

Hartke

BASS AMPLIFIER

LX8500



LX5500

Owner's Manual

Important Safety Information



ATTENTION
RISQUE DE CHOC ÉLECTRONIQUE -
NE PAS OUVRIR



This lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of non-insulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance instructions in the literature accompanying the appliance.

WARNING: To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.

WARNING: The mains plug/appliance coupler is used as disconnect device, the disconnect device shall remain readily operable.



Protective earthing terminal. The apparatus should be connected to a mains socket outlet with a protective earthing connection.

Voltage selector: Used to adjust the input rating (100-120Vac 50/60Hz and 220-240Vac 50/60Hz), please just insert the mains power plug into the socket-outlet with voltage within the setting of the selector. The current ratings of mains fuse link are different for each input rating (see marking for details), and the installed mains fuse link matches the input rating of the voltage selector during factory assembly line production, please ask a qualified personnel to help you replace the mains fuse link before you adjust the voltage selector.

FCC Notice

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.



If you want to dispose this product, do not mix it with general household waste. There is a separate collection system for used electronic products in accordance with legislation that requires proper treatment, recovery and recycling.

Private household in the 28 member states of the EU, in Switzerland and Norway may return their used electronic products free of charge to designated collection facilities or to a retailer (if you purchase a similar new one).

For Countries not mentioned above, please contact your local authorities for a correct method of disposal.

By doing so you will ensure that your disposed product undergoes the necessary treatment, recovery and recycling and thus prevent potential negative effects on the environment and human health.

Important Safety Information

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at the plugs, convenience receptacles, and at the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. Unplug the apparatus during lightening storms or when unused for long periods of time.
14. Refer all servicing to qualified personnel. Service is required when the apparatus has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. This appliance shall not be exposed to dripping or splashing water and that no object filled with liquid such as vases shall be placed on the apparatus.
16. Caution-to prevent electrical shock, match wide blade plug wide slot fully insert.
17. Please keep a good ventilation environment around the entire unit.
18. No naked flame sources, such as lighted candles, should be placed on the apparatus.
19. Do not install this equipment in a confined or building-in space such as a book case or similar unit, and remain a well ventilation conditions at open site. The ventilation should not be impeded by covering the ventilation openings with items such as newspaper, table-cloths, curtains etc.
20. This apparatus is for professional use only.
21. The apparatus is intended to be used in moderate climates.
22. WARNING: For the terminals marked with symbol of “⚡” may be of sufficient magnitude to constitute a risk of electric shock. The external wiring connected to the terminals requires installation by an instructed person or the used of ready-made leads or cords.
23. Class 2 wiring: To reduce the risk of electric shock, The external wiring connected to the terminals marked with “class 2 wiring” requires installed with class 2 wiring by an instructed person or the used of ready-made leads or cords.



Introduction

Congratulations on the purchase of your new Hartke LX Series Bass Amplifier!

Hartke's LX Series are lightweight Class D bass amplifiers that offer the legendary Hartke tube preamp circuitry in a highly portable design. Although these amps have been designed for easy operation we suggest you take some time to go through these pages to fully understand how we've implemented a number of unique features.

The LX5500 & LX8500 feature a class A tube preamp, tone stack EQ with Hartke's Shape circuit, as well as overdrive and compression. With an aluminum chassis the LX amp is rugged yet lightweight, making it the perfect amplifier for taking on the road. It is equipped with both 1/4" and twist-and-lock speaker output jacks for connecting your speaker cabinets. The LX8500 also provides many options for signal routing including a Direct Output and an FX Loop plus the ability to add footswitches that control features like Brite and Overdrive. You'll find our LX5500 & LX8500 the ideal choice for every performance situation—from the studio to the stage.

In these pages, you'll find descriptions of the many features of the LX Series bass amplifier as well as instructions for setting up and using the amplifier. You'll also find a registration card enclosed—please don't forget to follow the instructions so that you can receive online technical support and so we can send you updated information about this and other Hartke products in the future. Also, be sure to check out our website, hartke.com, for complete information about our full product line.

