

**Suggested enclosures**

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

| ENCLOSURES             | Net Volume<br>cubic feet/liters (qty)      | Vent diameter<br>inches/mm | Vent length<br>inches/mm | V <sub>b</sub> box tuning<br>frequency in Hz | F <sub>3</sub> , -3 dB<br>point in H |
|------------------------|--|----------------------------|--------------------------|--|--------------------------------------|
| <b>1508-8 alcp</b>     |  |                            |                          |  |                                      |
| 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 | Sealed: 2.25 / 63.7<br>Vented: 1.75 / 49.6 | (2) 6" / 152               | 8" / 203                 | 83   | 48 - 138                             |
| <b>1508-8cucp</b>      |  |                            |                          |  |                                      |
| Small vented box       | 1.5 / 56.6                                 | (2) 4" / 102               | 11-3/8" / 289            | 53   | 61                                   |
| Medium vented box      | 2.25 / 84.9                                | (2) 4" / 102               | 7-1/4" / 184             | 51   | 50                                   |
| Large vented box       | 3.0 / 113.3                                | (2) 6" / 152               | 5-1/4" / 133             | 49   | 45                                   |

**FOR 1508-8 alcp:**

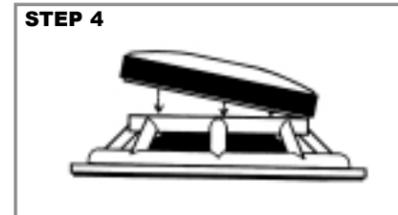
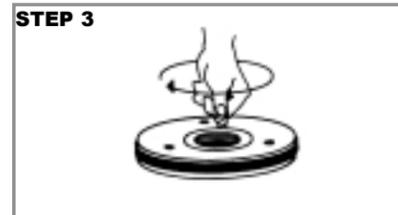
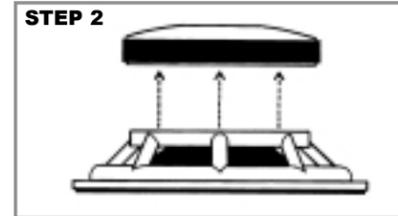
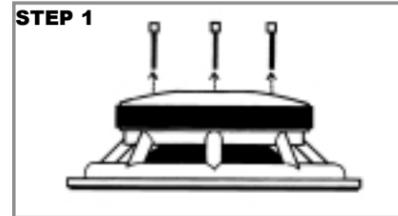
- Small vented enclosure**  
Excellent performance for compact, general purpose use. Warm mid-bass response. F<sub>3</sub> is 50 Hz.
- Medium vented enclosure**  
Terrific compromise of bass performance and enclosure size. Warm mid-bass response. F<sub>3</sub> is 44 Hz.
- Large vented enclosure**  
Big box, big bass! Great as a subwoofer or the bottom end of a large multi-way enclosure design. F<sub>3</sub> is 40 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 47 Hz – 135 Hz.

**FOR 1508-8cucp:**

- Small vented enclosure**  
A small enclosure with outstanding bass performance for its size an F<sub>3</sub> is 61 Hz.
- Medium vented enclosure**  
Small box with powerful bass and predictable, flat response down to an F<sub>3</sub> of 50 Hz.
- Large vented enclosure**  
Strong, flat reponse with bass extension to an F<sub>3</sub> of 45 Hz. Deep, predictable bass quality for great subwoofer and multi-way system performance.

**REPLACEMENT OF SPEAKER BASKET ASSEMBLY**

- Prior to replacement procedure, clean work area of all metal objects and other debris.
- With speaker lying face down, remove the three screws on back of magnet structure with 7/16" nut driver.
- After screws are removed, lift the magnet structure off the basket frame.
- 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.
- 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.

Peavey Electronics Corporation • 711 A Street • Meridian • MS • 39301  
(601) 483-5365 • FAX (601) 486-1278 • www.peavey.com



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# SPECS

**00494100**  
**1508-8 alcp**  
**00494080**  
**1508-8 cucp**

**INTRODUCTION**

The Pro Rider® driver series represents a new level of power and performance for Black Widow® loudspeakers. These outstanding drivers have a power handling rating of 1,200 Watts program, along with high efficiency, reduced distortion and excellent overall sound quality.

The series includes two 15" models in 8 Ohm impedance, suitable for both subwoofer and woofer applications.

**DESIGN**

The Pro Rider 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 deep-roll accordion surround. The dustcap is also made of the same extremely strong material.

Voice coil assemblies on the new drivers use thermoset-insulated aluminum or copper ribbon wire, edge-wound and 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 attached 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



cyanocrylate 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 the replacement baskets from the Pro Rider series will fit on standard BW magnet structures, the improved power handling will be compromised if the standard structure is used.

The vent plate assembly used on Low Rider® drivers to increase power handling is included in the Pro Rider series. This results in a significant improvement in power handling capabilities and long-term power compression.

