

MB QUART PWH304

Text and Measurements by Garry Springgay Photos provided by Maxxsonics



The MB Quart loudspeakers from Obrigheim, Germany have long been considered top-quality, excellent performing products, being both engineered and built in Germany. While they were not always the least expensive products in the various speaker categories, (primarily due to the cost of German labour) their excellent performance has always justified the price. So when I heard that they had moved some of their production to China in an effort to be more price-competitive, (like almost everyone else) I was very interested to see if the new German-engineered – but Chinese-manufactured – products would uphold their excellent reputation. The speaker in question is a Premium Series PWH304 12-inch woofer and is priced about in the middle of the range of high-quality 12-inch woofers.

FEATURES

The MB Quart PWH304 woofer comes in an attractive glossy carton, but more importantly, the box and interior packing was well-made, so much so that the carton and woofer arrived with nary a scratch after being shipped halfway around the world. A quick look at the woofer revealed a nicely-finished cast aluminum basket with machined raised edges, resulting in a “high tech” sort of look. There is a removable “snap-on” trim ring to hide the mounting screws after installation, and it looks like it’s made sturdy enough to survive being taken on and off multiple times. One thing I particularly liked was the intelligent and convenient layout for the amplifier connections. All the connections for both voice coils were grouped in one spot, and there is a clever jumper system to easily series or parallel the coils, or they can be powered separately as well. The wires are connected using spring-loaded, colour-coded push-buttons which will accept 10awg wire, which is what MB Quart recommends.

The very stiff poly cone is reinforced on the backside with a honeycomb pattern moulded into it, and has a top surface treated with some type of acoustic damping material. No additional information on this unusual coating was available at press time. The cone is a very shallow concave shape, and is connected to the voice coil and spider assembly via a unique moulded plastic connector that adds very little mass and allows a flat spider without a very deep cone neck. The surround is also a bit unusual, in that it is designed to be “longer” on the inside. This asymmetrical design was implemented to prevent bottoming of the voice coil former under high-power, high-excursion conditions, according to John Whitacre from Maxxsonics, the parent company of MB Quart.

After unpacking and examining the 12-inch, dual 4-ohm voice coil driver, I took a quick read through the owner’s manual to find the recommended enclosure information. I found several different recommended

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enclosures, depending on my desired sonic results. A 0.5-cubic-foot sealed box was recommended if you wanted the sound boomy with a cutoff of about 45Hz, or a more reasonable 1.3 cubic foot box was recommended for what they referred to as “optimal sound quality,” with a cut-off of around 37Hz.

Two vented enclosures were also recommended at 1.5 and 2.5 cubic feet, respectively. Also thoughtfully included was the port design information, as well as specs for a high-SPL, “slot-port” type box as well.

With all of these different capabilities, it would seem that this woofer was designed for virtually any application as well as being able to accommodate a wide variety of musical tastes. Being a firm believer of the old “the proof is in the pudding” adage, I decided to test the PWH304 in both a 1.3-cubic-foot sealed box (which was supposed to provide maximum sound quality) and also in a 1.75-cubic-foot vented box, reasoning that 1.75 feet was in-between the two recommended vented enclosure sizes and should give me a good compromise between tight bass and maximum sound quality, according to the manual. It was also chosen because most people simply don’t have room for much larger enclosures.

LISTENING

After a break-in period* to normalize the driver’s suspension, I first listened to the MB

**(You don’t need to break-in the woofer when you buy it; a few days of listening to it will do the same thing. I simply break in all loudspeakers before doing critical listening or measurements, just for consistency and accuracy in the information.)*

Quart Premium woofer in the sealed enclosure, and was impressed with the sound quality and overall excellent tonality it provided. I found that this woofer had significantly more high-frequency output than many competitive woofers, and because of this, I preferred to use a steeper -24dB crossover slope on the Quart woofer. Others may prefer the sound of the higher frequency output, and choose a -12dB crossover – it’s all a matter of personal taste. Bear in mind, though, that the higher the frequency you permit a woofer to reproduce, the easier it will be to locate the woofer in the vehicle. This makes it hard to get the “bass in the windshield” image that so many listeners prefer. On tracks like Rickie Lee Jones’ Danny’s All Star Joint, the bass was smooth and very detailed with a strong presence to the kick drum. Donald Fagens’ classic, Ruby, sounded smooth and clean, very tight and articulate, with great definition in the bass and drums. All in all, regardless of the musical genre, this woofer sounded very good in the recommended sealed box, right up to the 500-watt power handling limit. I did find that I could make it protest if I pushed it hard, with 750-800 watts, particularly if the music had a lot of very low frequency information which would make the woofer audibly reach its excursion limits. Application of a 35Hz subsonic filter allowed the woofer to handle my high-power abuse more readily without protesting too much. >>



