SPECS

PEAVEY ELECTRONICS

00496600 1008-8he BWX

INTRODUCTION

The 10” BWX driver gives new meaning to words like “compact” and “high performance”. With an enormous 4” voice coil, massive magnet structure and incredible 1,000 Watt program power capacity, these two small but powerful loudspeakers represent a tremendous leap forward in small driver performance.

DESIGN

The 10” BWX cone is a variation on the existing Kevlar-impregnated cones used on all Black Widows. It is tough, highly water resistant, and has a specially designed “M” style surround that improves midrange clarity and cone motion control. The dustcap is also made of the same extremely strong material.

The speaker frame is made of cast aluminum, powder coated and precision machined. Its high strength supports the massive magnet assembly and maintains perfect coil alignment.

Voice coil assemblies on the new drivers use thermoset-insulated aluminum ribbon wire, bonded onto an incredibly durable, heat resistant polyimide composite former. The coil wires are solderless diffusion welded to high-conductivity OFHC copper foil leads, which are embedded inside the former assembly and soldered to the tinsel leads with high temperature silver solder. The solder joint is then coated with a special thermally-conductive silicone adhesive for encapsulation and heat dissipation.

The voice coil assembly is bonded to the Kevlar cone and new super-tough nylon composite spider using a thermoset epoxy originally developed for attaching nose cones on ICBM missiles –truly an aerospace-grade adhesive. The spider and surround are bonded to the frame with a high strength toughened-cyanoacrylate adhesive, which is also used to bond the dustcap to the cone.

The magnet structure includes subtle changes to its geometry that improve power handling. While it appears the same as the standard structure, and replacement baskets from the BWX series will fit on standard BW magnet structures, the improved power handling will be compromised if the standard structure is used.

These new drivers also adhere to the familiar features of Black Widow products: Cast aluminum frames, replaceable basket assemblies, Rubatex gaskets and high reliability spring-loaded terminals are all used.

APPLICATIONS

The 10” BWX driver is a superior choice for musical instrument and sound reinforcement applications. Enclosure volume requirement is minimal, allowing for extremely small designs. The 1008-8he BWX works in vented or horn loaded systems. This remarkable 10” BWX driver excels in a variety of applications including monitors, sound reinforcement, bass guitar/keyboard enclosures, and high-level playback. Due to their design and construction complexity, horn loaded systems will not be discussed.

Because of their small size, strong deep bass performance should not be expected. This is a necessary compromise, considering the design intent of these special drivers. However, output capabilities in the midbass and midrange are extraordinarily high.

ENCLOSURES

To assist with the growing interest in home-built enclosure designs, Peavey provides complete parameter data on this driver as well as several recommended enclosures. This information and much more can be found at www.peavey.com.

Enclosures should be built of 3/4" best-quality marine or other high grade plywood. If construction plywood must be used, inspect each sheet thoroughly and use at least BC grade. Particle board and MDF may also be used, but will add weight and may be less durable and sensitive to moisture. Use 3/4" material even though the enclosures will be very small - the extraordinary power and SPL capabilities of the 10" BWX driver will require high enclosure stiffness. In most cases the 3/4" enclosure walls will provide enough panel stiffness that additional bracing will not be necessary.

Assemble the enclosure with a quality wood glue and fit joints tightly. Use wood screws or a pneumatic nailer to assemble the enclosure during gluing, to maximize joint strength.

Vents used in the examples require standard Schedule 40 PVC pipe for vent construction. The pipe should be dadoed tightly into the back of the baffle and glued firmly in place with high quality epoxy or high strength industrial grade hot glue. Rough up the outside of the pipe to improve the glue bond.

Be sure to account for the displacement of the vent, bracing, HF horn (if used) and woofer or your enclosure before building it, or the enclosure will be smaller than its intended volume. This can reduce bass output and mis-tune the enclosure. Due to the small size of the enclosure, some additional planning may be required to fit the vent tube and/or horn into the enclosure.

