

A 12-inch sub with a plate amp

One ported sub, about 550 x 450 x 500 mm, on a SPA250DSP plate amp

MY SUGGESTION

The **SB Acoustics SB34SWPL76-4**, a 12-inch 4-ohm sub, ported in about 75 L tuned to 25.5 Hz, on a **Dayton Audio SPA250DSP** plate amp. It reaches about 22 Hz and holds about 113 dB at 28 Hz in your room. The whole build is about \$1,240, a touch over your \$1,200; the DCS305-4 brings it under.

113 dB

per sub at 28 Hz, 1 m, in your room (estimate)

75 L

net box volume

760 mm

vent length

\$40

over your \$1,200 build budget

What you're after

Down to 26 to 30 Hz: deep and punchy, most music, and it hits hard. I ranked every driver on how loud it plays cleanly from 26 to 80 Hz, each in its own best box, and the headline numbers are at 28 Hz.

Going punchier (30 to 80 Hz): the DCS305-4 gives about 3 dB more there, for 4 dB less at the other end.

How close it gets: it reaches your 26 to 30 Hz band; in this box the bass holds down to about 22 Hz before it starts to fade. Your room adds depth at your seat on top of this.

Why this one

I modelled every 12-inch sub in stock that fits your box, each in its own best box on the SPA250DSP. The SB34SWPL76-4 goes deepest in your 26 to 30 Hz band; the DCS305-4 is cheaper and louder higher up.

Driver	Its box	In your room (estimate)			Each, 24 Oct	My take
		20 Hz	28 Hz	40 Hz		
SB34SWPL76-4 SB Acoustics, 12" 4 ohm	75 L, vented	100 dB	113 dB	111 dB	\$394.95	MY PICK The deepest here: about 113 dB at 28 Hz in your room. Wants about 75 L and a long vent, both of which your box has room for.
DCS305-4 Dayton Audio, 12" 4 ohm	65 L, vented	95 dB	110 dB	114 dB	\$259.00	The cheapest of the four and loudest from 40 Hz up, but about 3 dB less at 28 Hz. A good pick if music matters more than movies.
SB34SWNRX-S75-6 SB Acoustics, 12" 6 ohm	75 L, vented	96 dB	110 dB	114 dB	\$354.95	Close to the DCS305-4 in level, a bit dearer. Nothing here it does better than the other two.
RSS315HF-4 Dayton Audio, 12" 4 ohm	65 L, vented	95 dB	110 dB	114 dB	\$574.95	A strong sub, but in this box it doesn't beat the SB34SWPL76-4 in your band, and it costs more.

Each in its own box, one sub at 1 m, with my middle estimate of your 5 x 4 m room's gain.

