EQUIPMENT REVIEW

SV Subwoofers PB2-Plus

High-Powered, High-Performance Subwoofer

John Kotches

SV Subwoofers PB2-Plus

Specifications:

Frequency Response: 16-125 Hz (Variable Depending On Port Tuning & Subsonic Filter)
Crossover Frequency: Continuously Variable Between 40 & 120 Hz (Line-Level Signals)
Crossover Filters: (Line-Level) 12 dB/Octave Low-Pass, 12 dB/Octave High-Pass Fixed @ 80 Hz; (Speaker-Level) 6 dB/Octave High-Pass @ 80 Hz
Phase Control: Continuously Variable Between 0 & 180˚
Amplifier Power: 900 Watts RMS
Driver: Two 12-Inch Proprietary dB-12 Woofers
Port Tuning Frequencies: 16, 20, 25 Hz, User-Selectable Using Port Plugs
Cabinet Design: Vented
Finish: Black Plural Component
Dimensions (WHD In Inches): 18 x 25 x 28
Weight (In Pounds): 120
Price: $1,199

Manufactured In The USA By:

SV Subwoofers LLC
365 Stone Harbor Road
Holland, Michigan 49424
Tel: 703 845 1472 / Fax: 330 793 8183
www.svsubwoofers.com

Introduction

SV Subwoofers (SVS) has been making a splash in the direct purchase subwoofer market for a few years now. The letters SV indicate the last names of the two founders of SV, Ron Stimpson, and Tom Vodhanel (sometimes referred to affectionately as the "Sub-human"). OK, it's not the most original naming convention ever conceived…but they seem to have made up for this by designing and building an ever-expanding line of subwoofers that offers tremendous objective performance, and off-the-charts performance-to-price value.

SVS started off in 1999, and sold their first products on the Internet in 2000, a line of passive, cylindrical subwoofers: the 25-31CS, the 20-39CS, and the 16-46CS. All used an identical driver, with the enclosure size determining the tuning frequency of the single port. In exchange for low-frequency extension, maximum output was lowered as the tuning frequency lowered. The CS subwoofers were followed by a line of active cylindrical subwoofers based on the same cabinets. As SVS continued to establish itself, improved drivers from the originals were included, as well as a CS Ultra. The cylindrical subs are now on approximately their third generation, and SVS seems to work in "Internet time." This means that development and change occurs at a blinding pace, often obtained by 18 to 20 hour workdays. I personally couldn't count for you the number of models they've had in their short existence, but it has been substantial.

Unfortunately, a cylindrical subwoofer isn't for everyone—some home theatre and multichannel enthusiasts have a spouse concerned with things other than performance (i.e., the "wife acceptance factor"). Inexplicably, a 31- to 46-inch-tall cylindrical object that will often be eyed by the family cat as a gigantic scratching post isn't high on the list of lovely in the world of the décor-conscious. For this reason (and others) in 2002, SVS introduced their first in a line of more conventional box-shaped subwoofers which are more décor-friendly, the B4-Plus passive box subwoofer. Though expensive at $2,499, it packs a mean wallop, with four of the SVS-designed dB-12 drivers and a lovely maple finish that can be custom-finished to the proper stain color for the end user's requirements. SVS offers packages which include amplifiers and equalizers for those inclined to purchase a "complete solution."

The subject of our review is actually the third box subwoofer SVS has produced, the PB2-Plus subwoofer. The model is also descriptive of the characteristics of this subwoofer, with the "P" indicating a powered model, the "B" indicating this subwoofer is box-shaped, and "2-Plus" indicating that the enclosure uses a pair of the dB-12 (a.k.a. "Plus") drivers.

Exterior Construction And Connections

Let's be honest. No matter how you look at it, the SVS PB2-Plus is not modestly proportioned. With a floor footprint of 28 inches long by 18 inches wide, it takes up a substantial 3-1/2 square feet of floor space. This is approximately 2-1/2 times the floor space of their 16-inch cylindrical subs. The PB2-Plus ships on a pallet, using a freight delivery company. When it's time to bring your purchase into the room, use a friend—it tips the scales at 120 pounds and would be next to impossible for one person to get into place. My dedicated home theatre/multichannel audio room is in the basement, and with the help of a friend it went into place easily. Once we got the PB2-Plus into

place, I truly realized that this is one honkin' big subwoofer! It's one thing to read the dimensions from the specifications page on SVS' Web site, and yet another to see it taking up the space in your room. On the upside, it didn't look too out of place with my large planar loudspeakers.

