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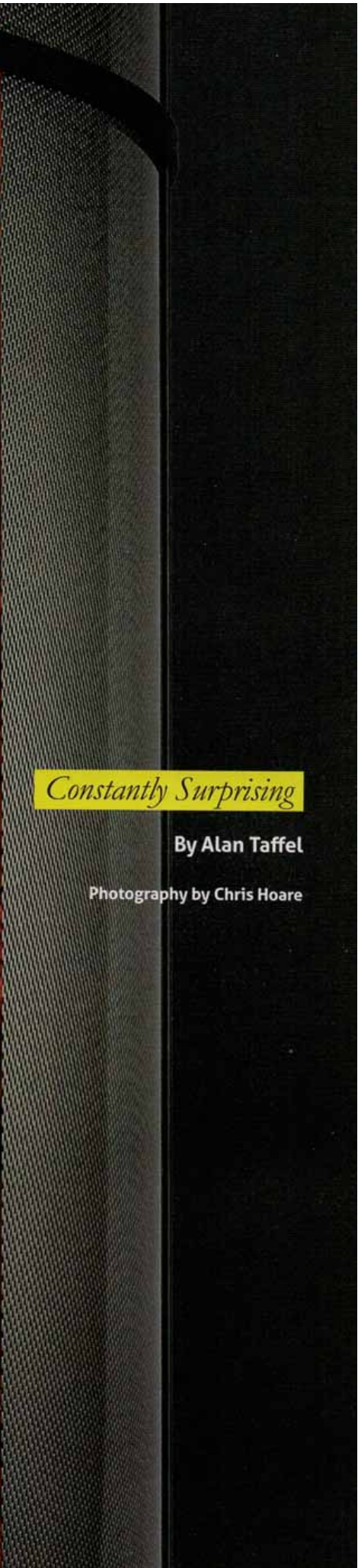
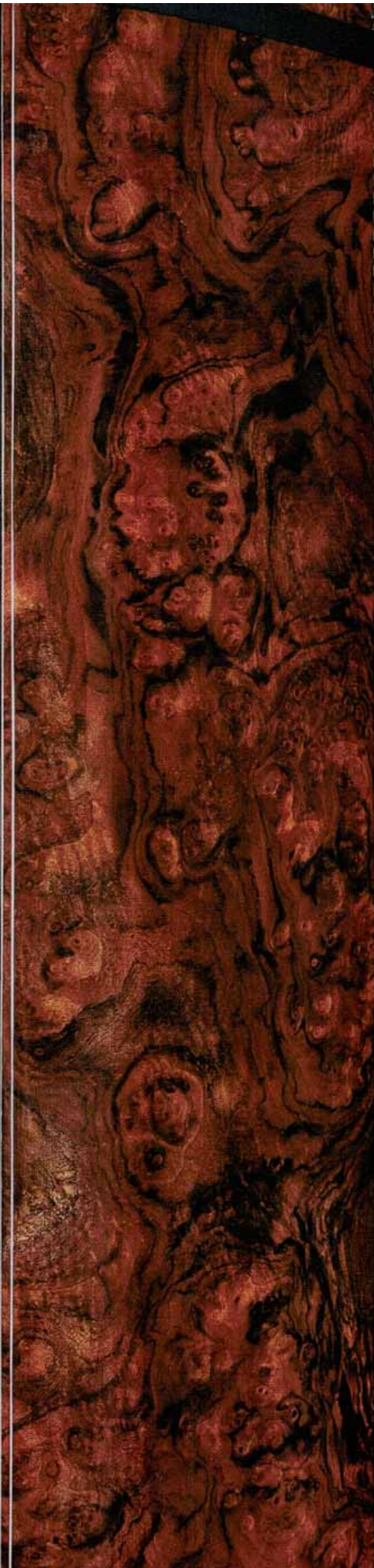
