English

CRESCENDO EVOLUTION 312

12 INCH SUBWOOFER

TECHNICAL PAPER

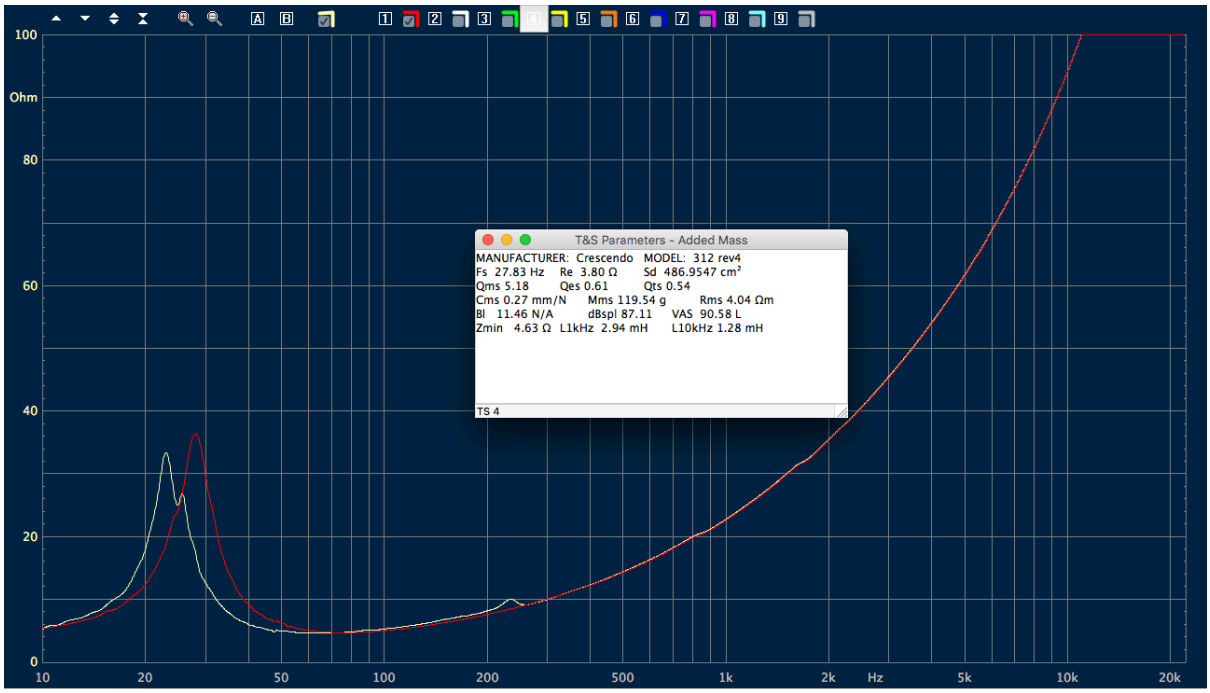
Specification:

- 300 mm (12 inch) outside diameter
- 250 mm (10 inch) cone / piston diameter
- 50 mm (2 inch) 4 layer voice coil
- 150 x 70 mm double magnet
- 4 ohm impedance
- 22 mm linear excursion
- 300 - 500 Watt RMS
- Polypropylene (PP) cone material
- Overhung design for high sensitivity
- Computer aided design to balance excursion vs sensitivity and predict distortion / saturation
- Long excursion suspension means loud and low
- Custom tooling ventilated basket to improve piston area for louder bass
- Ported pole to eliminate distortion (strange sound on bass guitar) and improve piston area
- Aluminum front ring and custom tooling large opening hexagon grill included for cosmetic & protection
- Thiele Small Parameter is optimized for to work best on both sealed or ported box

Thiele Small Parameter:

