

A 6.5-inch woofer for your 2-way bookshelf

Your 380 x 220 x 280 mm ported bookshelf, on stands, on your 100 W amp

MY SUGGESTION

Your pick, the **SB Acoustics SB17MFC35-8**, a 6.5-inch 8-ohm mid-woofer, suits your bookshelf: about 14 L inside, ported to about 39.5 Hz. It reaches about 49 Hz, and the pair is \$229.90, leaving \$170 of your budget.

49 Hz

bass extension (F3) in 14 L

89 dB

sensitivity, 2.83 V at 1 m

185 mm

vent length

\$170

of your \$400 left

Why this one

I modelled every 6.5-inch woofer and mid-woofer in stock in your box, on your amp. Your pick and the SB17NBAC35-8 came out level on top.

Driver	F3	Sensitivity	Pair, 24 Oct	My take
SB17MFC35-8 SB Acoustics, 6.5" 8 ohm	49 Hz	89 dB	\$229.90	MY PICK Your pick, and level on top with the NBAC in your box: \$229.90 the pair.
SB17NBAC35-8 SB Acoustics, 6.5" 8 ohm	50 Hz	89 dB	\$269.90	The same result in your box, a little dearer at \$269.90 the pair.
830657 Peerless, 6.5" 8 ohm	55 Hz	89 dB	\$117.90	The budget one at \$117.90 the pair, but it stops higher, about 55 Hz.
MW16P-8 SB Acoustics, 6.5" 8 ohm	48 Hz	88 dB	\$509.90	The Satori: a touch deeper at about 48 Hz, and over your budget at \$509.90 the pair.