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In the vented box, it was more of the same: great control and excellent sound quality. Coupled with the additional efficiency in the vented design, this woofer will hammer! In a vented enclosure, it's always a good idea to use an appropriate subsonic filter to prevent the woofer from unloading at frequencies below the Fb (tuned frequency) of the enclosure. Tracks like Frankie Goes to Hollywood's Relax sounded deep and strong, the definition was still very good, and the woofer handled the power well. I listened to a bunch of music with the woofer in this enclosure, everything from 50 Cent to Jennifer Warnes to ZZ Top, and the MB Quart PWH304 didn't disappoint.

Regardless of the music I selected, it reproduced the bottom end cleanly, with great control and definition. After listening to the woofer in both types of enclosures for several hours, I have to concede that it does work very well in whichever type you prefer. If I was going to keep this woofer for my own use, I'd probably go for the 1.3-cubic-foot sealed enclosure because I really enjoyed the tight and clean bottom end,

and I don't mind giving up some output for it. Better yet, I'd like a pair of them in about 2.5 cubic feet... that would be a great-sounding woofer system.

ON THE BENCH

I removed the woofer from the enclosure, and measured the Thiele-Small parameters. Comparing them to the published numbers, I found them to be spot-on, or very close. The following parameters were measured on the sample I tested, with the voice coils in parallel.

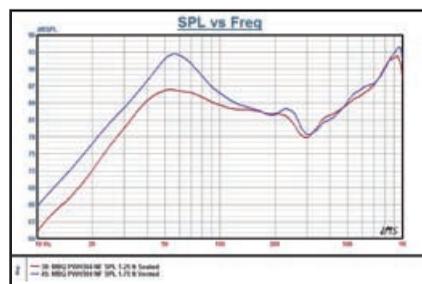
Revc	=	1.7000hm
Fo	=	23.554Hz
Sd	=	53.000m M ²
Vas	=	2.591Ft ³
Cms	=	183.912u M/N
Mmd	=	241.248m Kg
Mms	=	248.264 g
BL	=	10.327 T-M
Qms	=	4.241
Qes	=	0.586
Qts	=	0.515
Levc	=	134.307m mH
No	=	0.200%
SPLo	=	84.012dB



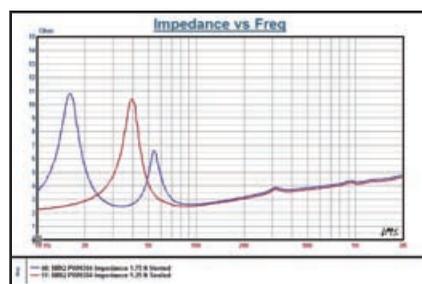
QUICK TECH SPECS

Power Handling: 500 Watts RMS
 Frequency Range: 10-1,000Hz
 Sensitivity: 84dB / SPL @ 1.0W
 Nominal Impedance: (2) 4 ohm coils

After obtaining the electro-mechanical parameters, I re-mounted the woofer in the two enclosures and measured the impedance the amplifier would see. I left the voice coils in parallel to show the minimal impedances one could expect in each of these enclosures. Note the two impedance peaks in the vented system, and higher average impedance. See graph below.



I also performed near-field frequency response measurements to illustrate the different performance characteristics in the two different enclosures, and point out the extended high frequency response I mentioned earlier. See the graph below.



CONCLUSION

So, the proof was indeed in the pudding, and I'd have to say that the German-engineered, built-in-China MB Quart product is every bit as competitive as its predecessor. It might not have quite as much mechanical power handling as a few of the others in the category, but it does handle everything it's rated for and then some. But for me, the best part is that this is a very well-designed woofer, it comes with all the application flexibility you'd ever want, and great sound quality to boot. You really can't ask for much more than that. Till next time... Good Listening! **PAS**

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