



Trusted Bosch Quality

As the world's largest alternator manufacturer, Bosch has been a major supplier of new alternators and starters to OE vehicle manufacturers since 1913, and is also a highly regarded supplier of both new and remanufactured units for the aftermarket. Recognized worldwide as a leader in innovative automotive and heavy duty technology, Bosch takes pride in its quality reputation and works continuously to advance its standards of excellence. All Bosch School Bus Alternators are built to stringent precision and performance criteria, and are 100% factory tested to ensure superior reliability and performance over the long haul. You can trust Bosch to deliver!

Feature	Benefit
200 Amp operating output at 6000 RPM and 122 AMPS at 2000 RPM	Increased battery life for maximum power under all vehicle conditions
Temperature and vibration-resistant materials and components	Unmatched reliability over longer service life
Intelligent Battery Sense Technology	Reduces battery charging time; prolongs battery life
Exclusive Bosch self protection voltage regulator	Protects internal components from excessive heat
Dual internal cooling fans, and externally-mounted rectifier and regulator	Virtually eliminate heat damage, promoting long life
Exclusive Bosch long-life bearing technology	Reliable performance and increased service life
Advanced, high-efficiency design and operation	Increased fuel economy
3 part numbers with unique terminal configuration	Replace over 200 OE part numbers
3-year/350,000 mile warranty	Best-in-class warranty



BOSCH
Invented for life

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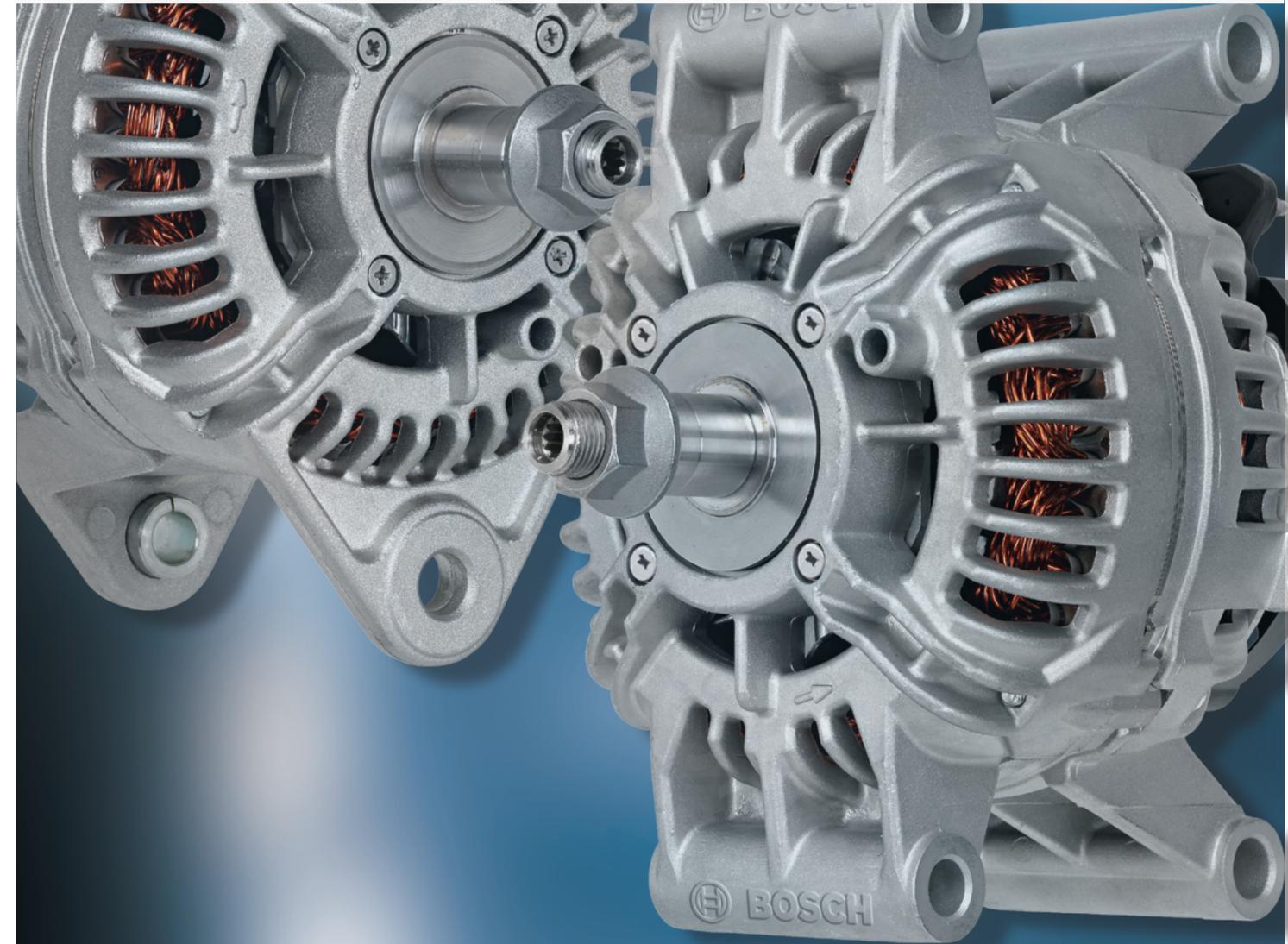
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Long Haul[®] Extreme Alternators

