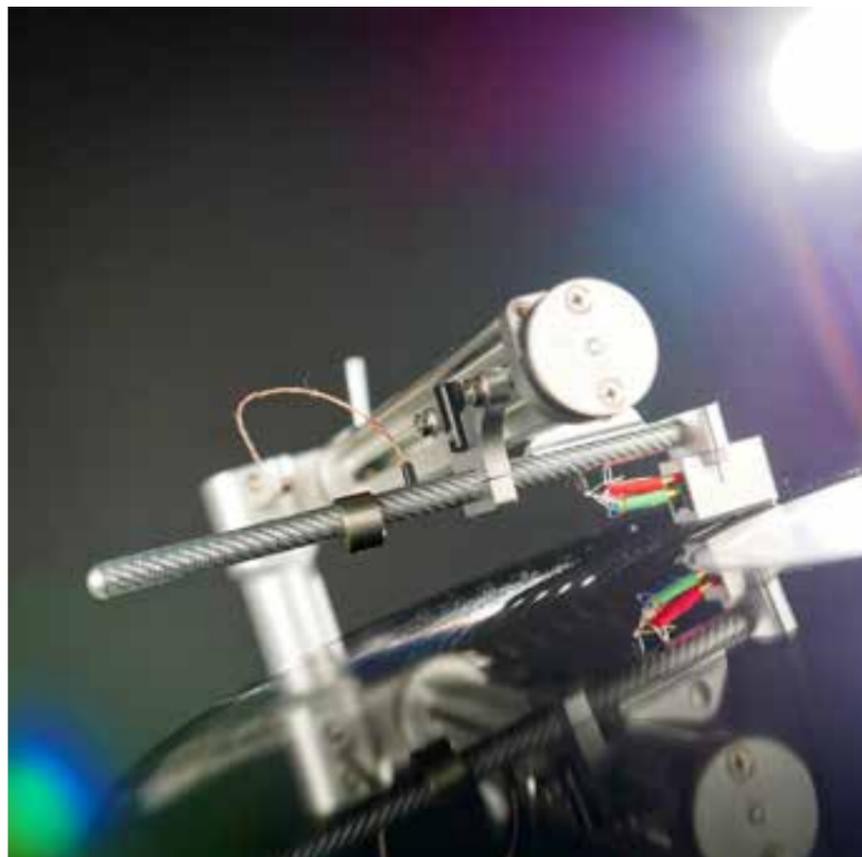
tracking force of the groove itself, i.e. to enable more passive pulling than active pushing, in contrast seemed theoretically more harmonious. However, the tracking force needs to overpower the frictional resistance of the arm guide with as little effort as possible. With all Clearaudio tangential arms, a carriage, which carries the system, runs in a pipe-shaped glass collar on two small-diameter metal rollers. Glass is more suitable than aluminum or steel here because it is tough. Gemstone would potentially be even better but would drive the cost up. The inward pulling force of the groove spiral alone guides the carriage over the side of the record. For this to happen, the round bridge needs to be perfectly horizontally aligned. At its base, two little screws adjust the horizontal like a see-saw until the bubble in the integrated spirit level is exactly in the middle. Previously you chose one of the round tracking weights and placed it approximately on the actual thin arm tube (it's a few finger widths longer than a system razor) and determined the vertical pickup angle. Unlike with pivot tonearms,

with tangential tonearms the counterweight can be extremely far away from the bearing point in order to offset at least some inertia for wavy records, which generally present a challenge for tangential tonearms with a static tracking force. Neither setting a TT5 up nor adjusting it is more difficult or challenging than doing the same to an average pivot tonearm. It's just that other variables come into play. Sweaty hands are a thing of the past when it comes to adjusting the system because it is installed using two half-inch holes in the headshell. Even zero-crossings lose their fear factor as soon as they no longer occur in pairs. The fact that there is no skating force finally means that there is no need for any darn anti-skating. Hurray! Plug & Play! – OK, not quite. Since the cartridge has to be guided to the center axis in a straight line, the guide arm has to be exactly parallel to that imaginary line. Extreme precision is required here as, because there is only one “racing line” in relation to the tonearm base, the smallest of errors in the final execution could wreak havoc. Here's a practical tip: If you measure a gap of

