Acoustic dome

Calculation of your bass-reflex enclosure, 4/8

Updated: November 5, 2020.

If you arrive on this page by a direct link, you will not have any results displayed: This is normal, no search parameters were passed...
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Loudspeaker reference:

Mark	**EMINENCE**
	List of all HP: EMINENCE and their main parameters from T&S
HP Brand Reviews	**Brand with 40 or more purchasable references.**
Reference	**PS18-6008**
Availability of HP for sale	The supplier, or the Internet user who entered the HP, did not know how to give a set of homogeneous parameters compared to the documentation.
Speaker type	Standard
Calculated speaker type	SERIOUS
Calculated diameter	46cm---18"
Normalized impedance	8 Ohms
Creation date in the database	2016-09-16
Date of modification in the database	2020-10-21
Database	Operational
HP number	5960

Calculation constant :

Definition	Setting	Value	Intermediate calculations
Air temperature	Temp	20.0 °C	Reference pressure at 0 m: 101325.0 Pa Pressure at 50.0 m: 100725.8 Pa R_o dry air = 1.20 Kg/m^3 C dry air = 343.10 m/s R_o steam = 0.74 Kg/m^3 C steam = 435.22 m/s
Altitude	H	50.0m	
Relative air humidity	HR	40.0%	
speed of sound	VS	343.707 m/s	
Density of air at 40% RH	Ro	1.194 Kg/m3	
Medium impedance	Z_i	410.3 Kg/(m2 * s)	

Number of HP:

1 HP 1 HP visible from outside, 0 HP hidden inside.	Coefficient R_e	V_{AS} factor	Sd factor	Coefficient M_{ms}
	1.000	1.000	1.000	1.000

New Xmax:

Taking into account the AES power existing in the database for the recalculation of Xmax, within the limit of 1.14*Xmax (1.2296*Paes).
Old Xmax = 5.50 mm, **new Xmax = 4.79 mm** at 68.2 Hz, for 300.0 W at 244.5 Hz, in 77.3 L with a tuning at 41.6 Hz used in the calculation.

Summary, in 6 significant values:

- If it's green, it's OK.
- If it's yellow, it's possible.
- If it is orange, it is acceptable limit.
- If it's red, it's totally inadvisable.
- A single cell in red, and your project is not viable
- The specialist will know when and why he can ignore: Never for me...

Adaptation of the loudspeaker on 3 criteria		Comparison values
Is the Q_{tsb} of the HP suitable for bass-reflex?		Cutoff frequency at -6 dB: 48 Hz
Is V_B neither too small nor too large?		Maximum theoretical SPL at 1 m: 121.6 dB
Is F_B within the allowed range?		Diaphragm displacement at 92 dB: ±0.16 mm

Amp and filter:

Internal resistance of amplifier and connection cables	R_g	0.00 Ohms	**NO AMP**
Passive filter resistor	R_f	0.00 Ohms	**ACTIVE FILTER**

THIELE and SMALL parameters on IEC baffle of EMINENCE PS18-6008:

Definition	Setting	Values	Calculation formulas. MKSA units
Resonance frequency	Fs _	28.07Hz	Database value
Air volume equivalent to the elasticity of the suspension	go _	354.09L	Database value
DC coil resistance	Re _	5.12 Ohms	Database value
amplifier internal resistance	R_g	0.00 Ohms	Damping factor 200000 on 8 Ohms
Passive filter resistor	R_f	0.00 Ohms	If 0: No filter or active filter
Mechanical overstrain coefficient	Qms _	5.530	Database value
Electrical overvoltage coefficient	Q_{es}	0.250	Database value
Total overvoltage coefficient	Qts _	0.239	$Q_{ms}*Q_{es}/(Q_{ms}+Q_{es})$
Calculated type	F_s/Q_{ts}	117.4Hz	F_s / Q_{ts}
	Type	SERIOUS	55 < Fs / Qts < 140
Diaphragm surface	S_d	1159.17 cm^2	Database value
Diaphragm radius	R_d	19.21cm	root(S_d/pi)
Equivalent normalized diameter	Diameq _	46cm	[Diameter calculation rules]
[Near field measurement distance]	C_p	42.3mm	Distance < to (R_d*2)*0.11/td>
	F_p	285Hz	For frequencies < 10950/(R_d*2)
[Far Field measurement distance] between	C_{l1} --- C_{l2}	115.3---153.7cm	Distance between (R_d*2)*3 and (R_d*2)*4
Measurement distance to use	C_{lm}	135cm	Average of the two previous values rounded to the cm
Suspension Acoustic Compliance	case _	25109.9 Ncm^5	$V_{AS}/(R_o*C^2)$
Total acoustic mass of the diaphragm	But _	12.8 Kgm^4	$1/((2*Pi*F_s)^2*C_{as})$
Mechanical moving mass	M_{ms}	172.030g	$(C*S_d/(2*Pi*F_s))^2*R_o/V_{AS} = M_{as}*S_d^2$
Frontal Radiation Mechanical Mass	M_{mrf}	22.561g	$(8*R_{or}*R_d^3)/3$
Diaphragm mass	M_{md}	149.469g	M_{ms} - M mrf
Mechanical resistance	Rms _	5.487 Kg/s	$2*Pi*F_s*M_{ms}/Q_{ms}$
Suspension Compliance	C_{ms}	0.187mm/N	$1/(2*Pi*F_s)^2/M_{ms}$
Suspension stiffness	K	5351 N/m	1/ Cms
force factor	BL	24.927 N/A	$(2*Pi*F_s*M_{ms}*R_e/Q_{es})^{1/2}$
BL/M_{ms}	BL/M_{ms}	144.9 m/s^2 /A	It is not a selection criterion
AES or rated power	P_{aes}	300W	Database value
Linear elongation of the membrane	X_{max}	±4.79mm	Database value
	X_{max} PP	dp 9.59mm	$2*X_{max}$
Volume of air moved by the membrane	V_d	555.72 cm^3	S_d*X_{max}
Displacement of the resting point of the membrane in a vertical position	X_{green}	0.17mm	$M_{md}*9.81*C_{ms}$
Yield %	makes	3.046%	$(4*Pi^2/C^3)*(F_s^3*V_{AS}/Q_{es})*100$
Sensitivity constant	This sense	112.13dB	$10*LOG(R_o*C/2/Pi)-20*LOG(2*10^{-5})$
Sensitivity [in 2*Pi steradian] Valid only in the bass and the lower midrange	Sense 2.83V	98.9dB/2.83V/m	10*LOG(Rend/100)+112.13 +10*LOG(8/(R_e+R_g+R_f))
	W direction	97.0dB/W/m	10*LOG(Rend/100)+112.13
[Coil inductance]	The _	1.67mH	Database value Beware of high inductances!!!
Power cut-off frequency	Fe _	488Hz	$1/(2*Pi*(L_e/(R_e+R_g+R_f)))$
HP not directive below	Direction _	570Hz	C/(Pi*Rd)
Directive HP with lobes above	D_{ir1}	1091Hz	C/((1.044*Pi/2)*Rd)

