THIEL/SMALL PARAMETERS

For those "box wizards" out there we have included an extensive list of valuable parameters for you to use. They are based on a break in period in which they deviate slightly from original. In other words, you will be designing an enclosure that will not operate at its full potential until after a break in period. Remember the frequency response on your computer screen is not the same as the frequency response in your vehicle. The transfer function of the vehicle will cause a rising response with decreasing frequency at the bottom of the audio spectrum (20 to 150Hz). Always model the excursion of your woofer in its enclosure and make sure that the woofer will handle the power you will be using. Sometimes low frequency response must be compromised for excursion control.

WOOFER SPECIFICATIONS

	SW408	SW410	SW412	SW415
Revc (DC VC res)	3.3Ω	3.3Ω	3.3Ω	3.3Ω
Levc (Inductance @ 1KHz)	0.34mH	0.48mH	0.55mH	0.52mH
Fo (Res Freq)	34.7Hz	39.8Hz	26.3Hz	26.3Hz
Zo (Zmax at Fo)	27.5Ω	22.8Ω	25.5Ω	26.9Ω
Sd (Piston Area)	0.022m²	0.033m²	0.053m²	0.089m²
BL (Flux Length)	6.88TM	8.69TM	10.33TM	11.83TM
SPLO (SPL @ 1W)	91.60dB	93.50dB	93.44dB	96.68dB
Qms (Mech Q)	2.89	2.55	2.93	2.80
Qes (Elec Q)	0.39	0.43	0.44	0.39
Qts (Total Q)	0.35	0.37	0.38	0.34
Vas (Acous Vol)	1.97 ft³	2.21 ft³	6.05 ft³	14.46 ft³
Cms (Compliance)	813.1μM/N	405.6μM/N	429.2μM/N	363.8μM/N
Mms (Total Mass)	25.89g	39.41g	85.07g	100.36g
Mmd (Diaphram Mass)	24.02g	35.97g	78.05g	85.09g
Pe (Therm Power Handling)	120W	170W	200W	250W
Xmax (Max Excursion)	4.4mm	6.0mm	8.0mm	11.0mm
Vc (Voice Coil Diameter)	1.5"	2.0"	2.0"	2.5"
Vdd (Driver Displacement)	53 in³	112 in³	210 in³	422 in³
Mounting Diameter	7.20"	9.16"	11.00"	14.00"
Mounting Depth	3.13"	3.96"	4.56"	5.25"

* Specifications are subject to change without notice.

ENCLOSURE DATA

	VENTED				SEALED		
	Vb	Vd	Vl	Comments	Vb	Align	Comments
SW408							
min	0.24 ft³	2.0"	9.3"	Good transient response, excellent power handling.	0.24 ft³	Enhanced Q	Good transient response, excellent power handling.
opt	0.56 ft³	2.0"	5.2"	Better transient response, good power handling.	0.56 ft³	Butterworth	Better transient response, good power handling.
max	0.98 ft³	2.0"	4.2"	Best transient response, limited power handling.	0.98 ft³	Bessel	Best transient response, limited power handling.
SW410							
min	0.75 ft³	3.0"	10.5"	Good transient response, excellent power handling.	0.32 ft³	Enhanced Q	Good transient response, excellent power handling.
opt	1.16 ft³	3.0"	7.4"	Better transient response, good power handling.	0.73 ft³	Butterworth	Better transient response, good power handling.
max	1.6 ft³	3.0"	5.7"	Best transient response, limited power handling.	1.3 ft³	Bessel	Best transient response, limited power handling.
SW412							
min	1.8 ft³	4.0"	18.0"	Good transient response, excellent power handling.	0.9 ft³	Enhanced Q	Good transient response, excellent power handling.
opt	3.4 ft³	4.0in	10.8"	Better transient response, good power handling.	1.9 ft³	Butterworth	Better transient response, good power handling.
max	4.5 ft³	4.0"	9.0"	Best transient response, limited power handling.	3.8 ft³	Bessel	Best transient response, limited power handling.
SW415							
min	2.5 ft³	2x4.0"	17"	Good transient response, excellent power handling.	1.7 ft³	Enhanced Q	Good transient response, excellent power handling.
opt	3.6 ft³	2x4.0"	18"	Better transient response, good power handling.	3.0 ft³	Butterworth	Better transient response, good power handling.
max	4.1 ft³	2x4.0"	18"	Best transient response, limited power handling.	5.6 ft³	Bessel	Best transient response, limited power handling.

TRANSIENT RESPONSE relates directly to the sound quality of the subwoofer. The better the transient response, the better the woofer will accurately reproduce the input signal.
Good transient response sacrifices sound quality for the ability to provide very high SPL's at full power.
Better transient response is the midpoint between good sound quality and high SPL applications and is the best compromise between sound quality and power handling.
Best transient response sacrifices high SPL and power handling for accurate musical reproduction.
ENCLOSURE CONSTRUCTION: Keep the walls rigid and all glue joints tight. Screws or an air nailer may be used, with ¾" MDF as the best choice for enclosure construction material. Make sure all walls are properly braced! Line the walls with 3" of Polyester fill or BAF, keeping in mind that extensive stuffing only affects sealed enclosure response and should not be used in other enclosure types. The actual shape of the enclosure isn't critical. This is only true in mid and high frequency enclosures where standing waves may occur. Don't forget to account for any objects (speakers, braces, ports) that may take up additional volume in the enclosure.