Line the inside of the enclosure with polyester fiber batting such as quilt stuffing. The batting material should conform to California bedding fire codes. Attach the batting with spray adhesive or staples, and keep it away from the end of the vent tube where it could be pulled in by air flow. Handles, protective corners, cabinet covering, grille materials and crossovers are available through Peavey Accessories.

Peavey does not supply hardware required for the manufacturing of flying systems, and strongly recommends that builders should not suspend or fly any enclosure not certified for such applications.

These instructions are a general guideline for design. Proper construction techniques, good planning and common sense will result in a reliable, high quality, high performance system.

Peavey in no way accepts liability for any damage, accidents or injury that may result from design, construction or operation of enclosures using this information.

Due to Peavey's continuing efforts to improve products, features and specifications are subject to change without notice.

PARAMETERS

Thiele-Small parameters for BWX drivers follow. This data is for use in designing enclosures. Numerous software packages are available that use this data to simulate the response of the driver and enclosure together for optimum performance in any application.

PARAMETER DEFINITIONS

Znom: The nominal impedance of the driver in ohms.

Revc: DC resistance of the driver in ohms Also known as Re.

Sd: The functional radiating surface area of the cone assembly, in meters^2.

BL: Efficiency of the voice coil and magnet system in Telsa Meters.

Fo: Also known as Fs, the free air resonance of the driver.

Vas: Volume of air having the same compliance (springiness) as the driver's suspension.

Cms: Restorative force of the driver's suspension in micrometers/Newton.

Mms: The total mass of the moving parts of the loudspeaker, including the air load, in grams.

Qms: Resonance characteristics of the mechanical factors of the loudspeaker.

Qes: Resonance characteristics of electrical factors of the loudspeaker.

Qts: Resonance characteristics of the electrical and mechanical factors combined together.

Xmax: Distance the cone can move in one direction before the coil begins to leave the magnetic gap.

Le: Inductance of the voice coil in millihenries.

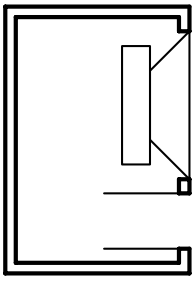
SPL: Typical sound pressure level at 1 Watt, 1 meter.

no: Electrical-to-acoustical conversion efficiency in percent

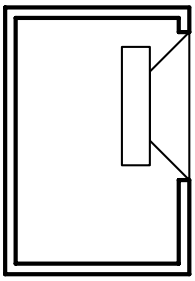
Vd: Air displacement of the driver from negative Xmax to positive Xmax, in milliliters.

Pmax: Maximum continuous program power in watts.

Disp: Volume displaced by the driver inside the cabinet when mounted on its rear flange, in inches^3.



Vented



Sealed

SPECIFICATIONS	1008-8He BWX
Part #	00496600
Size:	10"
Impedance:	8 Ohms
Power Capacity:	2,000 Watts peak 1,000 Watts program 500 Watt continuous per AES 2-1984
Sensitivity:	96.5 dB / 1 Watt, 1 Meter
Usable frequency range:	60 Hz ~ 4 kHz
Cone:	Kevlar impregnated cellulose
Voice coil dia:	4.0" / 100 mm
Voice coil material:	Aluminum ribbon wire Fiberglass former Nomex® stiffener Solderless diffusion welded OFHC copper leads
Net weight:	14.7 lb. / 6.7 kg
Z_{nom}(Ohms)	8
R_{evc} (Ohms)	5.58
S_d (M^2)	0.034
BL (T/M)	16.18
V_{as} (liters)	26.0
$F_{o,}$ (Hz)	62.0
C_{ms} (uM/N	163.9
M_{ms} (gm)	40.20
Q_{ms}	7.41
Q_{es}	0.316
Q_{ts}	0.303
X_{max}	2.2
L_e (mH)	0.37
SPL (1 WATT 1 M)	95.9
N_o (%)	1.90
V_d (milliliters)	cu.in 7.7 / 127
P_{max} (Watts pgm.)	1,000
Disp (inches^3) / milliliters	143 / 2345
Replacement Basket	00496610

