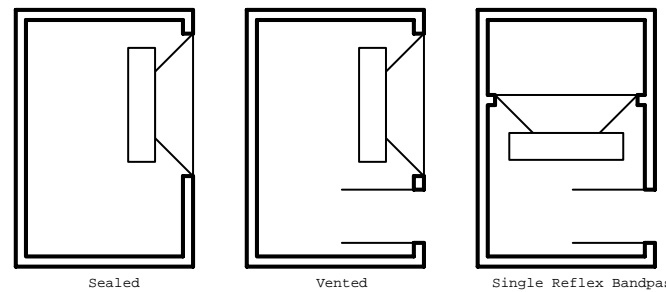
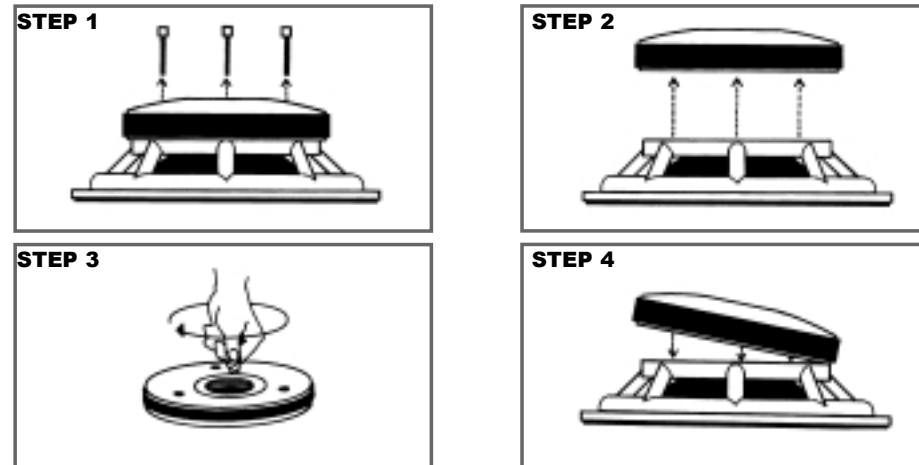


| ENCLOSURES | Net Volume cubic feet/liters | Vent diameter (qty) inches/mm | Vent length inches/mm | V _b box tuning frequency in Hz | F ₃ , -3 dB point in Hz |
|-------------------------------|--|----------------------------------|--------------------------|--|---------------------------------------|
| 1508SPS | | | | | |
| Sealed box | 1.5 / 42.5 | n/a | n/a | 87 (resonance) | 72 |
| Small vented box | 3.0 / 84.9 | (2) 4" / 102 | 6-7/8" / 175 | 45 | 51 |
| Medium vented box | 4.0 / 113.3 | (2) 4" / 102 | 5" / 127 | 43 | 45 |
| Large vented box | 5.0 / 141.6 | (2) 4" / 102 | 4-3/8" / 111 | 40 | 41 |
| Single Reflex Bandpass box | Sealed 2.25 / 63.7 Vented 1.75 / 49.6 | (2) 6" / 152 | 7-3/8" / 187 | 83 | 48 - 138 |
| 1508cu | | | | | |
| Small vented box | 2.0 / 56.6 | (2) 4" / 102 | 10-5/8" / 270 | 47 | 53 |
| Medium vented box | 3.0 / 84.9 | (2) 4" / 102 | 6-7/8" / 175 | 45 | 45 |
| Large vented box | 4.0 / 113.3 | (2) 4" / 102 | 5" / 127 | 43 | 41 |
| 1508he | | | | | |
| Small vented box | 3.0 / 84.9 | (2) 6" / 152 | 7-3/4" / 197 | 60 | 60 |
| Medium vented box | 4.0 / 113.3 | (2) 6" / 152 | 5-1/8" / 130 | 58 | 55 |
| Large vented box | 5.0 / 141.6 | (2) 6" / 152 | 4-3/8" / 111 | 54 | 50 |
| 1208SPS | | | | | |
| Sealed box | 0.65 / 18.4 | n/a | n/a | 106 (resonance) | 105 |
| Small vented box | 0.8 / 22.6 | (1) 4"/102 | 4-1/2"/ 114 | 70 | 79 |
| Large vented box | 1.4 / 39.6 | (1) 4"/102 | 1-7/8"/ 48 | 65 | 61 |



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 39305



Features and specifications subject to change without notice.

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SPECS

PEAVEY ELECTRONICS

Black Widow® BWX

- 00452830 1208-8sps BWX
- 00452840 1208-4sps BWX
- 00452850 1508-8sps BWX
- 00452860 1508-4sps BWX
- 00452870 1508-8cu BWX
- 00457680 1508-8he BWX

INTRODUCTION

The 1508 and 1208 driver series represent a new level of power and performance for Black Widow loudspeakers. Power handling is increased by 40% over other comparable models, along with reduced distortion and higher overall sound quality.

