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A Classic Improved

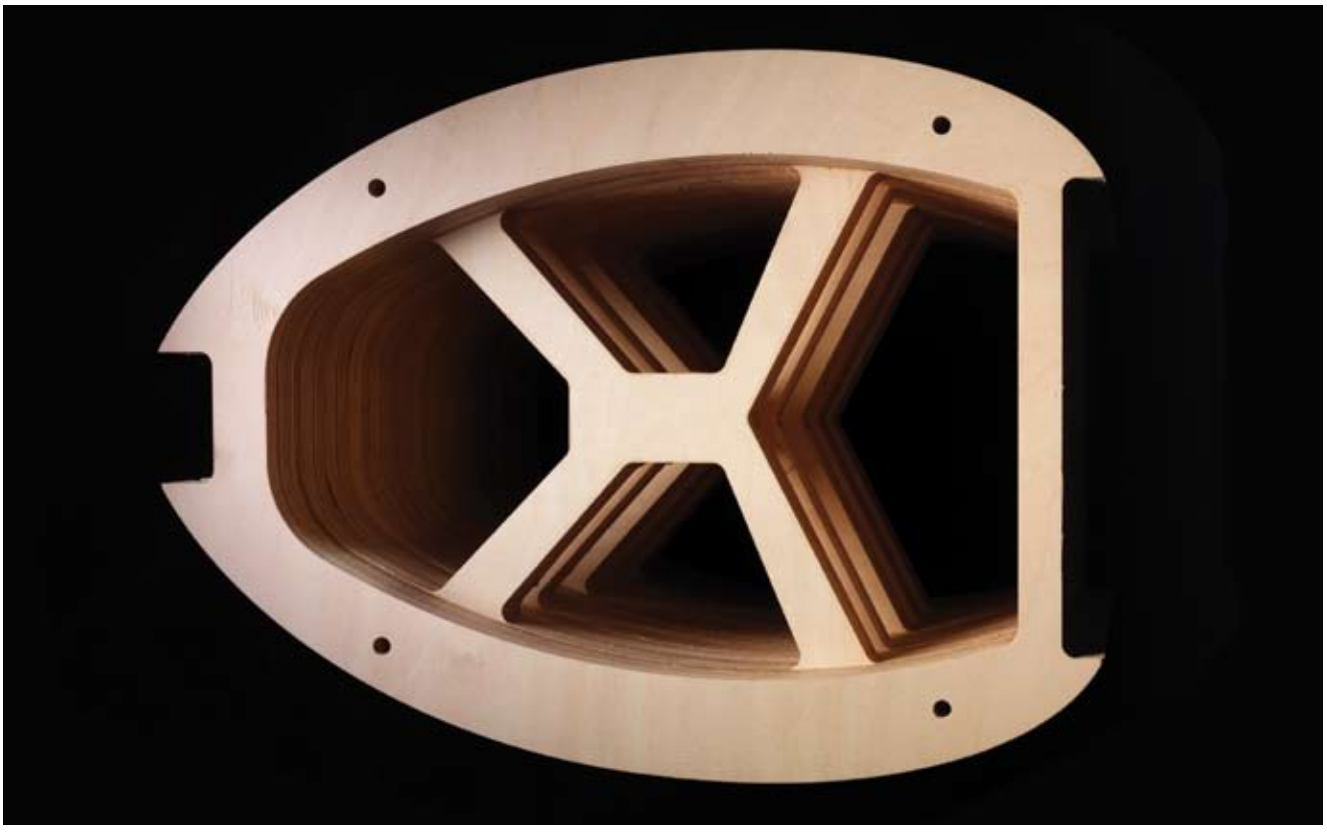
Magico Mini II Mini-Monitor

Jonathan Valin

I first heard Alon Wolf's ground-breaking two-way stand-mounted loudspeaker, the Magico Mini, at the January 2006 CES, where it made a sensational impression on Robert Harley, Wayne Garica, Harry Pearson, and me. I rave-reviewed it soon after, in Issue 163, and have been living with it as my primary reference ever since.

