

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
1008-8sps BWX					
Sealed box	0.30 / 8.5	n/a	n/a	107 (resonance)	111
Small vented box	0.40 / 11.3	(2) 2" / 51	5-7/8" / 149	72	75
Medium vented box	0.65 / 18.4	(3) 2" / 51	5-7/8" / 149	69	62
Large vented box	0.90 / 25.5	(2) 3" / 76	7-3/8" / 187	63	57
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 1008-8sps BWX:

- 1. Small sealed enclosure**
Tiny box that works great as a small monitor or mid section of a multi-way PA system.
- 2. Small vented enclosure**
Very small enclosure with bass extension suitable for voice range and music with limited bass content.
- 3. Medium vented enclosure**
Compact enclosure suitable for general purpose PA use.
- 4. Large vented enclosure**
Amazing performance from less than 1 cubic foot. Bass levels usable for general MI/ PA applications.

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.

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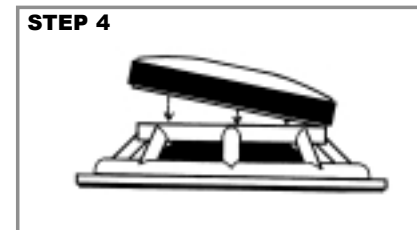
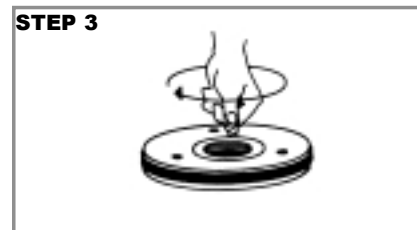
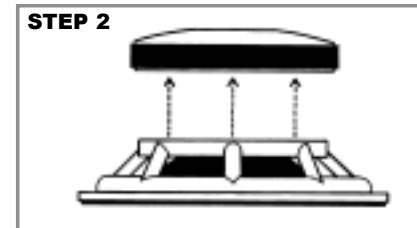
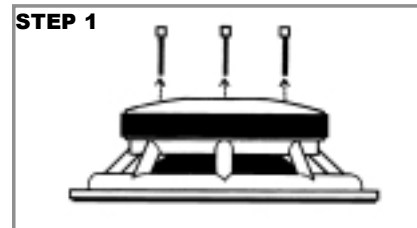
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REPLACEMENT OF SPEAKER BASKET ASSEMBLY

1. Prior to replacement procedure, clean work area of all metal objects and other debris.
2. With speaker lying face down, remove the three screws on back of magnet structure with 7/16" nut driver.
3. After screws are removed, lift the magnet structure off the basket frame.
4. Clean the voice coil "gap" before magnet structure is put on new replacement basket. (See illustration.) Fold a piece of masking tape over on itself several times, sticky side out, and insert it into the voice coil "gap." Run it all the way around the "gap" several times to remove all particles of metal and other trash before magnet structure is put on new replacement basket.
5. Holding magnet structure in slanted position, gently lower the structure down into the basket so that it rests inside the magnet structure counter bore, being sure to align the screw holes, and lower the structure down into place. Insert screws and tighten.



ONE YEAR LIMITED WARRANTY

NOTE: For details, refer to the warranty statement. Copies of this statement may be obtained by contacting Peavey Electronics Corporation, P.O. Box 2989, Meridian, MS 39335



Features and specifications subject to change without notice.

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SPEAKEY ELECTRONICS

00496600 1008-8 sps BWX
00496610 1008-8he BWX

INTRODUCTION

The 10" BWX drivers give 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.

The series includes two 10" models, in 8 Ohm impedance.

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-



cyanacrylate 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 '08 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, Lubatex gaskets and high reliability spring-loaded terminals are all used.

APPLICATIONS

The 10" BWX drivers are superior choices for musical instrument and sound reinforcement applications. Enclosure volume requirement is minimal, allowing for extremely small designs. The 1008-8sps BWX is suitable for sealed and vented systems, while the 1008-8he BWX works in vented or horn loaded systems. These remarkable 10" BWX drivers excel 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.

The sps version is preferred if the driver will be required to reproduce bass. It has better enclosure tuning and bass output capabilities for full range operation. In designs that will high-pass the 10" driver and use a subwoofer for bass signals or for horn applications, the he version is the better choice.



ENCLOSURES

To assist with the growing interest in home-built enclosure designs, Peavey provides complete parameter data on these drivers as well as several recommended enclosures for each model. 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

- Z_{nom}**: The nominal impedance of the driver in ohms.
- R_{evc}**: DC resistance of the driver in ohms Also known as R_e.
- S_d**: The functional radiating surface area of the cone assembly, in meters².
- 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.

