



WILSON BENESCH CURVE SPEAKERS

Douglas Schroeder

Specifications:

Curve

Technology	<p>Assembled predominantly from metal and carbon composite</p> <p>Bespoke options available in any colour or any veneer</p> <p>Advance Composite Technology cabinet construction (A.C.T. Monocoque</p> <p>Advanced design allies 24 different materials to achieve the ultimate solution</p> <p>Tactic advanced dynamic drive unit technology</p> <p>Full metal bracing and baffle arrangement</p>	
Description	2.5 way, true linear phase, free space, ported enclosure, floorstanding monitor	
Drive units	<p>1 x 170mm (7 in) Wilson Benesch Tactic bass unit</p> <p>1 x 170mm (7 in) Wilson Benesch Tactic bass / mid range unit</p> <p>1 x 25mm (1 in) Soft dome, hand painted silk, ultra linear Wilson Benesch tweeter</p>	
Low frequency loading	Bessel alignment of fourth order reflex. Double chamber, differential tuning	
Frequency range	<p>-6dB at 32Hz and 30kHz</p> <p>-3dB at 35Hz and 25kHz</p>	
Frequency response	35Hz to 24kHz +- 2dB on axis	
Sensitivity	88dB spl at 1metre on axis. 2.83V input	
Impedance	6 Ohms nominal, 4 ohms minimum	
Crossover	<p>First order bass roll-off</p> <p>Second order mid range and tweeter crossover</p> <p>Selected polypropylene capacitors and air cored inductors are used throughout</p>	
Input connections	bi-wireable, in-house machined gold plated copper alloy terminals	
Power handling	200W peak unclipped programme	
Maximum spl	109dB at 1 metre	
Dimensions	Height	910mm
	Width	230mm
	Depth	370mm
Internal volume	42.5 litres	
Net weight	48kg	

"I was trying to set the carbon fiber cabinet on fire..." That was the excuse I handed the officer when I was arrested for playing my system in excess of the posted decibels. My fine was \$375.00 and 21 days of silence. I chose to pay the fine rather than run the risk of having the authorities impound my stereo.

If I were to write a fictional book on the excesses of an audiophile, the Wilson Benesch Curves could play a part in it just as sports car exotica adorn the lifestyles of the wretchedly rich. My scenario sends shudders down my spine; what a hellish world it would be if we could not "open up" our systems and let them run "full throttle" from time to time - not to the point of damage, of course, but to hear them in all their open-throated glory!

I am an acquaintance to a couple who own a Saleen S7 supercar. It's nice. Disgustingly nice, sleek, fast, powerful and eye-popping to those who will never own one. The husband had postcards made to hand out to gawkers. It's made for speed, with little appreciation given to the creature comforts that most sedan drivers enjoy every day. I have to laugh at the inaccurate perception most have of what it is like to own such a vehicle. Cars like the Saleen elicit envy on many levels. However, the truth of ownership is far from the perception.

This particular couple attempted once to take their high speed baby on a road trip to Detroit for a car show. Big mistake – the ride was intolerable; the cabin was so cramped and noisy (remember, this is car has a 7.0 liter V8 with 750 horsepower sitting *right behind* the driver and passenger), the suspension so stiff and the seating so hard that they have never taken it out for more than a short spin since! Looking on the Saleen website at the "cutaway" computer image shows that half the car is engine! It's for performance and looks, comfort be damned.

Could the Wilson Benesch Curves be called a Superspeaker, in the tradition of the finest and "fastest" speakers in the world? And just because technologies employed in the making of an F1 car are utilized on the Curve, does that mean it yields super-sonics? It bears further investigation, especially by those who are seeking superb performance in a smaller floor standing speaker.

It takes a very strong philosophy of car design to make a Saleen, and it takes a very strong perspective on speaker design to produce the Curve speaker. As I explored the curves I encountered that strong perspective and had to weigh the judgments that Wilson Benesch has made in regard to their speakers. Because of the decisions they have made in producing this speaker, would it be one for the masses, or would it be a niche product with exquisite performance but some real world limitations? A lengthy test drive was in order.

Considering the appearance of the Curve, the carbon fiber body gets me thinking of the Saleen. "Isn't this a bit excessive," my mind queries? With its sleek lines and glancing appearance, the speaker is well named, and seductive looking. The technology under its skin certainly hearkens toward a supercar. Consider that the cabinet is made from a variety of steel and aluminum alloys. The combination of several materials creates a *"less audible structure as there is no single resonant frequency,"* according to Craig Milnes, the principle designer of the Curves. In addition, each material was selected on the basis of its ability to control resonant energy, and the use of metals takes the resonant frequency above the most sensitive regions of human hearing.