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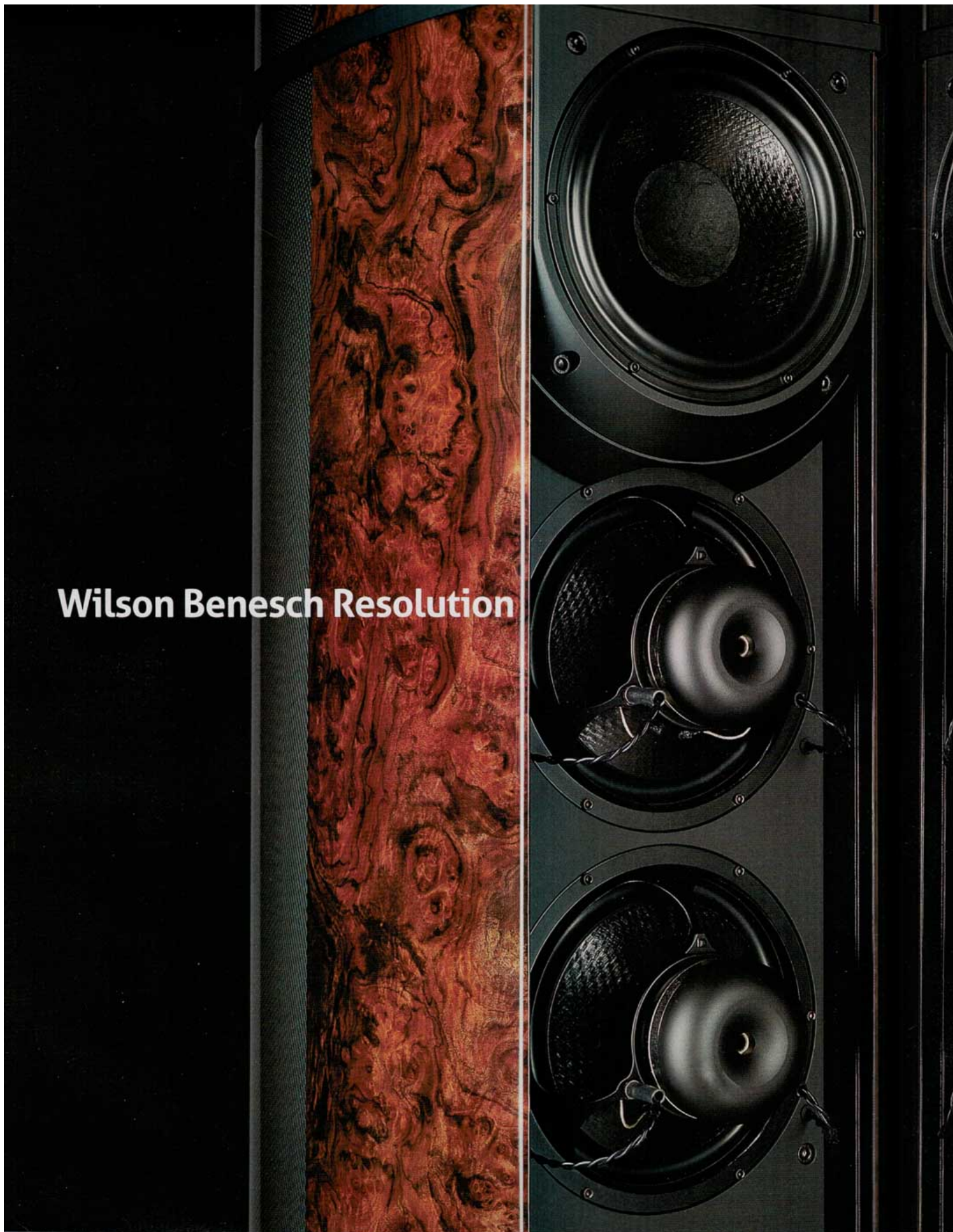