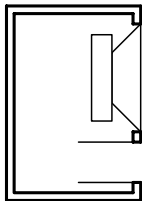
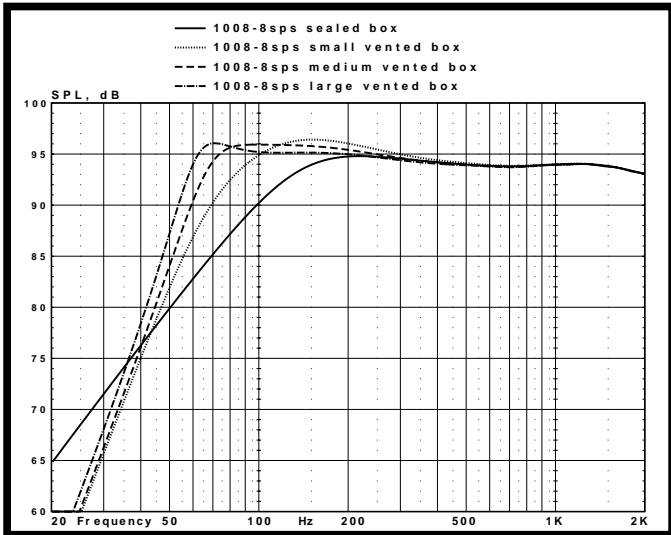
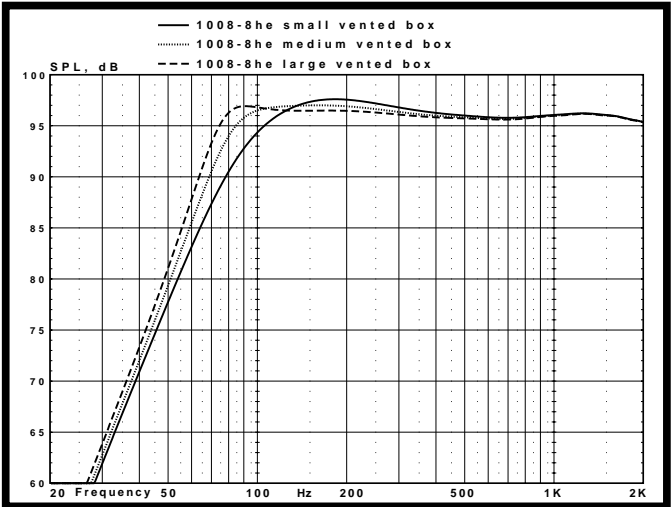
no: Electrical-to-acoustical conversion efficiency in percent

Vd: Air displacement of the driver from negative X_{max} to positive X_{max}, in milliliters.

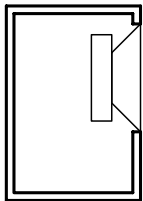
Pmax: Maximum continuous program power in watts.

Disp: Volume displaced by the driver inside the cabinet when mounted on its rear flange, in inches³.

SPECIFICATIONS	1008-8sps BWX	1008-8he BWX
Part #	00496600	00496610
Size: inches / mm	10" / 250mm nominal	10" / 250mm nominal
	Frame OD	Frame OD
	10-1/4" / 260mm	10-1/4" / 260mm
	Bolt circle	Bolt circle
	9-5/8" / 244mm, 8 holes	9-5/8" / 244mm, 8 holes
	Cutout diameter	Cutout diameter
	9-1/16" / 230mm	9-1/16" / 230mm
	Depth	Depth
	3-7/16" / 87mm	3-7/16" / 87mm
Impedance:	8 Ohms	8 Ohms
Power Capacity:	2,000 Watts peak 1,000 Watts program 500 Watts continuous per AES 2-1984, 65Hz – 6,500Hz	2,000 Watts peak 1,000 Watts program 500 Watt continuous per AES 2-1984, 65Hz – 6,500Hz
Sensitivity:	94.5 dB / 1 Watt, 1 Meter	95.9 dB / 1 Watt, 1 Meter
Usable frequency range:	50 Hz ~ 4 kHz	60 Hz ~ 4 kHz
Cone:	Kevlar impregnated cellulose	Kevlar impregnated cellulose
Voice coil dia:	4.0" / 100 mm	4.0" / 100 mm
Voice coil material:	Aluminum ribbon wire Polyimide-impregnated fiberglass former Nomex® stiffener Solderless diffusion welded OFHC copper leads	Aluminum ribbon wire Polyimide-impregnated fiberglass former Nomex® stiffener Solderless diffusion welded OFHC copper leads
Net weight:	14.7 lbs. / 6.7 kg	14.7 lb. / 6.7 kg
Z _{nom} (Ohms)	8	8
R _{evc} (Ohms)	5.48	5.28
S _d (M ²)	0.0335	0.0335
BL (T/M)	15.59	16.18
V _{as} (liters)	26.0	26.0
F _o (Hz)	59.3	62.0
C _{ms} (uM/N)	163.7	163.9
M _{ms} (gm)	44.0	40.2
Q _{ms}	8.163	7.412
Q _{es}	0.369	0.316
Q _{ts}	0.353	0.303
X _{max}	4.6	2.2
L _e (mH)	0.44	0.37
SPL (1 WATT 1 M)	94.5	95.9
N _o (%)	1.4	1.9
V _d (milliliters)	308	127
P _{max} (Watts pgm.)	1,000	1,000
Disp (inches ³) / milliliters	143.1 / 2345	143.1 / 2345



Vented



Sealed