Michael Fremer

Ortofon Celebrates 90 Years with the MC A90 Cartridge

Leif Johannsen, Ortofon's chief officer of acoustics and technology, had something new and exciting to show me that he wished to keep private, so he asked me to join him for lunch, away from the bustle of the exposition floor of Munich's High End 2008.

We sat in a secluded corner of the cafeteria, where, after I'd promised to reveal to no one what he was about to show me, he removed from his pocket the prototype of a most wondrous and unusual phono cartridge.

Actually, it was just the body, minus the motor, of Ortofon's revolutionary new MC A90 moving-coil cartridge, but even that was startling enough to turn my eyes into saucers. The flying-buttress–like shape of the thing was radical—almost otherworldly—and seemed nearly impossible to machine, which of course it was. Instead of being CNC-machined (itself miraculous to anyone who grew up in the age before computerized machine tools), the prototype was built up, layer by layer, using laser-fused microparticles in a process called Selective Laser Melting (SLM).

SLM is similar to an equally astonishing but now more common 3D-printing process involving plastics that I first saw more than a decade ago in Europe—you know, that socialist place where, unlike in America, high taxes stifle creativity and innovation. A device sort of like a 3D photocopying machine produces, from computer-assisted-drawing (CAD) plans, a three-dimensional plastic or nylon prototype of, say, a loudspeaker cone or an automobile grille. The object materializes inside a glass-doored chamber looking somewhat like a microwave oven, seeming to mysteriously ooze up from an undifferentiated mass of primordial plastic muck.

A similar technology can now create metal parts. The process is revolutionary in that, instead of producing an object traditionally, by carving away excess, the desired shape is built up, seemingly within the constraints of an invisible mold, by the deposition of melted microparticles. I haven't seen it at work, but it sounds like three-dimensional spray painting.

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However, while a unique manufacturing process creates an interesting backstory, and the MC A90's dramatic appearance is a treat, nothing so far suggests a giant leap forward for analog mankind.

The last such leap I can recall was the introduction by Lyra (then Scan-Tech) of the Helikon cartridge, an ingenious design for which precise machining was used to neatly integrate the generator into the body, instead of placing the completed coil-cantilever-magnet assembly and suspension inside a block of wood, molded plastic, or metal box. This construction results in a far more rigidly integrated structure and more precise overall build quality without the possibility of the motor's being misoriented within the separate body. Lyra eventually moved the design both up and down its product line, to the Dorian at the low end, and the Titan *i* and limited-edition Olympos at the other.

After letting me marvel at and handle the gleaming aluminum shape of the MC A90, Johannsen took me to a secluded area of the hall where the flooring was of hard linoleum. He held the body out in front of him and let it drop. With a *ping*, it bounced about two feet in the air. Then, with modest dramatic flare, he removed a second cartridge body from his pocket. This one was layered like a cross section of stratified rock, but more neatly and uniformly. From chest height, he dropped the second body. Instead of bouncing with a distinct *ping*, it hit the floor with a nonresonant *tick* and stopped dead, without bouncing back so much as an inch. Now *that* was major.

Johannsen told me that Ortofon can now build up a cartridge body using various metallic layers to produce a self-damping structure. Here was what seemed to be a lightweight but dense, nonresonant, self-damped structure that wouldn't be used to "tune" the cartridge's tonal or transient character, but had the potential for something far more preferable: the possibility of being eliminated from the performance equation altogether. What's more, based on the shape, it appeared that all of the cartridge's guts would be contained within the compact, hanging front section of the radically shaped structure.

A Box Arrives: I promised Leif Johannsen that I'd tell no one about what he'd shown me, and for well over a year I kept my word. Then, not long ago, a box arrived, sealed with "ORTOFON"-labeled packing tape. Inside was a box big enough to hold a nice set of circumaural headphones. Inside *that*, housed in an

appropriately sturdy structure, was the finished product: an MC A90 cartridge, one of only 400 to be manufactured for sale worldwide. The price hadn't been announced by press time, but I imagine it will be somewhere between $5000 and $6000.

The MC A90's elegant shape seems unchanged from what I'd seen in Munich, but the surface polish has improved. Each body is individually worked over and precisely finished by a skilled technician, but because of the new manufacturing process, Ortofon says each MC A90 will exhibit "individual textures" and therefore be unique, though in what ways I can't say—I've seen only one sample.

That sample has a satin-smooth finish of understated gray. Because the construction presents an organic, simplified whole, the MC A90 will transfix lovers of machines as objects of desire in ways that no cartridge motor affixed to an open box of metal, wood, plastic, or stone ever could. If you ever see the impossibly sleek MC A90 close up, you'll know exactly what I mean.