All the values in the table are calculated from the values stored in the database, F_s, V_{as}, R_e, Q_{ms}, Q_{es}, S_d, L_e, X_{max} and P_{aes}.

THIELE and SMALL parameters in the enclosure of the EMINENCE PS18-6008:

The value of the mechanical mass of rear radiation M_{mra} retained for the calculations in the enclosure is an average value, calculated from the plans of enclosures proposed on this site, and for loudspeakers of the same diameter.
This value will be refined during your speaker calculation, but the starting value is quite close to reality.

Definition	Setting	Values	Calculation formulas
Diaphragm mass	M_{md}	149.469g	M_{ms} - M mrf
Frontal Radiation Mechanical Mass	M_{mrf}	22.561g	$(8*R_{or}*R_d^3)/3$
Rear radiation mechanical mass	M_{mra}	19.633g	Average in the diameter 46 cm Refined by successive iterations
Mass added to the membrane	$M_{addition}$	0.0g	Value entered by you
Moving mass in the enclosure	msb	191.663g	$M_{md}+M_{mrf}+M_{mra}+M_{addition}$
Resonance frequency in the enclosure	F_{sb}	26.59Hz	$1/(2*Pi*root(C_{ms}*M_{msb}))$
Mechanical overvoltage coefficient in the enclosure	Q_{msb}	5.837	$Q_{ms}*F_s/F_{sb}$
Electrical overvoltage coefficient in the enclosure	Q_{bse}	0.264	$2*Pi*F_{sb}*(R_e+R_g+R_f)*M_{msb}/BL^2$
Total overvoltage coefficient in the enclosure	Q_{tsb}	0.252	$Q_{msb}*q_{bs}/(Q_{msb}+q_{bs})$
Calculated type for this use	F_{sb}/Q_{tsb}	105.3Hz	F_{sb}/Q_{tsb}
	Type	SERIOUS	55 < Fs / Qts < 140
Yield % in chamber	Makes b	2.454%	$4*Pi^2/C^3*F_{sb}^3*V_{AS}/Q_{esb}*100$
Sensitivity in 2*Pi steradian Valid only in the bass and the low-midrange	Sense 2.83V b	98.0dB/2.83V/m	$10*LOG(Rend_b/100)+112.13$ $+10*LOG(8/(R_e+R_g+R_f))$
	Direction W b	96.0dB/W/m	$10*LOG(Rend_b/100)+112.13$

All the values in the table are calculated from the values stored in the database, F_s, V_{AS}, R_e, Q_{ms}, Q_{es}, S_d, L_e, X_{max} and P_{aes}.