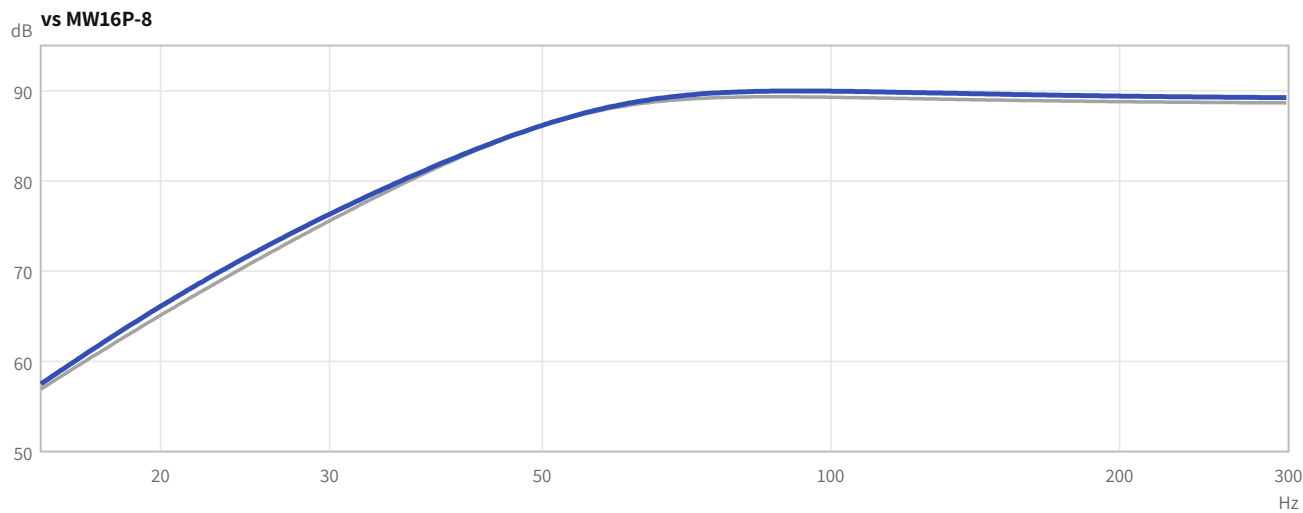
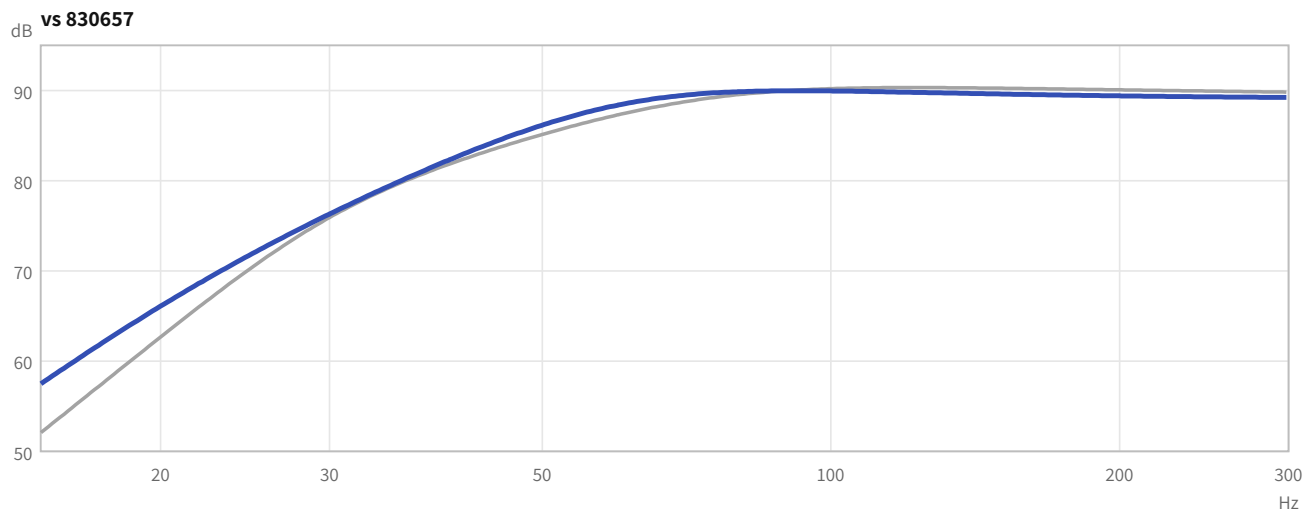
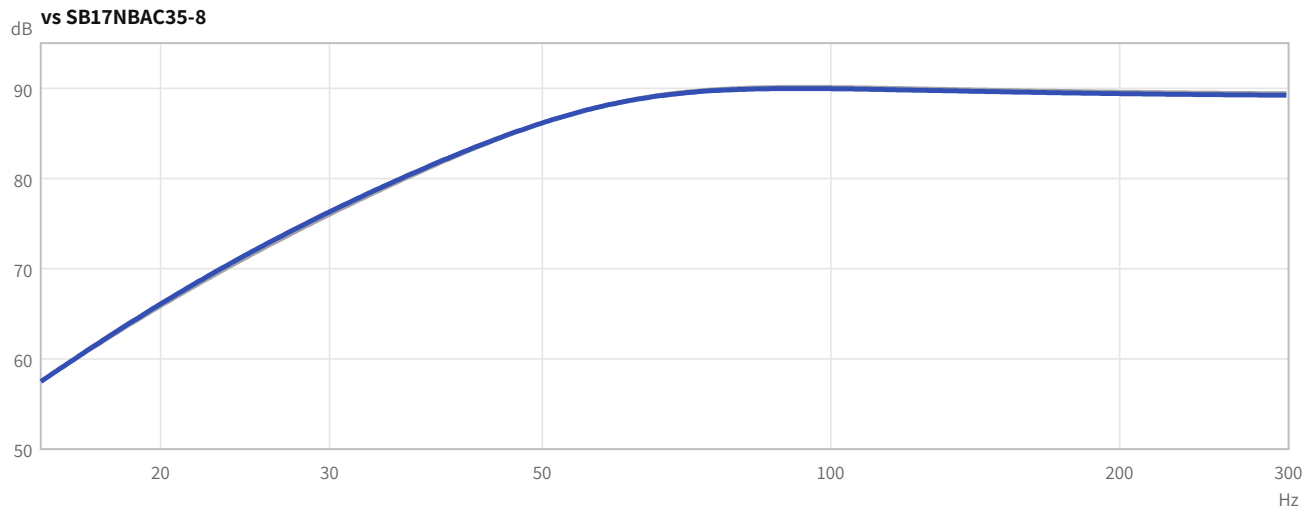
Words in this report

F3: where the bass is 3 dB down. Lower means deeper bass. **Sensitivity:** how loud it plays from 2.83 V at 1 m. Higher needs less amp. **Xmax:** how far the cone can move cleanly. Run out of it and the bass distorts.