The strength and stiffness of the materials allow for proportionately more air space inside the cabinet compared to traditional MDF structures. These metallic internals are then damped with lossy adhesives, presumably to halt metallic "ringing". As a result, the speaker can be kept at more modest dimensions and still produce plenteous bass. A "cabon fibre monocoque" shell with thinner, highly polished wood trim on the sides completes the over-the-top engineering effort.

Sporting a seductive woven pattern reminiscent of some golf club shafts as seen in the sunlight, the woven patterned gray composite which comprises the bulk of the exterior is engaged for energy absorption. Craig suggested just as the carbon fiber in a F1 car absorbs impact, so the carbon fiber in the Curve, "...is beyond anything else in terms of absorption." Craig shared about the cabinet, "...its low mass enables the time delayed storage and re-emission of sound that is typical of high mass structures." There's an engineering principle in there somewhere that evades me, but I think the idea is that the stiffness of the more petite cabinet allows them to sound equivalent to larger, bulkier speakers. At least, when I listen to the Curves that's what it sounds like to me.

Casting a glance at the Curve's cast metallic cabinet, its aesthetics demand comment. Cabinet materials don't come much more solid, nor cool as in harsh looking, than cast metal. In recent years, the use of cast aluminum for a speaker cabinet has become less an oddity and more an option. Krell's LAT series has helped to raise awareness, and the home theater crowd has Definitive Technology making skinny aluminum towers. Vienna Acoustics' Schonberg is also quite striking in appearance. Contrasting these, Wilson Benesch has chosen to hide the aluminum frame, possibly to avoid the strongly industrial appearance which is unavoidable in the metal finish. My hunch is that most refined rooms would clash with an Arnold Schwarzenegger Terminator-like speaker, and that W.B. wanted the performance of the metal with none of the decorative drawbacks.

The Curves are not large speakers, standing just over 36" tall, but their sound is prodigious for a speaker with such a small footprint. Their fit and finish is impeccable, the company showing class in everything from the easy open shipping crates to inclusion of crescent wrenches for assembling spikes and tightening speaker terminal nuts, as well as jumper cables with gold plated spades. The binding posts oriented vertically along the back spine of the cabinet near the bottom were a welcomed feature; they were easy to use, and being placed lower on the speaker, allow both more length to the speaker cable and keep it draped lower to the floor.

I appreciated the elegance in form and function of the unibody cabinet with its sprouted aluminum legs that accommodate massive adjustable spikes. Having set up the speakers on my carpeted flooring with all four spikes, I sensed the soundstage was a bit low and the tweeter beamed the high frequencies directly at my ears. I attempted to adjust the spikes to lean the speakers back, but found that there was not enough vertical travel to affect the desired rear tilt. To supply additional rear lean, I simply removed the back spikes and let the aluminum legged frame rest on the carpet. This tilted the speakers back enough to raise the soundstage, get the top-end slightly out of my ears and present a taller sound field. It worked marvelously, and the casual observer would not notice the disappearance of the rear spikes.

The road that led to the Curve is not a long one. Wilson Benesch began in 1989 with the financial support of the British Department of Trade and Industry. The first products were a carbon fiber sub chassis turntable and a high tech carbon fiber tonearm. With the benefit of hindsight, the reader can see where this was heading. WB displayed the world's first curved carbon fiber loudspeaker design at the Frankfurt High End Show in 1995.

The next turn for WB was the development of the A.C.T. One speaker. It has a sloping top to reduce room interactions, a curved composite structure based upon carbon fiber, and a solid metal baffle to mount the drive units. Emphasis was placed upon phase coherence. This speaker garnished awards in Germany and Japan.

Following up in 1996 with another government matching grant, WB started development of an "advanced dynamic drive unit," which ultimately became the "Tactic" drive. Otherwise referred to as an "Isobaric Tactic" system, it is essentially a Formula 1-quality speaker cone. As Craig shared, "it relates to a technology...a woven structure that exhibits damping at the molecular level when subjected to audio energy in the audible spectrum. (It is) several times stiffer than polypropylene and comparatively superior to all known materials when measured." The culmination of this research was a speaker system called the

"Bishop", a four-Tactic-driver speaker which was a non-commercial design, and the A.C.T. One system, which is at the pinnacle of the WB residential line. The Curves are a more petite "carbon copy" of the A.C.T. One system.

When a designer has a passion and a vision, he will pursue it to its end, precisely what Craig Milnes is doing with the Curves. WB is not afraid to go against the traffic of current trends. In talking with Craig, I got the sense that WB feels speaker manufacturers are making a trifecta of errors in speaker building, namely the use of physical time alignment, larger drivers and three way designs.