Almost from go, the Mini was controversial, as any two-way priced at well over twenty thousand dollars (including its massive dedicated stands) would be. There were folks then—and there are folks now—who simply don't understand why any sane person would pay this kind of dough for a speaker that only makes it down to about 45Hz in the bass. I can understand their point; for Mini money, you could buy any number of dynamic loudspeakers with substantial bass well below 45Hz. The problem for me was that, until the advent of the Mini II, I hadn't heard a one of them that sounded as much like real music as the Mini did *above* 45Hz. From the midbass to the top treble, the Magico Mini simply set new standards for a two-way, direct-radiating cone loudspeaker in low coloration and high fidelity, sounding more "of a piece" and disappearing more completely into its (vast) soundfield than any other dynamic speaker I'd auditioned, and reporting on what was upstream of it—from record/CD through amplification—with the kind of see-through transparency that I, for one, customarily associate with a really good preamp rather than a loudspeaker.

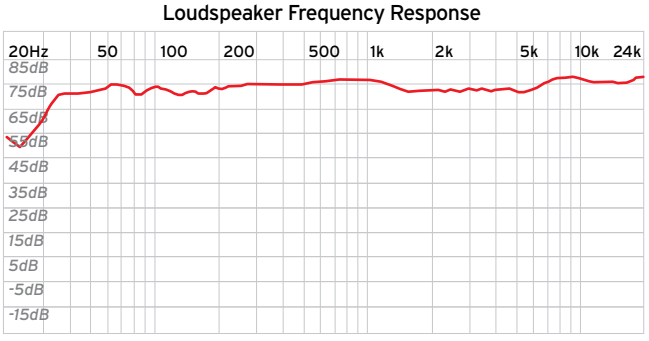
Which is why, when Wolf announced a "major" upgrade to the Mini soon after I reviewed it, I didn't leap at the chance to have my pair turned into Mini IIs. How could something that came as close to the absolute sound—and was, frankly, as downright lovable—as the Mini be substantially "improved"? Although Wolf claimed that the Mini II's new Magico-designed 7" Nano-Tec mid/woofer went lower and played louder in the bass than the Mini's 7" titanium-sandwich mid/woof, and that its new "Elliptical Symmetry" crossover (ESXO) reduced the Mini's already vanishingly-low colorations even further and made the speaker somewhat easier to drive, I was truly afraid that he had traded off some of the Mini's magic in the midband for a few measly hertz in the low end—a trade I was loath to make.



It was, thus, with the greatest reluctance that I finally sent my beloved Minis back to the Bay Area for retrofitting in the early summer of 2007. (Any Mini owner can do the same thing, BTW, for precisely the difference in price between the Mini and the Mini II, a deal that couldn't be fairer to purchasers of the original speaker.) Back they came about two weeks later, the only visible difference being the black Nano-Tec mid/woof in place of the silver titanium-sandwich one. As with the original Mini, Wolf advised me to break in the new driver and crossover (including a gold/silver-foil Raimund Mundorf capacitor as big as a man's fist that costs $300—sixty times the price of the Solen cap commonly used in crossovers) for several hundred hours before listening critically. And that's what I did.

So…is the broken-in Mini II "improved"? Well, this may be hard to believe—it certainly was to me—but, yes, it is improved, and not by a little bit. What was already the finest two-way mini-monitor I've owned or reviewed is now the best dynamic loudspeaker I've heard in my home. Shucking off the limitations we customarily associate with mini-monitors like Superman shucking off his day-job clothes, the Mini II has morphed into far more of a full-range transducer than any two-way in my experience, and it has made this transformation without losing any of the virtues of seamless top-to-bottom coherence, low distortion, high resolution, natural tone color, excellent dynamics, wall-to-wall-to-floor-to-ceiling soundstaging, near-lifesized imaging, and a disappearing act second-to-none that made the original Mini such a high-end milestone. Indeed, the Mini II isn't just a truly great loudspeaker; it has also been, for me, an education—a means of appreciating just how far the high-end has come in its quest to reproduce the sound of the real thing. By way of the Mini II's vanishingly low levels of coloration, standard-setting transparency, and sheer electromechanical invisibility, I've come to realize that some of the best contemporary components (regardless of cost) are also starting to shed their customary electromechanical signatures, starting to "disappear" more completely as sound sources, and that the illusion of listening to music itself, rather than listening to music *through* a hi-fi system, really is becoming more convincing (though we still have miles to go before we sleep).

Let me begin, as I did in my first Mini review, by showing you how the Mini II measures quasi-anechoically (with the understanding that the graphs I print, though legitimately taken, are chosen to illustrate *what I heard* in long listening sessions):



Though the overall shape of this frequency-response plot is very similar to that of the original Mini, there are a couple of key differences.

