

# WILSON BENESCH P1.0

## LOUDSPEAKERS

**Reviewer** Ian Frazer

**W**ilson Benesch labels its P1.0 as a 'floor-standing/two-way design', a description which should immediately result in

questions from the floor, the most obvious one being why it's called a 'floor-standing' design when, as you can see quite plainly from the photographs accompanying this review, the P1.0 looks very much as if it's a stand-mount design, with the bookshelf speaker-sized cabinet being, after all, perched atop what looks very much like a speaker stand.

The not-so-obvious question is whether the P1.0 is a two-way design at all, because unlike almost every other two-way loudspeaker on the market (about which more later), its bass/midrange driver is connected directly to the speaker terminals at the rear of the cabinet, so there is no crossover network between it and your amplifier. I'll get around to answering that question in due course...

### THE EQUIPMENT

So back to the first question, and the simple situation is that whatever words you use to classify the Wilson Benesch P1.0s — floor-standing or standmounting (or, as one writer cleverly described them, 'floorstanding standmounters') — those words do not reflect the fact that you cannot actually detach the speakers from their stands short of employing a hacksaw or an angle-grinder. There's also the fact that the P1.0 is a specific type of bass-reflex design where the bass-reflex port is underneath the cabinet rather than on the front baffle or the rear panel, so that even if you could detach the cabinets from the stands, you would not be able to place them on conventional stands or put them on a bookshelf anyway.



As for the 'stand' part of the P1.0, it is exceedingly solid indeed, with twin 50mm diameter steel columns perched atop a 'T'-shaped black steel base that measures 350mm across the bar of the 'T', and 367mm down its ascender. Underneath the base are four spiked feet, which come pre-installed. The combination of the 'T'-shape and the locations of the spikes that result from its shape mean that the P1.0 is a little more 'tippy' than it would otherwise have been if the base had been rectangular, but it's very stable nonetheless. The bass/midrange driver in the P1.0 is a Tactic II, but this isn't exactly a helpful description, because Wilson Benesch says it manufactures 35 different versions of its Tactic II driver, every one of which, according to the company, *'has completely unique parameters'*. At its essence, however, the Tactic II is a 170mm-diameter driver with a unique isotactic polypropylene cone material that Wilson Benesch developed in partnership with physicist Professor Ian Ward of Leeds University. Although the cone is 'isotactic polypropylene' the large dish-shaped dust cap at the cone's centre appeared not to be the same material... indeed it appeared to be hand-made from papier-mâché, and the dust cap on one speaker was slightly different from the one on the other around its circumference, where it joins the cone.

At the periphery of the Tactic II's cone is an inverse roll suspension made from a unique blend of polyisoprene. The magnetic material used in the Tactic II is neodymium boron ferrite. Although Wilson Benesch rates the Tactic II as a '170mm' driver, its overall diameter is a little larger than this, at 178mm. The important Thiele/Small diameter, however, is 140mm, which results in a cone area (Sd) of approximately 154cm<sup>2</sup>.

You might easily be misled by the name of the Tactic II driver into thinking it's the 'second-generation' version of a particular driver, but in fact it's the third generation of the Tactic II driver, which itself was a development of Wilson Benesch's original 'Tactic' driver design, the first one of which took two years and 250,000 quid's worth of the British government's money to develop, since Wilson Benesch was smart enough to win a government research grant to help offset its own research and development costs. The application for the grant proposed the development of *'a new dynamic drive unit based around materials technology previously*

*not used in drive unit design'*. The code name for the project was 'Bishop'. The thinking behind the project was that Wilson Benesch wanted to be able to build a 'multi-role' driver in-house that would be able to function as a midrange driver, a bass driver, a bass/midrange driver and also work as a part of an isobaric bass array.

As for Wilson Benesch running the Tactic II in the P1.0 'full-range' by connecting it directly to the speaker terminals, this is certainly unusual, but not exactly unique (which is the reason why I specifically stated in the introduction: 'unlike *almost* every other two-way loudspeaker on the market). The reason most manufacturers don't run their bass/midrange drivers 'full-range' is because they buy their drivers 'off the shelf' from third-party specialist driver manufacturers that build their drivers specifically so their high-frequency roll-offs are carefully tapered so they will work well with two- or three-way crossover networks... with the side-effect that they often don't work very well if you don't use a crossover network.

