

Head *and* Heart



# Rockport Technologies **Orion** Loudspeaker

**By Robert Harley**  
*Photos by Matt Wrightsteel*







**It's** possible to admire a loudspeaker's performance without falling in love with the speaker. Such speakers appear to do all the things we ostensibly want speakers to do—exhibit no major tonal colorations, deliver high resolution, go low in the bass, and express wide dynamic contrasts—but for some reason don't push our musical buttons. It's a paradox; those qualities and myriad other specific performance parameters, in aggregate, are theoretically what makes a speaker musically involving. But that's not always the case in practice. Such speakers engage the head but not the heart.

Conversely, some speakers have an elusive quality that communicates musical expression despite exhibiting obvious sonic shortcomings. The Spica TC-50 from the 1980s and 1990s comes to mind; this inexpensive speaker was clearly colored tonally, limited in bass extension, and restricted dynamically, yet was a pleasure to listen to. Whether by design or happy accident, the TC-50's many flaws were easy to overlook, and its scant few virtues were made musically manifest.

But there's a third category—the speaker that checks all the audiophile boxes and engages you musically in a powerful and profound way. You can listen to such a speaker critically, marveling at the smoothness of the response, the wide dynamic contrasts, three-dimensional soundstaging, and superb bass resolution. Yet it's nearly impossible to maintain that analytical frame of mind in the face of just how rewarding it is let yourself abandon critical listening and be drawn into the musical expression.

The all-new Orion from Rockport Technologies is such a speaker. It is astonishing sonically in so many ways, yet more importantly, never fails to convey a captivating sense of music-making that renders its sonic performance secondary.

#### OVERVIEW

The \$133,000 Orion is an entirely new loudspeaker, designed from the ground up as Rockport's penultimate model. It slots just below the flagship Lyra (\$190,000; see my review in Issue 268) and just above the Cygnus (\$70,000) with the Avior II (\$47,000) and Atria II (\$38,000) serving as the entry points in the Rockport line.

As I've written about Rockport Technologies in *The Absolute Sound's Illustrated History of High-End Audio, Volume One: Loudspeakers*, and in last December's High-End Hall of Fame induction of Rockport founder Andrew Payor, the company is more of an artisanal craftshop than a loudspeaker factory. That's by design; Payor refuses to compromise his exacting



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standards or forego his hands-on involvement to increase production. Since its founding in 1985, Rockport has invented sophisticated and novel technologies that have advanced loudspeaker design and performance. It's not by accident that many high-end electronics and source-component manufacturers display their products at audio shows with Rockport loudspeakers.

The Orion is remarkably compact, standing just 50" tall but weighing a hefty 360 pounds each out of the crate. Handling the speaker gives you a sense of its sheer density. The design brief was to create the purest expression of a full-range three-way loudspeaker. One of Payor's many goals for Orion was to design a relatively modestly sized speaker that played larger than its dimensions would suggest. The drivers, designed from scratch for Orion as part of the three-year development project, comprise a 13" woofer, 7" midrange, and 1.2" dome tweeter mounted in a waveguide. The cabinet is a variation on the molded-composite enclosure technology Rockport developed in 1993 for the Procyon model and refined over the years. Rather than build cabinets from flat sheet-stock and glue the pieces together, Rockport creates an outer, molded composite shell of the cabinet shape from carbon fiber or fiberglass. A second, smaller inner shell is formed, leaving a void between them. The cavity between the two composite shells is filled with a dense, highly damped, viscoelastic core material that bonds the inner and outer shells together, creating an enclosure that is at once dense, stiff, inert, and well-damped. Moreover, this technique allows the cabinet to have the ideal shape for optimizing the wave launch from the drivers as well as reducing diffraction.

