

# TANTRUM WOOFERS

## 1 YEAR LIMITED WARRANTY

Phoenix Gold warrants to the first purchaser of Tantrum Woofers that they are to be free from defects in materials and workmanship. The sole obligation of Phoenix Gold under this limited warranty shall be to provide, without charge, the parts and labor necessary to remedy any manufacturing defects within a one year period from the date of purchase.

This warranty is the sole and exclusive express warranty given with respect to Tantrum Woofers and all other express warranties are hereby excluded. Neither Phoenix Gold nor the authorized Phoenix Gold Retailer/Installer is responsible for indirect, incidental or consequential damages, so the above limitation may not apply to you.

The Phoenix Gold warranty does not cover burnt voice coils, burnt tinsel leads, damaged cones or any defect, malfunction or failure caused by misuse, abuse, accident, faulty hookup, defective associated equipment, or the use of the product with equipment for which it was not intended.

### CAUTION

Tantrum Woofers are capable of extremely high SPL's. Prolonged exposure to these high SPL's can cause hearing loss. We want you to enjoy your Phoenix Gold speakers for a long time to come. So please use restraint on that Volume Control.



**Congratulations on the purchase of this new Tantrum Woofer. By purchasing Phoenix Gold, you've demonstrated a desire to own the finest in audio reproduction. Phoenix Gold strives to provide you, the customer, with the finest car audio products possible.**

### TANTRUM WOOFER FEATURES:

- Computer Optimized, Powerful Motor and Magnet Structures: Results in maximum sensitivity and tight controlled deep bass. This combined with an anodized aluminum former and 4-layer Voice Coil that draws away damaging heat and provides increased thermal power handling and longevity.
- Mica Filled Black Poly Cone: Our vacuum forming technology allows us to precisely form Polypropylene to obtain a very lightweight and consistent profile with the perfect ratio of stiffness to damping. This provides for excellent transient response and a cone that is extremely resistant to the harsh environment of car audio.
- Advanced Butyl Surround and a Raised, Flat Linear Roll, Spider: Butyl allows for high excursion without the fatigue associated with standard foam surrounds. It is extremely well damped and environment-resistant treated. A raised spider gains exceptional Xmax and allows for a constant restoring force in both the outward and inward cone motions. The linear rolls reduce distortion and provide maximum voice coil centering at high excursions.
- Exclusive PG Embossed Dust Cap: Provides structural self-rigidity and freedom from breakup.
- Rigid Powder Coated Steel Frame: Maintains structural integrity and alignment for the cone assembly and heavy magnet structure.
- Heavy-Duty, 5-way, Binding Posts: Enables maximum power transfer to the Tantrum woofer when using heavy gauge wires.
- Rubber Trim Gasket: Exclusive PG embossed rubber trim gasket makes for a tight seal between the frame and mounting surface and provides the installation a finished appearance.

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## THIEL/SMALL PARAMETERS

The T/S parameters of the Tantrum series woofers are engineered to allow the use of both the single and dual VC versions in the same type of enclosure, interchangeably. This will provide the same transfer functions, depending on the wiring requirement necessary. The Parameters given are based on drivers that are broken in. That is, given time for the driver to perform to its maximum potential after the suspension parts have loosened sufficiently and thermally set the Voice Coil assembly. The enclosure recommendations are based on PG's extensive knowledge and experience with the Tantrum series and represent the "Best fit" transfer functions for the majority of applications. PG includes the Tantrums T/S parameters for your experimentation and development with differing installations. Remember, when using computer-modeling programs, that they are usually referenced to a half space environment. This same transfer function in the vehicle will appear as a rising response with decreasing frequency below 100 Hz. Be sure to model the excursion capabilities of your driver/enclosure combination to verify that the woofer will perform properly for the power applied. A compromise will be found that allows the lowest F3 and excursion limits. Occasionally the parts necessary may become physically unwieldy in size and number relative to the enclosure dimensions chosen.