However, if you build your own drivers, as Wilson Benesch does, you can tailor the driver's high-frequency roll-off to allow it to integrate properly with the driver taking over the signal (either a midrange driver or a tweeter, depending on the design) even without using a crossover. So in most cases, the only loudspeaker manufacturers that use this 'crossoverless' system are those that also build their own drivers.

Connecting a bass/midrange driver directly to the speaker terminals has the advantage that you're not putting any resistors, inductors or capacitors in the signal path, so the driver is getting a perfectly 'pure' audio signal, and is also operating at its maximum efficiency, since you don't have any crossover losses. One disadvantage is that the driver's voice coil will get much hotter, because it's dissipating all the energy it receives from the amplifier, from right across the audio spectrum, which increases the potential for dynamic compression.

The tweeter used in the P1.0 (which Wilson Benesch calls a 'Leonardo') is said to be a development of the 'Semisphere' tweeter used in Wilson Benesch's higher-priced offerings. However, whereas the Semisphere tweeter's dome is made from a carbon/silk composite, the dome of the Leonardo is made only from silk. It does, however, share

the same neodymium motor system as the more expensive tweeter.

The Leonardo's 25mm-diameter silk dome sits at the centre of a slightly-dished carbon-reinforced polymer faceplate, the patterning on which is so complex that Wilson Benesch says it can be manufactured only by using a 3D printing process. According to Craig Milnes (see also our interview overleaf), the patterning is a further extension of the original system the company developed for the Fibonacci tweeter used on its Eminence model. He says of it: *"Due to its complex hybrid construction, reflective and absorptive surfaces match the output of the tweeter dome enabling a response that is significantly superior to the plain surface form of a conventional tweeter design."*

As to why it's called a 'Leonardo' tweeter, Milnes didn't say, but I assumed it was to avoid confusion with the 'Fibonacci' tweeter whilst still honouring the designer behind the pattern, Italian mathematician Leonardo of Pisa. (Who died in 1240 and was not known as Fibonacci until 1838, when he was given that nickname by Franco-Italian historian Guillaume Libri for reasons best known to him, since Leonardo's full name was Leonardo Pisano Bigollo.)

In front of the tweeter's dome, running top to bottom, is a removable narrow tubular ABS 'bar' that offers a modicum of physical protection for the soft dome during shipping and installation ... so maybe don't lose those bars after you've removed them. You should



Its complex hybrid construction, reflective and absorptive surfaces match the output of the tweeter dome enabling a response that is significantly superior...



(because it doesn't split the audio signal into two parts, which is the very definition of a crossover network), it is not strictly technically accurate to refer to the Wilson Benesch P1.0 speaker as being a 'two-way' design, but I am not sure what *would* be the most technically accurate way to describe it... perhaps as a '1½-way' design might be closer to the mark.

As for what material(s) the Wilson Benesch P1.0's cabinet is made of, when I looked for information online, I found that, like much of Wilson Benesch's literature, its description, was very light on specifics but the company supplied *Esoterica* magazine with a White Paper that stated: *'The two constituent materials that form the Precision Series enclosure*

*are aluminium and elemental birch plywood. If we consider the two materials in isolation for a moment, we could list aluminium's key strength as relatively high stiffness, whilst its weakness as very poor self-damping, that is to say when subject to resonant energy aluminium has one of the poorest abilities to dissipate the energy in the structure through heat versus resonance and sound. Whereas elemental birch ply exhibits a degree of stiffness, but its most desirable material property in this equation is the relatively excellent damping property that the material has compared with aluminium. So we combine the two and what is the net result. Just as with composite materials, creating a hybridised structure using aluminium and wood, bestows superior stiffness within the structure provided by the aluminium, with vastly improved damping across the structure provided by the elemental birch ply.'*

As I stated previously, the bass-reflex port of the Wilson Benesch P1.0 exits from the base of the cabinet, towards the front edge of the enclosure. The port is 50mm in diameter and 85mm long, and radiused at its exit but not at its entrance. It appeared to be made from some type of ABS material. The 'enclosure' part of the P1.0 measures

approximately 215×369×321mm (HWD), which puts its useful internal volume at an equally approximate 19 litres.