This enclosure technology reached its ultimate realization in the flagship Lyra, whose dual enclosure forms are made from cast aluminum. In my review of the Lyra, I noted how the lack of enclosure sound contributed to the speaker's incredibly low noise floor and concomitant resolution of extremely fine detail. To bring the benefits of that cabinet construction to a lower price, Payor developed a new implementation for Orion in which the inner enclosure is made from cast aluminum, with the outer shell molded from carbon fiber. The outer carbon-fiber shell is much less labor intensive to finish than aluminum, bringing down the cost while maintaining the advantages of the technique.

The Orion's enclosure is made from just three pieces; the inner cast aluminum shell, the outer carbon-fiber shell, and the carbon-fiber front baffle. The Orion's swept-back baffle, with its very large diffraction-re-

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ducing radiuses, is unmistakably Rockport. You can see a detailed animated video of the Orion's cabinet construction, narrated by Andrew Payor, on Rockport's website.

A rear-firing port terminates just above the input terminals on the enclosure's narrow rear section. Two pairs of binding posts are provided for bi-wiring. Because the woofer and midrange crossover circuits are separate, the Orion can be passively bi-amplified. That is, one amplifier drives the woofer input and a second amp drives the midrange-tweeter section. Both amplifiers are run

full range, with the frequency division between drivers realized by the Orion's internal crossover.

An aluminum outrigger structure on the enclosure bottom increases the speaker's stability. Four large spikes thread through the outrigger's corners and are capped with locking knobs on top for a clean look. The standard finish is a metallic black, with custom colors available at extra charge upon request.

I go into more technical detail on the Orion's drivers, crossover, and enclosure in the sidebar.

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way that fosters a deep connection with the musicians' performances and artistry. The sound was vibrant, alive, and incisive—qualities that imbued the music with a life-like immediacy. This was the Orion's most salient quality, along with a sense of precision and resolution.

In fact, the word "precision" best describes the Orion. The speaker projects a sense of clarity, resolution, alacrity, and vibrant immediacy. Everything is tidy, with no rough edges. Yet this description of "vibrant immediacy" could apply to other speakers that don't engage the listener musically the way that Orion does. The difference is that although the Orion has a pristine clarity and very high resolution of detail, it doesn't sound forward, aggressive, or analytical. Rather, the Orion sounds utterly liquid and warm in timbre, with no hint of etch or metallic hardness.

That is probably attributable to the speaker's very low distortion. This combination of an incisive and richly detailed sound coupled with very low distortion and lack of glare made for a thrilling listening experience.

The speaker projects a full measure of upper midrange and treble energy yet doesn't sound bright or fatiguing. The Orion's combination of high resolution—in timbre, fine detail, and dynamics—with a sense of ease is its defining achievement.

But there's something else that's very special about the Orion, a quality that took me some time to put my finger on. I have mentioned the Orion's upbeat and lifelike presentation that conveys a sense of contemporaneous music-making. In this regard, the Orion is absolutely stunning; even now as I listen to background music far away from the sweet spot while writing this review, the Orion's "aliveness" shines through. I have come to believe that this character can be attributed, in large part, to the speaker's transient performance. Transients reproduced by the Orion are ultra-fast in attack and decay, just as one hears in live

**The Orion communicates the music in a way that fosters a deep connection with the musicians' performances and artistry.**

### LISTENING

The Orion was set up in my listening room by Josh Clark, who bought Rockport Technologies in 2019 with the idea of carrying on the company's legacy. Founder Andrew Payor continues in his design role, with Josh handling the business and marketing side of the company. You can see a video of Josh in my listening room giving an overview of Orion at our YouTube channel ([youtube.com/@TheTASmagazine](https://www.youtube.com/@TheTASmagazine)).

We decided to passively bi-amplify the Orion with the CH Precision M10 amplifiers. The M10's remarkable configuration flexibility again proved its worth; the amplifier can be run as a 300W monoblock, in bridged mono mode for 1100W, as a 300Wpc stereo amplifier, or as a two-channel amplifier with passive or active bi-amping (the latter requires an optional input card). Most of my listening was via passive bi-amplification, although I did power the Orion with a single stereo amplifier because this is how most listeners will drive the speaker.