We recommend you keep the following records for reference, as well as a copy of your sales receipt.

Serial number: _____

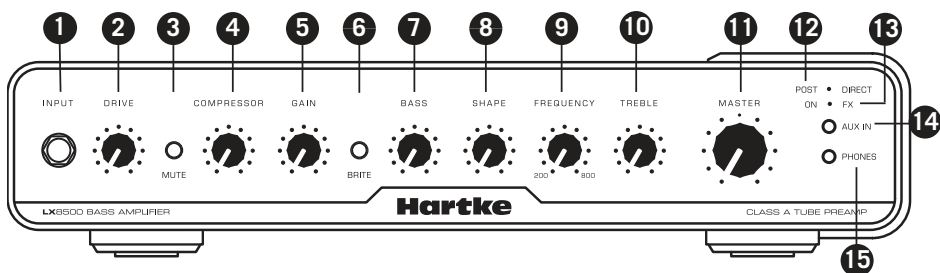
Date of purchase: _____

With proper care and maintenance, your LX Series Amplifier will operate trouble-free for many years. Should your amplifier ever require servicing, a Return Authorization (RA) number must be obtained before shipping your unit to Hartke. Without this number, the unit will not be accepted. Please call Samson at 1-800-372-6766 for an RA number prior to shipping your unit. Please retain the original packing materials and, if possible, return the unit in its original carton. If your Hartke LX8500 was purchased outside of the United States, contact your local distributor for warranty details and service information.

Features

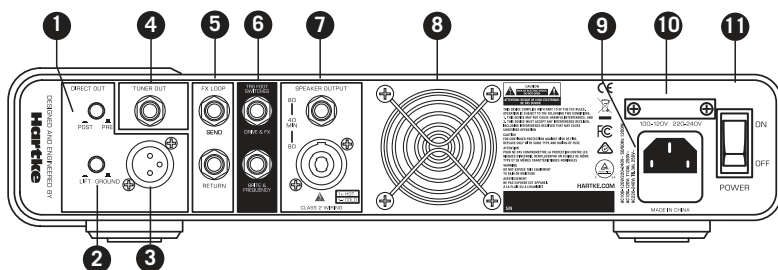
- Lightweight bass amplifiers - LX8500 = 8.5lb, LX5500 = 8lb
- LX8500 = 800 watts of continuous average output power @ 4 Ohms
- LX5500 = 500 watts of continuous average output power @ 4 ohms
- Class A tube preamp circuitry
- Variable overdrive and compressor Circuit
- Tone stack EQ with sweepable mids
- 1/8" Aux input & 1/8" headphone output
- Balanced XLR direct output
- Effects Loop
- Two Footswitch jacks for selecting Drive & FX and Brite & Frequency (LX8500 ONLY)
- Integrated carry handle

