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# productreview

## Thales TTT Slim Turntable with Easy Arm Tonearm



### Malcolm J. Gomes

When I began reviewing high-end audio products in the early 1980s, the staple high-end audio categories were speakers, amplifiers, compact cassette decks and of course, turntables. That was a time when many audiophiles regarded the compact cassette as a poor substitute for the vinyl record and so they preferred to stick with their trusty old turntables.

We then saw the introduction of the compact disc system with a promise of 'perfect sound forever'. This new system managed to wean many audiophiles off their vinyl addiction and it began an era that saw compact disc hardware and software sales slowly but surely trump the sale of turntables and vinyl records.

Many in the industry forecasted the demise of the vinyl record system but contrary to their predictions turntables and vinyl records not only refused to "go quietly into that good night" as Dylan Thomas wrote, but over the past decade, have staged an impressive comeback not only with baby boomers but also with the

millennial generation who regard the vinyl record system as having a 'cool' factor.

Feeding this resurgence in vinyl, are not only some of the old venerable names like Clearaudio, Rega, Oracle, Thorens, VPI and the now reborn Technics but also some daring upstarts like Avid, Continuum and SOTA. As a company, Thales belongs to the second category.

The founder of Thales, Micha Huber has a very interesting background as a mechanical engineer, a Swiss watchmaker and a professional musician. Micha made his debut in the world of high-end turntables with the quest of finding a way to combine the advantages of a conventional tone arm with the obvious benefits of a linear tangential arm and its ability to eliminate or minimize tracking error. Micha was very cognizant of the fact that tracking error affects the music signal and adds distortion. He found that the narrower the tracking diameter and the higher the frequency, the more audible the distortion. He also observed that as soon as the needle leaves the tangential position, the diamond is touched by the left and right

sides of the groove a little out of phase, generating undesired distortion.

After much thought, and countless calculations and sketches, he decided to use a triangle based geometry instead of a tetragon which resulted in the development of a mechanical solution that met his requirements for a geometrically correct, low friction tone arm that would operate as precisely and reliably as a Swiss watch. He lost no time in obtaining patents to protect his intellectual property and then introduced his first tangential pivoted tone arm in May of 2004.

During the manufacturing of his tone arms Micha made sure that each of the hundred plus parts involved was designed according to its specific functions. Only the finest sapphire and ball bearing were used to reduce the friction to the maximum extent possible. The arm material was cut out of solid blocks to avoid the drawbacks of stressed materials like sheets or tubes. All the stainless steel parts were polished and an experienced watchmaker did the final assembly. The divided counterweight was equipped with little embedded mag-

nets, which balance the anti-skating forces, reduce the friction and dampen the tone arm tube. This eliminated the need for a separate anti-skating device. All this meticulous attention to detail drove up the cost of production and is reflected in the price of the tone arm, which is not exactly chump change.

### design features

Encouraged by the success of his evolutionary tone arms, Micha made the leap into the world of complete turntables. He's had a single-minded obsession of bringing the same clinical precision of his tone arms to every part that went into his turntables.

Just like a fine Swiss watch, which presents a façade of elegance and simplicity while hiding its complicated, clinically accurate mechanism, Micha's turntables are also deceptively simple to look at but underneath their skin lies some very clever thinking and designs that push the turntable technology envelope. This turntable has no off-the-shelf parts. Rather, each of the 75 high precision parts that goes into this turntable is especially designed and purpose-built from scratch, to deliver the best possible performance.

Thales turntables are a radical departure from the current trend of making turntables huge, heavy and visually & operationally very complicated. It takes a good turntable designer to come up with a turntable that performs well while assuming the dimensions and weight of a mini refrigerator. On the other hand, it takes a great designer to achieve comparable performance while keeping the dimensions, weight and aesthetics of the turntable compact, elegant, easy on the eyes and simple to operate.

That is exactly what Thales Turntables have achieved. At first glance, it is difficult to imagine that these relatively light and compact turntables can compare to their behemoth counterparts in terms of performance, but in this regard, you should expect to be proven wrong.