Calculation limits:

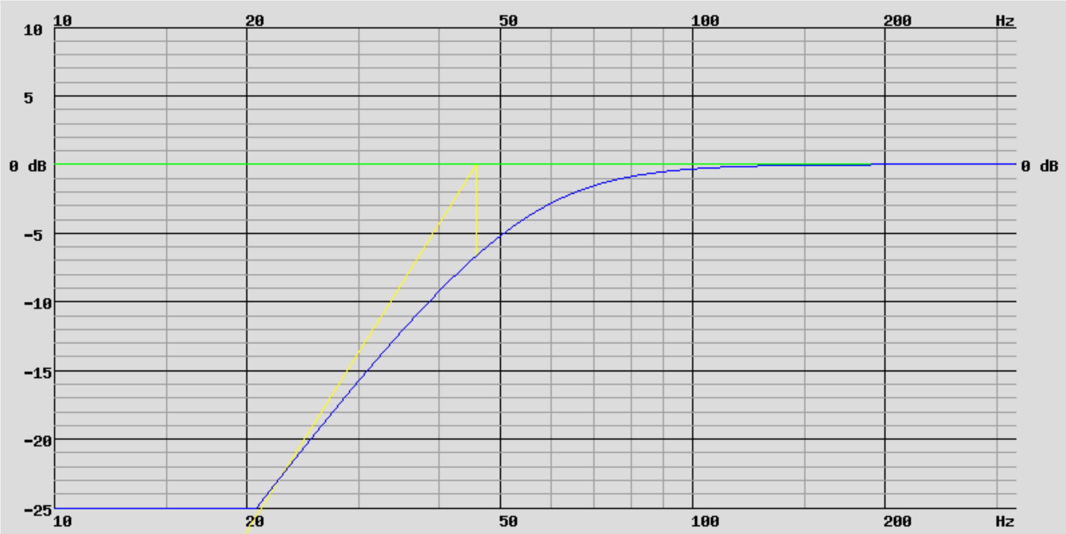
Definition	Setting	Value	Calculation formulas
Absorption loss	Q_A	5.0	5: Enclosure completely filled 120: Enclosure empty
Leakage loss	QL	10.0	10: Low leakage 20: No leakage
Friction loss in the vent	Q_P	70.0	Between 70 and 140
Total losses	Q_B	3.2	$Q_B = 1/(1/Q_A+1/Q_L+1/Q_P+1/Q_A/Q_L/Q_P)$
FBMAX	FB_{MAX}	43.8Hz	See previous page
FBmin	FB_{min}	26.6Hz	See previous page

Response curve, F_B and Cutoff frequency at -6 dB:

Definition	Setting	Value	Calculation formulas
Bass reflex volume	V_B	77.3L	Compute volume
Volume factor	NOT	3.42	$V_B/(V_{AS}*Q_{tsb}^2)$
Optimization of the response curve	O_{pt}	FB is forced to 41.6 Hz	
F_B for 77.3 L	F_B	41.6Hz	Calculation accuracy to 0.1 dB

HP without electronic correction			
Level at F_B = 41.6 Hz	E_{FB}	-8.7dB	Level to F_B
	Q_{vent}	0.374	$10^{(E_{FB}/20)}$
F at -3 dB for V_B = 77.3 L and F_B = 41.6 Hz (In free field , so outside and far from everything)	F_{-3dB}	59Hz	Chapter bass-reflex speaker Rounded to the nearest 1 Hz because there is no point in being more precise.
F at -6 dB for V_B = 77.3 L and F_B = 41.6 Hz (Level at -3 dB in your living room)	F_{-6dB}	48Hz	
F at -12 dB for V_B = 77.3 L and F_B = 41.6 Hz	F_{-12dB}	35Hz	
Asymptote start frequency at 24 dB/octave (approx.)	F_{-0dB}	45.9Hz	With reserve
	$E_{0\ dB\ asymptote}$	-6.68dB	
	$Q_{pregnant}$	0.464	$10^{(E_{0\ dB\ asymptote}/20)}$
Correction of the acoustic phase of this loudspeaker with F = 45.9 Hz and Q = 0.464 In RePhase: Box = Vented low Q at 45.9 Hz.			

Response curve of the EMINENCE PS18-6008, V_B = 77.3 L, F_B = 41.6 Hz, the 0 dB corresponds to 98.0 dB/2.83V/m.
Blue: Response in open fields.
Green: On-board Hi-FI correction or Room gain.

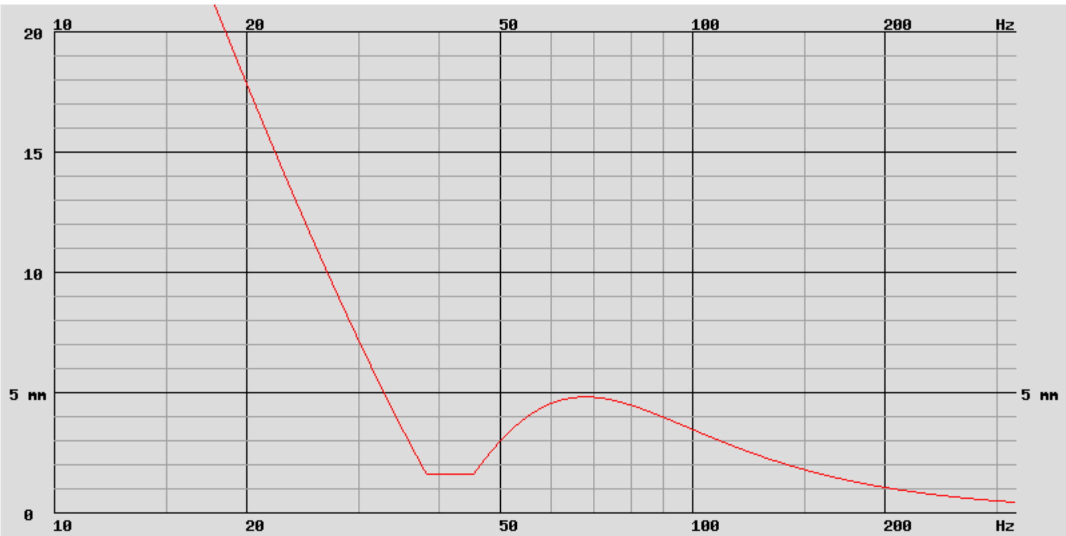


The response curve is calculated in free field , outside on a mast 15 m high, far from any obstacle.
In your room you will have more bass.