Front Panel Callouts



1. **INPUT** - Connect your active or passive bass guitar here using a standard 1/4" instrument cable. Our circuit is specially designed to accept signal from any bass instrument including dual 9 volt active preamps.
2. **DRIVE Knob** - Adjusts the amount of overdrive applied to the input signal. LX8500 footswitch can turn this on (lit white) and off.
3. **MUTE Switch** - When engaged this red backlit switch mutes signal to all outputs.
4. **COMPRESSOR Knob** - Determines the amount of compression by adjusting the threshold level. The compressor allows you to control the overall dynamic range of your performance by reducing sudden peaks, and increasing the sustain of the instrument. At the fully counterclockwise position no compression is applied. As the knob is turned clockwise an increasing amount of compression is applied. When the COMPRESSOR is engaged the lights around the knob flash red providing a visual representation of the compression circuit's status.
5. **GAIN Knob** - Adjusts the amount of level provided to the tube preamp stage as well as the TUNER output, DI output, and EFX loop. Set this control first to optimize levels for your style and particular bass instrument then use the MASTER (#11 below) to adjust the overall stage volume. The lights around the knob will flash red during signal peaks.
6. **BRITE Switch** - Turns on the BRITE circuit which adds a preset EQ curve to enhance the bass instrument's high frequency response. This backlit switch will light red when engaged. LX8500's footswitch option can turn this feature on (lit red) and off (not lit).
7. **BASS Knob** - As part of a passive tone stack EQ this control is used to adjust the low frequency response (80 Hz).
8. **SHAPE Knob** - The SHAPE control knob is used to set the depth of the mid-band EQ.
9. **FREQUENCY Knob** - This control knob is used to set the center frequency for the midband EQ. The range is from 200Hz to 800Hz. LX8500 footswitch can turn this on (lit white) and off.
10. **TREBLE Control** - As part of the passive tone stack equalizer, this control is used to adjust the high frequency response (6 kHz).
11. **MASTER Knob** - This is the overall volume control for the amplifier.
12. **POST/DIRECT LED** - This shows the condition of the DI output, either pre or post EQ, depending on the position of the rear panel push button.
13. **ON/FX LED (LX8500 ONLY)** - When lit indicates that the footswitch control has activated the EFX Loop.
14. **AUX Input** - Use this 1/8" (3.5mm) input to connect a line level device like a portable CD or MP3 player.
15. **Headphones jack** - Connect headphones to this stereo 1/8" (3.5mm) jack. When a plug is inserted into the headphone jack, the speaker output is disconnected, allowing you to use your LX5500 or LX8500 as a practice amplifier.

Rear Panel Callouts



1. **DIRECT OUT Post/Pre Button** - When pressed in signal is routed to the DI output after the LX preamp (meaning front panel controls are active, adjustments to EQ and other features will be heard through the connected PA system). When left in the out position the DI signal is taken from the input jack).
2. **DIRECT OUT GROUND LIFT Switch** - When pressed in (the “LIFT” position), pin 1 is removed from the chassis. This should be used only when a ground loop hum or buzz is heard. Otherwise, leave it in the out (“GROUND”) position.
3. **DIRECT OUT Jack** - Use this electronically balanced XLR jack to route signal from the LX5500 or LX8500 to a professional mixing console, as a tap to a main PA system via a mic input on the console, or to an external amplifier. The DIRECT OUT signal is either pre EQ, meaning that the signal is taken right after the input and is unaffected by the onboard EQ or post EQ, meaning the signal is after the EQ section.
4. **TUNER OUT Jack** - This provides a buffer isolated signal from your bass instrument to outboard tuners mounted to a rack or pedalboard.
5. **FX LOOP SEND/RETURN Jacks** - Use these jacks when connecting outboard effects units. You can also use the SEND jack to route signal to a professional mixer or recording device.
6. **FOOTSWITCH Jacks (LX8500 only)** - Connect a two-button footswitch terminating to a 1/4” TRS plug (Tip = DRIVE & FX = ring/Tip = BRITE & ring = FREQUENCY) to one or both of these jacks to allow you to turn on or off OVERDRIVE/FX and FREQUENCY/BRITE features of the LX preamp.
7. **SPEAKER OUTPUT** - Use these outputs to connect speakers to the amplifier output. The amplifier provides both 1/4” and twist-and-lock output connectors, wired in parallel. It is recommended to use the twist-and-lock jack whenever possible. The total impedance of the speakers connected to all of the jacks must not be less than 4Ω.
8. **Fan** - The variable speed fan provides vital cooling to the amplifier. Make sure that it is kept free of all obstructions and that cool, fresh air is accessible at all times.
9. **AC input with FUSE sled** - Connect the supplied standard 3-pin “IEC” plug here. Assembly includes the fuse holder for the amplifier. Make sure the voltage rating is correctly set before powering up the amplifier.
10. **AC Voltage selection switch** - This switch is used to set the operation voltage. Be sure to check that the switch is set correctly for your country.
11. **POWER Switch** - Use this internally illuminated rocker switch to power the LX5500 or LX8500 on or off. The switch lights whenever the amplifier is powered on.