As for the speaker terminals, they were a bit of a let-down. Partly because there's only a single pair fitted, so I couldn't bi-wire the P1.0s, but mostly because Wilson Benesch has fitted them to the rear of the speaker cabinet itself, thus totally foregoing the opportunity to run wiring through the stand's two pillars and locate the speaker terminals down at floor level... plus there is no external cable management provided either. As for the speaker terminals themselves, they also are unusual, because they appear to be an 'in-house' product, with threaded rhodium-plated posts, cored for banana plugs, down which a rhodium-plated nut rotates. This nut can't easily be tightened by hand, and its size might very easily tempt you to over-tighten it when using the supplied spanner, potentially cracking the plastic part of the fitting. Because of this, I would recommend terminating your speaker cables in banana plugs, and not using bare wire, rings or spades... at least not unless you promise to be careful when using the spanner. To its credit, Wilson Benesch specifically mentions this potential problem in its *Owner's Manual*, which states plainly and to the point: *'A spanner is provided to tighten up the rhodium plated nuts. A light pinch of the end of the supplied spanner is more than sufficient to tighten the nuts. Please be careful to not overtighten the terminals as this could result in damage to the terminal plate or snapping of the terminal!'*

#### IN USE AND LISTENING SESSIONS

When I was positioning the speakers, I had a Eureka moment regarding the down-firing bass-reflex port and the integral stand. That moment was the realisation that whoever designed the Wilson Benesch P1.0 (and I am assuming it was Craig Milnes, who with his wife Christina founded the company in 1989 and continues to manage it with the assistance of their son Luke, who is the company's International Sales and Marketing Director) is one of the few speaker designers in the world who knows exactly how far the exit of the port will be from the nearest hard surface. Speaker designers who put the port on the rear of a speaker can't ever be sure that someone won't block them by pushing the cabinet back against a wall, while those who put them at the front have no idea how far it might be from that port to the closest wall.

also remember to remove them before you start listening! Which is probably the time to mention that although our review P1.0s didn't come with protective grilles — and none were available as options at the time of going to press — Wilson Benesch has announced that in future, magnetic grilles will be available as added-cost options, and that these grilles can be purchased as separate items and be retro-fitted to all existing Precision Series products.

Of course you can't run a tweeter full-range, so the audio signal that's sent to the tweeter is first routed through a second-order high-pass filter which rolls off frequencies below 5kHz at 12dB/octave (that is, a second-order filter with its knee at 5kHz). Because a high-pass filter is not technically a 'crossover'





Craig and Christina Milne are the owners of Wilson Benesch. On the occasion of the company's 30th anniversary, we asked about its beginnings and development.

**AUDIO ESOTERICA:** *Congratulations on your 30th anniversary! Take us back to the beginning — where did the name come from? And your first product was a turntable, in 1989, when the CD was firmly in ascent. Were there doubters?*

**CHRISTINA MILNE:** Wilson is my maiden name. Benesch was the maiden name of the wife of one of the original Directors. Craig and I became sole owners/Directors of Wilson Benesch early in 2000.

**CRAIG MILNE:** The whole premise of our first business plan was the development of a turntable built from advanced engineering materials and the concept that analogue would remain as the reference high fidelity medium. And yes, some of the first journalists who covered our products were in a word, a little sceptical! One influential journalist at the time suggested that "someone should send these guys a calendar, because the turntable's days are numbered". But the original Wilson Benesch turntable went on to collect awards across the globe and in the biggest markets. Its success solidified the foundations of what would grow into a very different company, although the core values remain the same.

**AE:** *Back then the only UK companies using carbon fibre were Lotus Racing, two defence suppliers and you! How did you implement it? Was Sheffield's engineering history helpful?*

**CRAIG:** I have an engineering background — my entire family either worked in or have links into British Steel Corporation. Carbon fibre was at the time an extremely exotic material that, as you rightly point out, only a very select few were using it in engineering. McLaren had transformed the sport of Formula One that decade with the first carbon-fibre monocoque in the sport. The advantages that this material gave an engineer in terms

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of stiffness, weight and the control of energy within the structures created from it were very clear to me. So the original business plan identified that this material would enhance the performance of the turntable through a tapered-tubular single-piece tonearm and a Nomex-Carbon composite sub-platter.

