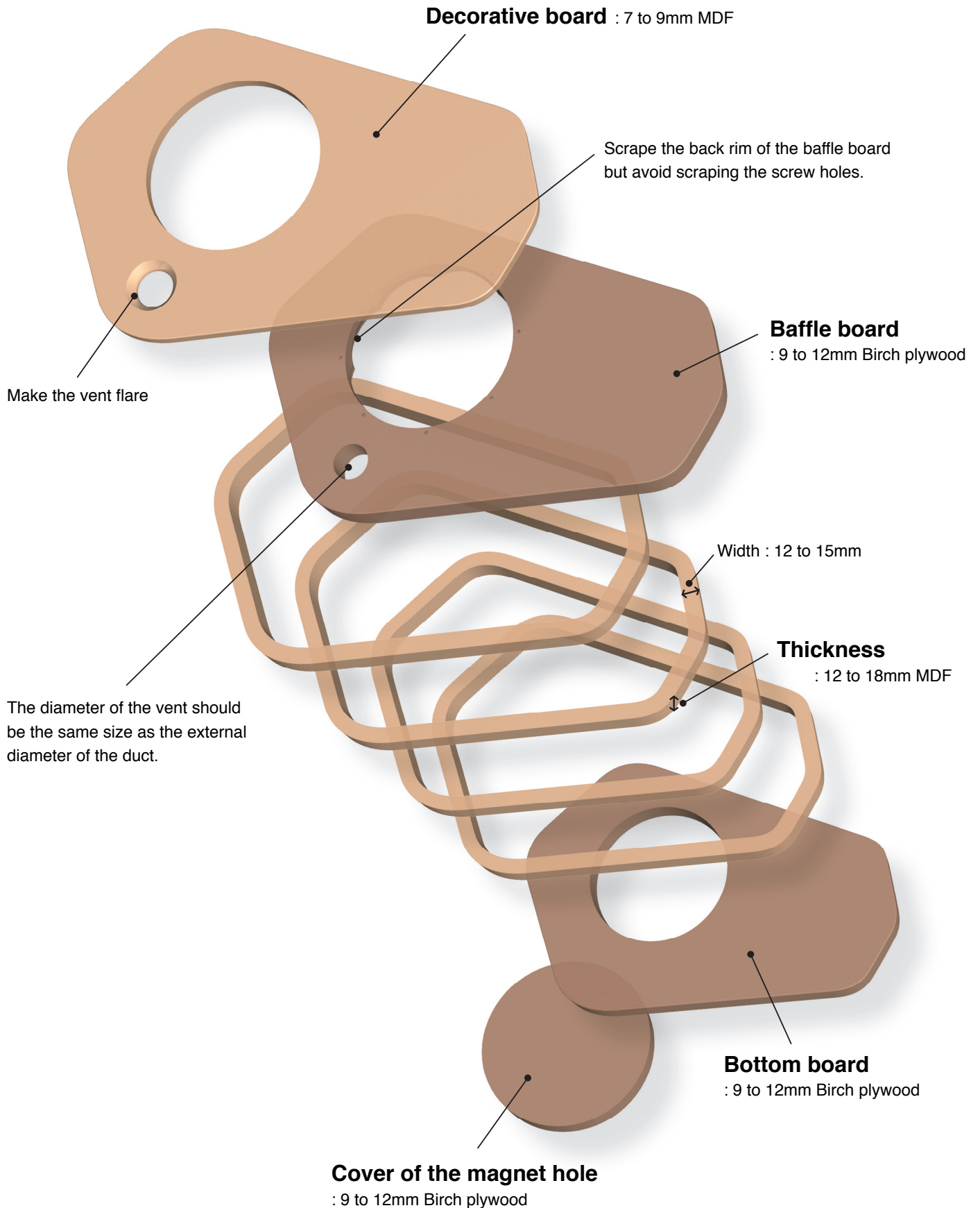
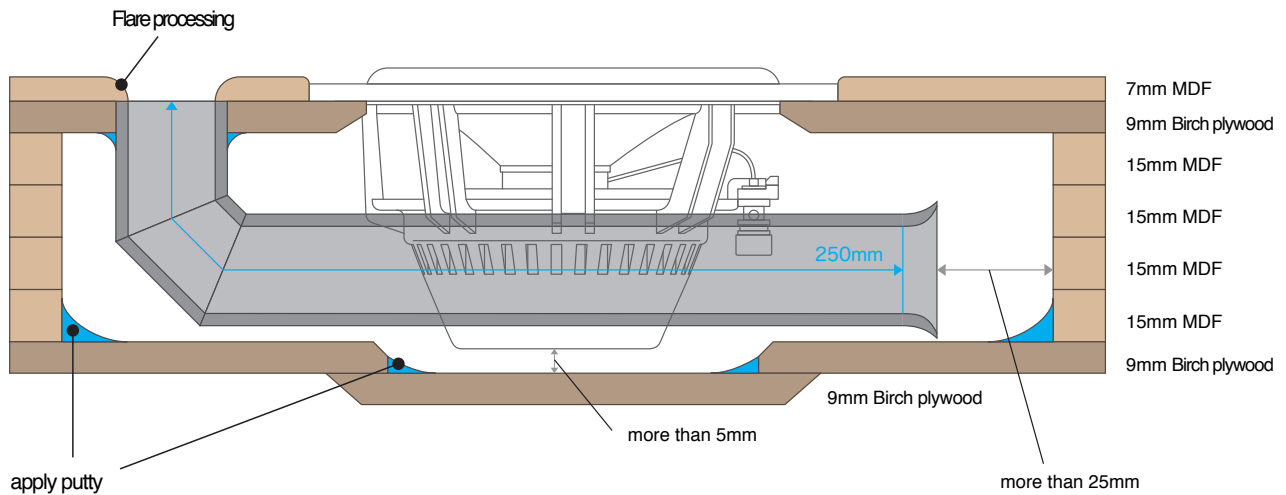


