



THE **RAVEN** XL SUBWOOFERS (DESIGNED BY **ORCA** – MADE IN CALIFORNIA)  
SET THE BAR FOR SUPERIOR SUBWOOFER POWER.

The Raven 10XL subwoofer is designed to produce very deep bass at realistic levels in a remarkably compact cabinet with extremely low distortion, minimum compression and fast transient response. We recommend typically 1 cuft sealed enclosure ( $F_3 = 42$  Hz), or 3 cuft vented enclosure ( $F_3 = 22$  Hz). The Qts and rugged suspension make it also quite ideal for use in a transmission line. The Raven 10XL is **Made in California, USA**.

**MAGNETIC MOTOR:**

- It allows a +/-18 mm linear Xmax for extremely low distortion and high power handling.
- The lightweight compact neodymium motor is a patented XBL design with two magnetic gaps and three Faraday rings to minimize inductance, flux modulation and intermodulation distortion.
- The BL and inductance curves have a flat top to minimize 2nd and 3rd harmonic distortion and to optimize the impulse response. The audible result is explosive, uncompressed, dynamic.

**EMISSIVE AREA:**

- Cone and dust cap are made of a woven carbon mat laminated to a high modulus paper so they are extremely rigid and highly damped, thus a very smooth frequency response up to 1500 Hz!

**SUSPENSION:**

- A 25 mm wide rubber surround is used for long life even under high excursions.

**COOLING:**

- The voice coil is directly cooled through radial holes on the motor so that cool air flow does not get restricted by box stuffing. Additional air vents through the cone itself help further to equalize pressure in front and back of the cone.

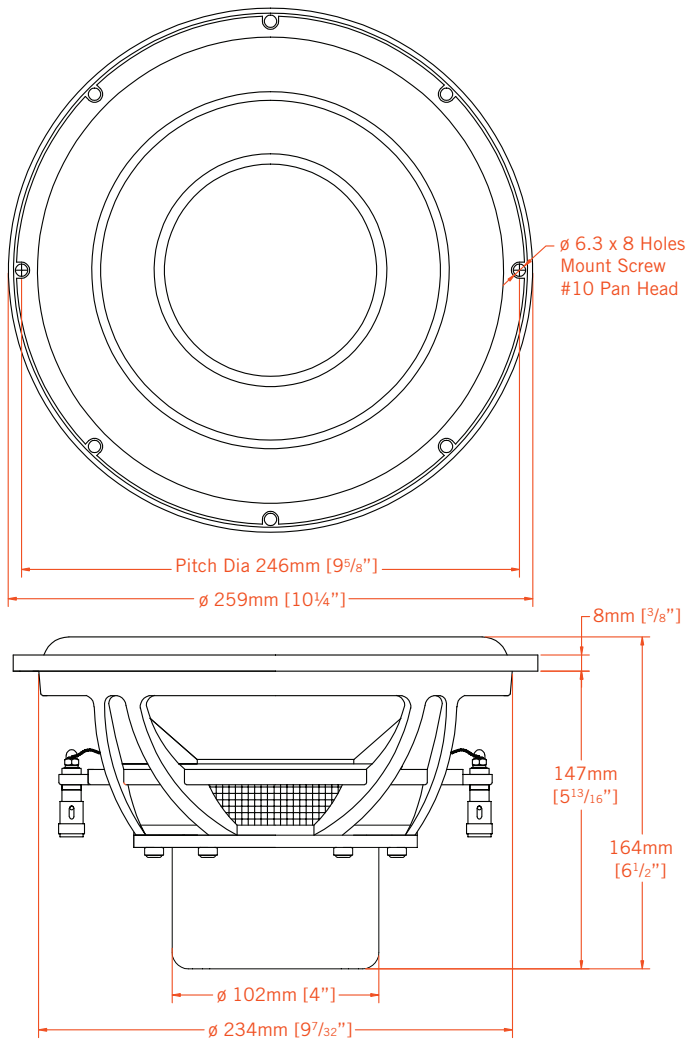
**FRAME:**

- A stiff cast aluminum basket is used for best sound quality and good cooling.