First, where the Mini rolled off steadily at 12dB/octave below 50Hz, the Mini II now goes down nearly flat to 35Hz—almost

half-an-octave lower than the Mini —and in my bass-friendly room sounds as if it is going considerably lower than that.[1] This, folks, isn't "a few measly hertz"; this is the difference between hearing the synths on David Bowie's "Little Wonder" [Columbia] or Paula Cole's "Tiger Lily" [Warner] dive beneath your floor and run, rumbling, beneath your feet like a veritable hi-fi subway, and hearing them tiptoe across the floorboards on little cat feet. This is the difference between hearing the 32Hz pedal point on the Mendelssohn Organ Sonatas (*Mendelssohn at Jamaica Plain* [Sheffield]) shake the room like a temblor and hearing it rattle like a tea tray you've bumped with your knee. This is the difference between genuine physical power and presence in the bottom octave and a phantom of same.

Although it's difficult to overstate this improvement in low-end extension, power, and presence, the Nano-Tec mid/woof is still a 7" driver, and it can't move air like, say, the 18" woven-carbon-fiber diaphragm of the Wilson-Benesch Torus or the 12" band-pass subwoofer of the MBL 101 E. That said, this is standard-setting bass for a two-way mini-monitor—and not just because of what has been added to the low end but also because of what has been retained.

The original Mini may not have had a lot of deep bass, but where it played in the bottom it played with exceptional clarity, speed, and low distortion, due, in large part, to the inherent linearity of its drive system and the absence of box and port colorations. Both it and the Mini II (which uses the exact same enclosure) are acoustic-suspension or "sealed-box" designs, in which the air inside the cabinet acts like a "spring," helping to control woofer-diaphragm resonance and ensure flat, extended, low-distortion frequency response. The pressure inside such a sealed box is enormous, which is one reason why Wolf went to such heroic extremes to make sure his cabinet was up to the task. As I noted in my original Mini review, Wolf's enclosure comprises 16 horizontal layers of one-inch-thick, laminated, 17-ply Baltic birch plywood reinforced with thick internal birchwood skeleton-bracing. To absolutely ensure that the drivers are completely decoupled from the box, the woofer and tweeter are bolted not to the birchwood but to a faceplate (itself transversely tied to a rearplate) machined from 1.5" 6061-T6 aircraft-grade aluminum billet. The teardrop-shaped birchwood enclosure has no sharp edges that might cause diffraction effects, and the aluminum front plate is itself expensively machined into a diffraction-free curve. Taken together, the Mini cabinet's shape and construction are designed to guarantee that neither the box nor the drivers' attachment to the box will resonate.

The new Nano-Tec mid/woofer clearly takes even fuller advantage of this resonance-free environment than the Mini's titanium-sandwich mid/woof, playing not just deeper but louder and more articulately at the same volume levels. Practically speaking, this means that something like the series of pizzicatos sounded by the basses and the harp at the start of the Passacaglia of Lutoslawski's great Concerto for Orchestra [EMI] are more "there"—less faint and recessed, more solidly defined and present—than they were through the Mini I at the same volume level, with inner detail, pitch definition, tone color, and dynamic clout that are improved over that of the already-remarkable Mini. (By the way, those ported-bass fans who think that acoustic-suspension designs are, by comparison, too tight, too controlled, too "polite" in the bottom octaves simply haven't heard the speed and explosiveness that the Mini II—or the original Mini, for that matter—is capable of on a really hard bass transient like the bass drum strike at the close of the aforementioned Lutoslawski piece. Through either speaker, a transient like this will rock you and your room like a gunshot.)

But the change Nano-Tec technology makes isn't confined to the bottom octaves. This is, after all, a *midrange* as well as a bass driver, and the midband and, paradoxically, the lower treble benefit equally from its increased linearity and lower distortion, acquiring a smoothness, a liquidity, a density of tone color, a window-like transparency, a neutrality that make the original Mini sound just the slightest bit rough, "white," and gritty by comparison.

Though the Mini was as close to neutral as any two-way cone loudspeaker I'd heard up to that point, it did have a beguiling bit of added brilliance in the upper midrange and top treble, which,

So What Is a "Nano-Tec" Driver?