Enclosure

Making enclosure (door) 1

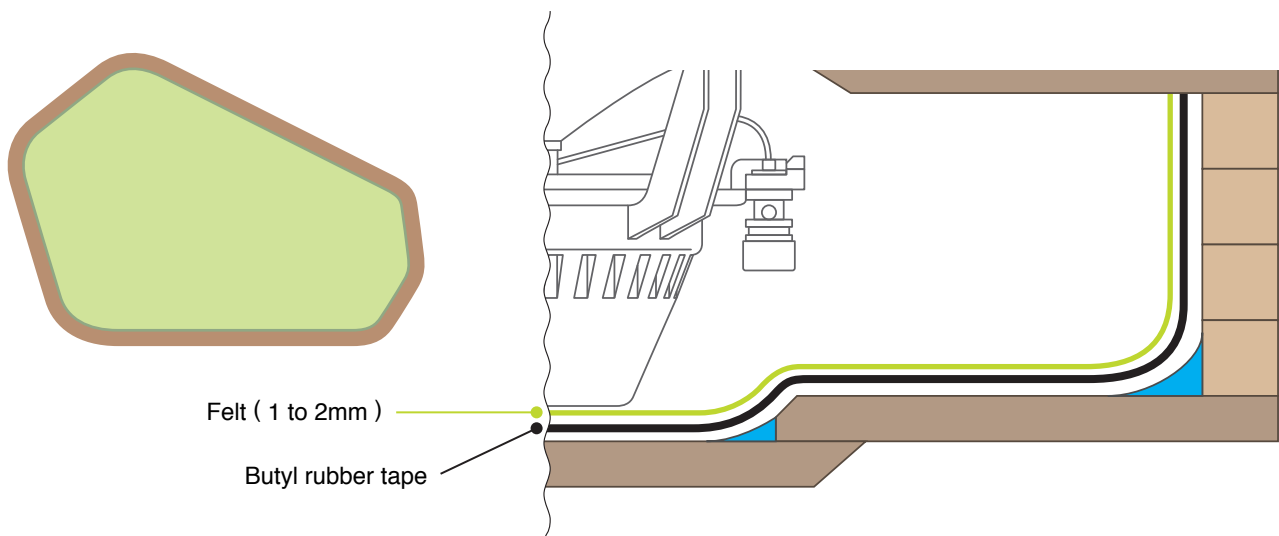


Making enclosure (door) 2



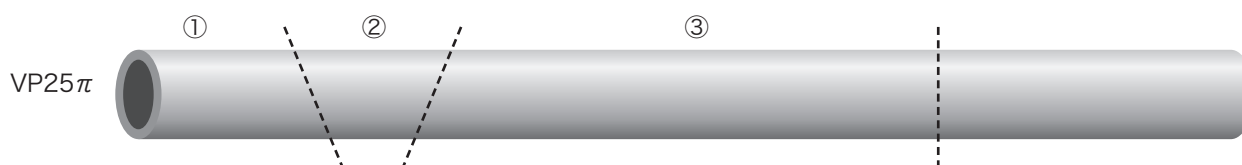
The mounting depth of the speaker unit shown above is 72mm.