Rather than harness massive and heavy parts to minimize unwanted vibrations, Thales Turntables employ an irregular, oval shaped plinth, platter and sub-platter, which comprise a sandwich of many different materials. These are then placed on an anti-vibration platform that does a

great job in isolating the plinth, platter and sub-platter from mechanical vibrations. A relatively compact but very effective disc-stabilizing clamp completes the design strategy to prevent vibrations from polluting the performance of the turntable.

The heart of any turntable is its drive system. What is imperative here is that the 33.1/3 or 45 rpm rotation should not just be accurate in terms of speed but it should also be achieved without vibrations that could be caused by the mechanical tracking system. It should also be impervious to temperature, humidity and dust. Considering that the human auditory system is capable of detecting differences as small as one Hertz at the 1,000 Hertz frequency, a turntable should ideally have a speed deviation of less than four seconds for every one hour of rotation to fly under the radar and not be detected by human hearing. In the TTT-Slim turntable Thales has managed to combine the advantages of the traditional idle wheel drive system that excels in speed consistency, with the benefit of the belt drive, which is valued for the way it decouples the platter from the vibrations and noise of the motor.

The motor used in this turntable is a brushless DC model that has a maximum output of 15 Watts. This is mounted on a carefully calculated decoupling element that very effectively isolates the platter from the chassis vibrations while also avoiding any axial movement of the mo-

tor. Pulleys have been used very cleverly to behave like flywheels, to compensate for motor increments, and drive the sub-platter with a precision belt. The platter covers the whole drive system to shield it from dust.

Most high-end turntables boast high precision bearings but Thales takes this to a different level altogether by using technology borrowed from the Swiss watch industry. The main shaft is made of hardened carbon tool steel, which is subjected to multiple stages of hand polishing with basswood and diamond paste. This shaft runs in a sintered bronze bushing which is soaked and heated with an oil that is specially formulated for this purpose. Vertically, the shaft is given a spherical shape and is made to lie on hardened steel balls and the whole bearing is enclosed inside a case made of chrome-plated bronze. This meticulous attention to detail ensures that Thales turntables will deliver maintenance free operation for not just years, but decades.

Big and heavy platters have undeniable advantages but Thales has managed to achieve most of those benefits while keeping the relatively compact platter down to 3.5 kilos. This platter enlarges the rotating inertial mass by concentrating the rotating mass at the outside diameter, which allows it to achieve the inertial properties of a massive 5 kilos. The platter is then tuned to one single resonance frequency





and is efficiently damped by a customized high-density inlay that doubles up as the mat that the vinyl record is placed on. This configuration allows for very efficient damping of the resonance frequency of the platter without flattening or over-damping.

The turntable rests on three carefully positioned spikes which, at first glance, look quite conventional but are anything but. Inside the spikes are balls that carry the weight of the turntable. The balls are kept in position by small rubber elements. This arrangement keeps the horizontal vibrations from the structure that the turntable is placed on, away from the turntable. The leveling mechanism of the spikes is a combination of a machined thread with a high precision sliding fit. I found this leveling mechanism to be secure, precise and easy to use. Despite all these elaborate measures, I found that this turntable still benefitted from resting on a Black Diamond Racing “LM Series Shelf” isolation platform.

To totally eliminate any polluted power or transformer noise from interfering with the performance of the turntable, Micha has chosen to use a DC motor that is powered by built-in rechargeable batteries. All you have to do is charge the batteries, disconnect the transformer and switch on the turntable and you are treated to 20 hours of sublime listening before the battery needs to be recharged. I must say that cutting the umbilical cord to the AC power is an inspired move. The first power toggle switch has three positions, charge, off and

on while the other toggle switch lets you switch between 33.1/3 and 45-RPM platter speed. This makes the operation of the turntable simple and easy.

The technical specifications of this turntable are a reflection of the great care that has gone into the design, the selection of parts and the precision assembly. The wow and flutter at 33.1/3 rpm is an impressive plus or minus 0.06% and the rumble is -60db (un-weighted). The turntable weighs 11 kilos and measures 423 X 305 X 82 mm.

