



X-SERIES SUBWOOFERS

XQW102	XQW104
XQW122	XQW124

USER MANUAL



THANK YOU FOR CHOOSING NVX

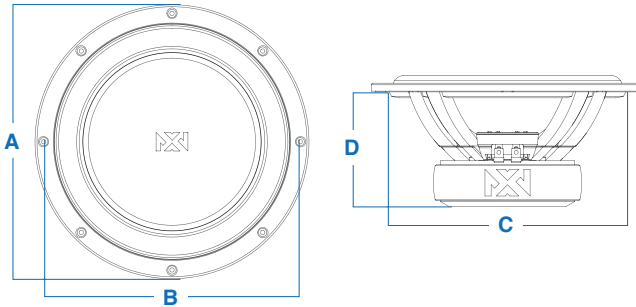
Our X-Series is a crowning achievement of modern loudspeaker engineering – decades of research, development and installation experience have combined to create a truly remarkable subwoofer. Our uncompromising approach to manufacturing is unique in the industry, and shines through brightly in the quality and performance of the X-Series. We are proud to build the finest subwoofers on the market today, and we are confident you will soon be proud to own one.

Great loudspeakers begin with great engineers, and for the X-Series we partnered with the very best, bringing together experts from around the world. The X-Series began in Denmark as a vision of our extraordinary engineers who transformed decades of knowledge and experience into a state-of-the art subwoofer with accuracy, transient response, and tonal quality that is stunning. To mold our woofers into high fidelity bass machine, we brought them home to the United States. We refused to compromise the sound, output or durability, so we assembled a team of engineers who have designed some of the most groundbreaking and celebrated products in subwoofer history. Our US team added patented technologies to dramatically increase our subwoofers' output potential without sacrificing the sound accuracy we worked so hard to capture.

SPECIFICATIONS

Model Number	XQW102	XQW104	XQW122	XQW124
Power Range (RMS)	300-400 Watts	300-400 Watts	300 - 400 Watts	300 - 400 Watts
Impedance per Voice Coil	2 Ohms	4 Ohms	2 Ohms	4 Ohms
Frequency Response	20-200 Hz	20-200 Hz	20 - 200 Hz	20 - 200 Hz
Xmax	20 mm	20 mm	20 mm	20 mm
Fs	33	33	29	29
Vas	25	25	64	64
Sd	32.05	32.05	47.14	47.14
Qts	0.35	0.35	0.38	0.38
SPL (1W/M)	87	87	89	89
Net Weight	19 lbs (8.62 kg)	19 lbs (8.62 kg)	20 lbs (9.07 kg)	20 lbs (9.07 kg)

A Overall Diameter	11.42" (390 mm)	13.62" (346 mm)
B Mounting Diameter	10.55" (268 mm)	12.76" (324.2 mm)
C Cutout Diameter	9.80" (249 mm)	12.04" (306 mm)
D Mounting Depth	4.88" (124 mm)	5.74" (146 mm)



ENCLOSURES

The enclosure designs listed below will give you the best possible performance from your X-Series subwoofer. NVX subwoofers are optimized for use in both ported and sealed enclosures, each of which has distinct sonic characteristics.

SEALED BOXES

X-Series Subwoofers were specifically designed for use in sealed enclosures to obtain optimal SQ performance.

A sealed enclosure offers improved acoustic suspension and cone control, which reduces distortion and increases the power handling capabilities of the subwoofer. They are smaller than their ported counterparts, and offer flatter bass response with more consistency across the frequency range.

Model Number	XQW102 / 104	XQW122 / 124
Recommended Enclosure Volume	0.55 ft. ³	0.80 ft. ³
Ideal Power RMS	400 Watts	400 Watts
Frequency Response	0.707	0.707

PORTED BOX

A ported box features a vent or port to couple the woofer's back-wave with the front-wave. This results in markedly improved efficiency and low frequency response. These enclosures are somewhat larger than the sealed alternative.