Against the popular school of designers who are using physical time alignment of drivers, WB has sworn off the practice, claiming, "Off setting the drivers causes more distortion than it attempts to reduce." Answer to the time alignment problem, WB uses no crossovers with their Tactic drivers. When I asked precisely what "true linear phase" meant, Craig responded, "The term relates to the absence of crossover components, and as a result no voltage current out of phase anomalies." So, it seems the system is composed of two full range 7" drivers tuned in the cabinet and a tweeter. I had to run that comment down a bit further.

It seemed incongruent in my mind that Craig had said the Curves were absent crossover components, yet the manual states, "First order bass roll-off" and a 2nd order midrange and tweeter crossover. I asked Craig exactly what that discrepancy meant. What it meant was a lot of high tech design!

The twin Tactic drivers are fundamentally identical, with noted design distinctions. Craig once again explained, "In mass terms, the dynamic parts are identical. However, the mass of the cone and the coil are quite different in each driver according to the specific duty of the driver." The midrange is tuned to the air volume of the cabinet so as to eliminate the need for any crossover! Think of it this way; in the midrange, the cone is lighter and the coil heavier, and just the opposite with the bass Tactic. The bass driver is controlled again by the volume of the cabinet and the port in the rear. The midrange driver is suitable to achieve frequencies above 5,000 Hz!

All this full signal to the drivers would damage the tweeter, so a simple filter is inserted at that point to roll off frequencies below 5k Hz. The advantage is that, absent the crossover points in the ear's sensitive regions, the speakers present a full spectrum of sound in the most critical part of the frequency spectrum. Craig asserts that this results in, "...the most sincere relationship to the original signal."

Initially, I was surprised that WB has sworn off three way designs, "We will never make a three way." However, when one sees the efforts made to blend

the performance parameters of a mid and bass Tactic so as to remove crossovers, it becomes apparent what WB is attempting to accomplish. The 2.5 way is promoted as more natural, more phase accurate and precise - hence the eschewing of larger drivers for bass. It makes sense to me that if there is an avoidance of more sizable bass drivers and the midrange can be produced by the same 7" as the bass driver, why bother with three way design? However, the listener must determine if something is being sacrificed by that decision, and I listened very carefully for it in my sessions.

Those sessions reinforced that the composite cabinet is undeniably solid when the Curves are run hard. There is no waffling on the bass notes, no overtones of wooden structures. In this respect, the Curves are much more like a planar speaker than most dynamic speakers. There have been very few dynamic speakers where I have heard the *driver* more so than the driver and the cabinet. The lush Von Schweikert VR-4 SR MkII's with all their clarity in the midrange clearly have a cabinet sound worked into the presentation. This is normal, typical of dynamic speakers. What's not so normal is to have such a cave-like depth to a cabinet, especially a conservatively sized one, where there is so little resonance detectable.

Yet, there *is* a cabinet sound. When one stops to consider, it would be *impossible* to construct a dynamic speaker without one, so the cabinet *must* contribute to the final sound. What I sensed was a metallic character to the cabinet. Was this due to the fact that I was aware that under the skin lies an aluminum core, or was it that I heard the deep-end as vaguely metallic and my mind connected the dots? It's impossible to say. I wonder if the lossy material on the inside of the metallic cabinet is necessary to prevent ringing of the cabinet. It would only make sense. A crude but not entirely off-the-mark comparison would be the way that a rust inhibitor sprayed on the underside of the carriage of a car would muffle sound traveling through the body of the car. I would think nearly any metallic body would benefit from muffling of metallic ringing if coated with a lossy substance.

The next obvious question then would be, which is preferable, the duller "thud-like" MDF woofer sound or the more "popping" metallic cabinet sound? Each has its merits, and I certainly would not suggest that across the board one is superior to the other. It was clear to me that the forcefulness of the bass was much appreciable with the Curves than almost any other speaker I've had in my room.

I was surprised by the bass, the sheer *amount* of it. As far as quantity of bass presence is concerned, the Curves actually out-bassed the Von Schweikert VR-4 SR MkII's! The palpable sensation of waves upon skin was more pronounced with the Curves than any speaker I had on hand (including the Chapman T-77's



and Eminent Technology LFT-8A's). Just as the ride of a supercar is tight and its suspension stiff, I also found the bass tight and stiff in the Curves. Do not misread this; by tight and stiff I do not mean stilted, but rather clean and strong. It was not a relaxed or laid back low-end.