My first few hours with the Orion weren't spent in the sweet spot exploring the speaker's sonic characteristics, but rather simply enjoying music with a friend while sitting just to the side of the center seat. In this environment I was struck by the Orion's remarkably lifelike quality and the way in which it disappeared—in every sense of that word—as an intermediary between the music and me. The Orion conveyed a powerful feeling of contemporaneous music-making, not just "good sound." There was just a natural and unforced sense of ease as well.

Later, in the hot seat, listening critically, I was immediately aware that the Orion is a speaker that not only sounds wonderful in an analytical audiophile sense, but more importantly, communicates the music in a

music. It sounds as though all the energy in the transient is delivered to the listener at the same instant, with equally fast decay. By contrast, many other speakers sound as though that energy is spread out in time slightly, muting the dynamic impact. In many other speakers, the stored energy in the drive units and enclosure is released after the transient is over, robbing the music of that lifelike snap and immediacy as well as introducing a thickness and loss of clarity.

I heard the Orion's whip-fast transient reproduction most obviously on the drum kit; the pop of the snare drum had a suddenness of attack and instantaneous decay that one hears in life. The musical effect was an increased awareness of music's rhythmic flow, of dynamic inflections, and the drummer's interaction with soloists. In many types of music, the drummer will often emphasize the rhythm's backbeat to take the energy up a notch by playing cross-stick beats on the snare. Here are two good examples: midway through Joe Pass' solo on "Contractor Blues" from the great Count Basie LP *88 Basie Street*, the drummer goes for the cross stick just as Pass and the band really dig into the swinging groove. The second example is "I Love Being Here With You" from Diana Krall's *Live in Paris* during the latter half of the guitar solo. The Orion's stunning transient performance reproduced these cross-stick beats with such clarity and impact that they had the intended—and thrilling—effect of heightening the energy and adding emphasis to the rhythm. That's what I meant earlier by describing the Orion as a speaker that makes the music come alive. It's not just reproducing sound; it's conveying the expressions of the musicians.

That's just one small example that serves for many, many more; drums in general had a lifelike sound that was consistently exhilarating. This was true whether listening at a loud level in the sweet spot or as background from another room, so powerful was this aspect of the Orion's performance. Listen to a drummer like the great Roy Haynes (he played with Charlie Parker and Lester Young and is still going today at age 97), whose nickname was "Snap Crackle" for his unique style of punctuating the rhythm with strong snare beats. You can hear Haynes in top form on the Chick Corea composition "Windows" from *Like Minds* with Chick Corea, Gary Burton, Pat Metheny, and Dave Holland. Haynes' insistent drive seems to propel these great

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## Specs & Pricing

### Three-way floorstanding loudspeaker

**Driver complement:** 13" woofer,  
7" midrange, 1.25" dome  
tweeter

**Frequency response:** 20Hz–  
25kHz (–3dB)

**Impedance:** 4 ohms

**Sensitivity:** 90dB (2.83V)

**Minimum amplifier power:** 50W

**Dimensions:** 14.3" (20.3" with  
outrigger) x 50.3" x 26.4"

**Weight:** 360 lbs. each (net)

**Finishes:** Diamond Metallic Black  
(custom colors available upon  
request)

**Price:** \$133,000 per pair  
(standard color)

ROCKPORT TECHNOLOGIES  
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South Thomaston, ME 04858  
rockporttechnologies.com  
(207) 596-7151

### Associated Equipment

**Analog source:** Basis Audio A.J.  
Conti Transcendence turntable  
with SuperArm 12.5 tonearm;  
Air Tight Opus cartridge; CH  
Precision P1 phonostage with X1  
power supply; DS Audio ST-50  
stylus cleaner, DS Audio ES-001  
Eccentricity Detection Stabilizer,  
Levin record brush, Degritter  
ultrasonic LP cleaner