Diaphragm Displacement, SPL, Power:

HP without electronic correction			
Definition	**Setting**	**Value**	**Calculation formulas**
Maximum elongation for 2.83 V and 98.0 dB at 1 m	F_{Xmax}	68.2Hz	Calculation precision: 0.1 Hz
	X_{Xmax}	±0.31mm	
Theoretical maximum level for ± 4.79 mm at 1 m	SPL_{th}	121.6dB SPL	Theoretical calculation that does not take into account thermal effects
	V	43.13V	

EMINENCE PS18-6008 membrane displacement curve, V_B = 77.3 L, F_B = 41.6 Hz, at 43.13 V.



The flat around 41.6 Hz is not the strict reality of things. It is however fairer than a curve of displacement which passes by 0 to 41.6 Hz.

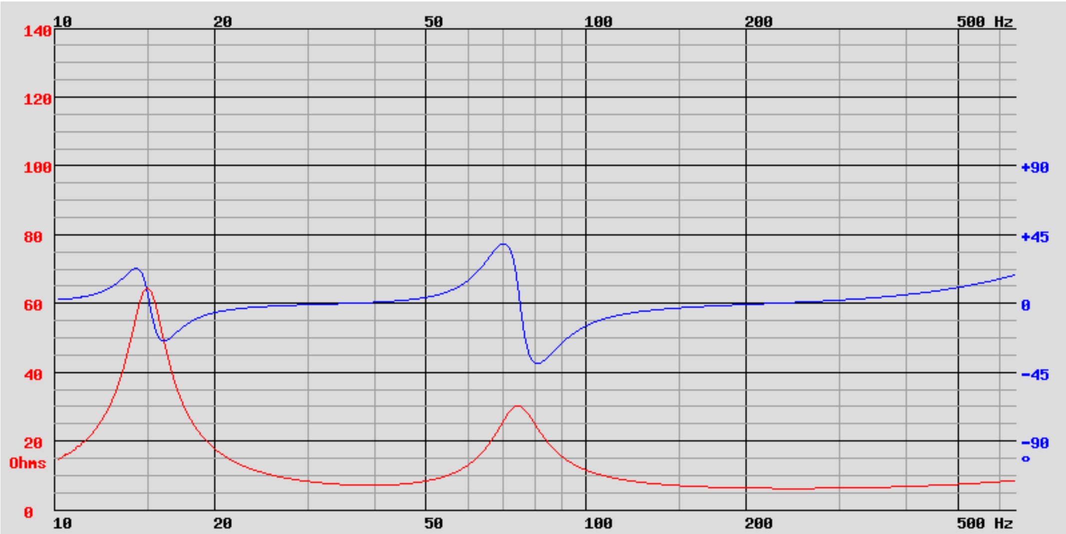
Impedance:

Definition	Setting	Value	Calculation formulas
Coil inductance	The _	1.67mH	Database value
DC coil resistance	Re _	5.12 Ohms	Database value
1st impedance bump	F	14.9Hz	Calculation precision: 0.1 Hz
	Z	64.5 Ohms	
Impedance at F_B	F_B	41.6Hz	Calculation precision: 0.1 Hz
	ZFB _	7.2 Ohms	
2nd impedance bump	F	74.2Hz	Calculation precision: 0.1 Hz

	Z	30.1 Ohms	
Minimum in the lower midrange	F	244.5Hz	Calculation accuracy: 2.5 Hz
	Z	6.2 Ohms	

Impedance and electrical phase curve of the EMINENCE PS18-6008, V_B = 77.3 L, F_B = 41.6 Hz.

Red: Impedance curve.
Blue: Electrical phase curve.



I need help : I digitally derived the impedance to get the electrical phase.
If the shape of the curve is good, the values are not those of the other software.
If you have an idea, thank you for your help, I tried "everything" and I dry.

Acoustic impedance:

Compare the values at 100 Hz, between several speakers.

The higher the value of the acoustic impedance, the better the coupling with the ambient air of the listening room.
Doubling the number of speakers, or the surface area of the membrane, multiplies the acoustic impedance by 4.

Going from a 21 cm 220 cm^2 to a 38 cm 880 cm^2 multiplies the acoustic impedance by 16.

Why this calculation?

To dispel the idea that a small diameter speaker with a large diaphragm displacement can be equivalent to another larger diameter speaker with a smaller diaphragm displacement.