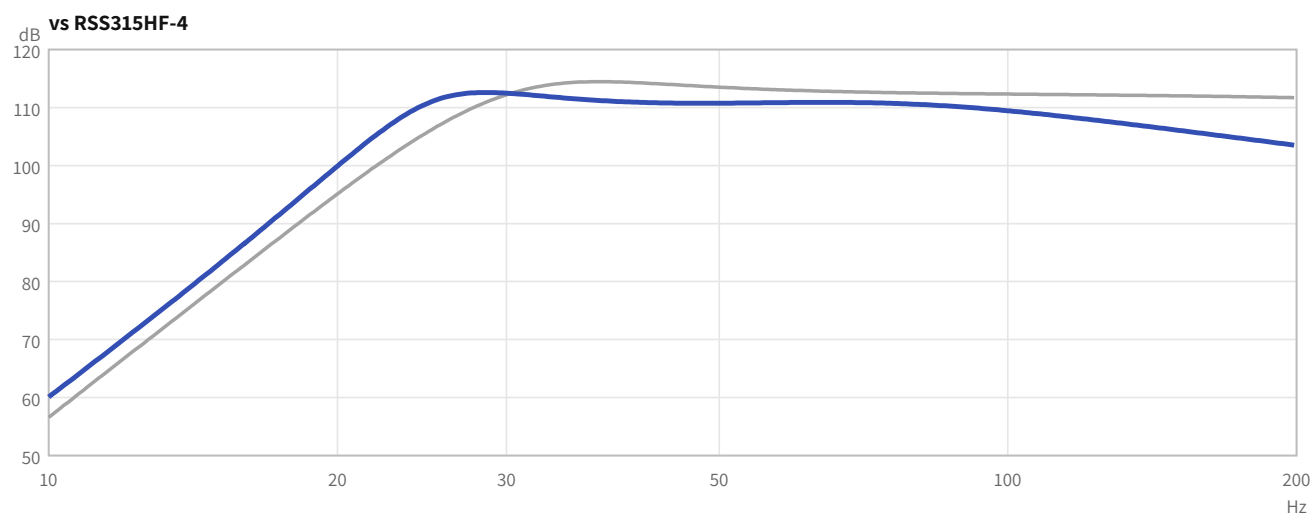
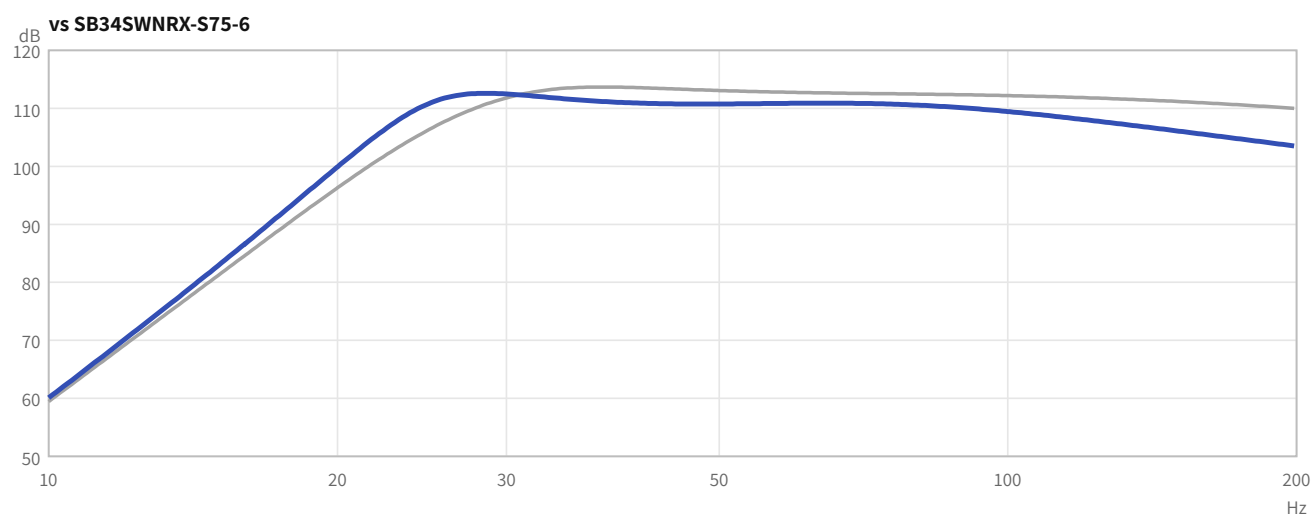
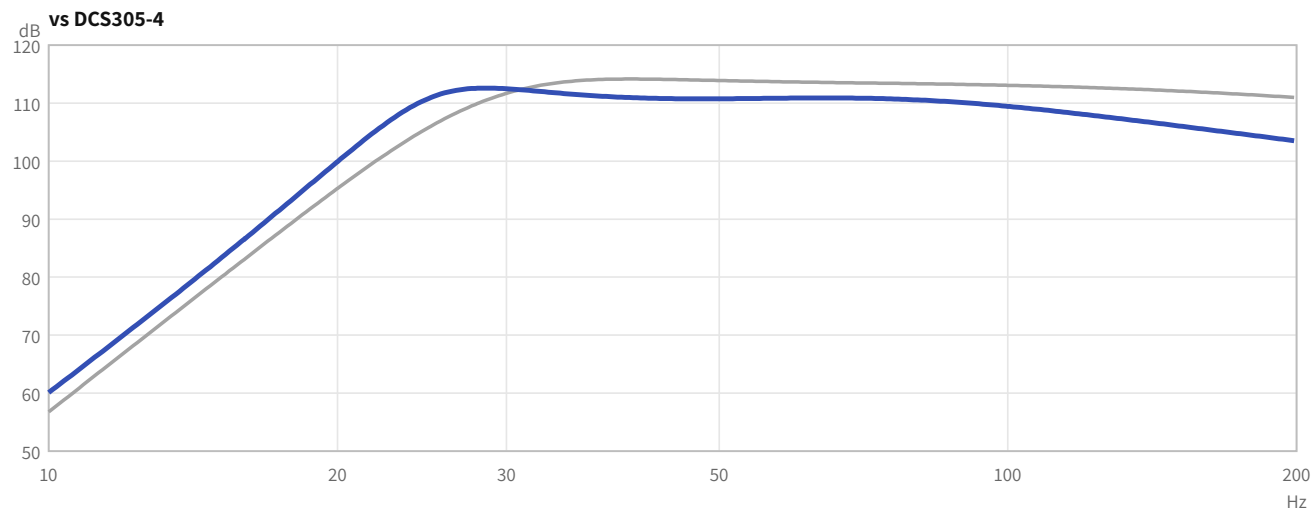
Words in this report