The outward appearance of the PB2-Plus is fairly humble, with a black, plural component urethane finish which is slightly rough to the touch. As with the Ford Model T, at this point the PB2-Plus is only available in this black coating, although it is technically possible to produce a different color coating. As for me, my room is finished in basic black—I want the room to effectively disappear for film viewing and had no issues with the color of the PB2-Plus.

The driver complement is a pair of SVS custom-designed dB-12 drivers, manufactured by TC Sounds. The dB-12 "Plus" woofer uses a super-stiff aluminum cone with a 1-inch Santoprene surround, an extremely deep steel basket, and a massive strontium-ferrite magnet. With substantial excursion and a 2-inch voice coil, this driver is built for clean, high SPL (sound pressure level) output—in my opinion high SPL is meaningless without distortion. Since the PB2-Plus can move substantial air and is a vented design, this means plenty of porting. The three ports are flared, with an internal four inches of air flow space, and six inches on the exterior port opening.

The PB2-Plus is a flexible design and ships with two port plugs. By plugging one port, the cabinet volume is increased by the volume of the port, and the tuning frequency for the subwoofer is lowered down from about 25 Hz to roughly 20 Hz. A sacrifice of roughly 2 dB in maximum output is made when plugging one port. Plugging a second port brings the tuning frequency down to 16 Hz, which sacrifices roughly 2 dB more in maximum output. This gives tremendous flexibility in allowing the end user to tailor the subwoofer to his environment. In addition, if desired, the tuning frequency could even be changed based on whether movies or music are being played. As for me, I put one plug in and forgot about it.

But what about the amplifier? It's a powered box after all, so there must be something interesting about the amplifier. Indeed, it is—SVS uses BASH® modules for powering their substantial subwoofer to yield a rated 900 watts output power. The BASH topology is a very high-efficiency circuit (greater than 90 percent of power from the wall goes to the subwoofer) and is ideal for driving subwoofers. In addition, little to no heat needs to be radiated from the amplifier. Even during periods of sustained high SPLs, the BASH amplifier stayed cool to the

touch. The controls and interfaces available on the amplifier section are very complete. Included are gain, crossover (continuously variable 40 to 120 Hz plus a defeat switch), phase (continuously variable from 0 to 180°), line-level (left/right input and output), a subsonic filter (Bypass, 16, 20, or 25 Hz, in conjunction with the ports open), speaker-level (left/right input and output), and a detachable power cord. The only addition I'd like to see is balanced inputs, but there are precious few active subwoofers at any price that have this option.

An item of merit worth discussing on the flush-mounted amplifier panel is the subsonic filter. As mentioned, the ports can be plugged to change tuning frequency from 25 Hz to 20 Hz (one port plugged) to 16 Hz (two ports plugged). By keeping the subsonic filter engaged in conjunction with the chosen tuning frequency, bass information below the tuning can be filtered out, saving amplifier power and the theoretical potential of bottoming out the drivers. I use the word "theoretical" since in my modestly sized room (21 x 12 x 7 feet) I was not able to bottom out the drivers. Certainly with sufficient room volume it would be possible to bottom out the sub, but not in my room. Score one for more modest room sizes!

Listening Evaluation

It is my opinion that in a properly tuned and calibrated system (not running the sub "hot" versus other loudspeakers for additional emphasis) the subwoofer should not be noticeable in and of itself. Rather, only when a passage of music or a sound effect from a movie exceeds the capability of the main loudspeakers should a subwoofer be noticed. What can make a subwoofer stand out sonically is high distortion. In some cases, when a subwoofer is noticed, it is due to harmonic distortion from the driver (which is much more localizable than the fundamental). This is something I try to avoid in subwoofers. Try as I might, I was unable to locate the PB2-Plus sonically, although at times I certainly was able to feel the atmospheric pressure of the acoustical output on my body.

I often use jazz recordings in evaluating subwoofer performance, which feature acoustic bass that straddles the crossover frequencies commonly used, and have a low-frequency limit at around 40 Hz for a standard instrument. The goal here is to close your eyes, and try to localize the bass. If the bass moves in position within the soundstage, you have issues with localization. Often, the first signs of distress from a subwoofer will come from substantial loading on the subwoofer driver as high SPLs are being produced. As a means of maximizing SPL output and subwoofer efficiency, some will use corner loading, but at the potential cost of being able to localize low frequencies due to resonances. I personally prefer moving the subwoofer out into the room some (dependent on subwoofer size), trading off a few large resonances of corner loading for smaller-amplitude (but more numerous) resonances. Given the modest volume of my room (less than 1,800 cubic feet), I can afford to sacrifice higher SPL output resulting from corner placement for smoother overall frequency response.