When the thickness of the baffle board is 9 to 12mm and 4 layers of MDF is 15mm each, the total height is about 72mm. Therefore, the enclosure does not have enough clearance in order for the speaker unit to fit properly. As a solution for this case, cut a large hole (about the same size of the mounting diameter) in the bottom board where the magnet touches, and obtain more depth by covering the hole with 9 to 12mm birch plywood from outside. It is useful when the enclosure should be made thin as much as possible. (Use 1 board maximum for the cover.) If it is possible, employ 5 MDF boards of 15mm thickness each to make the enclosure. The air flow inside the enclosure is a very important factor in making the enclosure. The air tends to stay in the corners. Therefore, to make smooth air flow, make the corners round by applying putty or a wooden triangular piece.



Making duct

Employ a PVC pipe which you can get in hardware stores. As shown below, cut 2 places at an angle of 22.5°(sand the edges down). A duct of 90° corner is made by turning the part ② over(shown in the picture) and connecting it with super glue. The general elbow cannot be used because the internal diameter would be changed. Also, when cutting only 1 place at an angle of 45° and making a duct of 90° corner, the air flow inside would not be smooth enough to work properly. The vent inside the enclosure should be ground thinly and flared with a heat gun(just like a trumpet's bell). The ideal flare size is 1.75 times larger than the internal diameter. Paint the inside of the duct black to look good.



【 Reference data 】 Examples of enclosure capacity, duct length, and crossover frequency setup

Speaker *	Capacities (ℓ)	duct length (cm)		The inside diameter of the duct (mm)	X-over frequency (Hz)	
		Compact cars	Middle to large cars		High pass	Low pass
C-130BF A-130II	2.8	24	23	25mm φ	50	800 Hz (Tweeter's high pass)
	3.0	24	23		50	
	3.2	25	24		40	
	3.4	25	24		40	
	3.6	25	24		40	
	4.0	25	24		40	

Speaker *	Capacities (ℓ)	duct length (cm)		The inside diameter of the duct (mm)	X-over frequency (Hz)	
		Compact cars	Middle to large cars		High pass	Low pass
C-180BF A-180II	20.0	22	23	40mm φ	30	MW high pass
	25.0	22	23		30	
	30.0	22	23		25	
	35.0	23	24		20	

**High pass frequency is a standard frequency band of reproduction

"Compact car" refers to the car size of up to 1300cc; "Middle to large

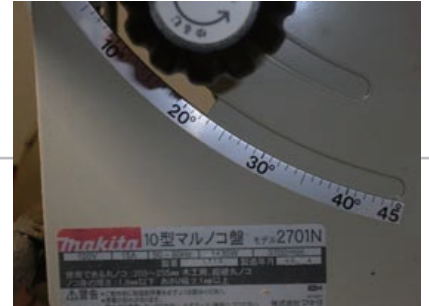
How to make an enclosure duct



Use a PVC pipe. The inside diameter for front speaker: 25 mm, for subwoofer: 40 mm.



When you cut the pipe, apply wood piece to it for assistance.



Adjust the degree of table saw at 22.5°.



Cut the edge of the pipe at 22.5°.



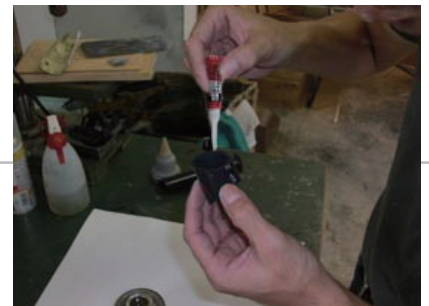
File down the cut section.



Make the inside of the pipe flared. Refer to the attached paper.



Using the super glue is desirable.



Spread the super glue equally.



Glue both cut sections together.



Finished.

How to make flared pipe.



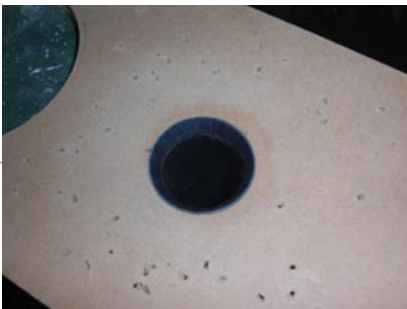
Get a PVC pipe.