The word "Nano-Tec" is adopted from computer technology, where "nanotechnology" refers to the manipulation of very small structures to build microscopic circuits. Here it translates into the weaving together of different weights of carbon fibers (the heavier the fiber, the stiffer; the lighter, the more flexible) to produce a composite that optimally balances mass and stiffness. Each mid/woof uses several layers of this Nano-Tec material of different weights with a Rohacell core in its center, making up a Nano-Tec/Rohacell/Nano-Tec sandwich. (The company that makes these parts for Magico makes helicopter blades of the same material, which should tell you something about its mass, stiffness, and strength! Wolf says that both he and I could stand on one of these cones, which weighs a scant seven grams, and not make it buckle or crack—it's that strong.)

In addition to the change in material composition, the Nano-Tec driver also uses a 75mm titanium voice coil (with neodymium magnet) better than twice the size of the 32mm coil (with ferrite magnet) used in the original Mini's titanium-sandwich mid/woof. Not only does the larger coil dissipate heat more efficiently, it (and the more powerful magnet) also controls the cone more effectively. Thanks to its larger diameter, the new voice coil supports the diaphragm about two-thirds of the way to its outer edge (rather like a ring-radiator), providing better regulation of motion. In addition, the mid/woof's spider has a "chaotic profile," its shape computer-designed for minimal standing waves and resonances.

The sum total of all of this technology is a driver that is said to stay completely pistonic throughout its entire passband—and beyond. (The Nano-Tec driver's first breakup mode, on-axis, in the midrange is above 20kHz!)

[1]In an RTA I took—which you can see printed on page one of the "Magico Mini II: First, Second, and Third, Etc. Impression" on our AVguide.com Web site—the Mini II measures with room lift flat down to 25Hz!

as I've noted in my GamuT and Focal reviews, I happen to like because of the sparkle it adds to top-octave piano, the sheen it adds to top-octave strings and winds, and the realistic breath of air it adds everywhere. No instrument or voice ever sounded closed-in on the Mini, as if a dark ceiling were hanging above the stage or the performer; on the contrary, everything was brightly illuminated, without sounding overly bright.

Wolf and Co. accomplished the trick of making the Mini sound bright and airy without making it sound edgy or analytical by employing a neat bit of psychoacoustics taken from the great BBC mini-monitors of yore. If you look at the frequency-response graph in Issue 163 (or the one printed above), you'll see that the Mini has a slight dip in the "presence range" from about 1–5kHz. This is a critical region for any somewhat-bass-shy loudspeaker (such as a typical two-way), because a bumpy or elevated response here (where the ear is especially sensitive), coupled with a roll in the deep bass, a bit of suckout in the mid-to-upper bass, and a rise in the top treble, tends to make a speaker sound "top-heavy"—bright, thin, and aggressive. (Even two-ways that measure perfectly flat through the presence range can tend this way, their overall balance tipping, subjectively, slightly toward the treble, e.g., the excellent Focal/JMlab Electra 1007Be).

The so-called "Gundry dip" in the presence region, which also happens to be the crossover point between the Mini's woofer and tweeter, compensated for the slight rise of the Revelator tweeter in the "brilliance" range (and simultaneously reduced the audibility of the mid/woof's breakup modes in the upper mids). The result was a speaker that was quick, airy, bright, and alive-sounding on top, without being rough, edgy, or overly aggressive in the midband.

The Mini II improves upon this shrewd psychoacoustic strategy. The deliberate dip in the presence range is still there, but in the Mini II there is somewhat less of it, while the rise in the brilliance region above it is also less marked.[2]

The audible result (in conjunction with the vast improvement in the low end) is a speaker that no longer sounds at all bright, no longer sounds tilted toward the tweeter.

The little bit of whitish grain in the Mini's upper mids and lower treble—which made the original Mini sound, appealingly, a bit like a Maggie planar-magnetic—has vanished. Top-to-bottom balance now comes closer to dead-center neutral—more like a Quad than a Maggie (although without all of a 'stat's incomparable transient speed)—and midband and treble resolution, in what was already one of the highest-resolution dynamic loudspeaker systems in my experience, is, astonishingly, even higher.