Model Number	XQW102 / 104	XQW122 / 124
Recommended Enclosure Volume	1.50 ft. ³	1.85 ft. ³
Ideal Power RMS	300 Watts	300 Watts
Tuning Frequency	32 Hz	32 Hz

FEATURES

CONE

After testing scores of different cone materials, we decided on a custom blend of finely milled pulp & Egyptian Papyrus fibers. This stiff yet lightweight material produces spectacularly accurate bass with a rich, natural tonal quality prized by audiophiles. The smooth matte finish of the cone offers a sleek, modern accent to the interior of any car.

SURROUND/SUSPENSION

The X-series include oSd surround technology (U.S. Patent #7,031,487 B2) which is an innovative design where the surround is attached vertically. As a result, the X-Series have an extra 8-12% more surface area than competing subwoofers with the similar mounting dimensions. The surround itself is constructed with a multi-radius elliptical edge, which keeps the inward movement of the surround perfectly symmetrical with the outward movement. This contributes to a more predictable and consistently linear cone movement for smooth, even bass every time.

3-INCH HIGH TEMPERATURE VOICE COIL

The X-Series subwoofers are capable of handling a robust amount of wattage (400 watts RMS for the 10-inch and the 12-inch) due in large part to the 3-inch voice coil. The voice coil is composed of an oxygen-free copper coil wrapped around a high-temperature fiber glass former for maximum conductivity and heat dissipation. This coil is large enough to drive the cone with strict control and impressive linearity, yet efficient enough to permit a compact magnet structure for increased installation flexibility.

ALUMINUM SHORTING RING

Perhaps the most distinguishing component of the X-Series subwoofers is the innovative aluminum shorting ring system. This technology prevents a rise in inductance caused by the movement of the driver, which has several positive impacts on the subwoofers' performance:

- Improved power delivery to the voice coil
- Improved high-end extension
- Decreased inductive distortion
- Decreased risk of overheating
- Improved cone linearity

WHAT IS THIS SHORTING RING? The shorting ring is a conductive aluminum ring placed in the air gap between the pole piece and the voice coil former to reduce inductance. Inductance can best be understood as the change in magnetic energy that occurs as the voice coil moves in and out of the air gap. In most subwoofers this energy is absorbed by the voice coil, causing impedance rise, introducing distortion

and reducing the woofer's ability to play at the top of the bass spectrum. In the X-Series subwoofers, the shorting ring simply absorbs changes in inductance, optimizing the sound quality, output potential and frequency response of the woofer.

WHAT IS THIS SHORTING RING?

- **Improved power delivery to the voice coil**
 - Any increase in inductance correlates to an increase in voice coil impedance, meaning increased resistance to the input power. By preventing inductance rise, we effectively increase the amount of power carried to the voice coil, increasing the output potential of the woofer with each given watt.
- **Decreased inductive distortion**
 - When inductive energy is introduced into the motor structure, it causes the subwoofer to produce sounds and artifacts at higher frequencies around the 500-1,000 Hz range. Our aluminum shorting ring absorbs these changes in inductive energy, resulting in crisp, distortion-free bass.
- **Improved cone linearity**
 - A great deal of care was taken during the research and development process to ensure that the movement of the cone is as linear as possible. Since inductance is a change in magnetic energy, it's easy to see how undesired inductance can alter the movement of the cone. By using our shorting ring, we absorb these changes in magnetic flux and prevent modulation of the cone resulting in tighter, more accurate bass.
- **Improved high-end extension**
 - The low-pass filter in a standard crossover network is basically just a coiled conductive wire with an iron core very similar to the design of a voice coil. When the inductance of the voice coil increases, it begins to filter out notes at the top of the woofer's frequency range. Our aluminum shorting ring eliminates these variations in inductance, allowing the woofer to play as it was intended.
- **Decreased risk of overheating**
 - In addition to the positive impact the shorting ring has on the subwoofer's sound quality, it also acts as an effective heat sink to carry heat away from the voice coil, which contributes to improved performance and durability.

IF IT'S SO GREAT, WHY DON'T OTHERS USE IT? Where we see an opportunity to build a better product, other manufacturers see an opportunity to maximize profits. Shorting rings require additional materials and add complexity to the manufacturing process. Rather than skimp on the shorting ring and make inferior woofers, we ultimately decided to create a masterpiece. The most experienced engineering team in the industry has painstakingly designed our X-Series subwoofers, and we firmly believe that you will hear the difference.

