

ONKEN CALCULATOR by Cyr-Marc Debien 2000 © cdebien@cmaisonneuve.com					
After original research from M. Eiji Koizumi and Jacques Mahul and Jean Hiraga calculations					
Koizumi factor	K=	1,57	K=	50,844	Hz
You can modify the RED value. The Green Value are calculated by the software. In many case it's for vent					
TS parameters					
Fs	32,385	Hz	driver frequency resonance		
Re	6,800	ohms	dc resistance of driver		
Qms	7,820		mechanical Q of the driver		
Qes	0,325		electrical Q of the driver		
Qts	0,312		total Q of driver at Fs calculated by the software		
Mms/d	30,765	gr	total cone assembly mass		
Sd	5,100E-02	m^2	effective radiation area of the driver cone		
Rg	1,550	ohms	total components resistance (xover coil, terminal, wire, amp		
Cms	7,85E-04		driver suspension compliance calculated by the software		
Vas	285,953	litres	air volume driver compliance calculated by the software		
Vas*Qts2	41,227		calculated by the software		
n =	5,700	(best 5.7)	Onken alignment (best alignment = 5.7, Onken alignment =		
			note : you can play with the n factor to maintain the L' vent u		
			but try to don't used a excessive value because you don't re		
Box and system response					
F-3	35,724	Hz	box cutoff frequency at -3dB		
Fb	33,263	Hz	box cutoff frequency		
Cab	16,785		acoustical box compliance		
Map	13,639		acoustical mass box		
S vent	422,400	cm^2	this value is calculated by the vent dimension section		
nO	0,029				
dB 1w/1m	94,812	dB	total efficiency of the system including Rg		
Vent lenght					
L vent	44,556	cm	effective lenght vent		
L' vent	33,077	cm	corrected effective vent lenght (use this lenght in your vent c		
			note : If the L' vent is over 35 cm, your driver is not suitable		
Vent dimension (habitually an Onken speaker have a S vent equal or -15 % smaller to the					
Width	3,300	cm	indicate the width of one vent		
Height	16,000	cm	indicate the height of one vent		
Quantity	8,000		indicate the number of vent you can use (Onken speaker ha		
S vent	422,400	cm^2	total vent area (try to obtain a S vent equal or maximum 15%		

Vent volume	13,972	litres	total volume occupied by all vent in the box		
Total Box Volume					
Vb	234,995	litres	total internal volume of the box		
Vb Total	248,967	litres	total internal volume of the box plus the required volume for		

validation.		
ifier, etc.)		
6.34)		
nder 30 cm		
espect the Onken approach		
calculation)		
for the Onken speaker application		
ve 6 or 8 identical vent)		
% less to the Sd)		

the vent		