

X-TREME T4 WOOFER SPECIFICATION SHEET

EM-PHASER

X-TREME T4 WOOFER KEY FEATURES

- PROPRIETARY DIE-CAST ALUMINUM BASKET
- 100 / 122 OZ. DOUBLE STACKED CERAMIC SR-FE MAGNET
- NOMEX™ COMPOSITE CONE WITH STITCHED SURROUND
- HIGH EXCURSION SANTOPRENE™ SURROUND
- BLACK NOMEX™ DOUBLE SPIDER SUSPENSION
- 2½" / 3" HIGH TEMPERATURE POLYIMIDE VC FORMER
- STRUCTURALLY REINFORCED FORMER NECK
- 4-LAYER WOUND CCAW VOICE COIL
- PERIMETER VENTED BASKET DESIGN
- 10MM CNC MACHINED FRONT POLE PLATE
- UNDERCUT & EXTENDED CENTER POLE
- LARGE DIAMETER CENTER POLE VENT
- INSULATED TINSEL LEAD WIRES
- OVERSIZED SCREW TERMINALS

■ CAST ALUMINUM BASKET

EMPHASERs new proprietary cast aluminum basket line is overbuilt to offer a truly solid and anti-resonant platform for the ultra-heavy Strontium-Ferrite magnet motor assembly. A deep draw basket design enables huge cone travel to both sides, due to increased distance between lower spider platform and basket bottom.

■ DOUBLE STACKED CERAMIC SR-FE MAGNET

Double stacked Strontium-Ferrite magnets with total weights of 100 oz. or 122 oz form the heart or motor of the T4 woofer models. The magnet systems use the highest coercitive force ceramic magnets available today, and stand out with their strong BL product, rendering high efficiency values out of medium sized enclosures.

■ NOMEX™ COMPOSITE CONE WITH STITCHED SURROUND

The T4 woofers deploy Nomex™ Composite cones of extra thickness, offering highest stiffness and low weight, for extremely low flex at high SPL levels. The straight cone geometry and the Nomex composite material give you stronger bass output and lower distortion, as less cone flex means a more piston like movement of the cone in the entire bass range.

To improve reliability in the field, the surround is stitched to the cone, removing unnecessary strain from the adhesive that is holding the surround to the cone.

■ HIGH EXCURSION SANTOPRENE™ SURROUND

Santoprene™ rubber is used for the surround, to allow proper centering of the cone throughout the large excursion capabilities of the T4 woofers. Santprene™ is the most durable rubber material known, that keeps it favorable physical properties over a wide temperature range.

■ BLACK NOMEX™ DOUBLE SPIDER

All three T4 woofer models deploy mirrored Nomex™ double spiders with huge diameters and progressive deflection characteristics. The double spider suspensions always keep the voice coils in tight and perfect alignment. Nomex™ material stands out with its unparalleled durability against mechanical failure, aging or any other degradation based on physical strain.

■ 4-LAYER WOUND CCAW VOICE COIL

4-layer wound copper clad aluminum voice coils with extended winding heights provide the necessary thermal power handling for high SPL output, but keep the moving mass low for increased efficiency.

■ POLYIMIDE VOICE COIL FORMER

The voice coil formers are made of high temperature polyimide, that is mechanically reinforced with a fiberglass neck. Polyimide itself is ultra durable, extremely heat resistant and non magnetic, while featuring good internal damping. Polyimide is also thermally non-conductive, isolating glue joints from heat and keeping its shape when exposed to rapid temperature changes.

■ PERIMETER VENTED BASKET DESIGN

The vented cavity under the double-spider suspension features large windows to sustain best air exchange around the voice coil. The open basket structure also counteracts compression effects of air trapped under the lower spider. The increased air flow significantly improves electrical / thermal power handling and reduces thermal stress on parts held together by adhesives. An audibly lower airflow noise during full power operation is another benefit of the perimeter vented basket design.