Constantly Surprising

By Alan Taffel

Photography by Chris Hoare

Wilson Benesch Resolution



Wilson Benesch Resolution

if you live with a speaker for a while, as Wilson Benesch was gracious enough to allow me to do with its new Resolution towers, one of two things happens. Either the speaker's flaws become increasingly apparent and start to grate on you, or you come to accept those flaws, learn to hear past them, relax, and enjoy the music. The commonality between these two scenarios is that in both cases the speaker's sound becomes familiar.

There is a third possibility, but it's a highly unusual one. There are speakers that, over the long run, neither grate nor demand acceptance of their drawbacks. They do pretty much everything well, including conveying—without interference or editorializing—the diversity of material and recordings embedded in our music libraries. This quality of capturing diversity is what prevents speakers in this category from becoming familiar. Instead, listening to them is constantly surprising. Such speakers are scarce, but the Resolution is one of them.

Nowhere is the Resolution's element of surprise more apparent than in the bass. Naturally, as you'd expect in this price range, the speaker offers excellent extension and definition. Yet scads of speakers can make those same claims while failing to do what the Resolution does. The Resolution is nonpareil at unearthing cloaked bass lines—and revealing everything about them. Listening to bass, even on familiar recordings, through the Resolution is a constant journey of discovery.

There are several factors that contribute to this overall effect. Most significantly, I believe, is prodigious (yet well-controlled) output throughout the bottom octaves. This allows reticent bass lines, or those overwhelmed in the mix, to step out from the shadows. For instance, compare listening to "Spinning Wheel" [ORG LP, *Blood Sweat and Tears*] through the Resolution with the same tune heard through Bowers & Wilkins' flagship 800 D3. This particular bass line happens to fall into an anemic zone of the B&W's otherwise-exemplary low end. The effect is a bass line that, while not exactly inaudible, feels like it's hiding behind a tree. But the Resolution has no such anemic zone, so this bass line takes its rightful place among the rest of the

complex instrumentation. Excellent imaging assists by giving the bass the *physical* space its due.

The second factor contributing to the Resolution's low-frequency prowess involves its fast, intricate response. In the low end, most speakers incur some blurring—or even miss notes—as their woofers struggle to defy inertia. The Resolution, however, possesses superior speed and transient precision. Thus, even when tackling the work of the most nimble-fingered bassists, there's never any mystery; the speaker tells you exactly what's going on.

As an example, consider "I'm an Old Cowhand" from the Analogue Productions LP of Sonny Rollins' *Way Out West*. There's a tricky bass run at the start of the piece. Most speakers, when faced with this challenging run, blur notes together. In contrast, the Resolution serves up every note distinctly, then goes further by telling you the specific character—timbre, touch, etc.—of each tone.

Finally, the Resolution's bass is resolutely linear. You can hear

this easily on "Jamaican Turnaround" from Michael Wolff's indispensable CD, *2AM*. I've played this cut through literally hundreds of speakers at audio shows, and the song's walking bass line contains notes that invariably get reproduced either as too pronounced or too recessed.

But the Resolution loudspeaker is the exception, where output is constant across the bass spectrum.

Zooming out from the bass region, it becomes clear that linearity is a hallmark of the Resolution overall. Thanks, no doubt, to the in-house-made, carefully matched drivers and an equally well-thought-out crossover, these speakers possess uncanny coherency. Back on *2AM*, the Resolution spans the big Bösendorfer's entire range—from core-of-the-earth lows to sparkling highs—without any imbalances or hint of changing drivers.

Rounding out the Wilson Benesch's virtues are a deathly quiet noise floor and low overall distortion. These traits, too, add to the speaker's sense of musical suspense, since dynamic bursts seem to come out of nowhere. Yet there is a remarkably delicate filigree to quieter passages. Through the Resolution, overtones and decays hang in the air like drifting clouds.

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Wilson Benesch Resolution



No speaker is perfect—not even those that fall into this rarified class. My first nit with the Resolution is that, outside the bass region, transients are not quite as well-defined as they are on, say, the aforementioned B&W flagship. Through the 800 D3 Wes Montgomery's guitar on the SACD of *A Dynamic New Sound* exhibits slightly more incisiveness on the instrument's leading edges. My second and last nit is that when it comes to high-end extension, the Resolution can't quite match the infinite airiness of my reference Metaphor 1s. That's not surprising, given that my reference is equipped with Raven ribbon tweeters, which always outdistance dynamic drivers in this regard.

The important point about these minor shortcomings, though, is that while they do exist, they're not a factor during actual listening. I only became aware of them when comparing the Resolution to speakers that are outperformers in these respective areas. The diminutive degree of the Resolution's drawbacks meant that I never had to listen "past" them.