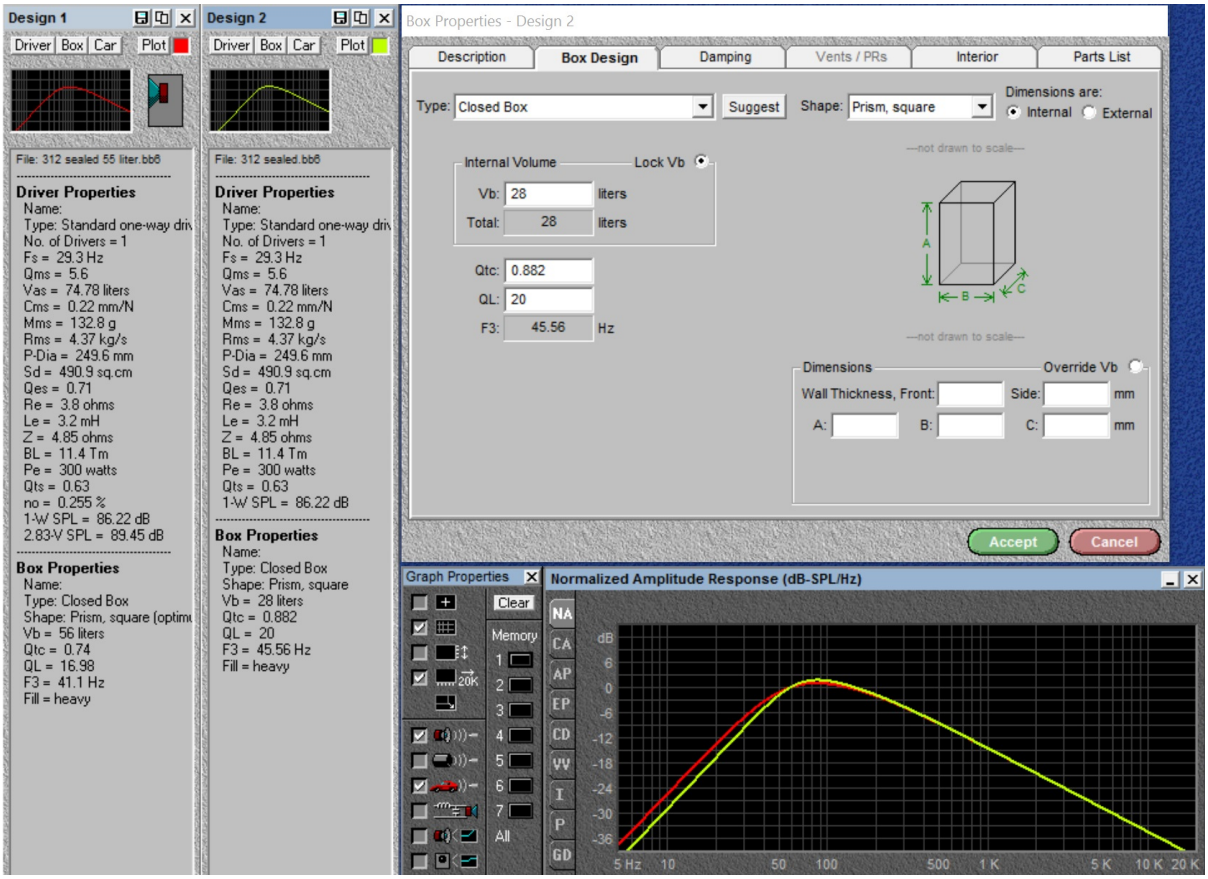
MANUFACTURER: Crescendo		MODEL: 312 rev4
Fs 27.83 Hz	Re 3.80 Ω	Sd 486.9547 cm²
Qms 5.18	Qes 0.61	Qts 0.54
Cms 0.27 mm/N	Mms 119.54 g	Rms 4.04 Ωm
Bl 11.46 N/A	dBspl 87.11	VAS 90.58 L
Zmin 4.63 Ω	L1kHz 2.94 mH	L10kHz 1.28 mH

Impedance Curve:



Sealed Box:

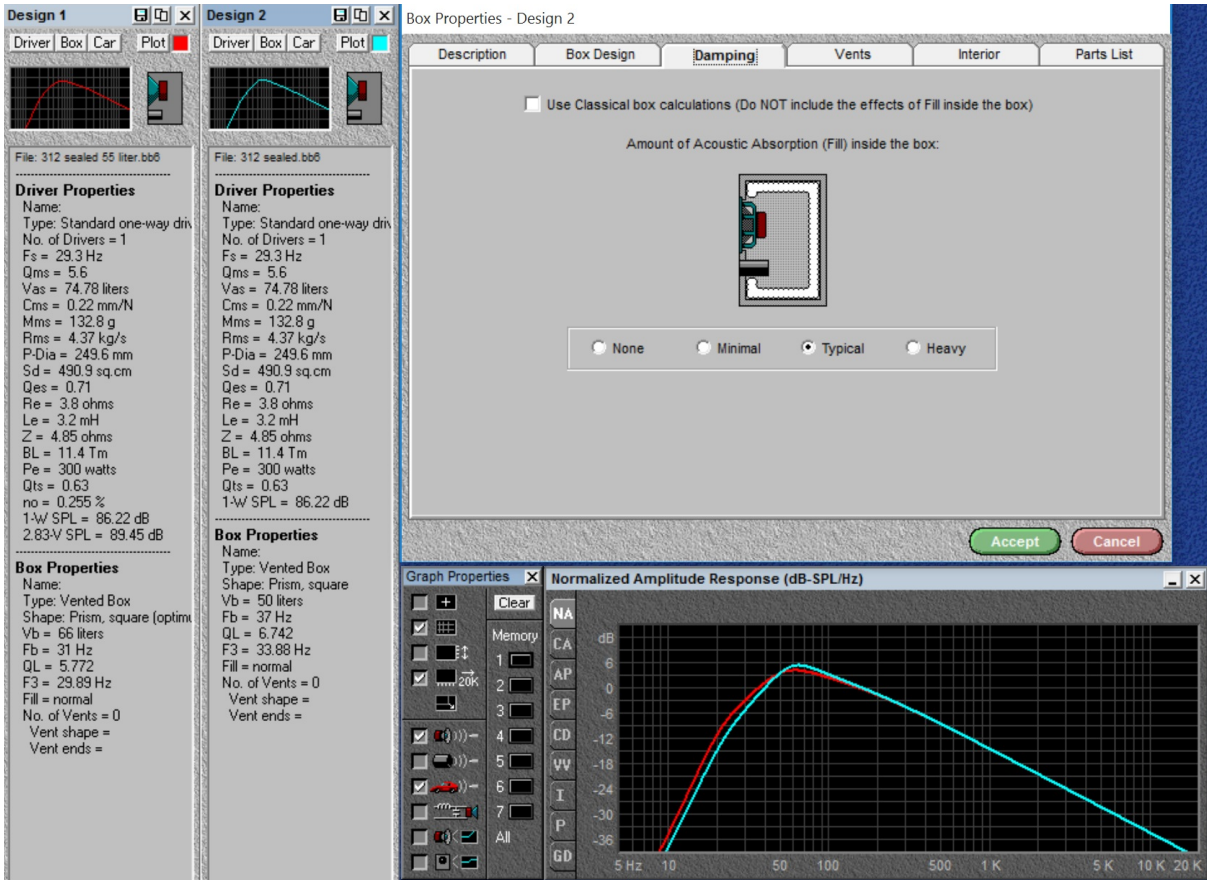
- Sealed box optimum volume is 28 liters (1 cu ft), which is decent for all kind of music.
- Jazz music lover who expect more low bass can increase box volume to 56 liters (2 cu ft) and will receive additional 3 dB more output at 20 Hz (3 dB equals double the amplifier power).
- Please see Picture 1: red curve is Evo 312 in 56 liters sealed box while green curve is Evo 312 in 28 liters sealed box.
- Please see Picture 1: damping should be FULL with dacron but not until DENSE.



Picture 1

Ported Box:

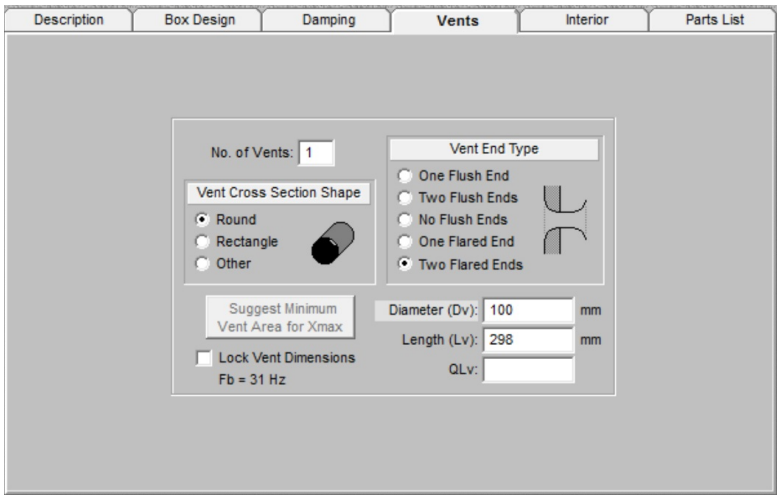
- Ported box optimum volume is 66 liters (2.3 cu ft), which is decent for all kind of music.
- Beat music lover who expect more loudness can reduce box volume to 50 liters (1.8 cu ft) and will receive additional 2 dB kickbass at 63 Hz. Note: 3 db more output is equal to double the amplifier power.
- Please see Picture 2: red curve is Evolution 312 in 66 liters ported box while light blue curve is Evolution 312 in 50 liters ported box.
- Please see Picture 2: damping is only 1 sheet of dacron on each wall and should not cover subwoofer back part and port mouth