## WOOFER SPECIFICATIONS

	TANTRUM DVC		TANTRUM SVC	
	10d	12d	10	12
<b>R<sub>evc</sub></b> (DC VC re/parrallel)	1.88	1.60	3.38	3.30
<b>L<sub>evc</sub></b> (inductance@1Khz)	0.62mH	0.50mH	1.40mH	1.24mH
<b>F<sub>0</sub></b> (Res Freq)	28.0Hz	26.7.Hz	25.94Hz	24.75Hz
<b>S<sub>d</sub></b> (Piston Area)	0.033m <sup>2</sup>	0.053m <sup>2</sup>	0.033m <sup>2</sup>	0.053m <sup>2</sup>
<b>BL</b> (Flux Length)	8.31TM	8.25TM	10.79TM	12TM
<b>SPL<sub>0</sub></b> (SPL @ 1W)	86.8dB	89.6dB	87.3dB	89.9dB
<b>Q<sub>ms</sub></b> (Mech Q)	5.58	5.07	6.71	5.32
<b>Q<sub>es</sub></b> (Elec Q)	0.42	0.425	0.40	0.41
<b>Q<sub>ts</sub></b> (Total Q)	0.39	0.392	0.38	0.38
<b>V<sub>as</sub></b> (Acous Vol)	56.47L	131.65L	6 8.17L	141.75L
<b>C<sub>ms</sub></b> (Compliance)	369µM/N	330µM/N	446µM/N	359µM/N
<b>M<sub>ms</sub></b> (Total Mass)	87.29g	107.87g	84.44g	115.10g
<b>P<sub>e</sub></b> (Therm Power Handling)	200W	250W	200W	250W
<b>X<sub>max</sub></b> (P-P Lin.Excursion)	8.0mm	8.0mm	8.0mm	8.0mm
<b>V<sub>c</sub></b> (Voice Coil Diameter)	2.0in	2.0in	2.0in	2.0in
<b>V<sub>dd</sub></b> (Driver Displacement)	138in <sup>3</sup>	224in <sup>3</sup>	138in <sup>3</sup>	224in <sup>3</sup>
<b>Mounting Diameter</b>	9 3/8in	11in	9 3/8in	11in
<b>Mounting Depth</b>	4 3/4in	5 1/4in	4 3/4in	5 1/4in

## ENCLOSURE RECOMMENDATIONS

	SEALED	VENTED				BANDPASS				
	Vb* CuFt	Vb* CuFt	Fb Hz	Vd Inches	Vl Inches	Vrear* CuFt	Vfront* CuFt	Fb Hz	Vd Inches	Vl Inches
<b>TANTRUM 10/10D</b>										
MUSICAL	1.2	1.2	35	3	9.25	0.95	0.6	46	3	12.5
SPL	0.5	0.95	48	4	10.5	0.83	1.2	51	4	7.5
<b>TANTRUM 12/12D</b>										
MUSICAL	2.0	2.5	31	4	9.25	1.75	1.0	45	4	13.25
SPL	0.70	1.5	43	4	7.75	0.95	1.5	55	4	4

\*Enclosure volumes do not account for speakers, braces or ports

## ENCLOSURE CONSTRUCTION:

The enclosure shape is not critical. The enclosure panels and material need to be rigid and air tight at the seams. The structure and recommended cross bracing should be at least 3/4" thick. Medium Density Fiberboard (MDF) is a recommended material for constructing standard enclosures. Screws or an air stapler are excellent construction fasteners when used with a strong bonding "yellow" wood working glue that can fill joint gaps. Lining the walls with a Polyester batting (recommended) or bonded fiberglass 1-3" thick is sufficient. Box "stuffing" is only suitable for sealed enclosures.

## ENCLOSURE RECOMMENDATION CHART

Your PG dealer has extensive technical knowledge, tools and the experience needed for the design and construction necessary for your Tantrum woofer application. We also recommend that you consult with your dealer for specific detailed technical assistance related to your installation.

The charts provided should be used as a reference when building an enclosure for your Tantrum woofers. The charts above contain three enclosure types to produce a Musical (Sound Quality) or an SPL system. Each of the three enclosure types, (Sealed, Vented, Bandpass) provides a different degree of performance. Musical enclosures will provide deeper and tighter bass while the SPL enclosures will give high output with less extended bass. Sealed enclosures are simple to construct. Vented enclosures, while more complex, can be manipulated to extend or peak the transfer function. The very complex Bandpass enclosures are capable of very high output with limited bandwidth.

Due to ongoing research and developments, all specifications effective 4/01 are subject to change without notice.