OPTIMIZED FOR SMALL ENCLOSURES

While the NVX X-Series are not the only subwoofers on the market that thrive in small enclosures, they also offer an unparalleled combination of deep bass and shallow mounting depth. The truth is, while some competitive woofers may work well in small volume enclosures, they require as much as 8-inch of depth, far too much to fit behind a truck seat or in a small trunk. Our subwoofers produce deep bass and sound great in enclosures as shallow as 5-inch. The NVX X-Series is the discerning listener's alternative to anemic shallow-mount subwoofers and costly vehicle-specific solutions.

CUSTOM LOW TURBULENCE CAST ALUMINUM BASKET

Our custom basket offers several distinct advantages over traditional designs. We purposefully chose an especially open basket to improve airflow to reduce compression of the motor structure for both improved cone control as well as reduced back-wave interference. The 3-dimensional cast design dramatically increases the strength and rigidity of the basket while simultaneously reducing resonance. We chose aluminum, the industry standard for cast speaker baskets, as it offers an exceptional strength-to-weight ratio and is non-ferrous, thus eliminating risk of magnetic interference with the motor structure. The unique cast aluminum mounting ring offers a sleeker and more modern aesthetic than typical bulky rubber or plastic designs.

HIGH-EXCURSION STRAIN-RELIEVED TINSEL LEADS

There is perhaps no better example of our relentless attention to detail than the unique attachment method of our tinsel leads. Whereas the leads of most subwoofers are simply glued atop the spider, ours are glued at the basin of each fold in the spider with enough slack on top for unrestricted excursion. This prevents damage to the leads as there is no tugging or pulling from the movement of the suspension, while keeping the leads anchored to prevent cone slap and mechanical noise.

INSTALLER-FRIENDLY TERMINALS

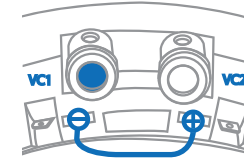
The X-series subwoofers were optimized for both sound quality and ease of installation. The subwoofers feature dual voice coils, and we placed all four terminals on one side for simple and hassle-free wiring. To solve complex wiring challenges, a pair of jumper cables is included to allow the subs to easily be configured in parallel, series or any combination necessary.

TERMINAL JUMP SYSTEM

SERIES CONNECTION

To wire your X-Series subwoofer in a series configuration, connect one jumper cable from VC1(-) to VC2(+).

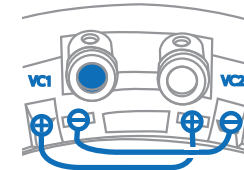
Model Number	Impedance
XQW104	8 ohm
XQW124	8 ohm
XQW102	4 ohm
XQW104	4 ohm



PARALLEL CONNECTION

To wire your X-Series subwoofer in a parallel configuration, connect one jumper cable from VC1(-) to VC2(-), and a second jumper from VC1(+) to VC2(+).

Model Number	Impedance
XQW104	1 ohm
XQW124	1 ohm
XQW102	2 ohm
XQW104	2 ohm



Authorized Dealer's Name: _____

Purchase Date: _____

Model Number: _____

Serial Number: _____

WARRANTY

NVX warrants to the original retail purchaser that this product is to be free from defective materials and workmanship for a period of one (1) year from the date of purchase, if it is properly used and maintained. If this product proves defective in either material or workmanship, NVX, at its discretion, will (a) repair the product, or (b) replace the product, at no charge for parts or labor. If the product model is no longer available and cannot be repaired effectively or replaced with an identical model, NVX at its sole option may replace the unit with a current model of equal or greater value. To obtain a repair or replacement under the terms of this warranty, please return to dealer first, if possible, and the dealer will direct you accordingly for repairs or replacement. You will be required to submit a copy of the original receipt. Return shipping for exchanges/repairs is the sole responsibility of the original retail purchaser.