**AE:** *An ambitious plan?*

**CRAIG:** It was — we had a meeting with two engineers who worked on the development of the Rolls Royce RB-211 Carbon Composite fan blades, and in that meeting one engineer basically turned to us and said, 'you can't afford to be sitting in that chair'. But the other engineer recognised the potential in our concept and he supported our research and development purely because he was interested in what we were doing. In terms of carbon composites, Derby was and remains a major centre. Sheffield at that time was heavily skewed towards metal technologies and is still a global centre of excellence today in metal science and engineering.

**AE:** *Wilson Benesch has both its infrasonic generator and supertweetered speakers — do you consider wide-band reproduction important?*

**CRAIG:** During the development of the Torus and in turn the Sphere Supertweeter that we originally fitted to our Wide Bandwidth Collection, our research and listening tests validated that there was a change in the presentation of a recorded piece when both infrasonic and ultrasonic frequency bands were reproduced. This R&D was conducted at a time when SACD was first being introduced to the market, and therefore these frequency bands were being more commonly replayed by a much larger number of consumers.

While we know that these frequency bands are certainly not perceptible, even by the healthiest human ear, we nonetheless know from experience that they do change how recorded music feels in a listening space. The Torus is a remarkable product for many reasons, but what I believe many people perhaps don't appreciate are the effects that this 'subwoofer' has upon the sense of space, timing and other cues within the music that ultimately totally change the emotional connection one has to the music. It is about so much more than simply low frequency impact. In much the same way, the Semisphere and Fibonacci tweeters in our reference line and flagship respectively communicate depth, space and timing cues that simply disappear when these tweeters are

replaced. Of course it is somewhat nuanced and subtle, but isn't that what music is about? It is often the small details that communicate character and something very personal to you about your favourite musicians.

**AE:** *Which is more rewarding to work on — a no-holds-barred design, or a trickle-down value proposition like the Precision range?*

**CRAIG:** Ever since I was a small child I have been constantly drawing or making something. When you have been involved in focused thought like that for such a long time the process becomes a part of you, and as such you don't ever really stop; it's a bit like breathing. With regards to the rewards of working on different products, it doesn't matter what it is, one will inevitably be challenged by oneself to arrive at a solution that is original, and that adds something to the world that did not exist before. Sometimes it's like the solution was always there — you just had to do the work to find it. Sometimes you work with others to develop it. Sometimes it keeps you awake all night. They are all rewarding examples of why the process is so enjoyable.

**AE:** *How hard has it been to maintain your position as a UK company in a changing world?*

**CHRISTINA:** Since 2010 we have become very much a family company, as our son Luke Milnes joined and now acts as our International Sales and Marketing Director, a key role in the ever changing world of audio. We continue to be extremely proud of our British heritage, and Wilson Benesch could not exist anywhere other than Sheffield, due to the manufacturing excellence that has been fostered within the city, especially in the field of materials science. We have always worked in a collaborative manner with universities, centres of engineering excellence and other companies that lead the way in their respective fields. And many of those organisations are based in Sheffield.

**CRAIG:** To our credit Wilson Benesch has always maintained a vigilant eye on its trading partner relationships and position within this market. For 30 years we have curated it in pursuit of stability and longevity. Our son is building upon these strong foundations, and we are confident that the patient approach that we have adopted will bring him equal stability and longevity in the future, no matter how fragmented the world market becomes.

*For more, visit [wilson-benesch.com](http://wilson-benesch.com). You can also read an extended version of this interview online at [www.avhub.com.au/wb](http://www.avhub.com.au/wb)*

But although that down-firing port might help with design and subsequent performance, it also helps with positioning, because the Wilson Benesch Precision P1.0s sounded pretty much the same no matter where I put them in my room.

As you'd expect, operating the speakers close to a rear wall imbued the low frequencies with added level and greater extension, which I thought benefitted the overall sound considerably because, like all speakers with small drivers in small-volume cabinets, the P1.0s are not exactly dynamos in the department of deep bass, but the speakers sound more open and airy when they are given the space to breathe. However, while the faceplate may have 'linearised' the response of the tweeter, I found that I very definitely preferred the balance of high-frequencies when the speakers were angled in towards the listening position.