**Digital source:** Wadax Reference  
DAC, Wadax Reference Server,  
UpTone Audio EtherREGEN  
Ethernet switch

**Amplification:** CH Precision L10  
Dual Monaural linestage; CH  
Precision M10 Dual Monaural  
power amplifiers

**AC Power:** Shunyata Everest  
8000 conditioner, Shunyata  
Omega and Sigma NR V2 power  
cords; Shunyata AC outlets, five  
dedicated 20A lines wired with  
identical length 10AWG; two  
Göbel AC power cords (powering  
the subwoofers)

**Support:** Critical Mass Systems  
Olympus equipment racks  
and Olympus amplifier stands;

CenterStage2 isolation, Ayra  
Audio RevOpods isolation

**Cables:** AudioQuest Dragon  
interconnects, AudioQuest  
Dragon Zero and Dragon Bass  
loudspeaker cables

**Grounding:** Shunyata Altaira  
grounding system

**Accessories:** The Chord Company  
GroundArray noise reduction

**Acoustics:** Acoustic Geometry  
Pro Room Pack 12, ASC 16"  
Round Tube Traps

**Room:** Purpose-built; Acoustic  
Sciences Corporation Iso-Wall  
System

soloists to new heights. The thrilling performances on this album were simply more thrilling through the Orion because of this heightened sense of musical interplay. These are the kind of musical rewards the Orion routinely delivers with such ease and aplomb.

Some other speakers are also "fast," yet don't sound quite like Orion. In addition to not reproducing transients as coherently, they don't reproduce the decays as quickly or as deeply as Orion. The cliché of the "silence between notes" has turned out to be a surprisingly important aspect of musical realism, and one that the Orion absolutely nails. Much of the Orion's extraordinary dynamic performance can be attributed to the advanced driver technology along with the dead-quiet enclosure and lack of energy storage in the speaker. This lack of energy storage and concomitant deep silence also increases the perceived transient snap by widening the contrast between silence and musical peaks.



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There's another reason the Orion's transient performance is so impressive—the continuousness of transient fidelity across the spectrum from top to bottom. That is, the Orion didn't exhibit this superb transient behavior only over certain frequency bands, but consistently regardless of the instrument or the register in which it was playing. The music had a "snap" and immediacy that characterize live music. Although this quality was a defining characteristic of the Orion no matter what the music, a track that highlights the speaker's transient performance is "Havana Moonlight" from Spyro Gyra's *Got the Magic*. The percussion and acoustic guitar on this superb recording simply jump from the soundstage with lifelike immediacy.

The Orion's speed of attack and decay also contributed to the speaker's articulation and clarity. Listen to a recording with several stringed instruments simultaneously playing intricate passages, and you'll hear a newfound clarity of each instrumental line. The multiple parts are reproduced with each instrument's contribution clean and clear rather than smeared. A good example is Ruth Moody's rendition of the Bruce Springsteen song "Dancing in the Dark" from her album *These Wilder Things*. The arrangement features guitar, mandolin, pizzicato violin, and acoustic bass, with some spirited interplay between them on the outro. The Orion managed to keep separate and intact each instrument rather than smearing them into a confusing blur.

It may seem that I'm making much out of what may be considered a secondary aspect of loudspeaker performance, but the musical effect is profound. The Orion's qualities infuse the music with a startling sense of presence and immediacy, but in a totally natural, relaxed, and unforced way. The sense of rhythmic flow and energy is simply extraordinary, even when judged against cost-no-object designs. There's often a conflict; speakers that sound vibrant and lively do so at the expense of ease, the ability to completely relax into the listening experience, and ultimately, musical involvement. This is the kind of speaker I mentioned in the opening paragraph; you can point to how detailed and lively the speaker sounds, but it fails to put the listener into a state of deep immersion in the musical performance. It's the perverse triumph of sound over music. Conversely, speakers that are smooth and liquid lack the upbeat feeling of the musicians locking into the groove as a cohesive whole. The Orion exposes the false dichotomy, proving that incisiveness and relaxed engagement aren't mutually exclusive.