If the equivalence exists on the number of m^3 displaced by the membranes, this equivalence no longer exists at all on the acoustic impedance.

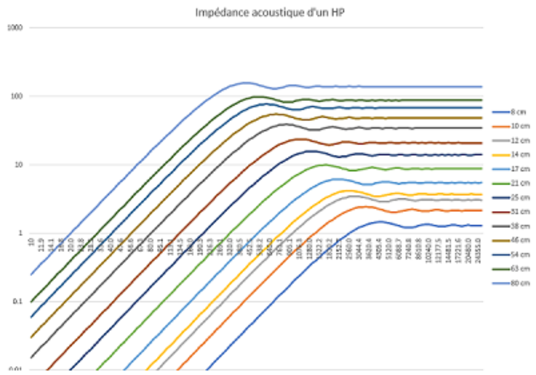
The good rendering of the bass is well characterized by the acoustic impedance, and not at all by the number of m^3 moved by the membrane.
The 92dB comparison values further down the chapter give you what you need to see this on your speaker choices.

A different volume Vb and a different tuning frequency Fb will not change the value of the acoustic impedance.
The only criterion is the surface Sd of the membrane.
Want to increase acoustic impedance?
Take a larger diameter HP, or use 2 or 4 HP mounted side by side...

Acoustic impedance for an HP surface of 1159.17 cm^2 .	**Frequency**	**Value**
Acoustic impedance at 100 Hz.	F=100Hz	2.87245
Acoustic impedance at Fd = 403 Hz. Acoustic impedance ripples a bit for higher frequencies.	Fd = 403Hz	53.26812

The image below was calculated in Excel with the values of the average surfaces of the loudspeakers in each diameter.
It is only the real part of the acoustic impedance that I show you, the imaginary part will arrive later.
This is quite enough to show the interest of using a large-diameter loudspeaker: The higher the acoustic impedance, the better the bass output.

The quality of the bass is not the cutoff frequency at -3 dB, it's the acoustic impedance, it's also the 60 to 300 Hz at the right level in relation to the high mids, see The target curve for there to arrive



Comparison values at 92 dB:

To compare the HP between them on the displacement criterion of the membrane.
The sound level is 92 dB, an arbitrarily chosen value.
The lower the displacement, the better the HP: Lower Distortion.
Please note that a -3 dB higher cut-off frequency usually results in a lower Xmax.
Compare speakers with comparable bass performance.
The "Air compression" criterion is currently being evaluated to assess its relevance.

Definition	Setting	Value	Calculation formulas
Voltage for 92 dB at 1 m	T_{92}	1.42V	$2.83*10^{(92-98.0)/20}$
Maximum elongation	x92 _	±0.16mm	Recalculated with the voltage To compare the loudspeakers with each other For 92 dB at 1 m
	F_{Xmax}	68.2Hz	
Volume of air moved by the HP, $S_d * X_{92}$	V_{92}	±0.01834 L	
Acoustic impedance at 100 Hz	Imp_{100}	2.87245	The higher the value, the better the bass. Explanations in the chapter: The bass .

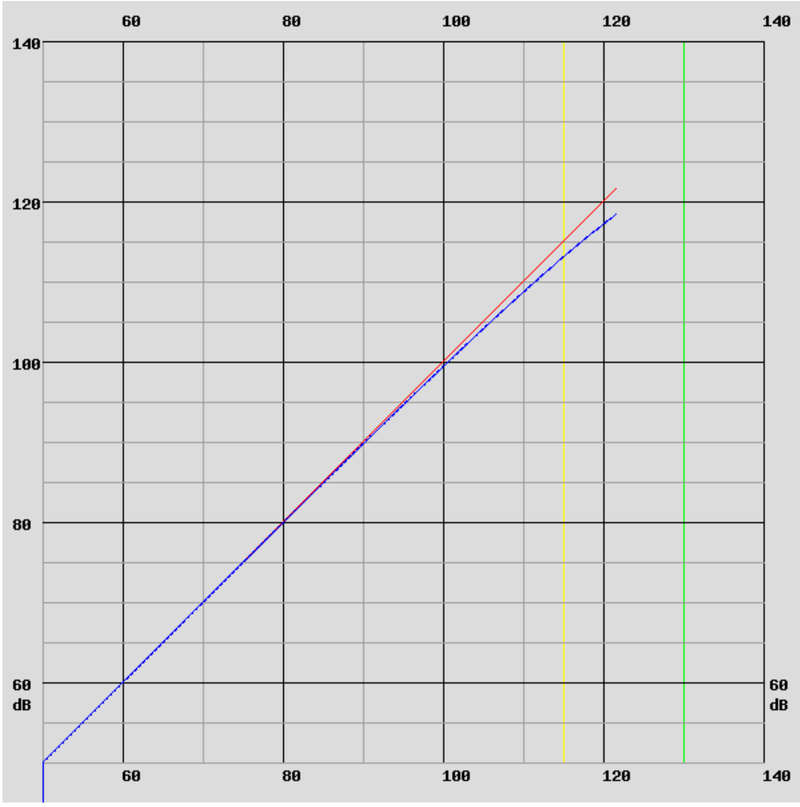
Power :