I haven't played back a favorite CD or LP through the Mini II's on which I haven't heard something old made new again. Formerly hard-or-impossible-to-hear song lyrics, details of instrumentation, or layers of a complex studio mix are suddenly crystal clear, without the slightest hint of the analytical. In fact, the Mini IIs are considerably richer and more natural in timbre and texture than the already-superb Minis. Best of all, the level of overall realism—of seeming to be in the presence of actual vocalists and musicians, of coming closer to the absolute sound—has here reached a new high for a dynamic two-way. Familiar recordings—most of them what I would've considered extremely "lifelike" on the old Minis—sound utterly renewed, as if they'd all come back from three weeks at the world's finest spa. If someone (even Wolf himself, as, to be honest, he tried to do) had told me that the Mini's fabulous midrange could be

A Mini for All Seasons?

The original Mini's limitations in the bass made for certain limitations in the kind of music it could accurately reproduce. More suited to small-scale than large-scale music, it was a speaker for the chamber-music aficionado rather than the Mahlerite. The Mini II changes this.

Though still not the ideal transducer for power-pop or big orchestral pieces played at concert-hall levels, it is now quite good at reproducing both, while still maintaining its considerable edge on smaller-scale stuff. Unlike the original Mini, this is not a speaker that will have power-music fans thinking "subwoofer" right out of the box. Indeed, it may not have them thinking "subwoofer," at all. In a small-to-moderate room, I cannot imagine easily improving upon the impact and extension that this little marvel now has in the deep bass, without paying a substantial penalty in top-to-bottom seamlessness, which, after all, is one of the Mini II's chief virtues.

Let me put it this way: If you typically listen to very large-scale, very-full-range music at very high SPLs, then the Mini II probably won't float your boat the way a bigger multiway will. If you typically listen to a wider variety of music, including very-large-scale pieces, at more moderate SPLs, then by all means give the Mini II a listen.

Give it a listen anyway, just to see what's possible when a gifted designer pulls out all the engineering and manufacturing stops.

[2] A large part of the midband/treble-range improvement of the Mini II is attributable to the newly designed crossover (with its gigantic, ultra-expensive, ultra-high-performance Raimund Mundorf cap), which helps suppress the mid/bass cone's breakup in the 2–4kHz crossover region. Since the Nano-Tec cone's breakup modes are themselves so much lower in amplitude and higher in frequency than those of the original Mini's titanium-sandwich cone, the combination of the new crossover and driver reduces the contamination of the upper midrange and treble by the breakup of the mid/bass driver, while also making the highs themselves more transparent and grainfree.

Just in passing, I want to note that, while the Mini II is a very fine measuring loudspeaker, I've measured "flatter." Indeed, the Focal/JMlab is somewhat flatter in the upper midrange; so is the Gamut L-3. How is it then that the Mini II sounds so much more like real instruments in real spaces—and is so much more transparent to sources—than either of these other (excellent) speakers?

The answer, which won't please some of you, is that quasi-anechoic frequency response plots are simply too imprecise and adventitious to serve as adequate gauges of loudspeaker performance. Perhaps more importantly, the notion that flatter frequency-response graphs in and of themselves guarantee truer-to-life timbres, higher transparency, more neutral balances, and better loudspeakers is, at best, inadequate and, at worst, simply misleading.

There is very little in either the Mini's frequency-response plot or the Mini II's that would clue you in to the way the very-low-level breakup modes of the titanium-sandwich mid/woof were slightly roughing up the upper midrange and treble. This is something that the ear can tell you instantly, but frequency response graphs cannot (although harmonic distortion graphs could). My point is that making these distortions more audible by "flattening out" the Gundry Dip in the presence region—which Wolf could easily have done—would have been a foolish concession to the foolish idea that "flatter" in and of itself always equals "better."

improved upon to this extent, I wouldn't have believed him. But hearing is believing.

Is the Mini II a "perfect" speaker. Of course not—or why would Magico have built the V3, the M3.5, the M6, and the Ultimate? Though it is now so full-range it is hard to think of it as a mini-monitor, the Mini II still has some of the trade-offs of a two-way dynamic. For instance, though it images with more-lifelike size than any two-way I've heard (and I've reviewed a few), its images are still smaller-than-life compared to, oh, those of the seven-and-a-half-foot-tall Rockport Hyperion. Though it has astonishing dynamics in the bass and everywhere else, it doesn't have the dynamic range of a big multiway like the Rockport or the sheer transient speed of something like the MartinLogan Source (a fabulous $2k electrostatic hybrid that I will soon be reviewing). Though its Revelator tweeter is greatly improved in smoothness and lack of coloration, it is not quite as "fast" as, say, the beryllium tweeter in the Focal/JMlab Electra 1007Be, which can turn the piano on *John Cage's Prepared Piano* [Decca Headline] into a veritable gamelan orchestra. Though its bass now reaches down (with room lift) into the upper 20s, it still doesn't move as much air in the bottom end as a big driver like that of the Wilson-Benesch Torus does (though the amount of air it does move will astonish you coming from such a relatively diminutive loudspeaker). Though it will play louder and more willingly than the original Mini, it won't play as loud as, oh, a $49k MBL 101 E; nor will it light you up with sheer visceral excitement the way a 101 E does, particularly on power pop.