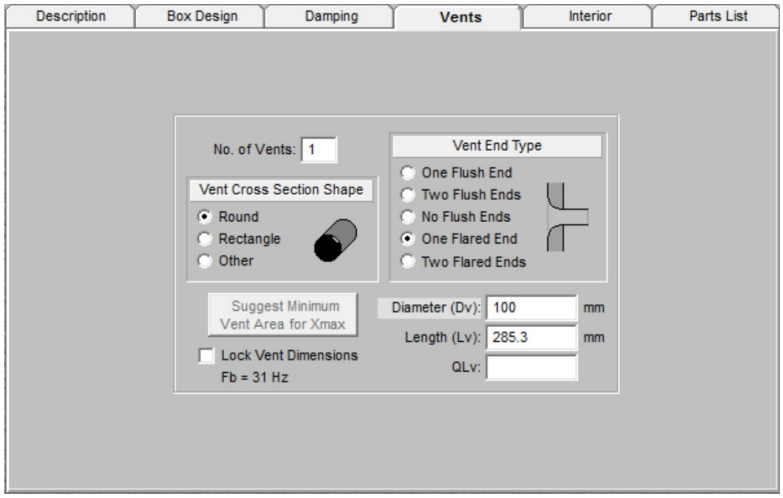
Picture 2

Port Calculation for 66 liters ported box:

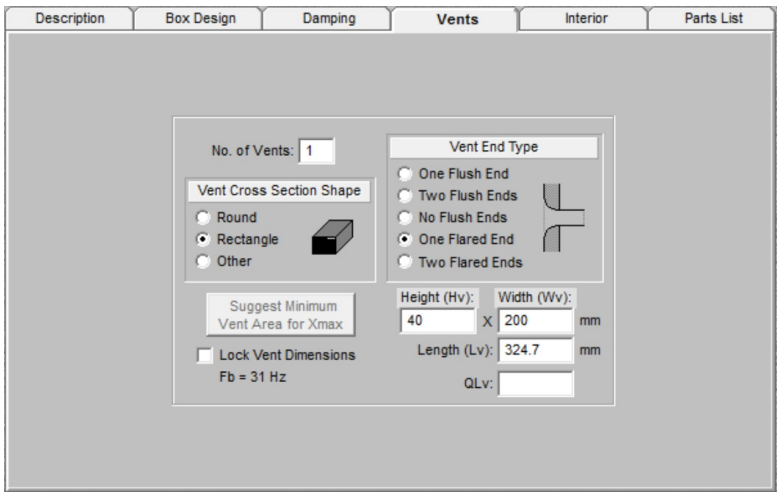
- Round with 2 flared ends: diameter 100 mm and length 298 mm (below picture)



- Round with 1 flared end: diameter 100 mm and length 285 mm (below picture)

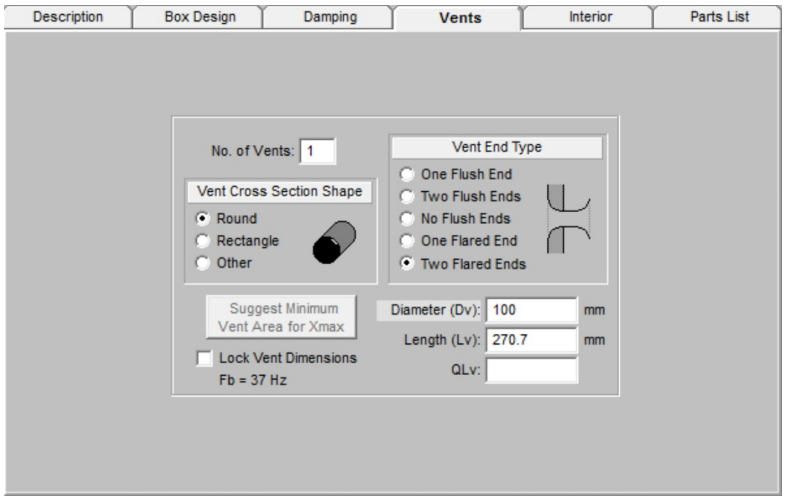


- Rectangle with 1 flared end: opening 40 x 200 mm and length 325 mm (below picture)