Max SPL: the loudest it can play before the cone, the vent, the amp or the power rating runs out. **Tuning:** the note the vent is set to. Below it the cone unloads, so a subsonic filter helps. **Xmax:** how far the cone can move cleanly. Run out of it and the bass distorts.

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

How each plays, turned up as far as it goes

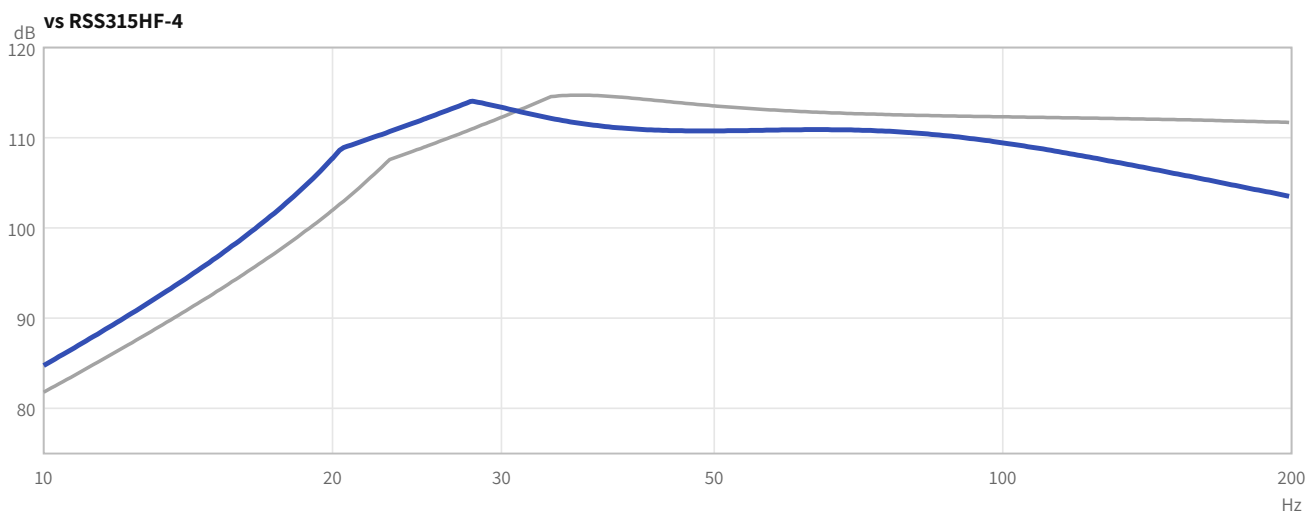