The series includes 12" and 15" models in both 4 and 8 Ohm impedances.

DESIGN

The '08 BWX series uses a new cone that is a variation on the existing Kevlar™-impregnated cones used on all Black Widows. The new cone is stronger and tougher, highly water resistant, and has a specially designed surround – a deep-roll accordion design on the 15", and an innovative asymmetrical-M style on the 12" that improves mid-range clarity. The dust cap is also made of the same extremely strong material.

Voice coil assemblies on the new drivers use thermoset-insulated aluminum or copper 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 dust cap 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 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 1508 and 1208 drivers are excellent choices for a wide range of sound reinforcement, high-level playback, subwoofer, and monitor applications.

The 1508sps driver is an excellent choice for general purpose sound reinforcement, and is available in both 4 and 8 Ohm versions. Enclosure size is reasonable and bass / mid-bass performance is strong. Its versatility includes sealed and bandpass enclosure designs.

The 1508cu produces amazing bass performance in small enclosures, along with flat mid-bass response for an accurate, clean sound quality.



The 1508he is best used as the bottom end of a full range enclosure. It has very high efficiency for superior output in the mid-bass and mid-range. However, for pure subwoofer applications, the 1508sps or 1508cu are better choices.

The 1208sps works well in sealed or vented enclosure designs, and its smooth, extended frequency response makes it an excellent mid-range performer. It is available in 4 and 8 Ohm versions.

Because the 1208sps's low frequency output is limited, it should be used along with a subwoofer when response below 60 Hz is needed. The best application for the 1208sps is in compact enclosures and very high quality mid-bass/mid-range reproduction at high sound pressure levels.

The 15" drivers can work with crossover points as high as 2.0 kHz but work best below 1.5 kHz. The 12" drivers are usable to 3.5 kHz but perform best below 2.5 kHz.

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 best-quality 3/4" marine or other high grade plywood. Particle board and MDF enclosures can be easily damaged and are not recommended for portable applications, but may be acceptable for permanent installation. If construction plywood must be used, inspect each sheet thoroughly and use at least BC grade.

Use a quality wood glue, fit joints tightly, and add internal bracing to stiffen the panels of the enclosure. Look at commercially designed enclosures for ideas on good brace placement. Use wood screws or a pneumatic nailer to assemble the enclosure during gluing, to maximize joint strength.

Strength of the completed enclosure has a great effect on the bass performance of the finished system. Box panels that aren't stiff enough will vibrate – cancelling bass produced by the woofer, and creating undesired sounds of their own. If your box vibrates or you don't think the box panels are stiff enough, add more bracing.

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, horn (if used) and woofer or your enclosure before building it, or it will be smaller than its intended volume. This can reduce bass output and mis-tune 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.

When building a bandpass enclosure, design a panel or door to be removable for access to the woofer. Use foam weather-strip to seal the panel along with enough screws and bracing to prevent leaks and buzzes. Fill the sealed volume loosely with polyester fiber, but leave the vented volume empty. Place the magnet of the woofer in the vented side for improved cooling.

Peavey does not supply hardware required for the manufacturing of flying systems, and 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 construction or use of enclosures using this information.

Features and specifications are subject to change without notice.

PARAMETERS

Thiele-Small parameters for Black Widow® 1208 and 1508 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 Re.

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.

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

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

C_{ms}: Restorative force of the driver's suspension in micrometers/Newton.

M_{ms}: The total mass of the moving parts of the loudspeaker, including the air load, in grams.

Q_{ms}: Resonance characteristics of the mechanical factors of the loudspeaker.

Q_{es}: Resonance characteristics of electrical factors of the loudspeaker.

Q_{ts}: Resonance characteristics of the electrical and mechanical factors combined together.

X_{max}: Distance the cone can move in one direction before the coil begins to leave the magnetic gap.

L_e: Inductance of the voice coil in millihenries.

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

n_o: Electrical-to-acoustical conversion efficiency in percent.

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

P_{max}: Maximum continuous program power in Watts.