Definition	Setting	Value	Calculation formulas for nominal Fs
Voltage to reach Xmax	V	43.13V	Theoretical calculation
Minimum peak amp power for 1 HP	Pmin _	259.7W	into 7.2 Ohms at 41.6 Hz
	Pmin _	300.0W	into 6.2 Ohms at 244.5 Hz

Thermal attenuation in SONO use:

Definition	Setting	Value	Calculation formulas
Current in the HP coil	I	6.96A	on 6.2 Ohms
Current in the HP coil	I_8	6.12A	on 8 Ohms
Thermal attenuation	$A_{tt\ th}$	3.2dB	$I_8^{0.65}$
Practical maximum level for ±4.79 mm with 1 speaker at 1 m	SPL_p	118.4dB SPL	Takes into account the thermal effects according to an average assumption. It is not an exact calculation. It's a way of not forgetting a point that may be important.
Maximum practical level for ±4.79 mm with 1 speakers at 4.00 m Critical listening distance from the room: 4.00 m	SPL_p	106.4dB SPL	

Thermal attenuation curve of EMINENCE PS18-6008.
Red: Theoretical curve, without thermal attenuation. Maximum level 121.6 dB SPL at 1 m for 1 loudspeaker.
Blue: Practical curve, with thermal attenuation. Maximum level 118.4 dB SPL at 1 m for 1 loudspeaker.
You think you are listening to the red curve, you are listening to the blue curve. Ideally, there should be no difference before 118.4 dB SPL.
The green vertical line is positioned at the equivalent for a loudspeaker of 118.4 dB SPL at 4.00 m with 1 loudspeaker.



In Hi-Fi, or in home cinema, the average listening level is 15 dB below the peak level of 118.4 dB SPL that you want.
Thermal attenuation is practically non-existent for some HP.
In Hi-Fi, thermal attenuation can be seen on the yellow vertical curve.

Calculation of exterior vents, 5/8

Updated: July 4, 2021

Check that the decimal separator is the "point" and not the "comma".
If you used the "comma", the numbers that follow will not be used in the calculation, which will therefore be false.

Speaker volume: 77.3 L Tuning frequency: 41.6 Hz

End coefficient (For surface S) **K** : 0.846 End coefficient (For radius A) **K1** : 1.499 (not used)
Coefficient for rectangular **vent Krect** : 1.000 **Knb** correction with number of vents: 1.278 **KT** coefficient used in the calculation: 0.846 * 1.278 * 1.000 = 1.081

Temperature: 20.0 °C
Altitude: 50.0 m
Humidity: 40.0 %
Air velocity: 343.7 m/s
Air density: 1.194 Kg/m^3

Circular vent chosen from the list
Number of vents: 2
Distance between vents: 25 cm
Diameter of the vent: 11.8 cm

Corrected air passage surfaces of the vents: 218.72 cm^2

Air friction surfaces on the sides of the vents: 2441.88 cm^2

Ratio of the two surfaces: 11.2
The organ pipes have a high ratio to have more harmonics.
In Hi-Fi, a low ratio is therefore a guarantee of quality.
You won't do better than a single round or square vent.
The "laminar" vent that you like so much is to be avoided absolutely.

Vent air passage surfaces for the SPL: 218.

Comparison values:
Level at 41.6 Hz tuning frequency: -8.69 dB
Cut-off frequency at -6 dB: 47.7 Hz
Diaphragm displacement: ±0.16 mm at 92 dB
Air velocity in port: 0.6 m/s at 92 dB

Having the length of the vent is not enough to make a good enclosure.
There are **two conditions of validity** to respect:
An **air speed** in the vent less than or equal to 20.5 m/s.
A **vent length that is** not too long, with **KL** less than or equal to 0.5
If only one of the two conditions is not met, your vent is not suitable.
When the vent is suitable, the box is green.
When the vent is not suitable, the boxes are yellow, orange or red depending on the severity.
The reason, **vent area** too small or **vent length**too large is indicated.

The ideal is to have a vent that passes the maximum SPL of the HP: No compromise.
If you don't need the max SPL, you can compromise.
A compromise is not ideal, but it is sometimes necessary, the box will be in yellow.

The vent is well sized.
Vent depth: 32.9 cm
Vent air velocity = 17.8 m/s, KL = 0.250
Vent air noise = 53.3 dB at 1 m, HP SPL = 121.6 dB at 1 m HP signal / vent noise = 68.3 dB
For 121.6 dB with 1 speaker at 1 m. Xmax = 4.8mm. P=259.7W.

Resonance frequency of the organ pipe type vent open on both sides:
F = C / 2 / Prof_event_en_m = 343.7 / 2 / (32.9 / 100). --- F = 522 Hz.

A resonant frequency of the vent in the area of use of the HP, associated with a ratio of the two surfaces opposite, of 11.2 in your case, high (> 25?) is the guaranteed to make a bad vent.

Both conditions, frequency and ratio, are necessary.