TECHNICAL SPECIFICATIONS:

	EX10T4	EX12T4	EX15T4
Usable Frequency Response*	25 - 100 Hz	20 - 100 Hz	20 - 100 Hz
Continuous Power Handling*	700 W RMS*	1000 W RMS*	1000 W RMS*
Peak Power Handling*	1400 W*	2300 W*	2800 W*
Nominal Impedance	4 Ohms	4 Ohms	4 Ohms
Voice Coil Diameter	2 ½" / 65.5 mm	3" / 76.2 mm	3" / 76.2 mm
Voice Coil Winding Height	38 mm	38 mm	38 mm
Front Pole Plate Height	10 mm	10 mm	10 mm
Total Weight of Sr-Fe Magnet	100 oz. / 2835 g	122 oz. / 3460 g	122 oz. / 3460 g

*Exact performance data depending upon actual enclosure!

THIELE - SMALL PARAMETERS

	(Fs)	33 Hz	26 Hz	26 Hz
Free-Air Resonance	(Re)	3.73 Ohms	3.63 Ohms	3.22 Ohms
DC Resistance	(Qes)	0.48	0.41	0.61
Electrical Damping	(Qms)	7.6	7.5	9.2
Mechanical Damping	(Qts)	0.45	0.39	0.57
Total Damping	(Vas)	27.1 l	66.3 l	114.7 l
Equivalent Volume of Compliance	(Mms)	176 g	223 g	350 g
Moving Mass incl. Air Load	(Xmax)	14.0 mm	14.0 mm	14.0 mm
Electrically Limited Cone Excursion	(Sd)	380 cm ²	539 cm ²	866 cm ²
Effective Cone Surface	(Vd)	1064 cm ³	1509 cm ³	2425 cm ³
Volume Displacement of Cone	(Le)	2.94 mH	2.77 mH	2.63 mH
Voice Coil Inductance @ 1kHz	(RefSPL)	84.8 dB/1W/1m	86.6 dB/1W/1m	86.9dB/1W/1m
Efficiency (2.00V)				

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MOUNTING DIMENSIONS

	EX10T4	EX12T4	EX15T4
Mounting Cutout Diameter	232 mm	279 mm	360 mm
Rear Mounting Clearance (Mounting Depth)	169 mm	188 mm	221 mm

ENCLOSURE SUGGESTIONS

EMPHASER Laboratories recommend to use the T4 woofers in combination with sealed, vented and bandpass enclosures. To obtain the best possible performance of this woofer in your car audio system, make sure to follow the stated basic enclosure suggestions listed below. If the provided enclosure suggestions listed below are not applicable to your system, contact your authorized EMPHASER dealer to ask for further assistance.

SEALED ENCLOSURE

Net Volume:	25 l	35 l	65 l
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PORTED ENCLOSURE I (SPL)

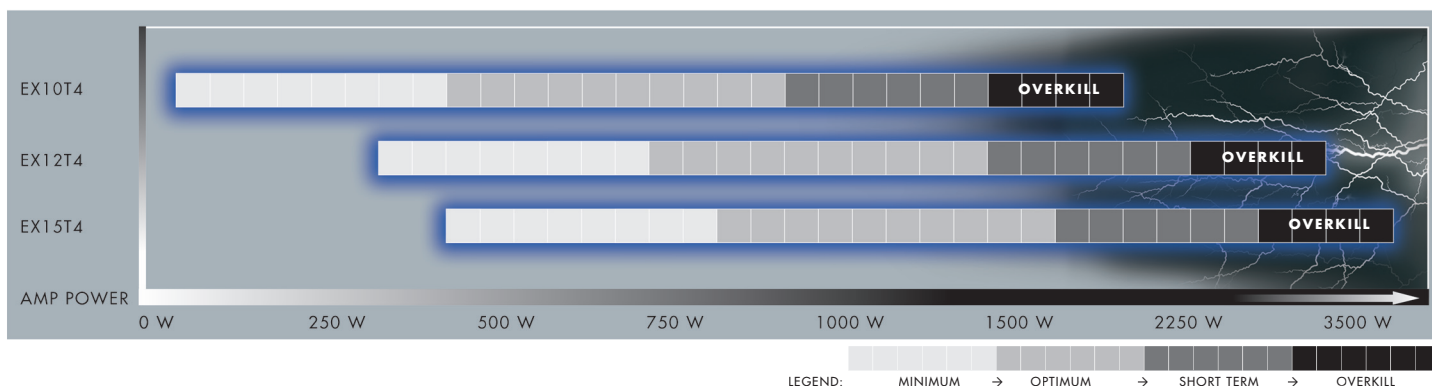
Net Volume:	35 l	55 l	95 l
Inner Diameter of Port:	1 x 10 cm	2 x 10 cm	2 x 10 cm
Length of Port:	18 cm	24 cm each	20 cm each