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

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Nomex® is a registered trademark of DuPont.

| SPECIFICATIONS | | | | | | |
|----------------------------------|---|--|--|--|--|--|
| Model Name: | 1508-8sps | 1508sps-4 | 1508-8cu | 1508-8he | 1208-8sps | 1208-4sps |
| Part #: | 00452850 | 00452860 | 00452870 | 00457680 | 00452830 | 00452840 |
| Size: inches/mm | 15" / 380 mm nominal | 15" / 380 mm nominal | 15" / 380 mm nominal | 15" / 380 mm nominal | 12" / 305 mm nominal | 12" / 305 mm nominal |
| | Frame OD 15-1/4" / 387 mm | Frame OD 15-1/4" / 387 mm | Frame OD 15-1/4" / 387 mm | Frame OD 15-1/4" / 387 mm | Frame OD 12-1/4" / 311 mm | Frame OD 12-1/4" / 311 mm |
| | Bolt circle 14-9/16" 370 mm, 8 holes | Bolt circle 14-9/16" 370 mm, 8 holes | Bolt circle 14-9/16" 370 mm, 8 holes | Bolt circle 14-9/16" 370 mm, 8 holes | Bolt circle 11-5/8" 295 mm, 8 holes | Bolt circle 11-5/8" 295 mm, 8 holes |
| | Cutout diameter 14" / 356 mm | Cutout diameter 14" / 356 mm | Cutout diameter 14" / 356 mm | Cutout diameter 14" / 356 mm | Cutout diameter 10 15/16" / 278 mm | Cutout diameter 10 15/16" / 278 mm |
| Impedance: | 8 Ohms | 4 Ohms | 8 Ohms | 8 Ohms | 8 Ohms | 4 Ohms |
| | Power Capacity: | 2000 W peak 1000 W program 500 W continuous per AES 2-1984, 50 Hz - 500 Hz | 2000 W peak 1000 W program 500 W continuous per AES 2-1984, 50 Hz - 500 Hz | 2000 W peak 1000 W program 500 W continuous per AES 2-1984, 50 Hz - 500 Hz | 2000 W peak 1000 W program 500 W continuous per AES 2-1984, 50 Hz - 500 Hz | 2000 W peak 1000 W program 500 W continuous per AES 2-1984, 65 Hz - 650 Hz |
| Sensitivity: | 96.7 dB 1 Watt / 1 meter | 97.5 dB 1 Watt / 1 meter | 97.2 dB 1 Watt / 1 meter | 100.3 dB 1 Watt / 1 meter | 96.9 dB 1 watt / 1 meter | 96.6 dB 1 watt / 1 meter |
| Usable frequency range: | 35 Hz ~ 2 kHz | 35 Hz ~ 2 kHz | 35 Hz ~ 2 kHz | 40 Hz ~ 2 kHz | 50 Hz ~ 3.5 kHz | 50 Hz ~ 3.5 kHz |
| Cone: | Kevlar® impregnated cellulose | Kevlar impregnated cellulose | Kevlar impregnated cellulose | Kevlar impregnated cellulose | Kevlar impregnated cellulose | Kevlar impregnated cellulose |
| Voice coil diam: | 4.0" / 100 mm | 4.0" / 100 mm | 4.0" / 100 mm | 4.0" / 100 mm | 4.0" / 100 mm | 4.0" / 100 mm |
| Voice coil material: | Aluminum ribbon wire | Aluminum ribbon wire | Copper ribbon wire | Aluminum ribbon wire | Aluminum ribbon wire | Aluminum ribbon wire |
| | Polyimide-impregnated fiberglass former | Polyimide-impregnated fiberglass former | Polyimide-impregnated fiberglass former | Polyimide-impregnated fiberglass former | Polyimide-impregnated fiberglass former | Polyimide-impregnated fiberglass former |
| | Nomex® stiffener | Nomex stiffener | Nomex stiffener | Nomex stiffener | Nomex stiffener | Nomex stiffener |
| | Solderless diffusion welded OFHC copper leads | Solderless diffusion welded OFHC copper leads | Solderless diffusion welded OFHC copper leads | Solderless diffusion welded OFHC copper leads | Solderless diffusion welded OFHC copper leads | Solderless diffusion welded OFHC copper leads |
| Net weight: | 17 lbs. / 7.7 kg | 17 lbs. / 7.7 kg | 17 lbs. / 7.7 kg | 17 lbs. / 7.7 kg | 16 lbs. / 7.3 kg | 16 lbs. / 7.3 kg |
| Driver Parameters | | | | | | |
| Z _{nom} (Ohms) | 8 | 4 | 8 | 8 | 8 | 4 |
| R _{evc} (Ohms) | 5.27 | 3.30 | 5.91 | 5.32 | 5.43 | 3.47 |
| S _d (M ²) | 0.084 | 0.084 | 0.084 | 0.084 | 0.052 | 0.052 |
| BL (T/M) | 15.37 | 12.72 | 20.84 | 16.04 | 15.13 | 14.09 |
| V _{as} (liters) | 185.9 | 163.6 | 199.6 | 182.4 | 54.6 | 66.2 |
| F _o (Hz) | 41.9 | 45.9 | 36.7 | 51.2 | 56.1 | 55.4 |
| C _{ms} (uM/N) | 158.5 | 163.3 | 199.2 | 182 | 142.2 | 172.5 |
| M _{ms} (gm) | 77.6 | 73.5 | 93.9 | 52.9 | 50.7 | 47.9 |
| Q _{ms} | 10.357 | 11.197 | 9.314 | 10.604 | 9.513 | 7.085 |
| Q _{es} | 0.457 | 0.433 | 0.295 | 0.352 | 0.448 | 0.311 |
| Q _{ts} | 0.437 | 0.417 | 0.286 | 0.341 | 0.428 | 0.298 |
| X _{max} (mm) | 4.7 | 2.3 | 4.7 | 1.9 | 4.7 | 2.3 |
| L _e (mH) | 0.418 | 0.211 | 0.583 | 0.336 | 0.359 | 0.186 |
| SPL (1W 1m) | 96.7 | 97.5 | 97.2 | 100.3 | 96.9 | 96.6 |
| n _o (%) | 2.9 | 3.6 | 3.3 | 6.7 | 3.1 | 2.9 |
| V _d (milliliters) | 789 | 386 | 789 | 319 | 488 | 302 |
| P _{max} (w. pgm.) | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Disp in ³ / ml | 197 / 3229 | 197 / 3229 | 197 / 3229 | 197 / 3229 | 109 / 1797 | 109 / 1797 |