64 millimeters between the tip of the stylus and the front edge of the carriage twice, the rest takes care of itself. In the end, it's worth paying some attention to the cable running from the headshell to the base, where it merges into a very flexible cinch or XLR line. Although it is very flexible when it bends, it does actually offer at least some resistance. Carefully bending it into shape can result in some subtle improvements in sound, translating into a more fluid and free playback. Don't worry—it doesn't have to fit perfectly right at the start. Instead, it can be improved as you go. In its standard design, the TT5 cannot be moved above the turntable and you have to navigate the record through the gap. If you're very careful with it, then I don't see any real problem but I don't want to imagine what would happen if the pickup inadvertently floated over the turntable or you were a little heavy-handed or overzealous with the record. Oops, too late. Clearaudio sells a swing base as an accessory for any clumsy or anxious folk out there. It replaces the standard tonearm base and, as the name clearly suggests, can be turned so that you ▶



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The TT5 worked fine with all the cartridges used in the test but clearly worked better with some than others.

can pivot the TT5 from the record like a radial arm. It does involve an extra maneuver with your hands but does make the whole process safer.

Opinion is divided when it comes to the right pickup for tangential arms. I think that this is due more to the software than the hardware. With even only slightly undulated records, an MM system with a high level of compliance has the edge, but if you are using level, clean discs, more expensive MC pickup cartridges with low stylus compliance usually deliver higher resolution. The TT5 worked fine with all the cartridges used in the test but clearly worked better with some than others. As such, the MC Essence (FIDELITY 2/2016) from the same company was a fantastic match; the Concept MC, from which it is derived, presumably provides a

similarly good result. In conclusion, and taking the price into consideration, it's even a better match than the more expensive but also excellent Da Vinci, although it's more smoothly suspended than the Essence. In the TT5, Clearaudio's oversampler failed to reach its full potential. Maybe the Essence's larger own weight had something to do with it. However, that's a presumption, as is saying that the lower output voltage of the Quintet Bronze (FIDELITY 4/2014) is responsible for making me feel that the 2M Black was a tad better in the TT5. Both Ortofon systems have been locked in a riveting head-to-head contest for my affection for almost two years now, yet I still don't have a real preference. In arms such as the Mørch DP-8 (FIDELITY 4/2015), which support extreme high-resolution/

high-definition, in most cases the Quintet is slightly nudging ahead, in more heavily colorful varieties such as the Thorens TP92 (FIDELITY 5/2015) however the 2M Black is able to stand out by demonstrating a certain spirited enthusiasm and colorfulness. Despite that, it's hard to make any clear predictions because, although the TT5 is markedly neutral and tends towards slender playback, when combined with Ortofon's MM it sounds wonderfully balanced and captivatingly thrilling. My constructed argument about the output voltage is supported in this context by the fact that the combination with the Audio Technica 50ANV also does not quite achieve the openness as, for example, in the Brinkmann 12.1.

Irrespective of the large selection of cartridges, let me try to ▶

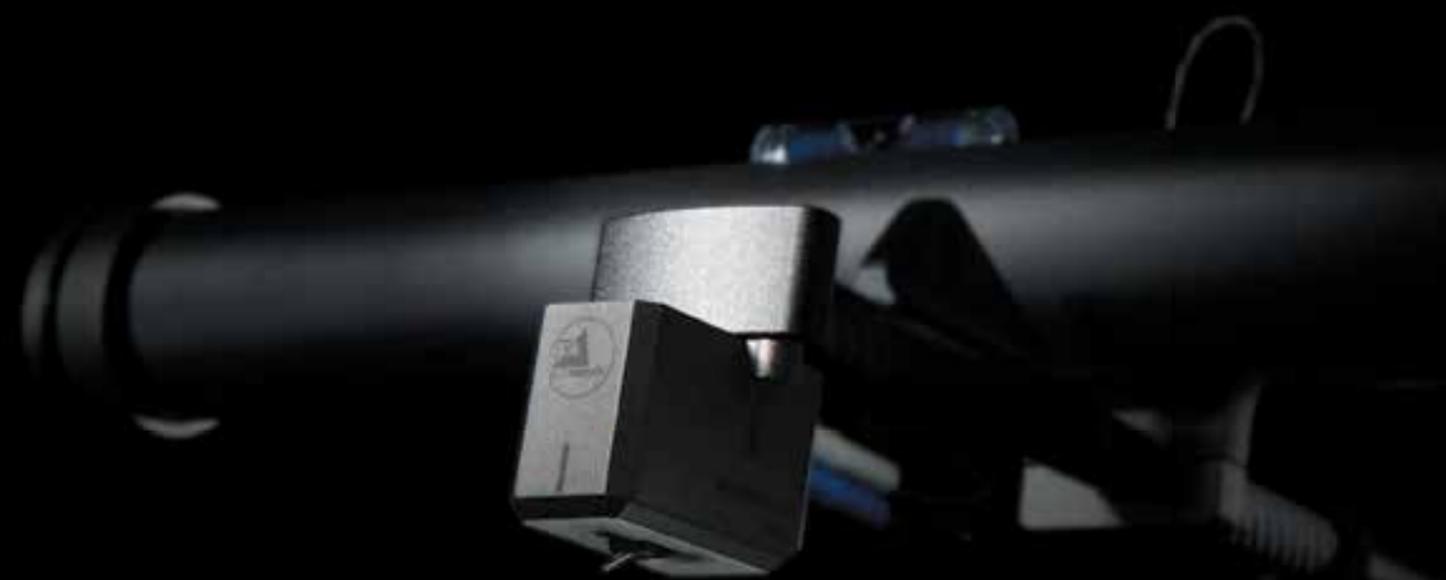
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## THE TECHNOLOGY BEHIND THE TT5