So how did Wilson Benesch pull all this off? I'm sure it's due to a combination of hundreds of choices both big and

As mentioned earlier, lavishing this much carbon fiber on a product isn't cheap.

small. But I'd like to focus on just two of the speaker's design elements, because they are so uncommon.

The first of these is the use of carbon fiber in the Resolution's cabinet. As all TAS readers are aware, in speaker cabinets stiffness is everything. The extreme lengths to which manufacturers go to make their cabinets immovable is proof of that maxim. Magico, for instance, famously uses elaborately braced sheets of CNC aluminum to ensure stiff cabinets. Estelon makes its speakers out of solid marble. Both Rockport and Wilson developed synthetic, ultra-inert proprietary materials for their enclosures.

In a way, though, all of these are brute-force approaches. They're massive, heavy, and thick. Wilson Benesch sought something more elegant. Wouldn't it be nice, they thought, if there were a material even stiffer than aluminum, etc., that also did away with the associated mass? Wouldn't such a material make possible a speaker with the low coloration of a stiff cabinet, while allowing for greater cabinet volume even as it reduced the speaker's overall size? Yes, it would be nice, and such a material exists. It's called carbon fiber.

Most of us have heard of carbon fiber, a high-tech substance that offers an unparalleled combination of lightness and rigidity. The most frequent sightings of this exotic substance are in the form of dash appliques in sporty cars, where its benefits are largely cosmetic. However, a select few cutting-edge sports cars—BMW's i8 and the McLarens come to mind—are made from carbon fiber precisely because it is much lighter and stiffer than aluminum, let alone steel.

To appreciate the virtues of carbon fiber, imagine a normal ice cream cone. If you try to bend it in the middle, it'll crack in half. No surprise; sugar cake is brittle. Now imagine that same cone made out of paper. Try to bend it the same way and, although it won't crack or tear, it'll immediately cave in. Paper isn't brittle, but it's also not very stiff. An ice cream cone made of suitably-thick aluminum wouldn't bend or break, but it'd be shockingly heavy and, assuming the same exterior dimensions as the other cones, wouldn't leave much room for ice cream.

Now imagine that this ice cream cone is made out of carbon fiber. (Actually, I didn't have to imagine this, since the Wilson Benesch folks who installed my Resolutions carry around such a carbon fiber cone for illustrative purposes.) This cone is just as thin as our previous paper version—less than a hair's thickness—and light as a wisp. But try to bend it and you're in for a shock.

It's impossible. I tried my damndest with the WB sample and couldn't get it to budge. Carbon fiber is truly miraculous stuff.

So why doesn't everyone use it in their speakers (or cars)? The reason is that, pound for pound, carbon fiber is incredibly expensive. Furthermore, working with CF requires a completely different skill and toolset than working with metals. This is because in raw form CF is more like cloth than steel. Consequently, it gets woven, not hammered, into place.

As it happens, though, Wilson Benesch knows a thing or two about carbon fiber. The company has used the material in its turntables and tonearms since 1989, and began employing it

Wilson Benesch Resolution

in speakers in 1994. In the case of the Resolution, the entire monocoque enclosure is made of CF, which is visible along portions of the speaker's rear, sides, and forward-canted top surface. Carbon fiber gives the Resolution a uniquely cool look, but it also imbues the speaker with uniquely serious stiffness.

As mentioned earlier, lavishing this much carbon fiber on a product isn't cheap. The Resolution runs \$75k per pair. But, aside from their uncommon sonic virtues, they are something that most speakers in their price range are not: slim, lithe, and elegant. Say what you will about the Resolution's massive competitors, none of those words typically come to mind. Deploying carbon fiber enabled Wilson Benesch to build unimposing towers that nonetheless boasted plenty of internal air space for the woofers.