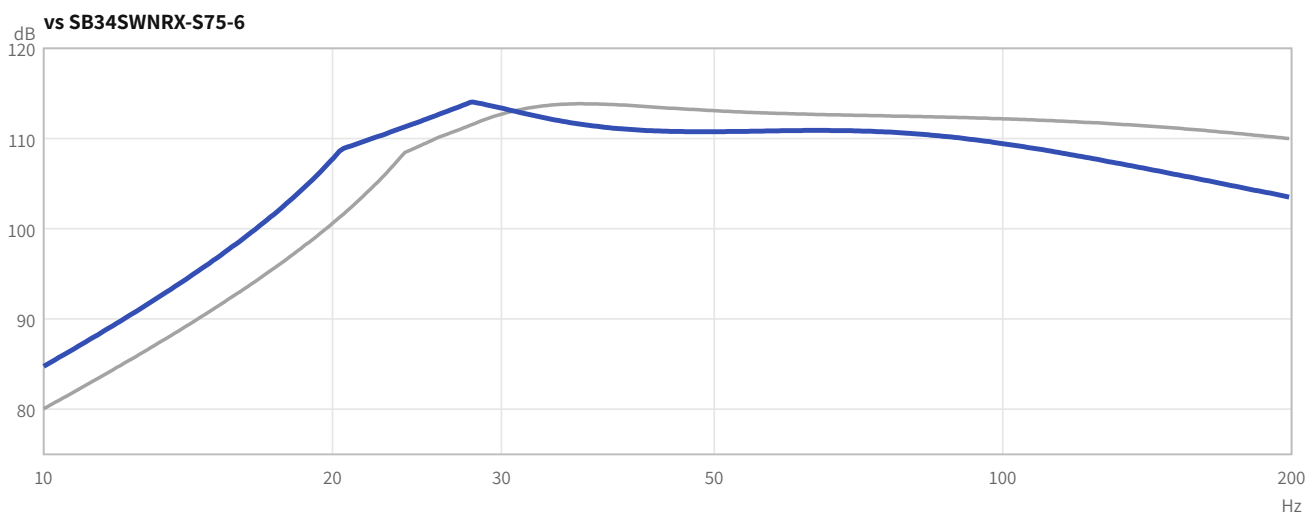
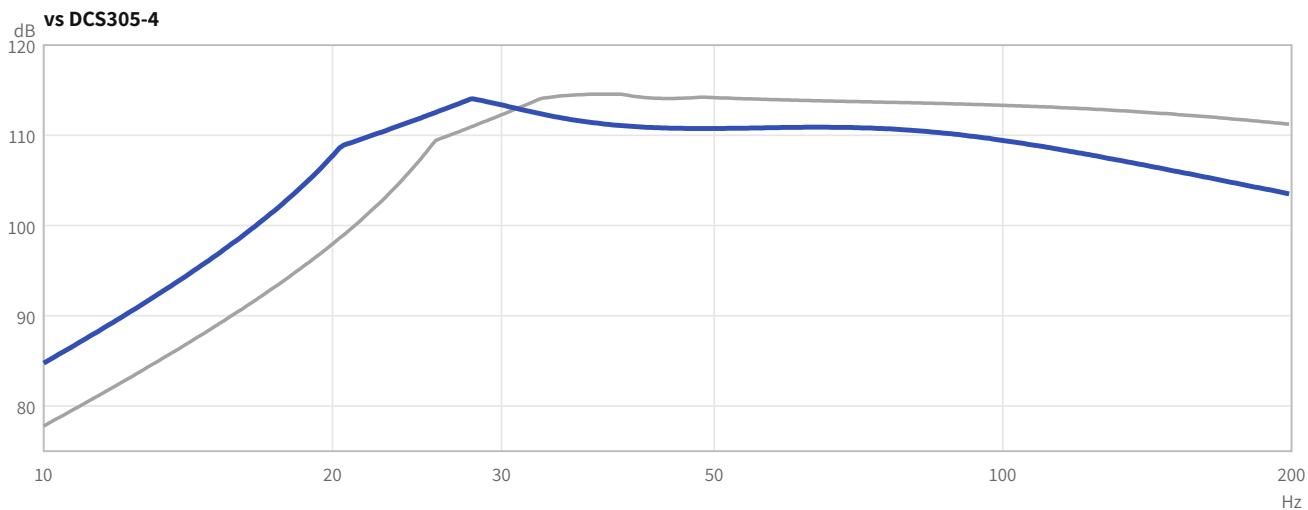
my suggestion, SB34SWPL76-4 the driver named on each panel (each in its own best box)



Each driver turned up as far as it can go before the amp, the cone or the vent runs out, no EQ, one at 1 m, with my estimate of your room included. The amp's 24 dB/oct subsonic filter is included, set just under each box's tuning.