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

**APPLICATIONS**

The Pro Rider drivers are superior choices for a wide range of sound reinforcement, high level playback, subwoofer and monitor applications.

The 1508-8 alcp driver is an excellent choice for general purpose sound reinforcement. The enclosure size is reasonable and its performance from sub-bass to upper mid-range is strong. Its versatility includes vented and bandpass enclosure designs.

The 1508-8 cucp is specifically optimized for amazing bass performance in very small vented enclosures, along with flat mid-bass and mid-range response for an accurate, clean sound quality. It is an excellent choice for compact enclosures, multi-driver subwoofers and monitors where enclosure size is limited.

Pro Riders can work with crossover points as high as 2.0 kHz, but work best below 1.5 kHz. They deliver excellent performance in both woofer and subwoofer applications.

**ENCLOSURES**

To assist with the growing interest in home-built enclosure designs, Peavey provides complete parameter data on



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Kevlar® is a registered trademark of DuPont.  
Nomex® is a registered trademark of DuPont.  
Rubatex® is a registered trademark of Rubatex Corporation.

these drivers, as well as several recommended enclosures for each model. This information and much more can be found at [www.peavey.com](http://www.peavey.com).

Enclosures should be built of best quality 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 installations. 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.

The 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, canceling 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 weatherstrip 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.

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

#### PARAMETERS

Thiele-Small parameters for Pro Rider 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<sub>nom</sub>**: The nominal impedance of the driver in ohms.  
**Revc**: DC resistance of the driver in ohms. Also known as Re.  
**S<sub>d</sub>**: The functional radiating surface area of the cone assembly, in meters<sup>2</sup>.  
**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<sup>3</sup>.

| SPECIFICATIONS                            | 1508-8 alcp   | 1508-8 cupc   |
|---|---|---|
| Part #                                    | 00452850  | 00452860  |
| Size: inches / mm                         | 15" / 380 mm nominal  | 15" / 380 mm nominal  |
|   | Frame OD<br>15-1/4" / 387 mm  | Frame OD<br>15- 1/4" / 387 mm   |
|   | Bolt circle<br>14-9/16" / 370 mm, 8 holes   | Bolt circle<br>14-9/16" / 370 mm, 8 holes   |
|   | Cutout diameter<br>14" / 356 mm   | Cutout diameter<br>14" / 356 mm   |
|   | Depth<br>5-1/4" / 133 mm  | Depth<br>5-1/4" / 133 mm  |
| Impedance:                                | 8 Ohms  | 8 Ohms  |
| Power Capacity:                           | 2,400 Watts peak<br>1,200 Watts program<br>600 W continuous per AES 2-1984,<br>50 Hz ~ 500 Hz | 2,400 Watts peak<br>1,200 Watts program<br>600 W continuous per AES 2-1984,<br>50 Hz ~ 500 Hz |
| Sensitivity:                              | 96.3 dB / 1 Watt, 1 Meter   | 97.5 dB / 1 Watt, 1 Meter   |
| Usable frequency range:                   | 35 Hz ~ 2 kHz   | 35 Hz ~ 2 kHz   |
| Cone:                                     | Kevlar impregnated cellulose  | Kevlar impregnated cellulose  |
| Voice coil dia:                           | 4.0" / 100 mm   | 4.0" / 100 mm   |
| Voice coil material:                      | Polyimide-impregnated fiberglass former<br>Nomex® stiffener                                   | Polyimide-impregnated fiberglass former<br>Nomex® stiffener                                   |
|   | Edge wound aluminum ribbon wire   | Edge wound copper ribbon wire   |
| Net weight:                               | 17 lbs. / 7.7 kg  | 17 lb. / 7.7 kg   |
| Z <sub>nom</sub> (Ohms)                   | 8   | 8   |
| R <sub>evc</sub> (Ohms)                   | 5.8   | 5.7   |
| S <sub>d</sub> (M <sup>2</sup> )          | 0.084   | 0.084   |
| BL (T/M)                                  | 16.5  | 22.7  |
| V <sub>as</sub> (liters)                  | 188.2   | 208.0   |
| F <sub>o</sub> (Hz)                       | 40.4  | 34.8  |
| C <sub>ms</sub> (uM/N)                    | 187.8   | 207.6   |
| M <sub>ms</sub> (gm)                      | 82.5  | 100.5   |
| Q <sub>ms</sub>                           | 8.726   | 8.782   |
| Q <sub>es</sub>                           | 0.450   | 0.241   |
| Q <sub>ts</sub>                           | 0.428   | 0.235   |
| L <sub>e</sub> (mH)                       | 0.41  | 0.50  |
| SPL (1 WATT 1 M)                          | 96.3  | 97.5  |
| N <sub>d</sub> (%)                        | 2.7   | 3.5   |
| V <sub>d</sub> (milliliters)              | 773   | 773   |
| P <sub>max</sub> (Watts pgm.)             | 1,200   | 1,200   |
| Disp (inches <sup>3</sup> ) / milliliters | 209 / 3426  | 209 / 3426  |

