



**KICKER®**

**ES SUBWOOFER**

**WIN' LOUD**

OWNER'S MANUAL  
ES 154, ES 124, ES 104



**ES**  
**Subwoofer Owner's**  
**Manual**

**Models: ES154 / ES124 / ES104**

**Attention:**

Please record your purchase information in the area below. We recommend attaching the original sales receipt to this manual for future reference.

If you require service on this speaker during the warranty period, you will need to provide this information and a copy of the original sales receipt to Kicker for validation of warranty repairs.

**ALWAYS KEEP YOUR RECEIPT!**

*Congratulations!*

*You have purchased one of the most versatile subwoofers in car audio.*

*The ES Subwoofer was designed by the award-winning KICKER speaker design team, tested in the judging lanes of International Sound Competitions, and proven on the Street to deliver the ultimate in low bass output, durability and outrageous SPL.*

*This is your "fuel for Livin' Loud™"!*

**Authorized Kicker Dealer:** \_\_\_\_\_

**Purchase Date:** \_\_\_\_\_

**Speaker Model Number:** \_\_\_\_\_

**Speaker Serial Number:** \_\_\_\_\_

- **Injection Molded Polymineral Cone with ISD™ (Inverted Structural Dome)** is a high performance composite, which remains rigid, minimizes cone flex and lowers harmonic distortion. The ES Subwoofer's cone moves as a light weight piston, exhibiting power and control.
- **Double Stitched Surround** adds a mechanical fastener to the chemical adhesives. This duo prevents the cone and surround from separating in the harshest conditions.
- **Optimized Polyfoam Ribbed Surround Radius** allows extended cone excursion for additional bass output and higher SPL, and couples the suspension into a conjoined linear-motion body.
- **High-Temp Polyimide Film Voice Coil Former** improves sonic and conductive properties, and prevents thermal-electrical meltdown.
- **Ultra-Length Voice Coil** sustains enormous cone excursion and provides extra heat dissipation.
- **High-Power Tinsel Lead Wires** eliminate broken leads and power loss, due to the common use of "insufficient-gauge" lead wires.
- **Spring-Loaded Nickel Plated Terminals** flawlessly connect medium to heavy gauge speaker wire to the high-power tinsel lead wires.
- **Two-Piece Vented Hyper-Extended Blackened Pole Piece and Backplate**
  1. Optimizes heat transfer efficiency for cooler operation and maximum power handling ability.
  2. Eliminates erratic magnetic flux from the voice-coil gap.
  3. Releases pressure under the suspension for uniform cone movement and responsive low bass.
  4. Prevents the voice-coil from bottoming out and corresponding damage.
- **New Enhanced BAM (Basket and Motor) Assembly** utilizes a high strength steel basket, features a low-profile open design, and provides a solid foundation for the precision-aligned motor assembly.
- **Perimeter Venting in the BAM** relieves pressure from under the spider, supports a linear excursion, and helps dissipate heat from the voice coil and motor structure.

## PERFORMANCE

Model:	ES104	ES124	ES154
Woofer Size, in (cm)	10 (25.4)	12 (30.5)	15 (38.1)
Nominal Impedance [Zn], ohm	4	4	4
Resonance Frequency [fs], Hz	34.8	30.4	20.0
Sensitivity [SPLo], dB @ 1W, 1m	86.3	88.7	89.6
Effective Piston Area [Sd], in <sup>2</sup> (m <sup>2</sup> )	56.7 (.0366)	80.4 (.0519)	130 (.0840)
Power Handling Watts, Peak (RMS)	300 (100)	375 (125)	450 (150)
Effective Frequency Range, Hz	30-1000	27-1000	25-500
Effective Excursion [EXmax™], in (mm)	.29 (7.5)	.29 (7.5)	.41 (10.5)
DC Resistance [Re], ohm	3.71	3.65	3.24
Voice Coil Inductance [Le], mH	2.65	2.70	3.17
Voice Coil Diameter [d], in (mm)	1 1/2 (38.5)	1 1/2 (38.5)	2 (49.5)
Voice Coil Length [h], in (mm)	1 (25.4)	1 (25.4)	1.22 (31)
Mechanical Q-Factor [Qms]	12.27	11.99	12.08
Electrical Q-Factor [Qes]	.703	.575	.422
Total Q-Factor [Qts]	.666	.547	.407
Force Factor [BL], Tm	9.92	11.44	13.96
Equivalent Volume [Vas], ft <sup>3</sup> (L)	1.65 (46.7)	3.45 (97.7)	11.15 (315.7)
Moving Mass [Mms], oz (g)	3.01 (85.3)	3.80 (107.7)	7.14 (202.4)
Outer Frame Diameter, in (cm)	10 11/16 (27.1)	12 1/2 (31.8)	15 7/16 (39.1)
Hole Cut-Out Diameter, in (cm)	9 1/4 (23.5)	11 (27.9)	13 7/8 (35.2)
Mounting Depth, in (cm)	4 11/16 (11.9)	5 13/16 (14.8)	6 15/16 (17.6)