Inside: page 2, how each plays in your box · page 3, how loud each can play cleanly · page 4, your box and parts list · page 5, with a DSP amp · page 6, how I made this, and more from NB Audio

How each plays in your box

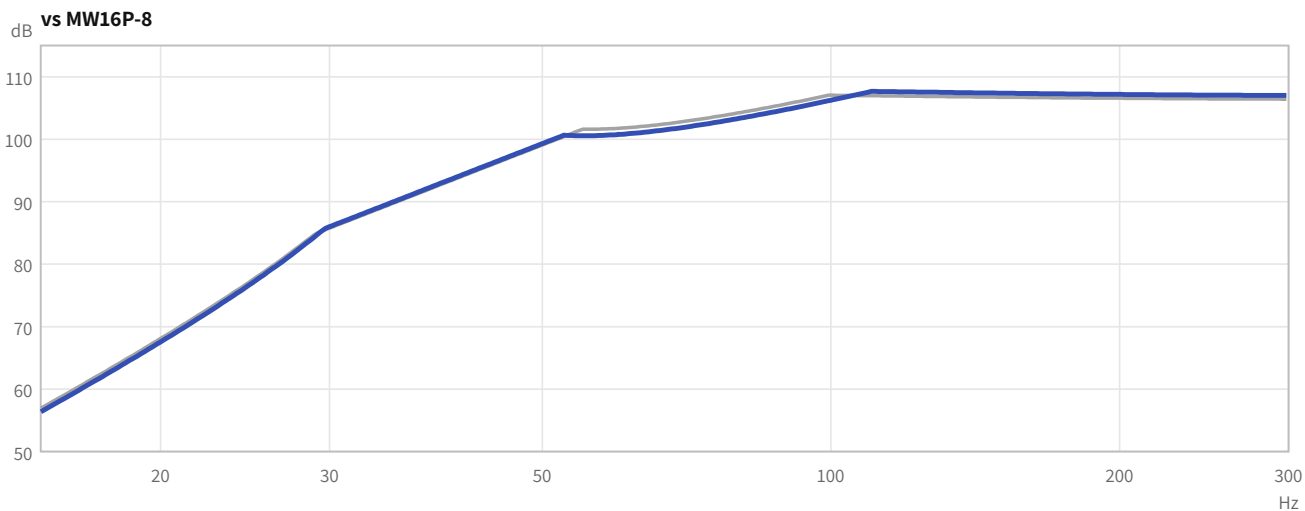
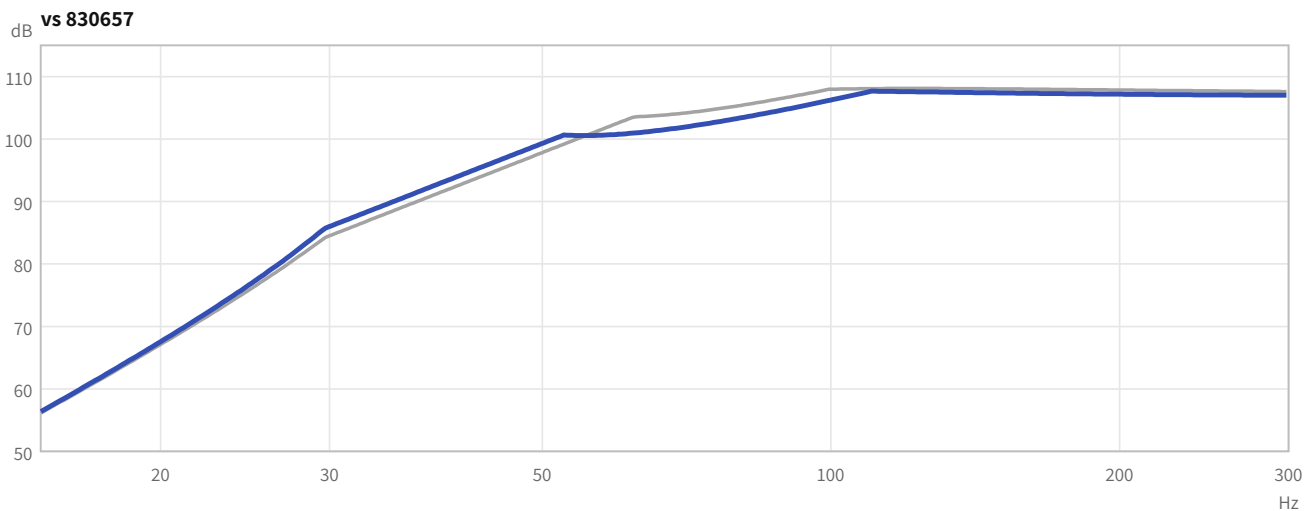
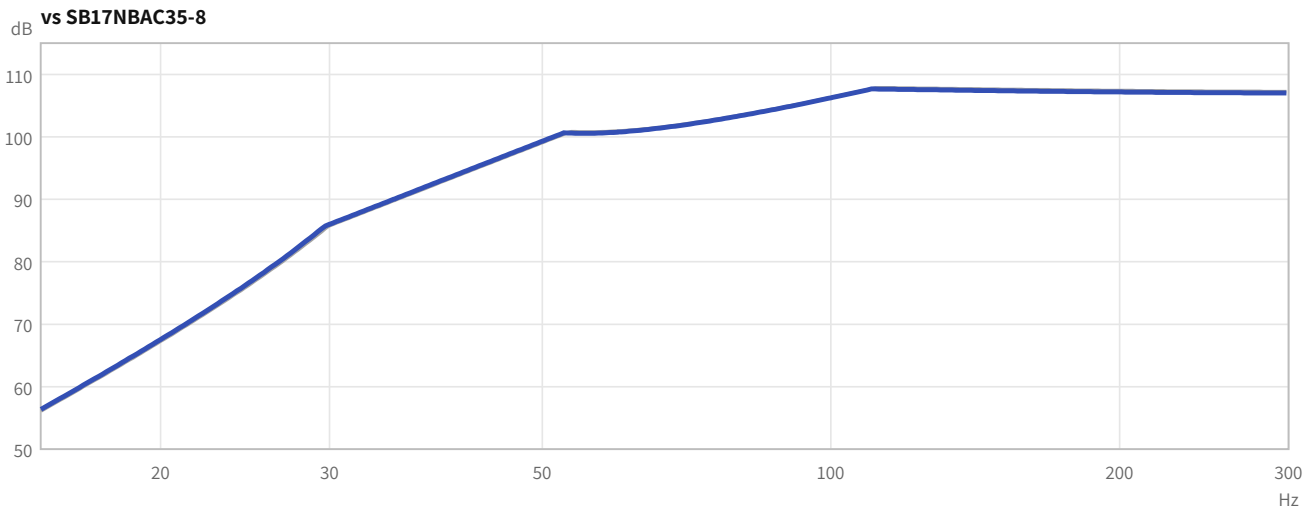
my suggestion, SB17MFC35-8 the driver named on each panel