The Orion's bass performance was just as precise as the rest of the spectrum, with superb agility and pitch resolution. On the all-acoustic trio album, *The Rite of Strings*, Jean-Luc Ponty, Al DiMeola, and Stanley Clarke play some fast unison phrases. The Orion, to an extraordinary degree, reproduces these passages with absolute clarity of the double bass' pitch and dynamics. Despite the three instruments' very different timbres, registers, and dynamic envelopes, each was reproduced with clarity and precision. The Orion is particularly good at resolving pitch, conveying realistic bass timbre, and not smearing the attacks and decays of bass instruments. I could routinely hear exactly what the bass player was doing when the bottom end wasn't blurred. You can get deeper bass extension and more powerful bottom-end impact from a few comparably priced speakers that emphasize that aspect of performance, but I doubt that you'll find one with more musically rewarding resolution of the low-ermost octaves.

A hallmark of Rockport speakers has been realistic reproduction of midrange and treble timbre along with ease and liquidity. That tradition continues in the Orion; instrumental texture was exceptionally clean, detailed, and free from grain or hardness. Listen to the extraordinary direct-to-disc LP by Hilary Hahn, *Retrospective*, on DG. The sounds of her violin and the piano are stunningly realistic through the Orion. The instruments' textures are infused with rich color, density, and warmth. The Mozart Violin Sonata in G Major reproduced by the Orion is one of the most lifelike reproductions of music I've heard (credit also goes to the extraordinary Basis Transcendence turntable, Air Tight Opus cartridge, and CH Precision P1/X1 phonostage).

The treble is similarly clean, managing to sound alive and energetic without crossing the line into brightness. The Orion is remarkably adept at reproducing very fine treble detail, such as the inner resolution of cymbal decays and percussion instruments with a high-frequency component. Listen to Jack DeJohnette's tender cymbal brushwork on Keith Jarrett's *My Foolish Heart* for an example of just how well the Orion manages to convey a real sense of texture and inner detail on the cymbals rather than sounding like a series of high-frequency transients.

Not surprisingly, considering the Orion's obviously exceptional design and execution, soundstaging was first-rate, but not just in the usual sense. Although the Orion's stage is wide and deep with precise image placement, it also has a tangibility by virtue of the speaker's sense of making instruments appear in your listening room rather than simply recreating sounds. Centrally positioned vocals were startling in their presence—listen to Dutch bluesman Hans Theessink on his album *Jedermann Remixed*, a record that sounds good on many systems, but transcendental in its palpability through the Orion. On this album, and many others, instruments were reproduced with that little halo of air around the images that add to the impression of musical realism. Moreover, the Orion's spatial presentation was completely detached from the speakers—instruments hung in three-dimensional space

**Soundstaging was first-rate, but not just in the usual sense.**



with no apparent connection to the loudspeakers. The Orion also portrayed larger music with the appropriate spatial scale. Listen to the way the big brass tutti “light up” the fabulous and expansive acoustic of the Morton H. Meyerson Symphony Center on *John Williams at the Movies*, a spectacular-sounding 176.4/24-bit recording by Keith Johnson, for just one example.

Although I have not heard the Lyra since I reviewed it seven years ago, and I drove it in a different room with different sources and amplification, my recollection is that the Orion is a little more incisive, the Lyra a bit more relaxed. The Lyra, in my memory, is a little sweeter—more *gemütlich*, as my dear friend and colleague Jonathan Valin would say. The Lyra’s low-level resolution is also finer and more filigreed. But both are cut from the same cloth, with the benefits of Rockport’s unique driver and enclosure technologies clearly evident.