Suggested Enclosures

For those who want to build their own enclosures, but don 't want to go through the design process using driver parameters, we provide the following optimized designs:

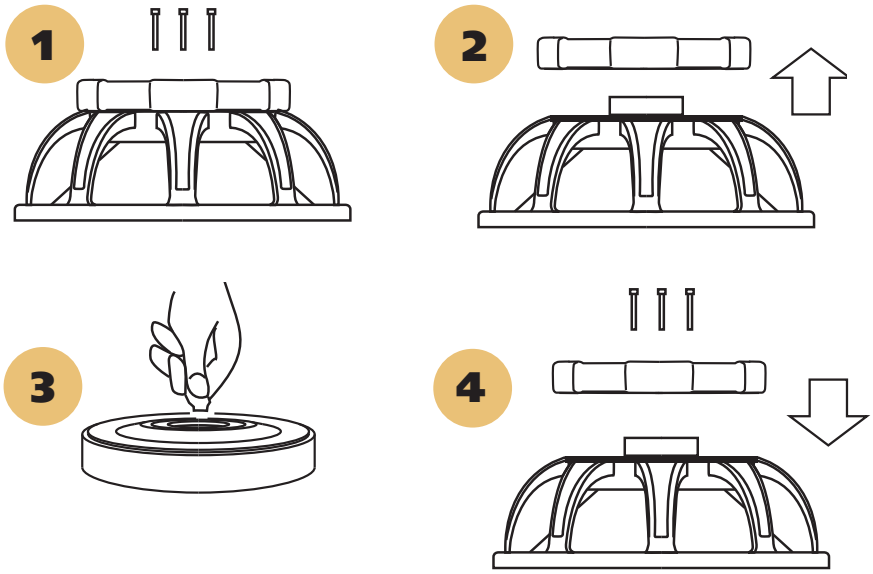
ENCLOSURES	Net Volume cubic feet/liters	Vent diameter (qty) inches/mm	Vent length inches/mm	V_b box tuning frequency in Hz	F_3, -3 dB point in Hz
1008-8he BWX					
Small vented box	0.30 / 8.5	(2) 2" / 51	5-1/2" / 138	85	90
Medium vented box	0.45 / 12.7	(2) 2" / 51	3-3/4" / 95	80	76
Large vented box	0.60 / 17	(2) 2" / 51	2-7/8" / 73	75	69

FOR 1008-8he BWX:

1. **Small vented enclosure**
   Very small enclosure with super efficiency – works well with a subwoofer.
2. **Medium vented enclosure**
   Small system with high efficiency, good voice range and limited bass response – great with a sub.
3. **Large vented enclosure**
   Usable bass performance and high efficiency from a compact enclosure – also excellent with a subwoofer.

Peavey BWX® speakers

feature convenient field-replaceable baskets. Replaceable baskets eliminate the need for re-coning speakers and the frustration and delays associated with the re-coning process. It only takes a few minutes to replace a basket and you are back in business. It just can't get any easier than the four steps outlined here.



Baskets are replaced in four easy steps:

1 Remove three screws on back of magnet structure.

2 Lift the magnet structure off the basket frame.

3 Clean the voice coil "gap".

4 Align screw holes, lower structure into place on new basket frame, insert screws and tighten.

ONE YEAR LIMITED WARRANTY

NOTE: For details, refer to the warranty statement. Copies of this statement may be obtained online at www.peavey.com.

Kapton® is a registered trademark of DuPont.

Kevlar® is a registered trademark of DuPont.

Nomex® is a registered trademark of DuPont.

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Logo referenced in Directive 2002/96/EC Annex IV (OJ(L)37/38,13.02.03 and defined in EN 50419: 2005

The bar is the symbol for marking of new waste and is applied only to equipment manufactured after 13 August 2005

Features and specifications subject to change without notice.

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