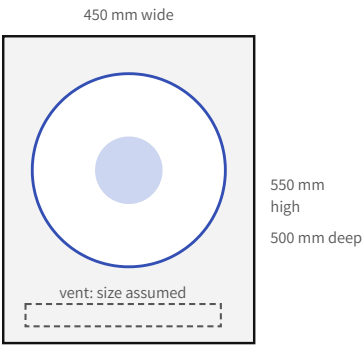
How loud each can play cleanly

my suggestion, SB34SWPL76-4 the driver named on each panel (each in its own best box)



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), with my room estimate. Below the tuning a subsonic filter is wise with any of them.

Your box



- Fit check: the 346 mm frame on the 450 x 550 mm front: 52 mm to the nearest edge, 72 mm from the vent, cut-out clears the inside walls by 51 mm.
- You said 18 mm MDF: about 99 litres inside 550 x 450 x 500 mm. My pick wants about 75 L net, the vent and bracing take the rest.
- Vent: a 350 x 40 mm slot about 760 mm long. Fold it along the floor and up the back.
- The SPA250DSP's plate needs a cut-out in the back panel: check it before you cut.

How room gain works

Outdoors, a sub's bass spreads out and keeps going. In a room, once the sound wave is longer than about twice the longest wall (below about 34 Hz for your 5 m), the sub can't radiate it away any more. It pressurises the whole room instead, and the deeper the note, the more it builds up. A solid, sealed room can add up to 12 dB per octave below that point; doorways, windows and plasterboard let some out, so I've used a middle estimate: about 4 dB at 25 Hz and 7 dB at 20 Hz. Your room will differ, which is what room EQ is for.

Would more amp help?

- The SB34SWPL76-4 can use all of the SPA250DSP's 250 W in the deep bass, so it's a good match.
- I've gone with a DSP plate amp because the subsonic filter and room EQ are worth more in a sub than extra watts. The next page shows what it does.

Parts list

Part	Qty	Each	Total
SB Acoustics - 12" SWPL Subwoofer - SB34SWPL76-4 My suggestion	1	\$394.95	\$394.95
Dayton Audio - 250W DSP Plate Amplifier - SPA250DSP Plate amp	1	\$589.95	\$589.95
From the store, 24 October 2026			\$984.90
Box materials, about			\$256
The whole build, about			\$1,240

That's about \$40 over your \$1,200 budget. Box materials assume 18 mm MDF, glue and paint at Bunnings' prices of 23 October 2026, and damping and gasket tape from the store, for the box I've suggested. Tools, screws, delivery and your time aren't counted.