Use trimmer to slant the cut section.



Stabilize the pipe.



Slant the cut section by the trimmer.



Use belt sander to make the slant part smooth.



Sand it down.



The pipe with slant edge.



Prepare something conic.



Heat the slant edge with heat gun or burner.



Stretch the heated edge.



Stretch the heated edge.



File it smooth.



Finished pipe 1.



Finished pipe 2.

Fabrication example. 1



1. The original interior



2. Determine the shape of the enclosure



3. Cut out the trim



4. Stack the cut-out boards to make the side panel



5. Apply putty to the corner of the back panel and the side panel and make it round and smooth



6. Make a port

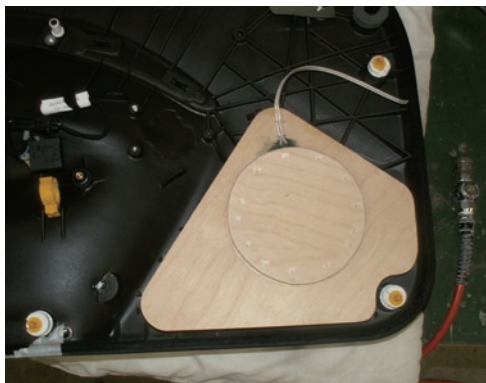
Fabrication example. 2



7. Fix the port onto the baffle board



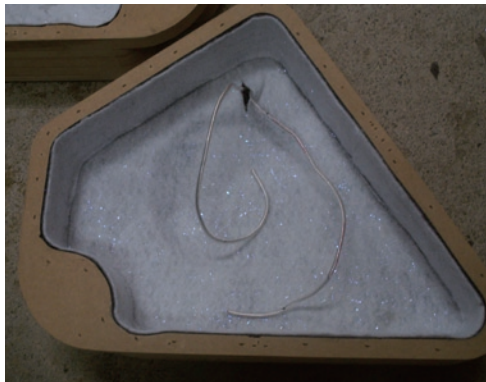
8. Make sure that the enclosure fits on the trim



9. The back of the enclosure



10. Apply butyl tape to the inside wall of the enclosure



11. Apply felt to the inside wall of the enclosure



12. Cut out the surface panel

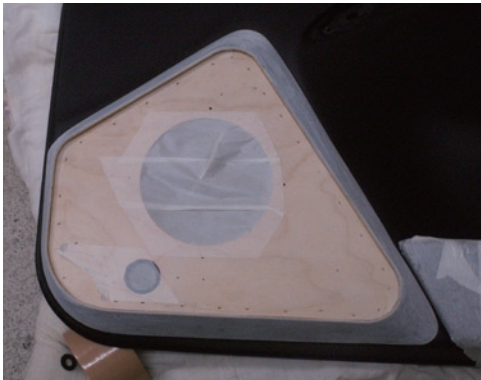
Fabrication example. 3



13. Place the surface panel onto the enclosure and make sure it fits



14. Place the enclosure into the trim, and form the side panel and the trim together



15. Smooth the edges



16. Glue a leather onto the surface panel and the side panel



17. Completed 1



18. Completed 2

How to make a bass-reflex enclosure for subwoofer.

Side panel :

18mm Birch plywood or 20mm MDF

Bottom panel :