A U-shaped opening at the lower end of the angled front "buttress" tightly grips the closed box containing the unusually compact generator, which comprises the cantilever, coils, suspension, and magnet assembly. The cantilever is the generator's only visible moving part. The rest is in the hanging box, and believe me—if you get an MC A90, you'll be staring at that box a lot. It's just the *coolest*-looking image of a stylus coursing through the grooves—like a hand gripping the box to guide the cantilever and stylus through the groove.

The coil wires exit the generator box at the top and, hidden under an insert of silicone rubber, travel along the bottom of the tonearm mounting bridge to the front of the terminal block, where they can be seen entering the backs of the pins. There's hardly a coil wire in sight. The connector pin block, neatly recessed into the rear-facing panel, completes the stunning design. Never mind how it sounds—I just wanted to *look* at the MC A90.

Inside the Box Is Not Outside the Box: Based on Ortofon's ultraneutral MC Windfeld cartridge, which I reviewed in May 2008, the MC A90's generator system is more a refinement of an existing design than the kind of leap represented by the body. Like the Windfeld's, it includes the Field Stabilizing Element (FSE), a small cylinder of silver-plated copper inside the magnetic system that's said to assure a stable magnetic field regardless of movements of the armature. This, Ortofon claims, reduces to an absolute minimum dynamic and intermodulation distortion. Also aboard, and adding yet another initialism to the design, is Ortofon's patented Wide Range Damping (WRD) system, a platinum disc sandwiched by two rubber dampers of differing compliances. The claimed benefits of WRD, which was introduced in 1979 in the MC 20 Mk.II, include exceptional tracking and perfect damping across and beyond the audioband. That, according to Ortofon, helps account for the MC A90's production of "the most linear frequency response and the highest upper-frequency limit *ever* [while at the same time tracking] a fantastic 100µm at a vertical tracking force of 2.3 grams."

Ortofon is hardly shy about the MC A90's Replicant 100 extra-polished diamond stylus, also used in the MC Windfeld. The Replicant 100 is thin and light, with an extraordinarily large contact surface; Ortofon claims that its tracing accuracy is "unparalleled by any other needle in existence."

Like the MC Windfeld, the MC A90 sports a boron cantilever driving coils of gold-plated, 6Ns, oxygen-free copper. These coils have low moving mass and high rigidity, and a special armature that's claimed to help achieve extreme precision in each coil turn, and to produce better channel separation, lower distortion, and closer-toleranced channel balance.

A low internal impedance of 4 ohms and a medium output of 0.3mV means the MC A90 should match well with both step-up transformers and active electronics. Of medium compliance and weighing 8gms, the MC A90 should perform optimally in a wide range of tonearms. Other specs from Ortofon include channel separations of >28dB at 1kHz and >22dB at 15kHz, and a frequency response of 20Hz–20kHz, ±1dB. The recommended load impedance is >10 ohms.

Setup was straightforward, the exposed cantilever making it easy to set overhang and zenith angle. Make sure to set the azimuth electronically, if your tonearm permits it, and set the stylus rake angle (SRA) to precisely 90° (you can easily see the shank's SRA with a 4x jeweler's loupe). The shape of the Replicant 100 stylus then puts the contact area at the recommended vertical tracking angle (VTA) of 23°.

A Genuine Sonic Breakthrough: From the above description, it would be easy to assume that the MC A90 is an MC Windfeld in a sexier body, and other than a few minor modifications, that would be correct. Considering that the Windfeld was probably the most tonally neutral cartridge I've heard—a view on which audio reviewers seem unanimous—that's a pretty good starting point. However, it's thanks to that sexy body that the MC A90's sonic performance is not in the same time zone as the MC Windfeld's, good as that cartridge is.

The impulse created by a stylus hitting an LP can tell you a great deal about a cartridge's sonic character—assuming the impulse doesn't excite the turntable, which would add another variable. (Think of great speaker drivers in a decent MDF cabinet *vs* the same drivers in an absolutely nonresonant one.) A soft, fat, ill-defined *pop* usually means midbass warmth and low-frequency slop. A hollow *pop* is often followed by a metallic aftertaste. A thin *pop* can indicate a lack of deep bass.

Cartridges that produce sloppy impulses usually sound diffuse and lack soundstage clarity, though they can sound pleasant and "luxurious." In my experience, the tighter the *pop*'s focus and the cleaner its decay, the faster the cartridge will respond, the better it will image, and the flatter its tonal balance will be.