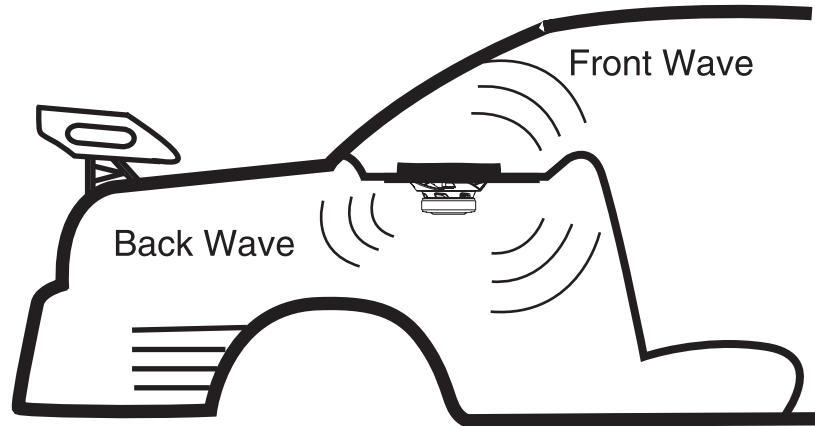
## INSTALLATION

The Kicker ES Subwoofers are designed to be extremely versatile. ES Subwoofers excel in a sealed or vented box, and they surpass the competition on an infinite baffle (free-air) installation.

### Infinite Baffle Mounting

The infinite baffle mounting method effectively utilizes the rear deck and trunk space of most sedan type vehicles. Mark the rear deck or parcel shelf for the hole cut-out diameter of the subwoofer and cut the holes. The rear deck may need to be reinforced to help hold the weight of the subwoofer and to keep it from flexing during playback. Mount 3/4" (1.9 cm) thick MDF (Medium Density Fiberboard) to the bottom of the deck. Mark the MDF and cut the holes. If MDF is not available in your area, use marine grade plywood.

To optimize the infinite baffle installation, prevent the trunk, or rear, sound waves (generated from the back of the subwoofer cone) from entering the passenger area of the vehicle. Gaps or holes in the trunk area may be filled with silicone.



**Note:** To get the best performance from your ES Subwoofer, we recommend using *genuine* Kicker Accessories and Wiring.

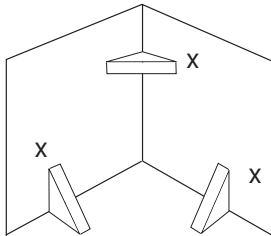
## BOX BUILDING NOTES

The cardboard "Template" inside your ES Subwoofer's shipping carton can be used as a pattern for cutting the speaker mounting hole in your enclosure. The cardboard template is the same size as the ES Subwoofer's basket. After marking your baffle with the template, make sure to cut directly on the line. This will maintain the proper baffle cut-out size for the ES Subwoofer's basket.

All the cubic feet numbers given in the following pages include the displacement of the woofer. For the ported enclosures the displacement of the port must be added to the final design.

Always use 3/4" (1.9 cm) or thicker MDF and make sure all the joints are fastened and well sealed. The peak pressure in a ported box can exceed that of a sealed enclosure. All of these designs need some internal bracing. Add 2" x 2" (5 cm x 5 cm) to 3" x 3" (8 cm x 8 cm) triangle braces between each of the larger unsupported panels.