**AMPLIFIER TO USE:**

- It takes 800 W @ 1% THD into 4  $\Omega$  to reach Xmax
- So we recommend a power amplifier of high quality of minimum 800 W and maximum 1600 W to get the most out of this exceptional drive unit.

## SPECIFICATIONS



### THIELE-SMALL PARAMETERS AFTER 12 HOUR BREAK IN.

|                           |                                     |
|---------------------------|-------------------------------------|
| <b>FS</b>                 | 26 Hz                               |
| <b>VAS</b>                | 35 l                                |
| <b>CMS</b>                | 0.23 mm/N                           |
| <b>MMS</b>                | 164 g                               |
| <b>QTS</b>                | 0.50                                |
| <b>QMS</b>                | 4.7                                 |
| <b>QES</b>                | 0.56                                |
| <b>SD</b>                 | 330 cm <sup>2</sup>                 |
| <b>SPL<sub>0</sub></b>    | 82.2 dB 1 watt into 4 ohms, 1 meter |
| <b>SENSITIVITY</b>        | 85.7 dB @ 2.83 volts, 1 meter       |
| <b>BL</b>                 | 13.21 T/m                           |
| <b>LE</b>                 | 0.5 mH                              |
| <b>RE</b>                 | 3.63 Ω                              |
| <b>NOMINAL IMPEDANCE</b>  | 4 Ω single voice coil               |
| <b>RECOMMEND AMP SIZE</b> | 800 W @ 1% THD into 4 Ω             |

### OPTIMUM VENTED BOX TUNE

|  |                                     |
|--|-------------------------------------|
| 2.3 FT <sup>3</sup> OR 65 l W/ BLACK HOLE FIVE INTERNAL WALL DAMPING |                                     |
| <b>-3DB</b>  | 22Hz                                |
| <b>PORT TUNE FREQ</b>  | 20Hz                                |
| <b>1 PORT TUBE</b>   | 101mm D x 813mm L [4" D x 32" L]    |
| <b>*MUST USE</b>   | 18Hz Subsonic Filter                |
| <b>XMAX</b>  | +/- 18mm @ 30Hz = 440 Watts into 4Ω |

### OPTIMUM SEALED BOX TUNE

|   |                                     |
|---|-------------------------------------|
| 1.23 FT <sup>3</sup> OR 35 l W/ BLACK HOLE STUFF INTERNAL DAMPING |                                     |
| <b>-3DB</b>   | 38Hz                                |
| <b>FC</b>   | 38Hz                                |
| <b>QTC</b>  | 0.7                                 |
| <b>XMAX</b>   | +/- 18mm @ 20Hz = 280 Watts into 4Ω |