Quick Start

Setting up your Hartke LX Series Amplifier is a simple procedure, which takes only a few minutes.

1. Remove all packing materials (save them in case your unit requires servicing in the future) and decide where the amplifier is to be physically placed. To avoid potential overheating, be sure that the rear panel fan is unobstructed and that there is proper ventilation around the entire unit.
2. Begin by hooking up your bass cabinet(s) to the twist-and-lock or 1/4" speaker output connectors on the rear panel. Any appropriately rated bass cabinets with a total minimum impedance of 4Ω (that is, 4Ω or greater) can be used. In order to ensure correct phase correlation when using the 1/4" outputs, the tip of the amplifier's speaker jack should be connected to the "+" (hot) input of your loudspeaker, and the sleeve of the amplifier's speaker jack should be connected to the "-" (ground) input of your loudspeaker. When using the twist-and-lock outputs, the +1 output should be connected to the "+" (hot) input of your loudspeaker, and the -1 output should be connected to the "-" (ground) input of your loudspeaker.
3. Next, connect the 3-pin AC plug into any grounded AC socket. Don't turn the amplifier on just yet.
4. Use a standard shielded instrument cable to connect your bass to the LX5500 or LX8500 INPUT jack on the front panel. On the front panel of the LX5500/LX8500, set the MASTER control to the 12 o'clock position and set the GAIN knob to the fully counterclockwise "0" position. Set the COMPRESSOR knob counterclockwise until it is in the "0" position, and set the EQ knobs to the 12 o'clock position.
5. Press the Power switch on the rear panel to turn on the amplifier.
6. Set the output of your bass to its maximum level. Then, while playing, slowly turn the LX amplifier's GAIN control up until the desired level is reached. If you hear distortion, even at a low MASTER setting, lower the GAIN control or back off the output of your bass. If the problem persists, check for a faulty cable.
7. When you have settled on a GAIN and MASTER volume, the next step is to adjust the tonal characteristics of your sound. Set the DRIVE control and EQ controls to taste. When you get an equalization setting that complements your instrument and playing style, it's a good idea to write it down for future reference.
8. Now try out the compression circuit. As you rotate the COMPRESSOR knob, the input signal from your bass becomes more compressed. You'll hear peak signals (such as string slaps and pops) begin to sound increasingly "squashed" relative to the lower-level signals produced by standard fingerstyle playing. The result will be a decreased dynamic range, but an overall leveling of signal throughout the full range of your instrument.
9. If you're using an external signal processor, turn the amplifier off momentarily and connect a standard audio cable from the FX SEND jack to your effects processor input, and a second standard audio cable between the FX RETURN jack and your effects processor output. Then turn the amp back on and play your bass while adjusting the controls of your outboard effects processor. For best results, set both the input and output gain of all connected effects processor(s) to 0 dB (unity gain), so that there is no increase or decrease in level whether the effects are switched in or out.

Choosing the Correct Speaker Cabinets

When choosing a speaker cabinet to use with your Hartke LX Series Amplifier, there are many specifications to consider (impedance, power handling, frequency response, etc). While most specs are pretty straight forward, there is often questions about impedance. Basically, impedance is the amount of current that will flow through a speaker at a certain voltage. It is measured in Ohms (Ω). The actual impedance of a speaker is not constant across all frequencies. So, for convenience we use the term “nominal impedance”, which refers to the impedance that a speaker presents to an amplifier at a reference frequency.