Yet the company wanted to do even more to ensure that the Resolution's svelte proportions didn't compromise low-end energy, clarity, or extension. This brings us to the second rarely seen design element: isobaric woofer loading. Unlike carbon fiber, this technology goes way back. Robert Harley's sidebar explains how it works, but the gist is that an isobaric configuration involves two mechanically coupled woofers with an air gap between them. The result of this seemingly simple arrangement is that, for a given front baffle area and internal air volume, an isobaric configuration will deliver twice the bass output of a non-isobaric system. The Resolution incorporates *two* isobaric pairs, for a total of four woofers, each measuring 7" in diameter. This quartet is complemented by a 7" upper-bass driver, a 7" midrange unit, and a 1" tweeter, all in a modified D'Appolito configuration.

The two design elements I've described bestow upon the Resolution two corresponding visual cues. I've already mentioned the carbon fiber peeking through in various spots. In addition, the use of isobaric loading explains why, when facing the speaker, you see the back end of two woofers pointing toward you.

Setup Tips

If you think the Resolutions are going to be featherweights thanks to their carbon-fiber monocoques, your back will quickly inform you otherwise. Though carbon fiber forms the Resolution's rigid foundation, it's complemented with internal and external applications of machined aluminum. The result is a speaker that doesn't look as heavy as it is. So be cautious during setup, and let your dealer take the lead. As for placement, in my room the speakers ended up being well apart, comfortably ahead of the wall behind them, and only slightly toed in.

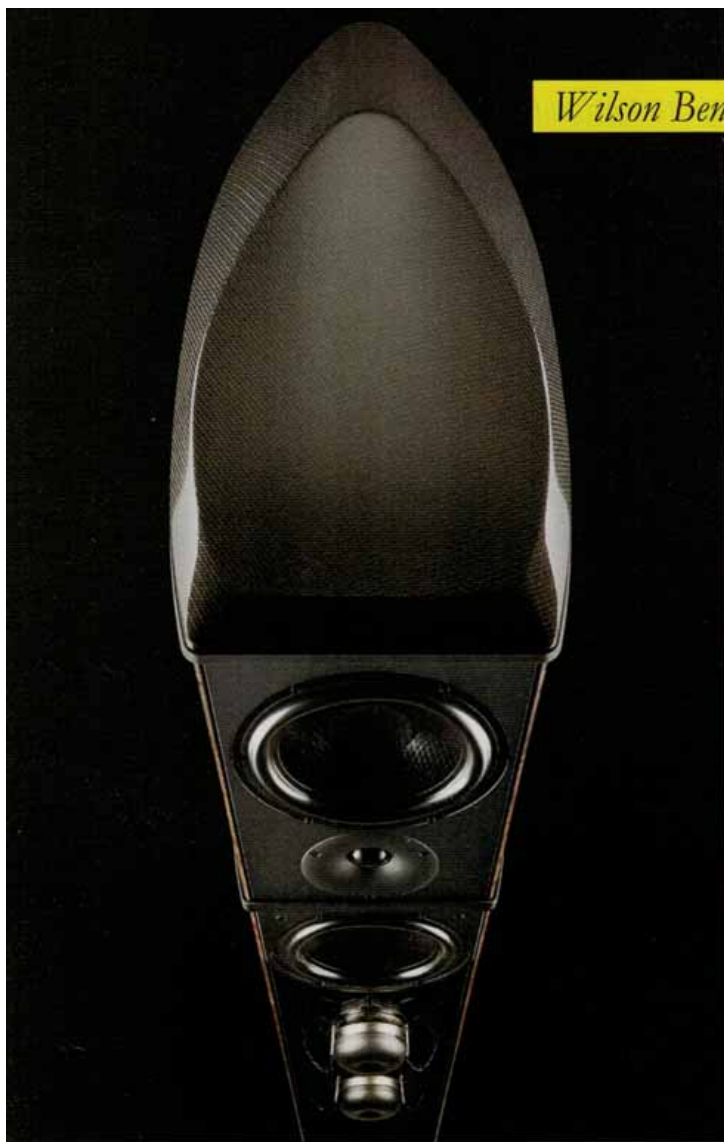
Your dealer may well encourage you to use the beautifully-machined feet that Wilson Benesch supplies with the speaker. However, if I were you I'd stick with the spikes, also supplied. I tried the feet on my carpeted listening room floor and found the sound problematic in multiple ways. Switching to the spikes, which dug down to the concrete below the carpet, ameliorated all issues. Even if I had a wood floor that I didn't want to mar, I'd use the spikes in conjunction with those little cups that protect the surface below.