Level at 2.83 V in 14 L net, each at its own best tuning. Woofer section only: no crossover, baffle step or room gain.

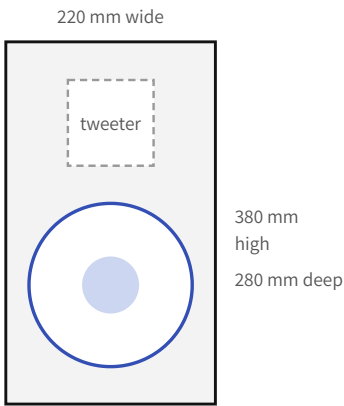
How loud each can play cleanly

my suggestion, SB17MFC35-8 the driver named on each panel



The loudest each can play at each frequency, limited by whichever comes first: cone travel, the power rating, the amp, or vent air speed (17 m/s).

Your box



- Fit check: the 171 mm frame on the 220 x 380 mm front: 24 mm to the nearest edge, cut-out clears the inside walls by 15 mm.
- About 14 L net from your outside sizes in 18 mm board, with one 45 mm round vent about 185 mm long.
- That vent is about as long as this box allows: put it on the back, with clear space behind its inside end. I've left room above the woofer for your tweeter.
- Turned right up, the vent runs out before the cone does. At moderate levels it's fine.