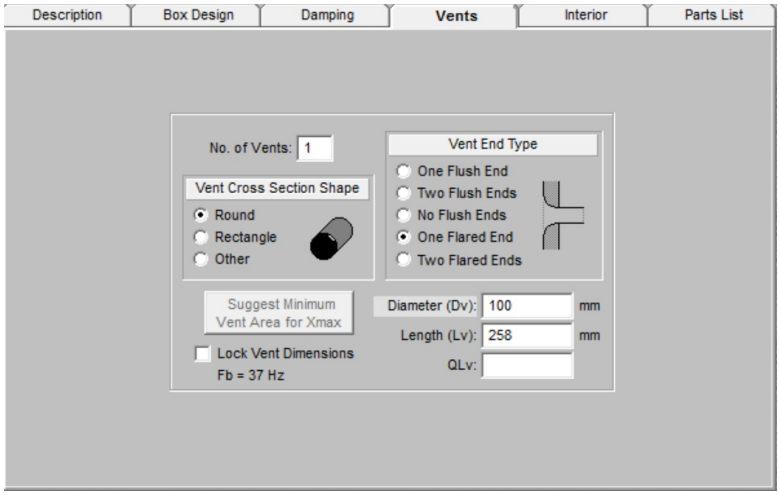


Port Calculation for 50 liters ported box:

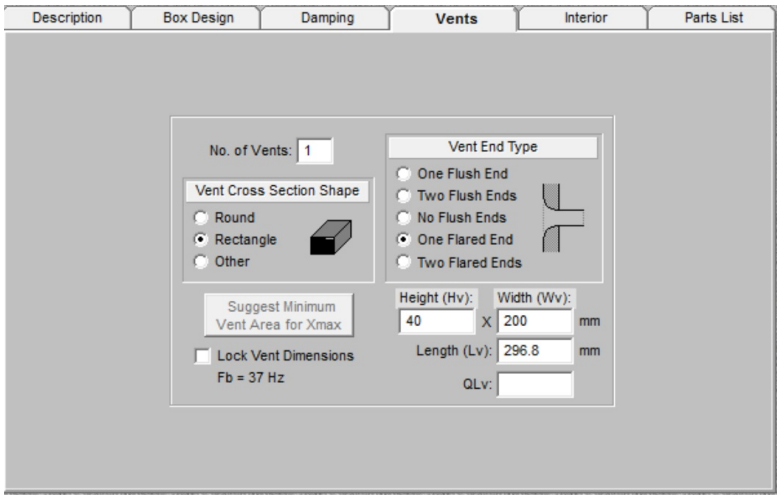
- Round with 2 flared ends: diameter 100 mm and length 271 mm (below picture)



- Round with 1 flared end: diameter 100 mm and length 258 mm (below picture)



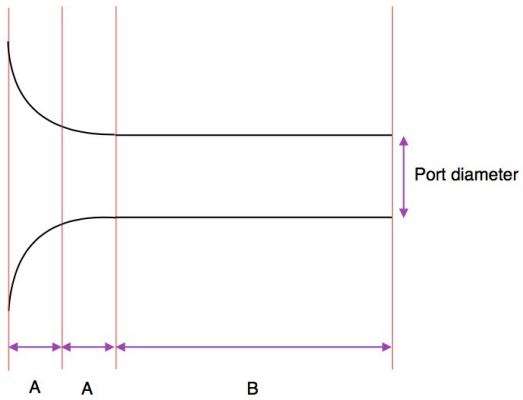
- Rectangle with one flared end: opening 40 x 200 mm and length 297 mm (below picture)



Port knowledge:

- Flare is needed to reduce port noise at high volume level.
  - Double flare is the best
  - Single flare is minimum required
  - No flare is not acceptable
- Round port diameter for Evolution 312 is minimum 100 mm (4 inch) and maximum 125 mm (5 inch). Rectangle port is minimum 40 mm x 20p0 mm.
- Measuring port length:
  - Half of the flare length is calculated as port length ccalculation while the rest is not calculated.

PORT LENGTH CALCULATION FOR AERO PORT



B = normal port length
A = half of aero port length
Port length calculation = B + A