

ONKEN CALCULATOR by Cyr-Marc Debien 2000 © cdebien@cmaisonneuve.com			
After original research from M. Eijiro Koizumi and Jacques Mahul and Jean Hiraga ca			
Koizumi facto	K= 1.57	K=	54.950 Hz
You can modify the RED value. The Green Value are calculated by the software. In many case it's for validation.			
TS parameters			
Fs	35.000	Hz	driver frequency resonance
Re	6.000	ohms	dc resistance of driver
Qms	2.370		mechanical Q of the driver
Qes	0.350		electrical Q of the driver
Qts	0.305		total Q of driver at Fs calculated by the software
Mms/d	10.730	gr	total cone assembly mass
Sd	1.470E-02	m^2	effective radiation area of the driver cone
Rg	6.000	ohms	total components resistance (xover coil, terminal, wire, amplifier, etc.)
Cms	1.93E-03		driver suspension compliance calculated by the software
Vas	58.317	litres	air volume driver compliance calculated by the software
Vas*Qts2	17.030		calculated by the software
n =	5.700	(best 5.7)	Onken alignment (best alignment = 5.7, Onken alignment = 6.34) note : you can play with the n factor to maintain the L' vent under 30 cm but try to don't used a excessive value because you don' t respect the Onken ap
Box and system response			
F-3	27.128	Hz	box cutoff frequency at -3dB
Fb	25.259	Hz	box cutoff frequency
Cab	6.934		acoustical box compliance
Map	57.257		acoustical mass box
S vent	43.200	cm^2	this value is calculated by the vent dimension section
nO	0.007		
dB 1w/1m	84.360	dB	total efficiency of the system including Rg
Vent lenght			
L vent	19.130	cm	effective lenght vent
L' vent	15.459	cm	corrected effective vent lenght (use this lenght in your vent calculation) note : If the L' vent is over 35 cm, your driver is not suitable for the Onken speak
Vent dimension (habitually an Onken speaker have a S vent equal or -15 % smaller to the			
Width	1.800	cm	indicate the width of one vent
Height	3.000	cm	indicate the height of one vent
Quantity	8.000		indicate the number of vent you can use (Onken speaker have 6 or 8 identical ve
S vent	43.200	cm^2	total vent area (try to obtain a S vent equal or maximum 15% less to the Sd)
Vent volume	0.668	litres	total volume occupied by all vent in the box
Total Box Volume			
Vb	97.071	litres	total internal volume of the box
Vb Total	97.739	litres	total internal volume of the box plus the required volume for the vent