The cartridge and stylus used for the review was the EMT Jubilee Series MC Platinum Cartridge. This was a recommendation from Thales and it proved to be an excellent match. The rest of the electronics that I used during the review included the Pass Labs XA100.8 mono block power amps, the Bryston BP26 pre-amp, Skogrand Beethoven speaker cables and interconnects, the Thorens MM 008 ADC phono preamplifier and the Merlin Music Black Magic VSM speakers with Master BAM and RCs.

### performance

I began the audition with Supertramp Breakfast in America “The Logical Song”. I was impressed. The sound stage was as wide, deep and holographic as I have ever heard while listening to this track. The piano notes sounded full, luscious and sweet, with just the right weight. The dynamic range blew me away and the various vocal harmonies blended so incredibly well, I felt goose bumps galore. Just a few min-

utes of listening and any shred of doubt that I may have had about such a light and petite turntable being able to play with the big boys evaporated faster than a dew drop in Lucifer’s domain.

I then switched to Stevie Ray Vaughan’s album “Couldn’t Stand the Weather” and cued up “Tin Pan Alley”. This is a fairly long track that I usually listen to for just a couple of minutes during reviews. This time, I just could not bring myself to switch tracks till this rock masterpiece ended. I closed my eyes and the raw majestic slam combined with Stevie’s magical guitar mastery allowed me to picture sparks flying from this late maestro fingertips as he got his guitar to wail and moan with emotion.

Next up was “Journey” from the Blues Roots album by The Dave Brubeck Trio featuring Gerry Mulligan. Here again, the cohesiveness of the multitude of instruments came through with flying sonic colours. There were oodles of air around each instrument and the PRAT caused my head to bob and foot to tap uncontrollably. It was so easy to place the various instruments on the soundstage not just in terms of width but also by depth.

I then put on The Best of Emmylou Harris Profile II and cued up “Mister Sandman”. I truly cannot recall when I enjoyed this honey-toned diva more. Her luscious voice had so much of palpability, texture and feeling; I could feel my eyes moistening in response to the emotions I felt.

I followed this up with Weather Report’s Sweetnighter album and the “Boogie

Woogie Waltz” track. I switched off all the lights in the room and was treated to a truly mesmerizing sonic illusion. I have a fairly large listening room but the way this track was rendered, it did seem like all the walls of my room were knocked down and it was easy to imagine that I was at the live performance venue, enjoying this legendary band in person. The leading edges and the decay of the multitude of percussion instruments were tactile and taut. The maracas sounded so real, I could almost reach out and touch them.

I finished up with Patricia Barber’s MoFi recording of The Cole Porter Mix and the track “Snow”. Patricia can be seductive even on mid-fi audio systems but the Thales turntable added a new dimension to this track. I was able to appreciate her distinctive voice and unusual cadence better than I have ever done before. On lesser turntables the way Patricia draws out her consonants can be grating, but on the Thales TTT Slim it actually sounded quite lyrical.

Whatever I threw at this turntable, it

delivered a midrange with an incredible amount of texture and saturation. The highs were clean, clear and with just the right amount of sweetness. The bass was tight and extremely tuneful. The accuracy of the timbre and tone was as good as some megabuck turntables that are 4 to 5 times bigger and heavier than the Thales TTT Slim. On classic rock tracks, which I have heard performed live; I was able to crank up the volume surprisingly close to live performance levels before I detected any compression.

I sincerely feel that the Thales TTT Slim represents a paradigm shift in the world of turntables where the relationship between size & weight of a turntable and its sonic performance has been redefined. I have not come across a turntable of these compact dimensions that squeezes out such a soul-satisfying performance from well-recorded vinyl albums. If there is another turntable in this price range that explores the grooves more thoroughly and extracts information with greater accuracy than the Thales TTT Slim, I have not heard it!

If you are in the market for a five-figure price turntable, don’t let the compact dimensions, modest aesthetics and lack of visual gravitas of the TTT Slim keep you from adding it to your shortlist. One audition is all it will take for you to sit up and take notice and don’t be surprised if you find yourself willing to shell out the coin to acquire this jewel. It could very easily be the last turntable you buy.

**quickinfo**

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www.tonarm.ch

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