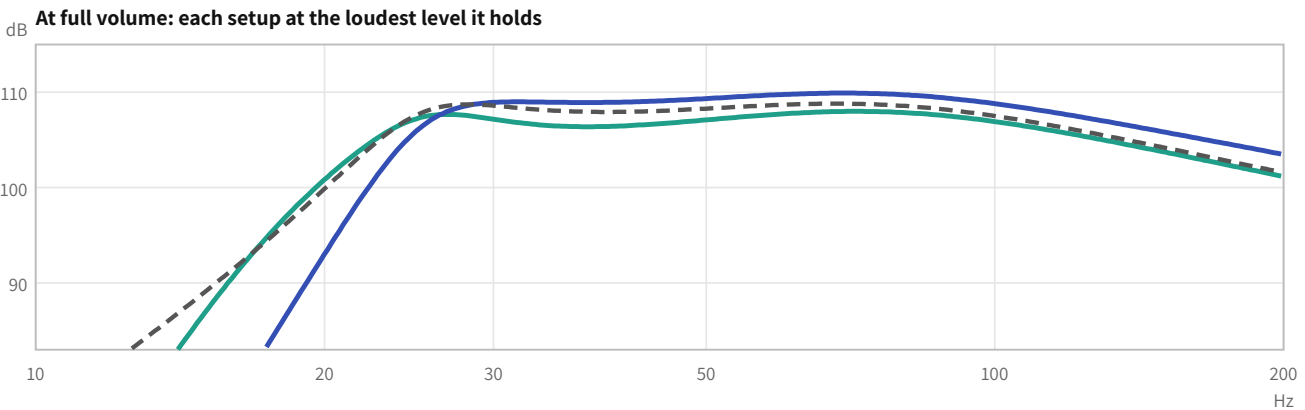
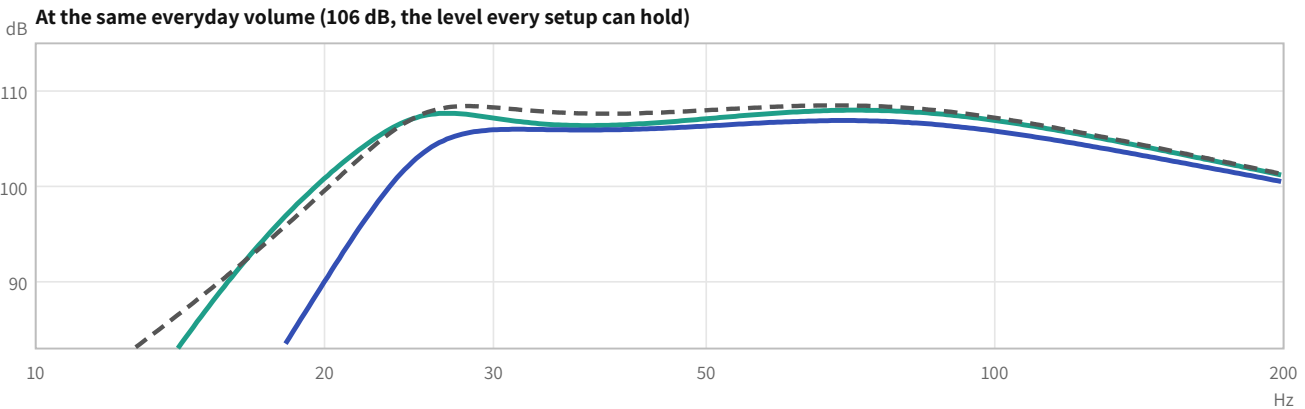
With a DSP plate amp

The SPA250DSP adds a subsonic filter, EQ and a limiter. Here's what it does with the SB34SWPL76-4 in this box.

Setup (per sub)	F3	Loudest level	Settings (indicative)	What it means
No EQ	22 Hz	107 dB	None	Played natural, as in the rest of this report.
Flat to 25 Hz	25 Hz	110 dB	High-pass 25 Hz, 24 dB/oct Butterworth Peak -1.6 dB at 53.1 Hz, Q 0.3 within 6 dB of the target	The most level at full volume: the high-pass keeps the cone in check, at the cost of the last few Hz. My pick for loud movies.
Flat to 20 Hz	22 Hz	106 dB	High-pass 20 Hz, 24 dB/oct Butterworth Low shelf +8.3 dB at 20.2 Hz, Q 1.2 within 5.3 dB of the target	A lift under 25 Hz: more depth at everyday volume, nothing extra at full volume.

Loudest level each setup holds across 20 to 200 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 sub at 1 m, no room gain.

— No EQ — Flat to 25 Hz — Flat to 20 Hz



Top: below full volume the cone has room to spare, so the boost adds real depth (flat to 20 Hz: about +4 dB at 20 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, and leave the rest natural.
- Use the EQ to tame a room peak rather than to push the bottom end.
- A quick check with a measurement mic sorts out delay and polarity against your mains: fine-tuning, not something to change the plan over.

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 12-inch subwoofer or woofer in stock against your box: all 22 fit. It simulated all of them cleanly in a box sized for each, ranked for reaching 26 to 30 Hz, then I compared four of them in detail: my pick, a value option and two more from the top of the list, plus the DSP setups. A total of 22 drivers were considered and 1,567 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 differences between individual drivers, and the room is only an estimate, 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

- [Why I don't tune subs 'flat to 20 Hz'](#)
- [Sealed vs ported vs passive radiator: which box?](#)
- [DIY subwoofer: build or buy?](#)
- [Building the cabinet: MDF vs ply, bracing, damping, ports and sealing](#)
- [Planning the enclosure: check the box on paper before you cut](#)
- 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.