LIMITATIONS:

- This limited warranty does not cover failure of the product resulting improper installation, misuse, abuse, accident, neglect, mishandling, or wear from ordinary use or environmental deterioration.
- This limited warranty does not cover cosmetic damage, including paint damage, or consequential damage to ordinary use or environmental deterioration.
- This limited warranty does not cover cosmetic damage, including paint damage, or consequential damage to other components or premises which may result for any reason from the failure of the product.
- This limited warranty is null and void for products not used in accordance with NVX's instructions.
- This limited warranty is null and void for products with altered or missing serial numbers and for products not purchased from an authorized dealer.
- This limited warranty terminates if you sell or otherwise transfer this product to another party.
- This limited warranty is null and void for any speaker or subwoofer that has been damaged due to over-powering causing burnt voice coils and /or mechanical failures such as ripped spiders or surrounds.

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE, JURISDICTION TO JURISDICTION, OR COUNTRY TO COUNTRY. NVX'S RESPONSIBILITY FOR MALFUNCTIONS AND DEFECTS IN HARDWARE IS LIMITED TO REPLACEMENT OR REPAIR AS SET FORTH IN THIS WARRANTY STATEMENT. ALL EXPRESS AND IMPLIED WARRANTIES FOR THE PRODUCT, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED IN TIME TO THE TERM OF THIS WARRANTY. SOME STATES, JURISDICTIONS, OR COUNTRIES DO NOT ALLOW THE EXCLUSION OF CERTAIN IMPLIED WARRANTIES OR CONDITIONS, OR LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY OR CONDITION LASTS, SO THIS LIMITATION MAY NOT APPLY TO YOU. NVX DOES NOT ACCEPT LIABILITY FOR SPECIAL, INDIRECT, CONSEQUENTIAL, OR INCIDENTAL DAMAGES, INCLUDING WITHOUT LIMITATION, ANY LIABILITY FOR THIRD PARTY CLAIMS AGAINST YOU FOR DAMAGES OR FOR PRODUCTS NOT BEING AVAILABLE FOR USE. THE MAXIMUM LIABILITY FOR WHICH NVX MAY BE RESPONSIBLE WILL BE NO MORE THAN THE AMOUNT YOU PAID FOR THE PRODUCT THAT IS THE SUBJECT OF THE CLAIM. SOME STATES, JURISDICTIONS, OR COUNTRIES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

Warranty Outside the U.S.

The Warranty on this product shall comply with applicable law when sold to a consumer outside of the United States. To obtain any applicable warranty service, please contact the dealer from which you purchased this product, or the distributor that supplied this product.

WHAT TO DO IF YOU NEED WARRANTY OR SERVICE

Defective products should be returned to the place of purchase. Your authorized NVX dealer is trained to handle and expedite any warranty claim. Assistance in locating an authorized dealer can be found at nvx.com or by contacting NVX directly.

Alternatively, if it becomes necessary for you to return defective product directly to NVX, please refer to the following instructions for warranty service:

- Receive your RA Number from NVX online at nvx.com/support
- Package all defective components in the original packaging (if available) or in a package that will prevent shipping damage.
- Package the original packaging in an additional shipping container to avoid shipping damages and to comply with most shipping couriers such as UPS and FedEx.
- Insure your return at the price paid as NVX is not responsible for insurance losses or damages occurring in shipment to our facility.
- Clearly mark RA Number on the outside shipping container.
- Return only defective components as the return of functioning items increases your return freight charges.
 - Non-defective returns or products not eligible for warranty service will be returned freight collect.
- Include a copy of the original receipt with the purchase date clearly visible, and a "proof-of-purchase" statement listing the customer's name, dealer's name and invoice number, and product purchased.
 - Warranty expiration on items without proof-of-purchase will be determined from type of sale and the manufacturing date code.
- Ship your package freight prepaid to the address below. Items sent freight collect or COD will be refused.

NVX
Attn: Returns
10645 Freepoint Dr.
Louisville, KY 40258-1873

Failure to follow the steps listed above may void your warranty. Any questions can be directed via email to cs@nvx.com or via mail at the address listed above.



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