A favorite of my collection is the Ray Brown Trio DVD-Audio disc *Soular Energy*. The recording itself is outstanding and Hi-Res Music has done a superb job of transferring it at 192 kHz/24-bit for DVD-Audio. One of the tracks is a half-tempo version of "Take The A Train" with Ray's bass taking the role of pianist in the trio. He offers up a variety of tasty fills, covering the empty spaces a pianist normally would while utilizing all of his instrument from top to bottom. The only change that could be detected in the instrument was an apparent increase in image size with decreasing frequency. Those who have heard an acoustic bass played without amplification realize that this is the correct behavior of the instrument—as the player moves up the neck, the resonance of the hollow body is less important and the image size narrows. I give high marks here for seamless integration of the PB2-Plus with my loudspeaker setup and for rendering a very clean, keenly authentic acoustic bass sound.

The world of music isn't all Jazz, so I pulled out The Blue Man Group's *Audio* DVD-Audio disc, an excellent selection for testing out a system's capacity for dynamic range and also subwoofer performance. My

favorite selections for this disc are tracks two and three, "PVC-IV" and "TV Song." "PVC-IV" starts off relatively low in volume but builds to a tremendously loud finish. There are portions where PVC instruments similar to xylophones are doubling the melody in octaves, all the way below the crossover point to the subwoofer. The lowest-pitched tubulum always remained anchored to its location in the right front loudspeaker. "TV Song" features an unusual guitar line (on a baritone guitar), which is well below the crossover frequency I utilize for music listening. This is the same pitch as the A string on bass guitar, albeit with the timbre of a traditional guitar. The baritone guitar image stayed firmly locked to my center channel. The only way the subwoofer could be detected was literally by the pressure waves at SPLs above 100 dB hitting my legs. The summary for this is simple: high-dynamic range music performance—very good!

You might be saying to yourself, "Alrighty then, but subwoofer demands for home theatre are a bit more serious, and you haven't said a word about that." Fair enough—time to put this beastie through its paces for movie sound reproduction. The first selection I used was Alex Proyas' *Dark City*. Chapter 3 contains Jennifer Connelly's character (Emma) performing in her lounge act. The bass line from the acoustic bass rings out clear and true, just as with the music selections mentioned earlier. In Chapter 8 the Strangers perform a "tuning," and this scene carries substantial low-bass information, peaking at around 30 Hz with substantial content down to 20 Hz. I wasn't let down by the PB2-Plus as the cityscape modified itself to the wishes of the Strangers; I was mildly shaken by the intense LFE channel experience.

The recently released DVD of *The Core* contains many good subwoofer scenes for demonstration, and I chose Chapter 9, where the Superstorm destroys Rome. This scene contains very high SPLs and substantial doses of LFE (low frequency effects). Once again, the bass rumbles the room and the force of the rumbling could be felt with my legs. As before, the only way this subwoofer was detectable in my darkened room was by the green power light on the back of the amplifier and by the air pressure fluctuations from the PB2-Plus.

With my trusty RadioShack SPL meter, I was able to measure over 100 dB at my listening position with the THX® intro for *Star Wars: Episode I—The Phantom Menace*, as was the case for The Blue Man Group DVD-Audio title. According to analysis performed by SVS (accessible via www.svsubwoofers.com, this clip has substantial content down to roughly 18 Hz, and various spikes in the 30-50 Hz range. The PB2-Plus cleanly reproduced the low-end for this clip at film reference level without bottoming out. Using low-frequency sweeps, the SVS sub revealed tactile response starting at 15 Hz, and audible and tactile output were noticed from about 22 Hz. [Many subwoofers are rolled-off almost completely at this frequency! —Editor]

Conclusion

SV Subwoofers has created an outstanding product, with performance that will be right at home in any enthusiast's two-channel or multichannel music system. That it's also a great performer for movies is simply icing on the cake. While not cheap, the PB2-Plus offers sonic performance at a level that usually commands a higher price point. Given the low audible distortion, prodigious output, and remarkable acoustical blend with other loudspeakers, this is one tremendous product. The bang-for-the-buck factor? Very high indeed. It should be noted that SVS offers a 45-day guarantee and a three-year warranty for the PB2-Plus.

Photography provided by Rice Photography.

Associated Reference Equipment

Surround Processor: Meridian Audio 861 v4
DVD-Audio/Video: Meridian Audio 598DP
SACD Player: Philips SACD1000
Speakers: Soundline Audio SL-2 (Front Left/Right), SL6-6 (Center), SL-3 (Surround Left/Right)
Interconnects: BetterCables Silver Serpents
Speaker Cables: Analysis Plus Oval-9
Room Construction: ASC Iso-Wall
Room Treatments: RealTraps MiniTraps