Your layout

- On stands, out from the wall: expect a little less bass than the chart shows below 100 Hz. Closer to the wall gives some back.
- I won't suggest a crossover point to the tweeter without measurements.

Parts list

Part	Qty	Each	Total
SB Acoustics - 6.5" MFC Mid-Woofer - SB17MFC35-8	2	\$114.95	\$229.90
My suggestion			
From the store, 24 October 2026			\$229.90

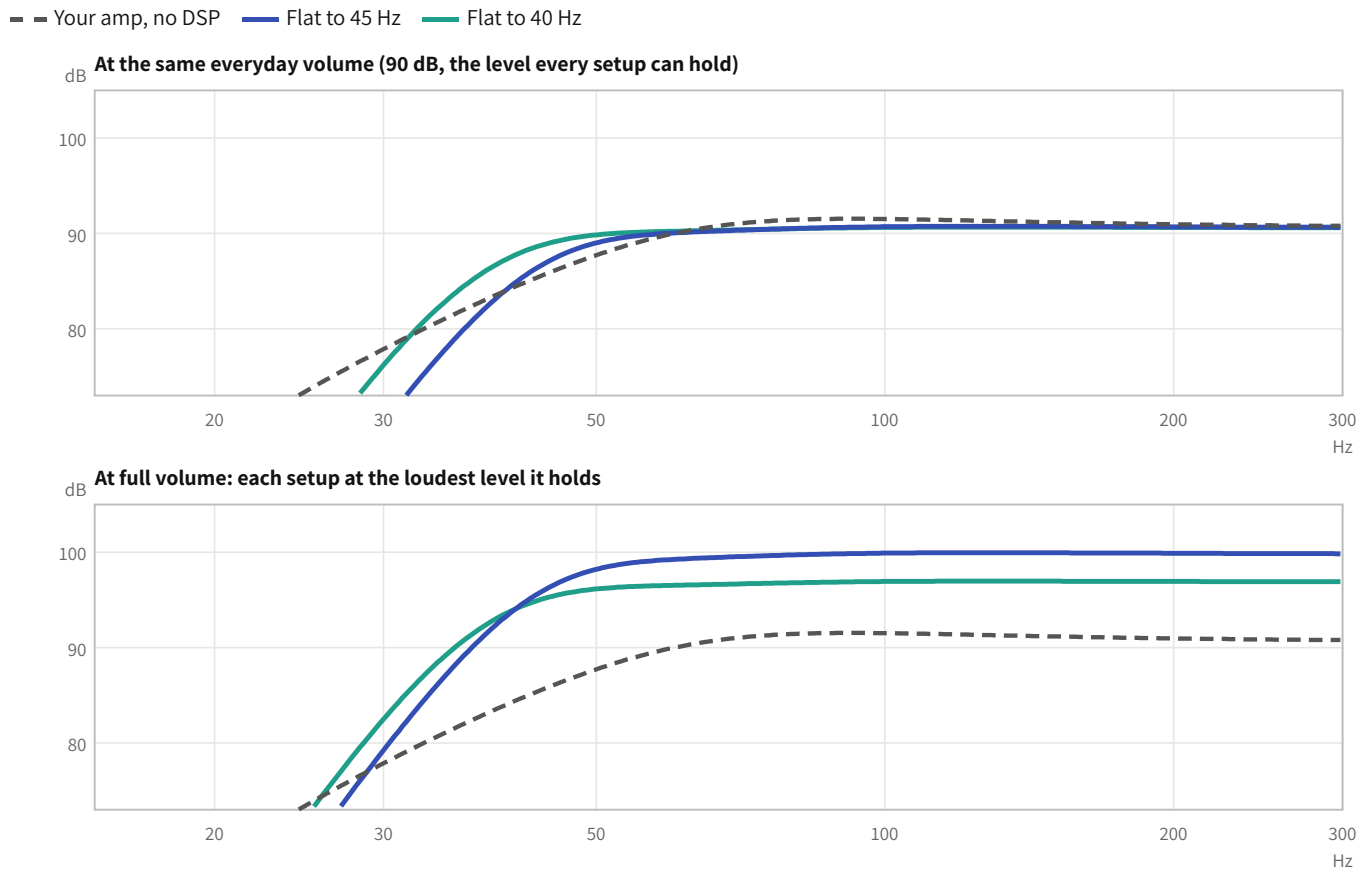
You supply: the board (MDF or ply), glue and screws, damping and gasket tape and a terminal (the store has those too); a round vent tube (PVC pipe is fine), about 185 mm long: cut it long and trim to tune.