A typical speaker has an impedance rating of 4Ω , 8Ω , or 16Ω . Generally, the lower the impedance of a speaker, the more power will be developed by a given amplifier. For example, a 4Ω speaker will extract more power from your amplifier than an 8Ω speaker. If you connect a speaker with an impedance lower than the rating of the amplifier's output, the amplifier can overheat and damage the amplifier output section. It is important to learn how to connect multiple speaker cabinets safely without damaging the speakers or the amplifier in this way.

Typically, amplifier speaker output jacks and speaker cabinet input jacks are parallel connections, and will follow the rules described in this section. When speakers are connected in parallel, the impedance is reduced. The formula to calculate the total impedance of your speaker system is:

$$1/R_t = 1/R_1 + 1/R_2 + 1/R_3 + \dots 1/R_n.$$

Where “R” is the impedance of a speaker cabinet.

If all speakers have the same impedance, the total impedance will be equal to the impedance of a single speaker divided by the total number of speakers. For example, if you have two 4Ω speakers connected in parallel, the total impedance is 4 divided by 2, or 2Ω . You must be careful when connecting speakers in parallel to an amplifier. The impedance can quickly fall below safe levels. This is especially true when connecting speakers in parallel to a bridged amplifier.

When choosing speakers, make sure that they can match or exceed the output power of the amplifier, or you can damage the speakers. We suggest Hartke bass cabinet models Hydrive HD112, HD115, HD210, HD410, as well as XL Series 210XL, and 410XL. Of course you're free to choose any bass cabinet that suits your playing style. Please refer to the calculations below:

Typical Impedance Calculations

$$16\Omega + 16\Omega = 8\Omega$$

$$8\Omega + 16\Omega = 5.3\Omega$$

$$8\Omega + 8\Omega = 4\Omega$$

$$8\Omega + 16\Omega + 16\Omega = 4\Omega$$

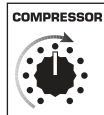
$$16\Omega + 16\Omega + 16\Omega + 16\Omega = 4\Omega$$

$$4\Omega + 8\Omega = 2.7\Omega$$

$$4\Omega + 4\Omega = 2\Omega$$

About Compression

The dynamic range of a sound is the difference between its loudest and softest levels. For example, as you play your bass, you'll probably find that some notes (such as notes played on the upper frets of the lowest string) are considerably louder than others. The function of the compression circuitry in the LX amplifier is to reduce overall dynamic range by automatically reducing the level of the loudest sounds you play so that they are closer in level to softer ones. The end result is a smooth, even sound.



The front-panel COMPRESSOR control determines the amount of compression (peak signal reduction) by adjusting the threshold. Threshold is the limit above which compression is applied. As you turn the COMPRESSOR control clockwise, the threshold level is lowered. The compression ratio is set to around 2:1, which means that any input signal over the threshold level will be halved.

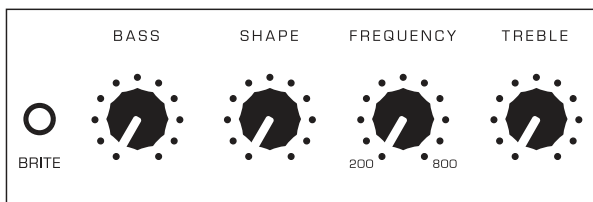
The LX amplifier's compression circuit follows the incoming signal, and will adjust the compression ratio down when you play notes with fast attack to avoid "squashing" your sound. This is useful when playing fast staccato passages as it will cause all the notes to sound at the same level, even if the signal is above the threshold level.

The LX5500 & LX8500 provide front-panel compression lights that visually indicate when the audio signal crosses the threshold level and activates the compressor circuit. When lit white no compression is being applied. When the indicator lights red compression is being applied to the incoming signal.

Compression has three main uses. First, as described above, it "evens" out the notes played by your bass so that they all are at virtually equal levels. Second, it adds "punch" to a sound. Since all levels are nearly the same, you can play with greater force without worrying about the loudest notes distorting. Finally, it serves to protect your loudspeakers from damage as a result of brief (transient) high output levels, which might otherwise be caused by slapping, finger-popping or other playing techniques & styles.