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:

FOR 1508-4/8sps:

Sealed enclosure
May be preferred for stage monitors to control boominess and low frequency feedback on stage. F₃ is 73 Hz.

Small vented enclosure
Excellent performance for compact, general purpose use. Warm mid-bass response. F₃ is 51 Hz.

Medium vented enclosure
Terrific compromise of bass performance and enclosure size. Warm mid-bass response. F₃ is 45 Hz.

Large vented enclosure
Big box, big bass! Great response as a subwoofer or the bottom end of a large multi-way enclosure design. F₃ is 41 Hz.

Single reflex bandpass enclosure
Special enclosure design that uses the enclosure as an acoustic filter for shaped response. Great choice for a compact subwoofer system. Response is 48 Hz – 138 Hz.

FOR 1508-8cu:

Small vented enclosure
An incredibly small enclosure with outstanding bass performance for its size. F₃ is 53 Hz.

Medium vented enclosure
Small box with powerful bass and predictable, flat response down to an F₃ of 45 Hz.

Large vented enclosure
Strong, flat response with bass extension to an F₃ of 41 Hz. Deep, predictable bass quality for great subwoofer and multi-way system performance.

FOR 1508-8he:

Small vented enclosure
Small box, big voice. Very high efficiency and good bass performance in a small enclosure. F₃ is 60 Hz.

Medium vented enclosure
Super-high efficiency in a popular enclosure size. F₃ is 55 Hz. Great choice for use in a full-range system.

Large vented enclosure
Big and loud! Super efficiency and strong bass performance to an F₃ of 50 Hz. However, for subwoofer-only use the sps and cu versions which are better performers.

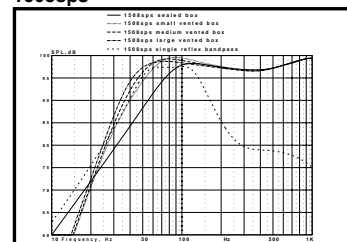
FOR 1208-4/8sps:

Sealed enclosure
Excellent choice for a dedicated mid-bass/mid-range in a multiway system, or stage monitor. F₃ is 105 Hz.

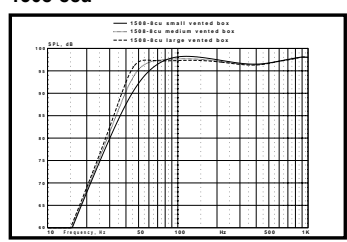
Small vented enclosure
Very small system with excellent voice range performance. Great choice as the mid-range of a sub/satellite system. F₃ is 79 Hz. Also good for use in a stage monitor.

Large vented enclosure
Still not all that large, with very usable bass response. Great for a compact, 2-way box. F₃ is 61 Hz.

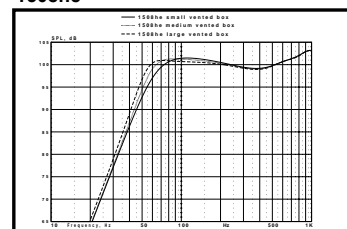
1508sps



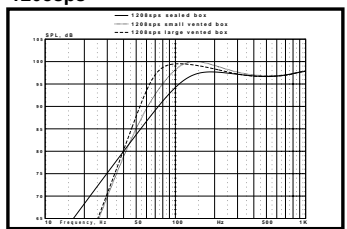
1508-8cu



1508he



1208sps



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