A bass presentation in a speaker can lean toward ease or intensity, depending partly upon the drivers. Larger drivers, typically 8" or greater and in combination, often sound like they're not working as hard to get the bass generated. More diminutive bass drivers can sound like their straining to punch out the notes. Some people prefer the punchiness of the taut bass, and some like the ease of the laid back bass. Use of the 7" drivers in the Curves put them somewhere in the middle of the pack, however mated with the rigidity of the cabinet and the smaller space, the bass fairly blasted out of the rear port. It exhibited the most air movement from a port I've encountered in a smaller speaker.

As a result the Curves are capable of the musical intensity of a rifle, extremely potent and focused if detail-oriented front-end components are used. I put the combination of the Saturn cdp as transport running into the Benchmark DAC1, Magnan Cable IC's, an Eastern Electric BBA Buffer Amp and the very affordable Dussun V8i (amp section) to the test with the Curves. The combination of the ability of the BBA to "explode" the soundstage and the sheer power of the V8i worked well.

With this configuration, on Larry Carlton's *Deep Into It*, his "Like Butta" impressed me with how well the *looseness* of the electric bass strings are reproduced. It wasn't loose-sounding; it was accurately portraying the wobbling of the low bass strings – this coming from speakers that are made tight as a drum.

In finding matching components for the Curves, I would not necessarily assume that pricier preamps and amps will automatically mate with it ideally. I recommend that one pursue the level of quality desired, then seek either warm-sounding or brighter-sounding electronics, depending on how revealing or laid back you want the Curves to sound. I paired the Curves with my Pathos Classic One MkII bridged integrated's to experience their softest, kindest presentation. I could push the levels to what would be uncomfortable with other speakers and they didn't flinch, nor did I. I usually give speakers the Celine Dion shriek test to see if my ears tingle when she hits a high note. No tingling - very comfy sound! Because the Curves are naturally reserved, foisting edgier sources and preamps on them will not ruin their sound. If you desire an edgier presentation, you may want to consider all solid-state components *and* ones with a reputation for detail. To bring out the midrange, one needs to use brighter-sounding source and amplification.

I found the midrange tactics of the Curves to be tantalizing. Sometimes I wanted more midrange emphasis. When compared to the B&W CM-7 speakers on hand, which utilize Kevlar 5" mids, the Curve's midrange seemed to be less robust. But, that was only because the CM-7's mids are *much* brighter and more forward than the Curve's. Certainly, part of this is due to the fact that the CM-7's are an \$1,800 speaker, and are not as refined as the Curves. The midrange content is present in the Tactic driver's sound, but it's very low key. There is no forced, in-your-face element to the Tactic drivers. I would think it almost impossible to get them to offend with even poorly recorded sources.

Therein lies one of the strongest qualities of the Curves; they will unfailingly produce listenable music. Solid-state amp? No problem. Older recording? Bring it on! An owner can POUND on these speakers all day long and never get listening fatigue! I found that I enjoyed the Curves with sources and amplification which emphasized detail as much as any speaker I've heard in recent memory. In so many cases, I've tried to calm the mids and highs of speakers. With the Curves, I was seeking to draw out more of them. Many of the artists and discs that I've not played for fear of assault on my poor ears were a joy to hear through the Curves.

To see just how much edge I could bring forth from the Curves, I had to play fast and loose with the front-end to get the forwardness I was seeking. Adding my "wildcard" component, the Eastern Electric BBA Buffer Amp, opened up the speakers and brightened them fabulously. While the Curves sounded the equivalent to a dark beer, with a dense but potent punch, the BBA lightened them up to become an amber draft. Douglas Towbridge's *Songs Unspoken* has a track, "Unending Melody", which skips along to a cadence of a trio of piano keys in the upper register which are hammered at intervals. Here is where I am grateful to WB for using a fabric tweeter! Even the high-pitch controlled mayhem of this piano chord didn't hammer on my ears. The Curves have a Vandersteen-like politeness to them in the higher frequencies. The Von Schweikert VR-4 SR MkII in the tradition of the American "more detail is better" vein rendered the chord a bit "spikey", a bit hot. The Curves took that last bit of edge off it. If you listen to a lot of program material which has generous treble, highs which can be hard to take, the Curves are a panacea. I would think that if you desire to hear chamber music at some volume, you'll enjoy the warmth of the Curves.