The first thing I heard from the MC A90 was the impulse: It was cleaner, faster, and better focused than any I can recall, and it evaporated more cleanly as well. It reminded me of a perfect Olympic high dive: the diver hits the water but seems to barely break the surface, producing neither splash nor

sound. You almost wonder if you actually saw a dive at all.

If the MC Windfeld sounded tonally neutral but somewhat congested and polite, the MC A90 maintained the Windfeld's tonal neutrality while adding unsurpassed rhythmic swagger, dynamic exuberance, transparency, and three-dimensionality unmatched by any other cartridge I've heard. Low-level dynamic gradations were revelatory, while the big ones were unrestrained and positively energetic. The MC A90's attack was faster, cleaner, more precisely defined than that of any other cartridge I've heard, and with no hint of brightness or unnatural edge. Its decay was equally clean and effervescent, fading quickly to inky-black backdrops.

The MC Windfeld has excellent bottom-end extension, but its low-frequency resolution and transient clarity can't compare to the MC A90's deep, tight, clean, well-textured bass. High-frequency transients were equally sensational: clean, fast, and precise. Like the Windfeld, the A90 at 2.3gm of vertical tracking force (VTF) can track and trace any groove you throw at it.

The MC A90's holographic imaging and soundstaging were superior to the MC Windfeld's slightly clogged presentation and the equal of any cartridge I've heard, and its ability to convey soundstage depth might have been actually better. In fact, it matched or beat the Lyra Titan *i* in carving out three-dimensional space—a first in my experience. The MC A90's transient performance was ultrafast, clean, and precise, and its resolution of microdynamics was absolutely astonishing.

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There's not room in this column for long-winded musical examples. Let's just say there were revelations with every record I played, though I sure wish the Ypsilon VPS-100 phono stage and MC10 step-up transformer I reviewed in August were still in the system. (The Ypsilons went back as the MC A90 arrived.) The Manley Steelhead is great, but neither it nor the equally fine Einstein Turntable's Choice is the Ypsilon. I can only imagine what the combo of Ypsilon and MC A90 might have produced.

Not Without Controversy! Though sounding cleaner and tighter than any cartridge I've heard, as well as more extended, transparent, and dynamic, and with tighter, deeper bass and faster reaction time, the Ortofon MC A90 will not be everyone's choice. It's very literal.

People say of vinyl playback, "How can a stone coursing through a plastic groove produce such lush, musical sound?" Well there's nothing lush about the MC A90's sound. It's not warm, it doesn't produce any "bloom" that's not already there in the groove, it doesn't offer shimmer on top or lie around luxuriating on the bottom. It hits the notes and gets out of the way. Koetsu-warm it's not.

Not everyone will like such honesty. "Where's the shimmer? Where's the air?" some will cry. Well, if the MC A90 doesn't deliver it, it probably isn't on the record. If you want shimmer and air, add it with appropriate electronics. I'm convinced that the Ortofon MC A90 sets a high new standard for honestly retrieving what's in the groove without adding any own spin of its own, and I ain't budging. Whether or not you want to play, this cartridge is a genuine game changer.

All I can say is, "Wow!"

The Soundsmith The Voice moving-iron phono cartridge

I think it was W.C. Fields who said, of vaudeville, "Never follow a dog or kid act if you can help it." In audio, never follow a review of a groundbreaking product like the Ortofon MC A90, but sometimes it can't be helped.

Having successfully reverse-engineered the well-regarded Bang & Olufsen moving-iron cartridge a few years ago—a feat B&O said was impossible—and then supplying B&O itself with sufficient plug-in cartridges to meet the continued demand, Peter Ledermann, founder and CEO of The Soundsmith, designed a universal cartridge mount and began marketing his moving-iron cartridge to all.

Ledermann's variations on the B&O theme have produced five basic plug-in cartridge models using an acrylic mount, each available in medium- and high-compliance versions. I reviewed the SMMC1—Ledermann let me partially build the review sample myself—for the April 2008 *Stereophile* (see www.stereophile.com/phonocartridges/408sound). Since then, the SMMC1's price has risen $100, to a more realistic $699.

The top of the Soundsmith line, The Voice—each cartridge is personally hand-built by Ledermann—can be had in a mount of acrylic ($1599.95) or ebony ($2199.95), the latter being a "spec selected" unit. There's also a B&O turntable version of The Voice *and* in dual-coil mono acrylic or ebony and in your choice or medium or high compliance. While I'm pro-choice, I'm not sure that offering *this* many choices is smart marketing. Offering so many options can be confusing and lead to purchase paralysis, which sometimes moves people to seek easier choices elsewhere.