Level for an air speed of 5 m/s in the vent: 109.4 dB. X = ±1.17mm. (110 dB)
5 m/s is Mario Rossi's calculation assumption for vent sizing. This is the assumption of very high quality listening

Use		**PC, proximity listening**					**hi fi**				**Hi-Fi Home-Cinema Small PA**			**SOUND**				
SPL	**dB at 1m**	**60**	**65**	**70**	**75**	**80**	**85**	**90**	**95**	**100**	**105**	**110**	**115**	**120**	**125**	**130**	**135**	**140**
HP + Event														121.6dB at 1m				

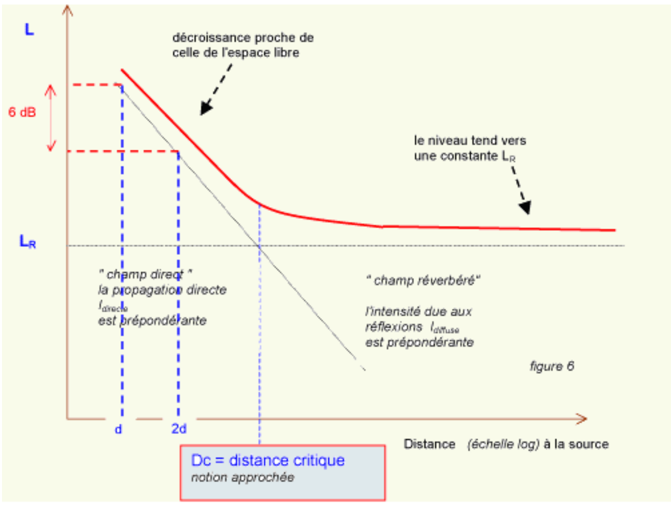
I recommend that you measure your sound level needs yourself with your smartphone so as not to oversize the loudspeakers of your installation,
or to accept a smaller and shorter vent that will only pass the necessary and useful SPL: **With a compromise on the SPL and max power.**

In SONO use, you will have an SPL level lower than those indicated, **by approximately 3.2 dB** , because of thermal attenuation.
This value is an average attenuation value, a very well ventilated HP will do better, a low-end HP will do less well.

What sound level can you achieve in your room?

The reference acoustic level, for 1 enclosure at 1 m, is the theoretical level calculated for the maximum displacement of the membrane, or for the vent in the context of a bass-reflex enclosure.
Ideally you should have at least 95 dB peak at the listening point, with all your loudspeakers: This is possible with two loudspeakers equipped with a 21 cm driver in the bass.
Many of you are satisfied with less in an apartment, or with speakers that have small speakers in the bass. 80, 85, 90, 95 dB?
Some oversize to 115 dB minimum in the name of a home cinema standard for subwoofers, a standard that needs explaining.

You get +3 dB each time the number of speakers doubles assuming each speaker is plugged into an amp channel.
You have -6 dB each time the distance doubles to the critical distance of your listening room, 0 dB beyond, as shown in the drawing below.
If you add a SUB that goes lower than your other speakers, in the extreme bass you only have one speaker.



It is up to you to calculate from which length the attenuation becomes equal to 0: As a first approach, take half the length of your room.
The critical listening distance of the room is calculated with the link on the RT60 site .

En Home cinéma la norme demandait 115 dB(C) crête en mesure lente sur le canal LFE et 105 dB(A) crête sur les autres canaux, au point d'écoute.
Les 10 dB de plus sur le canal LFE sont pour passer une dynamique supérieure sur les effets dans les graves.
Ces chiffres ne sont plus en accord, sur les canaux principaux, avec les dernières normes utilisées en sonorisation : 102 dB(A) crête sur 15 mn pour les enceintes principales.
Avant de vouloir plus, pensez bien à vos oreilles, elles sont en danger même en respectant les normes.
J'ai toujours donné mon avis, et ça ne plait pas à tous : Avec 95 dB au point d'écoute, vous en avez assez...