PORTED ENCLOSURE II (LOW BASS)

Net Volume:	35 l	55 l	95 l
Inner Diameter of Port:	1 x 10 cm	1 x 10 cm	2 x 10 cm
Length of Port:	25 cm	28 cm	27 cm each

BANDPASS ENCLOSURE

Net Volume Ported Chamber:	20 l	28 l	55 l
Net Volume Sealed Chamber:	15 l	24 l	45 l
Inside Diameter of Ports:	1 x 10 cm	2 x 10 cm	3 x 10 cm
Port Length:	15 to 23 cm	22 to 27 cm each	18 to 23 cm each



POWER GRAPH T4 WOOFERS

The power graph illustration allows to pick an amplifier to achieve a good power match between the T4 driver and the amp. The OPTIMUM zone is the „safe operating area“ for each T4 subwoofer. Following these suggestion will allow you to take advantage of full T4 driver performance without chances of failure due to excessive heat and/or mechanical stress. Be wise, make an appropriate choice!

MINIMUM → Will not give you optimum performance this woofer model can offer, but the suspension and the coil always work at a comfortable level. Do not operate the amplifier connected to the T4 woofer at full playback volume for prolonged periods of time, as clipping induced failures may result.

OPTIMUM → Will give you a good compromise between sound quality, long-term reliability, high SPL output and low-distortion playback performance! Highly recommended.

SHORT TERM → Power levels within this zone may give you a little more audible output, at the cost of overstressing the suspension system and exceeding thermal headroom of the voice-coil. Life span of product may be adversely affected. Advisable for short duration only.

OVERKILL → Power fed to the woofer at or above this level will - sooner or later - render the suspension system or voice-coil defective. Failures of any kind, occurring at this level, are not covered under warranty!

ENCLOSURE CONSTRUCTION / CABINET DAMPING / BREAK-IN INFO

→ Always use 22 mm MDF or birch plywood to build the enclosure. Make sure all joints are well sealed, since a woofer can only reach optimum performance when mounted to an airtight cabinet!

→ The enclosures should be damped according to their function principle: The sealed enclosure must be filled with polyfill (bonded acrylic fiber). The inner walls of the ported enclosure should be lined with egg crate PU-foam. The sealed chamber of the bandpass enclosure has to be lined with PU-foam, while the ported chamber remains free of any damping material.

→ Loudspeakers using spiders made of Nomex™ material need extra time to break-in! Out of the box, the suspension system of any T4 woofer is very stiff. To achieve optimum low bass response, this EMPHASER woofer model will need approximately two weeks of daily playing at medium playback levels. After that period of time, the suspension system has reached its equilibrium and will remain stable for the entire life-span of this product. The broken-in sub will play audibly smoother and exhibit a stronger bass performance, as well as greater bass extension!

WARRANTY

EMPHASER Inc. Wyoming, Michigan U.S.A. warrants this T4 woofer to be free of defects in materials and workmanship for **two years** from the original date of purchase at retail, contingent upon installation being performed or approved by an authorized EMPHASER dealer. EMPHASER Inc. will at its own discretion repair or replace any mechanically defective T4 woofer at no charge, during the warranty period. This warranty is limited to the **original purchaser**.

Should your EMPHASER woofer require warranty service, please return it to the retailer from whom it was purchased.

Please do not send any product to EMPHASER Inc., Wyoming, Michigan U.S.A. Should you have difficulty in finding an authorized EMPHASER dealer or service center, details are available from the national distributor in the country of purchase.

Abuse of this loudspeaker is **not covered under warranty**. The warranty **does NOT cover**:

- Any freight damage
- Woofers damaged due to amplifier clipping or distortion
- Exposure to water, oil, solvents or excessive heat
- Repair attempts by unauthorized individuals
- Install damage (screwdriver holes)

EMPHASER Inc. Wyoming, Michigan U.S.A