### CONCLUSION

A loudspeaker is like a filter between you and the music, coloring timbre, squashing dynamics, smearing transients, and myriad other faults. All speakers exhibit these flaws, but the better ones do so to a lesser degree. During my time with the Orion, I had the distinct impression of the speaker as imposing very little of itself on the music in each of these parameters.

In addition to its remarkable transparency to the source, the Orion excels in those areas that matter most in creating musical realism—timbral accuracy, top-to-bottom coherence, and dynamics. It’s this last quality where the Orion most distinguishes itself from the competition, reproducing music’s transient nature with a lifelike immediacy that is immensely rewarding musically. The Orion’s transient “snap” infuses music with a sense of lifelike realism that few speakers realize—at any price. Electrostatics also have this snap, but often lack weight behind the transient, resulting in the “skeletal” epithet.

Although some may consider its modest size (modest in relation to its price) a demerit, the fact is that the Orion brings world-class performance to a loudspeaker that will easily fit into living rooms where a larger speaker would be a non-starter. Moreover, the elegant shape and organic curves allow the Orion to visually blend into a room rather than dominate it the way a rectangular box would.

The Rockport Orion is among the five best loudspeakers I’ve had in my home for review—a very short list that also includes Rockport’s Lyra. The Orion is a speaker that I admired for its technical achievement, but more importantly, one that I loved for the unfailingly powerful musical connection it delivered.

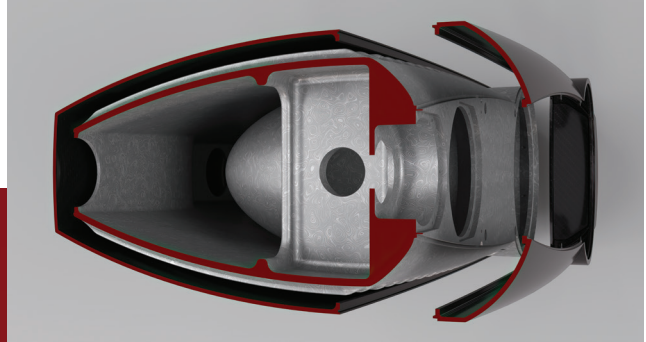
## Design

**RATHER THAN SIMPLY** adapt existing components and construction methods to create Orion, Rockport instead embarked on a three-year development project that required designing all new drivers specifically for Orion as well as developing a new cabinet-construction method. As mentioned in the review, the idea was to create a three-way loudspeaker that provides full-frequency-range performance with low distortion in a modestly sized enclosure. Such a speaker would fit in many homes where a larger speaker would be intrusive.

The first design consideration was the woofer size. To realize visceral grip in the bottom end, Payor chose 13" for the woofer diameter. This choice in turn required a slightly larger midrange driver than Rockport typically uses—7" in the Orion compared with 6" in the Lyra (although the Lyra employs two midrange drivers). The Orion's larger midrange driver conferred greater dynamic capabilities at the bottom of its operating range that better matched the woofer's dynamics. The crossover point is very low 140Hz.

The midrange hands off to the tweeter at 1800Hz, a surprisingly low crossover frequency. This transition typically occurs between 2.2kHz to 3kHz. Payor engineered the drivers for lower crossover points so that each driver could provide the greatest dynamic capability at the lower ends of their passbands. Crossing over the tweeter at this low frequency was made possible by an entirely new tweeter design developed specifically for the Orion. Although the beryllium dome tweeter has extension to 25kHz, its behavior at 2kHz was of greater concern. The tweeter has a diameter of 31mm (rather than the typical 26mm) and is mounted in a shallow waveguide. The waveguide serves three functions. First, it increases the driver's sensitivity so that it requires less amplifier power to produce a given sound-pressure level (which reduces heat in the tweeter). Second, the waveguide narrows the tweeter's dispersion at the lower end of its operating range so that its dispersion better matches the midrange driver's dispersion at the upper end of the midrange's operating range. Third, the waveguide, in conjunction with the larger dome, imbues the tweeter with greater dynamic ability at the bottom end of its passband. The tweeter's increased dynamic capability around 2kHz better matches the midrange driver's dynamic capabilities at the top end of its range. This overall approach avoids a dynamic discontinuity at the midrange-to-tweeter crossover point. That is, there's not a band of frequency (the lower end of the tweeter's passband) with restricted dynamics relative to the rest of the frequency spectrum. Finally, the waveguide makes the tweeter's effective diameter larger than the dome itself.