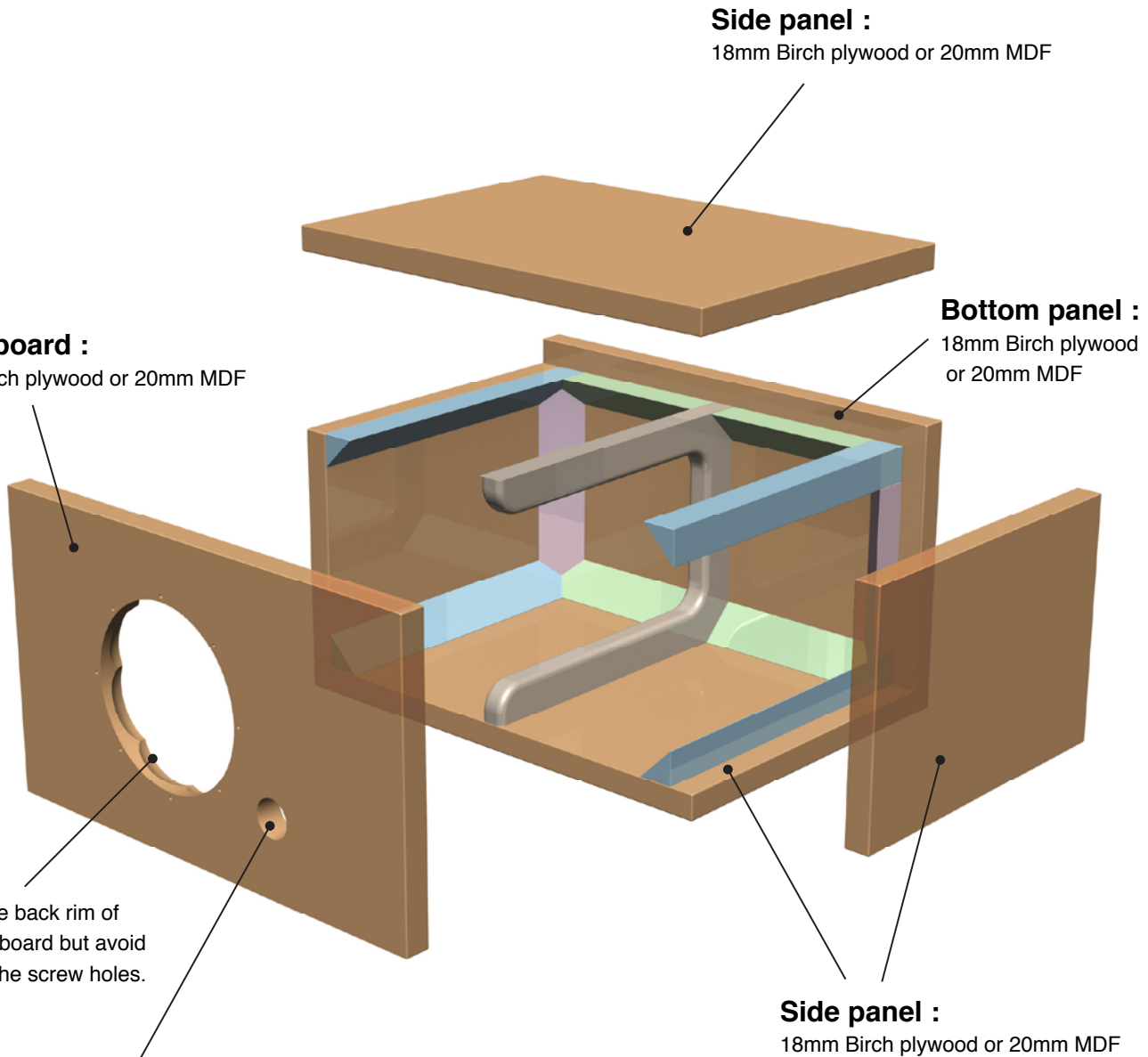
18mm Birch plywood or 20mm MDF

Baffle board :

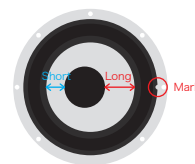
18mm Birch plywood or 20mm MDF

Scrape the back rim of the baffle board but avoid scraping the screw holes.

The diameter of the vent should be the same size as the external diameter of the duct.



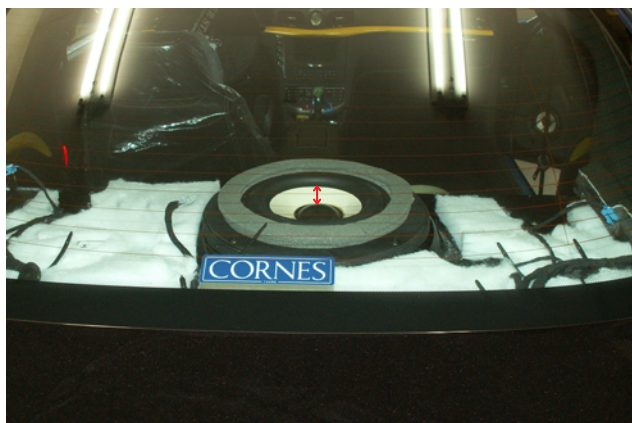
The directions of off-center subwoofer in various installation places.



Trunk pass-through



The upper part of trunk



Rear tray



The side of trunk



Trunk floor



Trunk floor