On the other hand, as authoritative as it is, the Rockport Hyperion doesn't sound as much "of a piece"—as much like a single-driver speaker—as the Mini II (neither does the MartinLogan or the original Mini combined with the W-B Torus or any cone multiway I've heard, including the Magico M6), nor does it soundstage with the unbelievable, wrap-around breadth and wall-dissolving depth of the Mini. Nor does it (or anything else I've yet heard in my home, save for the MBL 101 E) disappear into the soundfield the way the Mini does. For all its exemplary resolution, that Focal beryllium tweeter sticks out far more than the Mini II's Revelator, making the speaker sound less seamlessly "of a piece" than the Mini II, more top-heavy, while the MartinLogan's phenomenal transient speed comes at a slight cost in midband density of texture and timbre.

In the here and now, particularly for listeners who are limited in listening space (although these speakers do *quite* well in large rooms), the Mini II is as close to a full-range option as you can get in a direct-radiating dynamic speaker of such compact dimensions. Here is a transducer that is virtually colorless and seamless from top to bottom with exceptional newfound extension in the bass, phenomenal (and phenomenally improved) reproduction of timbre and texture in the midband, increased smoothness and neutrality in the treble, astonishingly hard-hitting dynamics and wide dynamic range for a two-way (even in the bass), and some of the best (if not *the* best) soundstaging and imaging money can buy.

If the Mini was a classic (and it was), the Mini II is indisputably a classic improved upon. It is the best two-way I know of—a world-class transducer that will not only open a window on music (now of virtually every kind) but that will teach you, as it has me, just how good modern high-end audio technology has gotten to be. It goes without saying that it gets my highest recommendation and, as of this writing, is my dynamic-loudspeaker reference. **TAS**

SPECS & PRICING

Type: **Acoustic-suspension, stand-mounted, two-way loudspeaker**
Drivers: **1" ring-radiator Revelator tweeter, 7" Nano-Tec mid/woofer**
Frequency response: **40Hz–40KHz +/-3dB**
Sensitivity: **87dB**
Impedance: **4 ohms**
Recommended power: **50–250 watts**
Dimensions (including stand): **42" x 18" x 15"**
Weight (including stand): **230 lbs./side (net)**

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Price: $29,600 (including stands)

JV'S REFERENCE SYSTEM
Loudspeakers: **Magico Mini II, MBL 101 E, Ascendo M-S MkII**
Linestage preamps: **Audio Research Reference 3, Audio Space Reference 2, MBL 6010 D**
Phonostage preamps: **Audio Research PH-7, Lamm Industries LP-2 Deluxe, Aesthetix Io**
Power amplifiers: **Audio Research Reference 610T, MBL 9008, Lamm ML-2**
Analog source: **Walker Audio Proscenium Black Diamond, TW Acustic Raven AC-3/ Graham Phantom**
Phono cartridges: **Air Tight PC-1, Clearaudio Goldfinger v2**
Digital source: **ARC Reference CD7, EMM Labs DAC 6E**
Cable and interconnect: **Tara Labs "Zero" interconnect, Tara Labs "Omega" speaker cable, Tara Labs "The One" power cords, Synergistic Research Absolute Reference speaker cable and interconnects**
Accessories: **Shakti Hallographs (6), Walker Prologue Reference equipment stand, Walker Prologue amp stands, Richard Gray Power Company 600S/Pole Pig line/power conditioner, Shunyata Research Hydra V-Ray power distributor and Anaconda Helix Alpha/VX power cables, Cable Elevators Plus, Walker Valid Points and Resonance Control discs, Winds Arm Load meter, Clearaudio Double Matrix record cleaner, HiFi-Tuning silver/gold fuses**