Kicker recommends using a high-grade wood glue and silicone sealer for an airtight box.



**x = 3" x 3" for ES154, ES124**  
**x = 2" x 2" for ES104**

**Note:** If you prefer an ultra-smooth bass response, you should loosely fill your ES Subwoofer's enclosure with poly-fill (polyester fiberfill) stuffing. Ported designs will require covering the end of the port (located inside the box) with grill cloth, chicken wire, or expanded metal to prevent the poly-fill from being blown out of the port. The use of poly-fill stuffing will slightly decrease efficiency, but will deepen and extend the low frequency output.

Do not install a port opening against a solid surface, such as an internal brace, back-panel or trunk wall, seat or interior panel of your vehicle. The port opening must remain unobstructed. Use the smallest dimension of the rectangular port or the diameter of the round port as the minimum amount of space between the port opening and any solid surface to insure unrestricted airflow.

For more advice on box building, click on the [SUPPORT](#) tab on the Kicker homepage, [www.kicker.com](http://www.kicker.com). Choose the [Technical Support](#) tab, choose the [Tech Manuals](#) tab, and then download or view the corresponding information. Please E-mail [support@kicker.com](mailto:support@kicker.com) or call Technical Services (405) 624-8583 for specific or unanswered questions.

### A Note on Power Handling Capacity

ES Subwoofers will handle large amounts of power in any of the recommended enclosures, sealed or vented. The smaller enclosures are best for use in limited-space applications. The larger recommended enclosures will yield slightly more bass at the lowest frequencies. The infinite baffle (free-air) mounting method will handle moderate amounts of power and take up less trunk or passenger space.

## ES Subwoofer Sealed Enclosure Applications

The Kicker ES Subwoofer excels when used in the recommended sealed boxes. These sealed enclosure designs will give the smoothest response with increased energy at the lowest frequencies, 20 to 30 Hz. These designs deliver massive amounts of high impact bass and can be driven with high levels of amplifier power.

The ES Subwoofer's high performance suspension system can operate in a larger sealed enclosure without sacrificing its power handling ability. This maximum enclosure volume application is ideal for SQ (ultra sound quality) installations. The SQ enclosure generates a very flat response curve and superbly extends sub bass.

ES Subwoofers perform well in any size sealed enclosure between the Compact and SQ volume recommendations. These systems will exhibit benefits of both designs: Compact produces high impact bass and SQ generates low bass frequency protraction. Overall, the system will sound more like the recommended enclosure design it is closest to in enclosure volume.

These enclosure recommendations have been calculated with the airspace inside the enclosure and include the displacement of the woofer. Do not make the airspace greater than the SQ (Maximum Enclosure Volume) recommendation.

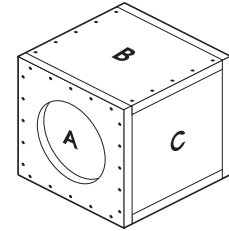
### Recommended Sealed Enclosures - Moderate Efficiency

Model	Compact (Minimum Enclosure Volume)	SQ (Maximum Enclosure Volume)
ES104	1.0 ft <sup>3</sup> Power Handling = 150W RMS 28.3 L	2.4 ft <sup>3</sup> Power Handling = 150W RMS 68.0 L
ES124	1.25 ft <sup>3</sup> Power Handling = 150W RMS 35.4 L	3.5 ft <sup>3</sup> Power Handling = 150W RMS 99.1 L
ES154	2.25 ft <sup>3</sup> Power Handling = 250W RMS 63.7 L	5.0 ft <sup>3</sup> Power Handling = 250W RMS 141.6 L

## Panel Dimensions for Minimum Recommended Sealed Enclosures using 3/4" (1.9 cm) thick MDF:

Model	Volume, ft <sup>3</sup> (L)	Panel A	Panel B	Panel C
ES104	1.0 (28.3)	13.5 x 13.5	13.5 x 12	12 x 12
ES124	1.25 (35.4)	14.5 x 14.5	14.5 x 13	13 x 13
ES154	2.25 (63.7)	17.25 x 17.25	17.25 x 15.75	15.75 x 15.75

**1 in = 2.54 cm**  
**1 in = 25.4 mm**  
**1 ft<sup>3</sup> = 28.32 L**



**Note:** All sealed box airspace should be filled to 50% loose poly-fill stuffing. Please allow two weeks of break-in time for the ES Subwoofer to reach optimum bass performance.