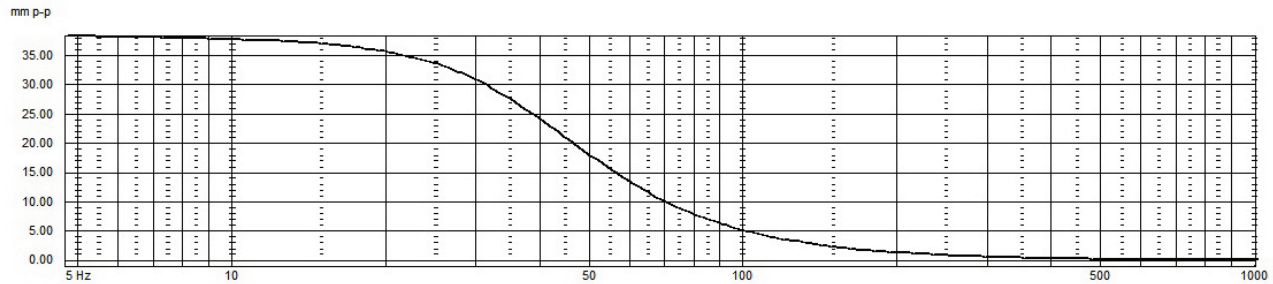
### TRANSMISSION LINE WITH LINEAR TAPER

|   |  |
|---|--|
| <b>-3DB</b>                             | 30Hz                                     |
| <b>MAX AMPLIFIER SIZE</b>               | 400 Watts into 4Ω                        |
| <b>*MUST USE</b>                        | 20Hz 12dB Subsonic Filter                |
| <b>SPEAKER END AREA</b>                 | 650cm <sup>2</sup> [128in <sup>2</sup> ] |
| <b>EXIT AREA</b>                        | 82cm <sup>2</sup> [13in <sup>2</sup> ]   |
| <b>PIPE LENGTH</b>                      | 3.75m [148in <sup>2</sup> ]              |
| <b>POLYESTER FIBER STUFFING DENSITY</b> | 4 grams/liter, 4oz / ft <sup>3</sup>     |

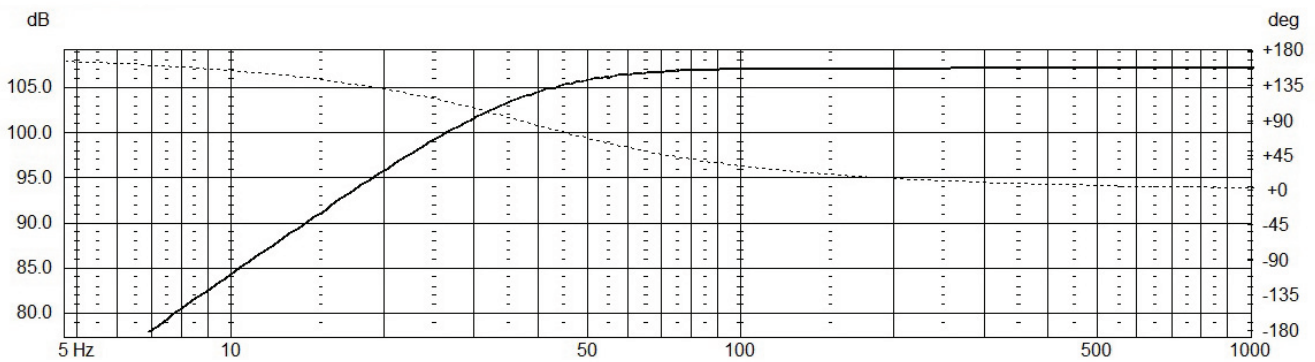
### SMALLEST SEALED BOX TUNE

|   |                                     |
|---|-------------------------------------|
| 0.35 FT <sup>3</sup> OR 10 l W/ BLACK HOLE STUFF INTERNAL DAMPING |                                     |
| <b>-3DB</b>   | 46Hz                                |
| <b>FC</b>   | 51Hz                                |
| <b>QTC</b>  | 1.0                                 |
| <b>XMAX</b>   | +/- 18mm @ 33Hz = 808 Watts into 4Ω |

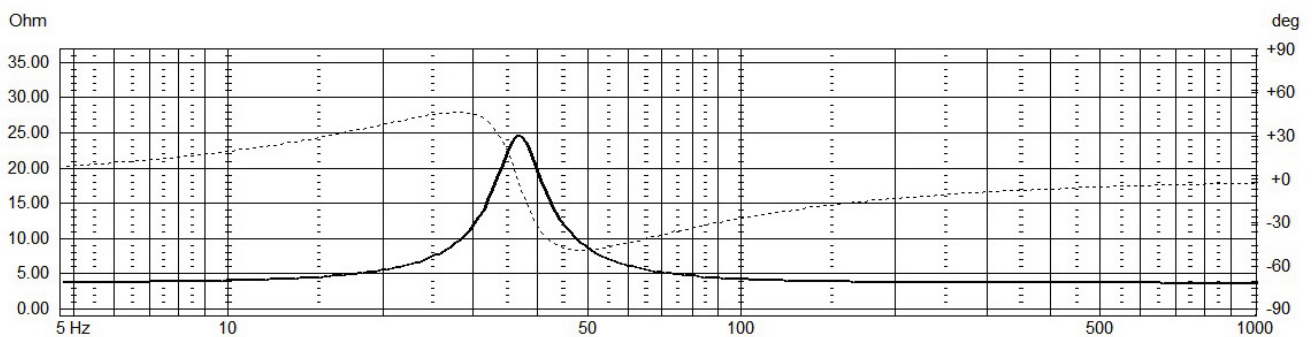
**RAVEN 10 XL - 1.23ft Sealed Box - Cone Excursion**