All Soundsmith cartridges use the same basic moving-iron structure described in my review of the SMMC1, with The Voice using a lower-mass version for faster response. Like the SMMC1, the ebony version of The Voice has a nude "Optimized Contour" line-contact stylus with a tip mass of 0.3mg fitted to a ruby cantilever. Each Voice's stylus is hand-selected for low noise (though how that's determined I don't know).

The recommended tracking forces for the SMMC1 and The Voice are 1gm (high compliance) and 1.3gm (medium compliance). The Voice specs out better than the SMMC1, with a claimed frequency response of 20Hz–20kHz, ±1.0dB; >30dB channel separation at 1kHz, and >25dB from 50Hz to 15kHz; and a <0.5dB channel difference (stereo). The SMCC1's respective specs are: frequency response of 20Hz–20kHz, ±2.5dB; >28dB channel separation at 1kHz, and >20dB from 50Hz to 15kHz; and 1.2dB channel difference (stereo).

The Voice's output voltage is 0.6mV/cm/s, and the cartridge weighs 6.8gm. Its resistive load is the standard 47k ohms, while the suggested capacitive load is greater or equal to 400pF. This loading holds throughout Soundsmith's moving-iron line. So, for the most part, what you pay for with the ebony version of The Voice is a better-specced version of an SMMC1, hand-built by the designer and with the guts packed in an ebony mount.

Careful Setup: With any Soundsmith cartridge, from the cheapest to The Voice, capacitive loading is critical. When Soundsmith recommends "400pF or greater," they mean it. Cables will add some capacitace, but if your phono preamp's capacitive loading is fixed at, say, 200pF, you'll get bright sound. As with the SMMC1, I preferred to add 350pF to the Hovland phono cable's capacitance of about 261pF. The Voice's nude line-contact stylus also requires careful setting of VTA and stylus rake angle (SRA) before you'll get its best performance.

The SMMC1 sample I built produced about 36dB of channel separation at 1kHz, according to the Feickert setup software. This beat the published spec by a whopping 8dB, but there's no guarantee that any Soundsmith cartridge you buy will match that unless you buy The Voice, for which channel separation of >30dB is guaranteed. Sure enough, my sample produced 36dB of separation. Given all that, my samples of the SMMC1 and The Voice didn't sound all that different. But were you to buy an SMMC1 that just met spec, the added separation and improved channel balance would surely produce a wider, better-balanced soundstage.

Overall, The Voice sounded somewhat faster and better focused than the already ridiculously good SMMC1—and, for whatever reason(s), even cleaner and more explosive. For romance, go elsewhere; for honesty, consider the Soundsmiths.

Do read my review of the SMMC1, because The Voice is even better: cleaner, smoother, more transparent, and seemingly free of peaks and valleys in the frequency response. But the SMMC1 is an absolute bargain at $699, and one of the cleanest, fastest, most honest cartridges you're likely to hear at any price. Is The Voice worth its far higher price?

It's not all that unusual for a manufacturer to build a run of the same product, measure each unit, then put a higher price and different badge on the best. In this case, the best is hand-built by the designer himself, and guaranteed to meet or exceed the published specs. Unless you absolutely *must* have the best possible from Soundsmith's basic design, consider the acrylic version of The Voice at $1599.95. On the other hand, the ebony Voice compares favorably to many cartridges that are far more expensive than its own price of $2199.95. There's plenty of room to splurge!

IN HEAVY ROTATION

1) Mozart, Piano Concertos 20 & 27 (Clifford Curzon, Benjamin Britten, English Chamber Orchestra), Decca/Esoteric 200gm LP
2) Stan Getz & Chet Baker, *Stan Meets Chet*, Verve/ORG 180gm 45rpm LPs (2)
3) Cowboy Junkies, *Trinity Revisited*, Zoe/Diverse 180gm LPs (2)
4) Eric Dolphy, *Out to Lunch*, Blue Note/Music Matters 180gm 45rpm LPs (2)
5) Mike Bloomfield & Al Kooper, *The Live Adventures of*, Columbia/Sundazed LPs (2)
6) Mississippi Fred McDowell, *I Don't Play No Rock'n'Roll*, Capitol/Pure Pleasure 180gm LP
7) Fleetwood Mac, *Rumours*, Warner Bros. 180gm 45rpm LPs (2, test pressings)
8) Marvin Gaye, *What's Going On*, Tamla/Mobile Fidelity Sound Lab 180gm LP
9) Neil Young, *Harvest*, Reprise 180gm LP (test pressing)
10) Marvin Gaye & Tammi Terrell, *United*, Tamla/Speakers Corner 180gm LP

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