## ES Ported (Vented) Enclosure Applications

Ported ES Subwoofers? Absolutely...and with a vengeance! These enclosures incorporate huge tube ports with high-impact air velocities for sheet metal bending street bass that will make your “skin bounce on your bones!” These boxes are the enclosure of choice for outrageous street bass and high performance SPL contests.

The ported Compact design increases bass efficiency and fits in many space-limited applications. Although it is the smallest recommended ported enclosure, the output from 30 to 80 Hz will be considerably higher than that of any sealed box. The two other ported designs have proportionately more output in this crucial frequency band.

The SPL / Deep Bass is the largest and most efficient enclosure design. The SPL / Deep Bass delivers the sonic output needed to win SPL contests and it produces bass notes “all the way down to tha cella”. This design turns heads and jump starts your heart.

If space is not a problem and you want to get the most from your ES, try one of these ported designs. You will not be disappointed.

The following page shows a chart with the three Recommended Circular Port Enclosure sizes for each ES driver.



## Recommended Circular Port Enclosures – High Efficiency

Model	Compact	SPL / Deep Bass
<b>ES104</b>	1.25 ft <sup>3</sup> (35.4 L) + port displacement 1.5" x 10.5" port, 14.5" long (3.8cm x 26.7cm x port, 36.8cm long) Power Handling = 150W RMS	1.75 ft <sup>3</sup> (49.6 L) + port displacement 1.5" x 10.5" port, 13.25" long (3.8cm x 26.7cm port, 33.7cm long) Power Handling = 150W RMS
<b>ES124</b>	1.75 ft <sup>3</sup> (49.6 L) + port displacement 2.0" x 12.5" port, 16" long (5.1cm x 31.8cm port, 40.6cm long) Power Handling = 150W RMS	2.25 ft <sup>3</sup> (63.7 L) + port displacement 2.0" x 12.5" port, 16.375" long (5.1cm x 31.8cm port, 41.6cm long) Power Handling = 150W RMS
<b>ES154</b>	3.0 ft <sup>3</sup> (85.0 L) + port displacement 2.75" x 15.5" port, 17" long (7.0cm x 39.4cm port, 43.2cm long) Power Handling = 250W RMS	4.0 ft <sup>3</sup> (113.3 L) + port displacement 3.0" x 15.5" port, 16.5" long (7.6cm x 39.4cm port, 41.9cm long) Power Handling = 250W RMS

**Note:** The use of a subsonic filter will significantly increase the power handling. The power handling specifications in this chart are calculated using a 25 Hz, 24 dB per octave subsonic filter. All specifications and performance figures are subject to change. Please visit [kicker.com](http://kicker.com) for the most current information.

## INTERNATIONAL WARRANTY

Contact your International Kicker dealer or distributor concerning specific procedures for your country's warranty policies.



P.O. Box 459 • Stillwater, Oklahoma 74076 • U.S.A. • 405 624-8510

**WARNING:**

KICKER drivers are capable of producing sound levels that can permanently damage your hearing! Turning up a system to a level that has audible distortion is more damaging to your ears than listening to an undistorted system at the same volume level. The threshold of pain is always an indicator that the sound level is too loud and may permanently damage your hearing. Please use common sense when controlling volume!

**"Fuel for Livin' Loud" refers to Kicker Car Stereo Brand's zest for life and encouraging our customers to do their best ("Livin' Loud") in all aspects of their lives.**

**Kicker's line of speakers and amplifiers are the best in the car audio market, thus they represent the "fuel" for living loud in our customer's "car stereo" aspect of their lives. We encourage all of our customers to obey all local noise ordinances and regulations in regards to legal and appropriate listening levels outside of the vehicle.**