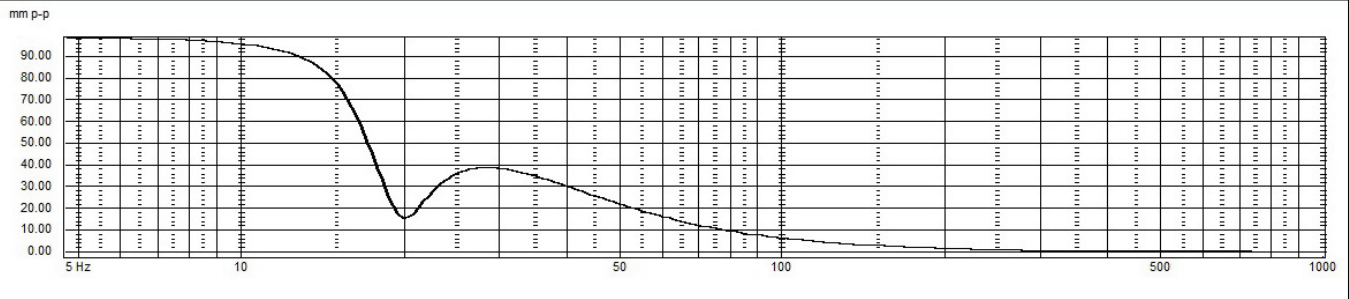
**RAVEN 10 XL - 1.23ft Sealed Box - HALF SPACE (2pi) SPL at 1m Distance**



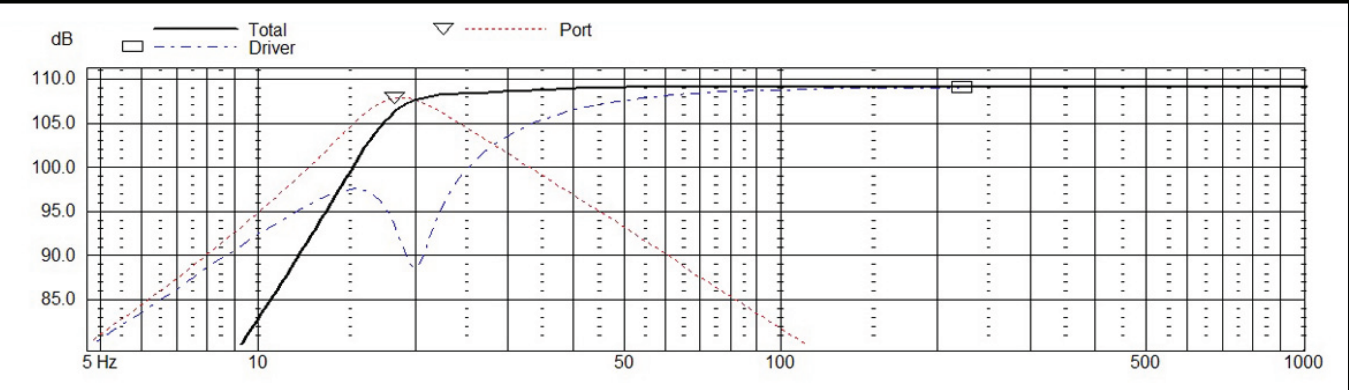
**RAVEN 10 XL - 1.23ft Sealed Box - Impedance**



**RAVEN 10 XL - Vented Box - Cone Excursion**



**RAVEN 10 XL - Vented Box - HALF SPACE (2pi) SPL at 1m Distance**



**RAVEN 10 XL - Vented Box - Impedance**