The bass I heard from my review Wilson Benesch P1.0s was bouncy, energetic and dynamic with plenty of rhythm and pace, and there was more than enough extension to reproduce the fundamental notes of all popular musical instruments (i.e. not pipe organ!). Tonal detailing was excellent, so I could easily hear differences between, for example, different electric bass guitars, and the pitching was also good, so I was never double-guessing what note a bass player might be playing, even if it was an individual note in a quick run of notes. What was particularly nice was the decay of bass sound, so that when a double-bass string is plucked, and then the sound is left to decay, the Wilson Benesch P1.0s delivered both the transient *and* the decay perfectly, so you could hear not only the string, but also the sound of the double-bass's body. You could get no better example of double-bass to play through the P1.0s than Adam Ben Ezra's latest album, 'Pin Drop'. The must-listen-to track for me is *Flamenco*, during which he exploits the full gamut of sounds of which his instrument is capable — except bowing! — by both strumming and plucking the strings, slapping and tapping both the strings and the body, plus he adds the occasional vocal interjection. I was impressed by the cohesiveness of the sound, which I had to put down to the fact that the bass/midrange driver is operating full-range.

The midrange of the Wilson Benesch P1.0 is linear, with low distortion, and very fast, so the detailing of sound is excellent, particularly with instruments such as acoustic and electric guitars, wind instruments and, of course, the human voice... most particularly that of female vocalists. One of my favourites for this is Sarah Vaughn's first album 'After Hours', from 'way back in 1961, in the days when the recording engineers set up the

microphones, did a take and didn't try to 'produce the hell out of it' in post. Listen to the intro of *Great Day* as first she sings over George Duvivier's fantastic double-bass lines... particularly to the way the two acoustics are kept separate. Listen too to her intakes of breath, something you won't hear at all on unrevealing systems. Then Mundell Lowe's minimalist jazz guitar chimes in, scattering lightly over the vocals and bass, and the Wilson Benesch P1.0 makes all the detail and acoustic interplay between the three musicians abundantly evident.

To test out the high-frequency abilities of the Leonardo tweeter I pulled out 'Rhapsody in Blue', which has the distinct advantage that I could also evaluate the piano sound and the full orchestral sound, complete with timpani. Well, from that famous and totally distinctive clarinet *glissando* intro, I knew straight away that I was in for a good time, and the Wilson Benesch P1.0s didn't disappoint. The piano sound was insanely good: just listen to the notes 'hang' in the air in front of the speakers... though it must be said that a good part of this is down to Earl Wild's insane talent. He was a super-virtuoso, and you can hear it on this recording (with Fiedler and the Boston Pops) very, very plainly. Appropriately for this review, Wild was also a bit of a tech-head, having been not only the first pianist to perform a live recital on US TV, but also the first pianist to stream a performance over the Internet. (I was sad when he died in 2010 that he didn't get more of a send-off, as he was one of the greatest pianists the world has ever known. Critic Harold Schonberg, the first American music critic to win the Pulitzer Prize, in 1971, rated him up there with Horowitz, and Philips and Steinway thought him good enough to have included him on their 'Great Pianists of the 20th Century' box set.

Although the Wilson Benesch P1.0s can play 'loud', I thought they sounded their best at low and medium playback levels — including right up to 'average' listening levels — at least they did in my large listening room, which is a good deal bigger than a standard Australian lounge-room. They also sounded better in my room with smaller-scale works than with full orchestral numbers... though this is equally true of all small loudspeakers. In a smaller room, I doubt that either issue would arise.

## CONCLUSION

The Wilson Benesch P1.0s will deliver their best sound in smaller, lightly-furnished environments when teamed with components of an appropriate calibre, and when playing the type of music most people listen to most often... and their 'best sound' is outstandingly good sound indeed. **£**



## SPECIFICATIONS

### WILSON BENESCH PRECISION SERIES P1.0

#### Frequency response:

38Hz–24kHz ±2dB

#### Sensitivity:

89dB SPL (1m/2.83V)

#### Impedance:

6Ω (nominal), 4Ω (minimum)

**Crossover:** 2nd-order tweeter (bass/mid direct)

#### Standard Finish:

Precision Black

#### Premium Finishes:

Precision White,

Precision Black+Burgundy,

Precision Black+Graphite

#### Dimensions (HWD):

1025 × 348 × 368mm

#### Weight:

30kg

#### Price:

\$11,500 (per pair)

#### Contact:

Absolute HiEnd on

0488 777 999 or visit

[www.absolutehiend.com](http://www.absolutehiend.com)