The back panel of the Resolution supports bi-wiring and that's clearly the optimal arrangement. However, not having two identical runs of speaker cable, I used the usual single run. This necessitated jumper cables between the speaker's high-frequency and low-frequency binding posts. Wilson Benesch thoughtfully provides suitable jumpers, but I found them lacking in energy and openness. Further, they imparted a midbass heaviness and an upper-end shrillness. I therefore enlisted my cable provider, Empirical Design, to build me a set of suitable jumpers. The new jumpers eliminated all of the above concerns.

The superior sound I achieved by using ED jumpers won't necessarily translate to every setup. The improvement I heard may well have been due to the speaker wire and jumpers being of identical material and construction. The lesson here, though, is that if you're not bi-wiring you shouldn't simply assume that the supplied jumpers are ideal. Instead, experiment a bit and consider getting a set that matches your speaker cables.

Wilson Benesch Resolution



Specs & Pricing

Type: Four-way floorstanding tower
Drivers: 1" Semisphere silk-carbon hybrid dome tweeter; 7" Tactic II midrange; 7" Tactic II upper bass driver; 4x7" Tactic II isobaric woofers
Frequency response: 30Hz–30kHz +/-2dB on axis
Sensitivity: 90dB/1W
Impedance: 6 ohms
Dimensions: 20.5" x 62.6" x 21.5"
Weight: 209.5 lbs. each
Price: \$69,500/pr.

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You see, isobaric woofer pairs can either face the same direction (an "in-line" configuration), which is the scenario Robert's sidebar describes, or they can face each other (a "clamshell" configuration). In the first scenario, both woofers face forward, though you only see the one in front. But in a clamshell arrangement, the one used in the Resolution, it's impossible not to have one woofer magnet per isobaric pair facing the listener.

The Resolution's unique aesthetic took some adjustment on my part. I just wasn't used to looking at a speaker and seeing the backsides of drivers. When Wilson Benesch told me that Resolution customers love the reverse-woofer configuration, I was initially skeptical. However, over time I joined their camp. A woofer's magnet, I decided, is no less attractive than its cone. Plus, it's kind of fun to see the working end of a driver for a change. For those who can't go there, the manufacturer provides grille covers.

In sum, the Wilson Benesch Resolution is a speaker that's full of surprises. The use of carbon fiber is surprising. The melding of this new-world technology with old-world isobaric loading is surprising. The speaker's slender appearance is surprising, as are the unique views it affords of carbon fiber and woofer butts. Most surprising of all is the Resolution's chameleon-like ability to change its colors to reflect the music and the recording it's playing. This is a speaker that never gets old, familiar, or boring. It's a speaker you really can live with over the long run. **tas**

Robert Harley Explains Isobaric Loading

How a woofer and its enclosure are configured is called the woofer's "loading." The three main types of loading are, in descending order of popularity, reflex (also called "bass reflex" or "porting"), infinite baffle (also called "air suspension" or "sealed"), and transmission line. But there's a fourth type of loading that's rarely used despite its technical advantages over these other techniques—isobaric loading. Isobaric loading is also known by the more descriptive generic term "constant pressure chamber." (Linn Products trademarked the name "Isobarik" for its loudspeakers that employ isobaric loading.)

In isobaric loading, a second woofer is mounted directly behind the first woofer and driven in parallel with it. As the front woofer moves back, so does the second; this maintains a constant pressure inside the small chamber between the two woof-

ers. This technique offers deeper low-frequency extension, higher power handling, greater linearity, and reduced standing-wave reflections inside the enclosure. Isobaric loading reduces sensitivity because the amplifier must drive two woofers, although only one produces acoustic output. The technique also increases the cost because the number of woofers must be doubled for approximately the same bass output as a single woofer. Two woofers mounted in an isobaric configuration can be modeled as a single woofer whose greater mass and compliance deliver deep bass in an enclosure half the usual size.

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