With a DSP amp

Your amp has no DSP. A WiiM Amp (a streamer with an amp and DSP built in) adds a high-pass and a little bass EQ. It has less power on paper than yours, but with the high-pass it plays louder before the vent runs out.

Setup (per speaker)	F3	Loudest level	Settings (indicative)	What it means
Your amp, no DSP	49 Hz	90 dB	None	Played natural, as in the rest of this report.
Flat to 45 Hz	45 Hz	100 dB	High-pass 45 Hz, 24 dB/oct Butterworth Low shelf +5.6 dB at 50.3 Hz, Q 1.2 within 0.2 dB of the target	Louder at full volume: the high-pass stops the vent running out.
Flat to 40 Hz	41 Hz	97 dB	High-pass 40 Hz, 24 dB/oct Butterworth Low shelf +8.2 dB at 46.3 Hz, Q 1.1 within 0.3 dB of the target	Deeper, but a little quieter at full volume.

Loudest level each setup holds across 20 to 300 Hz with its own response shape (each target rolls off below its F3), limited by cone travel, the driver's rating, vent air speed or the amp. The high-pass and EQ are simulated together. One speaker at 1 m, no room gain.



Top: below full volume the cone has room to spare, so the boost adds real depth (flat to 40 Hz: about +6 dB at 40 Hz). Bottom: at full volume the cone runs out either way. The settings are a starting point: check at your seat with a measurement mic.

- My starting point: a high-pass just under the vent's tuning, then a small bass lift only if you want it deeper.
- Your passive crossover stays as it is: the EQ works on the whole speaker.
- It's an extra on top of the drivers, so it's worth it mainly if you'd like a streamer too.

How I made this report

This report comes from the design tool I use alongside the NB Speaker Builder. It uses the same enclosure simulation engine as the builder and the store's driver database, which holds each maker's published specifications. First it checked every 6.5-inch woofer or mid-woofer in stock against your box: all 36 fit. It simulated all of them cleanly in your box, then I compared four of them in detail: your own pick, a value option, a step up and the screen's best, plus the DSP setups. A total of 36 drivers were considered and 3,329 simulations were run. The tool does the number crunching; I went through the results and picked what I'd use.

What it doesn't cover: the simulations use the maker's figures at 1 m in half space and leave out the crossover, baffle step, your room and differences between individual drivers, so read the numbers as a fair comparison rather than a promise. Prices are the store's on 24 October 2026. This is a sample report from a made-up enquiry. Prices as at 24 Oct 2026; check the store for today's.

About me



I'm Jeshua (Jesh) Miller. NB stands for No Bullsh*t: it started in 2018 as NB Speaker Cables, and building cables led to building speakers, subwoofers first, until I'd built my own 7.2.4 home theatre. NB Audio has sold parts for people who build their own speakers since 2024, and since January 2026 it's been my main focus. I won't tell you a part is the 'best'. I'll tell you what it does, what it suits and what it doesn't.

More on [who's behind NB Audio](#) and [how I think about sound](#).

Guides for your build

- [Sealed vs ported vs passive radiator: which box?](#)
- [Passive crossovers explained](#)
- [Why you can't just swap out drivers in a multi-way loudspeaker](#)
- [Building the cabinet: MDF vs ply, bracing, damping, ports and sealing](#)
- [Measuring speakers on a budget: REW, a mic and an interface](#)
- New to building? The 8-part [Beginner Guide](#), every part also a [free PDF book](#). [All the guides](#).

Free tools and advice

- Every driver and amp in this report links to its page in the store, with the price on 24 October 2026.
- The [Driver Fit Finder](#) shows which drivers fit a cabinet you already have.
- The [Port Designer](#) gives you push-fit flares and a port tube, sized to your box, as free STL and STEP files to print.
- Coming soon: the [NB Speaker Builder](#), to design a speaker box around the drivers in the store and see how it'll play before you cut any wood.
- Questions about this report, or your next build? Advice on choosing parts is free: email sales@nbaudio.com.au.

Let me know if you have any questions, or if you'd like to go ahead.