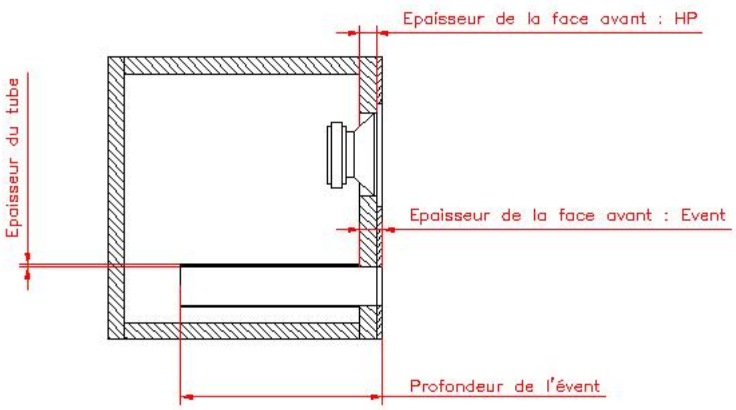
Le niveau sonore de référence du EMINENCE PS18-6008 est avec 1 enceinte à 1 m						
Distance des enceintes	**1 enceinte 1 SUB ou LFE**	**2 enceintes**	**3 enceintes**	**4 enceintes**	**5 enceintes**	**7 enceintes**
A 0.25 m	133.6 dB SPL	136.6 dB SPL	138.4 dB SPL	139.6 dB SPL	140.6 dB SPL	142.1 dB SPL
A 0.50 m	127.6 dB SPL	130.6 dB SPL	132.4 dB SPL	133.6 dB SPL	134.6 dB SPL	136.1 dB SPL
A 0.75 m	124.1 dB SPL	127.1 dB SPL	128.9 dB SPL	130.1 dB SPL	131.1 dB SPL	132.5 dB SPL
A 1.00 m	121.6 dB SPL	124.6 dB SPL	126.4 dB SPL	127.6 dB SPL	128.6 dB SPL	130.1 dB SPL
A 1.50 m	118.1 dB SPL	121.1 dB SPL	122.9 dB SPL	124.1 dB SPL	125.1 dB SPL	126.5 dB SPL
A 2.00 m	115.6 dB SPL	118.6 dB SPL	120.4 dB SPL	121.6 dB SPL	122.6 dB SPL	124.1 dB SPL
A 2.50 m	113.7 dB SPL	116.7 dB SPL	118.4 dB SPL	119.7 dB SPL	120.7 dB SPL	122.1 dB SPL
A 3.00 m	112.1 dB SPL	115.1 dB SPL	116.9 dB SPL	118.1 dB SPL	119.1 dB SPL	120.5 dB SPL
A 3.50 m	110.8 dB SPL	113.8 dB SPL	115.5 dB SPL	116.8 dB SPL	117.7 dB SPL	119.2 dB SPL
A 4.00 m	109.6 dB SPL	112.6 dB SPL	114.4 dB SPL	115.6 dB SPL	116.6 dB SPL	118.1 dB SPL
A 4.50 m	108.6 dB SPL	111.6 dB SPL	113.4 dB SPL	114.6 dB SPL	115.6 dB SPL	117.0 dB SPL
A 5.00 m	107.7 dB SPL	110.7 dB SPL	112.4 dB SPL	113.7 dB SPL	114.7 dB SPL	116.1 dB SPL
A 5.50 m	106.8 dB SPL	109.9 dB SPL	111.6 dB SPL	112.9 dB SPL	113.8 dB SPL	115.3 dB SPL
A 6.00 m	106.1 dB SPL	109.1 dB SPL	110.9 dB SPL	112.1 dB SPL	113.1 dB SPL	114.5 dB SPL

Malgré la précision de la simlation et du calcul, la mise au point de l'évent se termine à l'écoute.
Explications dans le chapitre : Mise au point de l'évent.

Retour avec le bouton "**Précédant**" de votre navigateur

Volume occupé par les évents circulaires.

Il y a deux épaisseurs différents, parce que le haut-parleur est souvent monté encastré, que l'une des épaisseurs sert pour le volume occupé par le HP, que l'autre sert pour le volume occupé par l'évent.
Les deux valeurs peuvent être identiques, si le haut-parleur n'est pas encastré.
J'imagine mal l'épaisseur de la face avant au niveau de l'évent plus petite qu'au niveau du HP.



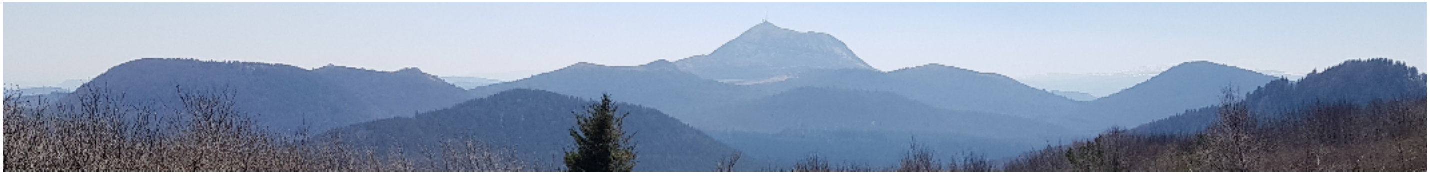
Ce que vous devez faire dans le formulaire ci-dessous :

- Entrer les deux épaisseur demandées, en vous aidant du dessin ci-dessus.
- Si évent circulaire, entrer l'épaisseur du tube de l'évent.
- Si évent rectangulaire, entrer le nombre de planches pour construire l'évent.
  1 planche, par exemple en bas de l'enceinte et sur toute la largeur de l'enceinte.
  2 planches, par exemple pour un évent placé au milieu de la face avant.
- Si évent rectangulaire sur toute la largeur de l'enceinte, vous pouvez choisir d'optimiser la largeur de l'évent à la largeur, hauteur ou profondeur de l'enceinte pendant les itérations.
  C'est magique !!!

Entrez l' **Epaisseur de la face avant : HP** (*en mm*) : 22
Entrez l' **Epaisseur de la face avant : Event** (*en mm*) : 30
Entrez l' **Epaisseur du tube** (*en mm*) : 3.5

Calculer le volume occupé par les évents

Un grand merci pour votre visite. --- Retour direct en haut de la page ---



Un grand père facécieux disait à ses petits enfants que le grand truc blanc tout en haut du Puy de Dôme était un thermomètre géant : Quand il deviendra tout rouge il faudra vite se sauver, parce que le volcan va se réveiller !!!

Dôme Acoustique