Whether or not you need to use compression with your LX amplifier will be a matter of personal taste and playing style. Experiment and see if you like the effect. If you usually play at low volume levels, you'll find that even with the COMPRESSOR knob turned up, the compression circuitry may have no audible effect. In general, if you don't need compression, leave it off.

About Equalization



The Hartke LX Series Amplifier gives you control over shaping the sound of your bass using a process called equalization. To understand how this works it's important to know that every naturally occurring sound consists of a broad range of pitches, or frequencies, combined together in a unique way. This blend is what gives every sound its distinctive tonal color.

The LX5500 & LX8500's EQ section is a tone stack equalizer. The tone stack EQ is a fixed bandwidth EQ. It is a little different than normal boost and cut hi-fi bass and treble controls as there is no theoretical "flat" setting. When the three knobs are at their center (12 o'clock) position, the response is set to a preset equalization curve that has been tailored for the bass guitar. The EQ controls are somewhat interactive, since electronically, the BASS control feeds the SHAPE control, which feeds the TREBLE control. You should experiment with the EQ knobs and your particular bass to dial up the best sound.

The SHAPE and FREQUENCY knobs apply an adjustable notch (scoop) filter to the specified frequency area, so that you can customize the effect of the EQ curve that best complements your particular bass instrument. As the SHAPE knob is rotated clockwise the depth of the notch increases. Moving the FREQUENCY control clockwise causes the notch filter to be applied to higher frequencies, while moving the knob counterclockwise causes it to be applied to lower frequencies.

In addition to the EQ knobs, the LX amps also includes a BRITE switch. The BRITE switch adds an overall boost to the high-end frequency response. This button works in conjunction with the GAIN knob (similar to the Loudness button on a stereo). As you raise the GAIN, the overall boost is diminished. When the GAIN is set to "10" (turned fully clockwise), the BRITE switch has no effect on the audio.

In many instances, the best way to deal with equalization is to think in terms of which frequency areas you need to attenuate, as opposed to which ones you need to boost. Be aware that boosting a frequency area also have the effect of boosting the overall signal; specifically, too much low frequency EQ boost can actually cause overload distortion, or even harm a connected speaker. In general, if you're going to apply a fair amount of low frequency EQ boost, it's a good idea to keep compression on, if only to protect your speakers from potential damage.

Specifications

Continuous Average Output Power

LX8500	800 watts @ 4 ohms 525 watts @ 8 ohms
LX5500	500 watts @ 4 ohms 330 watts @ 8 ohms
Preamp Tube	12AX7A, Class A, Low Noise High-Mu Twin Triode
Input	>1M Ω unbalanced
Compressor Ratio	Fixed 2:1
Compressor Threshold	Off to -30dBu to Input
Mute	>80dB (100dB typical) at Direct Output & Speaker Output
Brite Switch	10kHz, +8dB Gain @ 2 o'clock; +5dB Gain @ min
Tone Stack EQ	
Bass	+8/-14dB @ 80Hz relative to 12 o'clock
Shape	+11/-3dB relative to 12 o'clock
Frequency	200Hz-800Hz
Treble	+5/-20dB @ 6kHz relative to 12 o'clock
FX Loop Send	200 Ω impedance balanced
FX Loop Return	20k Ω balanced, 5.5dBu for Rated Output Power
Tuner Output	100 Ω unbalanced
Direct Output	210 Ω balanced
Stereo Aux Input	3k Ω unbalanced, -10dBV
Headphones	80mW max @ 32 Ω
Dimensions	LX8500 = 14" x 12" x 3" (355mm x 300mm x 73mm) LX5500 = 14" x 10.6" x 2.6" (355mm x 270mm x 73mm)
Weight	LX8500 = 8.5lb (3.85kg) LX5500 = 8lb (3.6kg)

At Hartke, we are continually improving our products, therefore specifications and images are subject to change without notice.

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