Looking next at the drivers' design, they are evolutions of the carbon-fiber sandwich construction Payor pioneered in the early 2000s. This cone structure is common today among higher-end speakers, but was novel 20 years ago. Very thin and lightweight carbon-fiber skins flank a foam core, with the resulting beam section exhibiting great strength and rigidity yet remaining lightweight. For Orion's larger midrange driver, a new type of carbon-fiber fabric was utilized. The midrange driver's low crossover point



required that the driver be built almost like a midrange-woofer in a two-way speaker, with a larger and more robust basket, greater heat ventilation, and higher power handling. As with all Rockport drivers, much effort went into reducing losses caused by "stiction" of the suspension system. Such "stiction" creates a threshold below which the driver cannot respond to very low-level signals, reducing perceived musical resolution and inhibiting transient speed. Consequently, the surrounds are very narrow, and vary in thickness between where the surround attaches to the cone and where the surround attaches to the basket. Payor has spent many years modeling surround materials, shapes, and thickness profiles to arrive at the ideal combination of parameters. The overall concepts and execution in the Orion's 7" midrange driver are very similar to that of the 6" unit in the flagship Lyra. In both drivers, the measurable distortion is  $-60\text{dB}$ , an amazingly low figure. The tweeter's third-harmonic distortion is  $-75\text{dB}$ , again astoundingly low distortion. Here's another amazing spec; the Orion's response is flat through the midrange to  $\pm 0.25\text{dB}$  (Payor sent me the frequency-response plots). Speakers don't get any flatter than that.

The bass driver was designed to have a large surface area with as lightweight a cone as possible. A loudspeaker's overall sensitivity is determined by the woofer's sensitivity; high sensitivity was thus a design goal in creating this new woofer. The Orion's woofer has a sensitivity of  $94\text{dB}$ , a relatively high figure, which allows for an overall system sensitivity of  $90\text{dB}$ . It features all the hallmarks of Rockport's previous woofers, including a massive motor coupled to a low-loss suspension, along with the carbon-fiber sandwich cone construction.

Looking next at the enclosure, as described earlier the Orion features a dual-shell enclosure with the inner shell made from a single, massive aluminum casting and an outer structural carbon-fiber shell. The cavity between them is filled with 115 pounds of Rockport's proprietary high hysteresis visco-elastic core material. This material was newly developed specifically for Orion and differs from the material in the Lyra. The aluminum inner housing is cast as a single piece, complete with a "catenary profile" midrange chamber, internal bracing, and ribs on the outer surface that stiffen the structure as well as increase the surface area between the aluminum housing and the core material for greater damping. The baffle is carbon fiber, bonded to the outer shell along a mortise and tenon joint with a structural epoxy adhesive. Unusually, the woofer mounting surface is slightly larger than the baffle itself, requiring a "boss" (a cylindrical protrusion) on the baffle to accommodate the woofer's diameter. The enclosure is thus made from three pieces, with no fasteners and no conventional joinery. In addition to being dense, stiff, inert, and highly damped, this construction technique allows the speaker's shape to be optimized for driver placement, ideal wave launch, and low diffraction. Although not quite as inert as the Lyra's (560-pound) double-aluminum enclosure, the Orion's cabinet reportedly comes close in performance.

The ported enclosure is tuned to 27Hz, yet due to Rockport's unique alignment, its rolloff is  $12\text{dB/octave}$  in the first octave down to 20Hz (anechoic), improving in-room response. **tas**