Before a glossy vinyl record slides out of the lined record sleeve, the disc must be cut. At the start of this process, the cut is in a lacquer or copper foil using a tangentially (i.e. at a 90-degree angle over the entire side) guided cutting stylus. A radial tonearm cannot, however, adopt a straight path over the disc. It always depicts a semicircle (Thales circle) which has the result that the cartridge reads at max. two points of a disc side, the zero points, in exactly the same direction as the groove was cut in. At all other points there is a variable tracking angle error—some people also call it

the “tracking error angle”. But it means the same thing. Therefore, in theory, there is a greater risk of distortion, however in practice pivot tonearms work very well. The latest analog developments question more and more just how much of an influence the slightest malpositioning of the stylus really has. However, owners of a tangential arm don't have to worry about this exhausting discussion as it no longer affects them. With a tangential tonearm, the angle of the pickup is always in sync with that of the cutting stylus. Logically speaking, there's no competition.

The inward pulling force of the groove spiral alone guides the carriage over the side of the record.



present the TT5's tone quality in some detail. The words “Digital recording” appear on the cover of Passion, Grace & Fire, but it's an unnecessary statement since you can clearly hear it for yourself. The album recorded by de Lucia, McLaughlin and Di Meola was released two years after the infamous Friday Night in San Francisco and presents the three exceptional guitarists in competitive spirit. In the furiously fast race over two sides of the same vinyl, you could clearly interpret autoerotic tendencies. But to interpret is not the job of the TT5. It is the model of neutrality and presents the musicians accurately side by side. It makes light work of keeping pace with the crazy tempo and also naturally portrays the very essence of the acoustic guitars despite the undeniable sharpness of the recording. On the same vinyl, with the DP-8, John McLaughlin uses his elbows in the middle, as the maestro of all categories he fights his way more into the spotlight, which broadens the

overall stage; his companions stand a little further from the loudspeaker. Willie Nelson's Yesterday's Wine is similarly overshadowed by more famous albums, but sounds warmer, with deeper three-dimensionality; in contrast, the three guitarists play as if standing in front of a blank canvas. Sufficient reverberation under Nelson's voice gives In God's Eyes the impressiveness that enables run-of-the-mill pearls of wisdom to transform into profound knowledge. The TT5 resists the softened production that is Nashville's style, is not lulled but remains alert, emphasizes contours, even if the music, the next track here being Family Bible, gets artistically out of hand. The Clearaudio TT5 sounds, as I expected of a tangential arm, very clean, neat and neutral, with clarity, accuracy and a clear line. Its handling and workmanship are definitely impressive, especially with the optional swing base. Its reasonable price alone makes it an exceptional purchase. ■

Tonearm

### Clearaudio TT5

**Functional principle:** Tangential pickup | **Drive:** mechanical | **Finishes:** Aluminum black or silver with fixed cable (cinch or XLR) | **Special features:** resonance-optimized chassis construction, high-precision, extremely smooth-operating and dry-running ball bearings, swing base (optional accessory) | **Weight:** 560 g (aluminum clamping ring 60 g) | **Dimensions (W/D/H):** 20/14/15 cm | **Warranty period:** 5 years | **Price:** €2,000

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