My room may have played a factor in the sense of the Curves being bass prominent and top-end shy. I have tuned the room to accommodate very revealing, brighter American speakers and planars, of which the Curve unquestionably is not. I sense the Curves would grace a wood floor with area rug marvelously. A room with reflectivity would be just fine, as the Curves will not

toss about harshly on the treble. With these speakers I wish my rig was still in the living room with its larger open spaces and hardwood flooring. I think I would have been enraptured by the experience. As it was, I could appreciate the "reservedness" of the Curves, but I got the distinct feeling they will open up and run in a bit more reflective room. This, of course, is superb news for those in limited living spaces for listening. With their tremendous looks, modest dimensions and outsized performance with plenteous bass, they are candidates for listeners in smaller quarters who demand quality without compromise.

My mind normally associates fast with bright, dark with slow. Maybe that's the result of knowing light from the sun travels at miles per second, and that we get groggy and sleep at night. Dark and fast seem oxymoronic in audiophile terms. But that's what I ultimately characterize the Curves as dark-, rich-, deep-, smooth-sounding speakers which are blazingly quick. One almost *needs* powerful, sharp edged electronics to push them to their limits. Throw the most powerful solid-state amps at them and they'll love you. If you consider tube components, do not skimp on the horsepower since the Curves sound their most exciting with it.

One of the things that made the Curves so unique was this combination of easy going upper end and pounding, aggressive lower end. It was quite the interesting presentation! I've not encountered too many speakers which have an utterly forgiving treble and fierce bass. It was like having a Vandersteen upper end mated with the lower end of a frequency limited subwoofer.

Smaller bass drivers can "chuff" from the wind punched out when the cone is driven in the confines of the cabinet. The Curves at higher levels displayed this quality, so I experimented by adding a pair of Vandersteen subs, which made for a delightful pairing. All vestiges of pumping of the air resolved themselves as the subs covered them. The extension of the low-end was welcomed, and the Curves took on "large floorstander" status.

However, this militated against another of WB's axioms, that the Curves are not to be used with subwoofers. When I mentioned that I had paired up the Curves with the Vandersteen subs, Craig straightened me out, "I do not think that sub woofers work with high-end products like the Curve, [which] are extremely fast and phase accurate." What I think he meant was that the curves are a supercar and a subwoofer a trailer. Supposedly, even very good subs can't keep up.

While that may be the case in theory, in experience I heard the opposite. The addition of the subs allowed the Curves to flourish.

In this "subs added" status, I put on Shilts' *Head Boppin'* and I was absolutely loving the *full and punchy* low-end. With proper subs, the Curves' bottom-end retained everything I liked and lost all that I disliked. They played much more like 200lb. towers with a completely smooth, powerful and precise air without any "chuffing" effect. The Curves have enough low-end punch at 35 Hz to make the transition seamlessly. The extension of the low-end also helped to "spread the spectrum" so that the polite highs sounded to my ear more extended at the top. The addition of the subs was definitely a win/win sound in my mind. Maybe WB sees this as putting a trailer on a sports car, but in a listening environment, I do what my ear says works, and in this case the supercar sounded better with a trailer!

Truly high performance machines are not for everyone. They have particular characteristics which set them apart, and as such they appeal to a select group of people. So it is with the Curve speakers, which are capable of thrills and excitement. They are taut, racy things which pound the acoustic pavement with sure-footedness. For their dimensions, they produce prodigious bass. They are not a detail-phile's dream, but rather a sophisticated music lover's object of desire, playable at obnoxious levels without a care for quiet. They are dark and swift, smooth and seductive. They have drop dead looks and never-say-die listenability. If this is what you're looking for, you've found your super-speaker.

Doug Schroeder's Associated Components:

Source: Rega Saturn cdp; Dennon DVD-2900; Oppo DV-970HD

DAC: Monarchy Audio M24 Dac/Pre

Preamp: Rogue Audio Perseus; Eastern Electric BBA "Buffer Amp

Amp: Monarchy Audio SM70 Pro mono blocks

Integrated: : Pathos Classic One MkII stereo tube hybrids (2) bridged; Dussun V8i solid state

Speakers: Von Schweikert Audio VR-4 SR MkII; Chapman Audio Systems T-77; Eminent Technology LFT-8A; Wilson Benesch Curve; B&W CM-7

Subwoofers: Vandersteen 2W (2)

IC's: MIT AVt MA; Tara Labs RSC Air1 series 2; Magnan Audio Signature; Tice Audio IC 1A

Speaker Cables: MIT AVt MA; Tara Labs RSC Air1; Magnan Audio Reference and Signature cables

Digital Cables: MIT Oracle Digital Reference; Tara Labs RSC Air 75

Power Cables: MIT Oracle V2 and Magnum; Tara Labs RSC Air; Xindak PF-Gold



Power Conditioning: MIT Z-Stabilizer; Tara Labs ISM Power Screen; Tice Audio Solo