Advanced
Charging
Technology

 **BOSCH**
Invented for life



Bosch Long Haul® Extreme (LHX) Alternators

Innovative Engineering

Advanced engineering and a new way of thinking is what allowed Bosch to create the LHX Alternator.

In the 1950s and 1960s the leading cause of alternator failure was worn brushes. Due to this, alternator manufacturers created the brushless alternator as a way to increase product life, however, brushless alternators have inherent consequences: they are large and heavy, and have low power density and low efficiency.

Advancing Technology

By combining advances in materials with Bosch technology, the Bosch LHX Alternator is a brushed alternator with the benefits of a brushless: it is light, small, has high power density plus the lifetime of a brushless alternator.

Competitor	Bosch Long Haul® Extreme
130–170 Amps	170–200 Amps
83–97 Amps at 2,000 RPM	120–122 Amps at 2,000 RPM
55–68% efficiency	71–74% efficiency

Extreme Performance

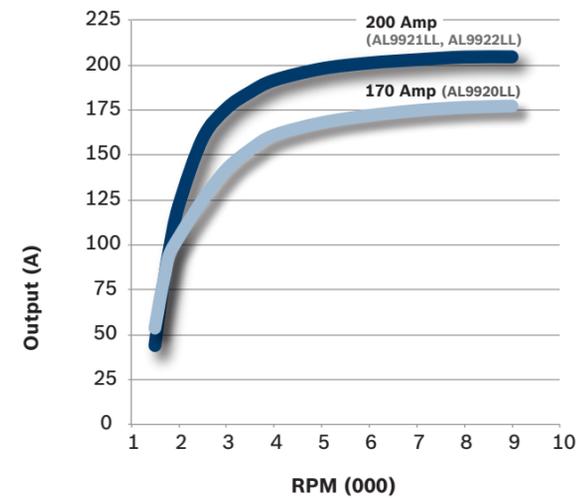
Advanced performance technology represents the next generation of charging systems. More power, higher efficiency, smaller size, and more robust components than competitive alternators allows the Bosch alternator to maximize battery life by reducing deep cycling.

With a B10 life of 500,000 miles (14,500 hours) and a 3-year/350,000-mile warranty, the Bosch LHX Alternator will be there when you need it.

Temperature Resistance

EPA 2010 engines demand temperature resistance and high output. The dual internal fan design of the Bosch

Output Curve (Figure 1)



LHX Alternator allows it to remain cooler and perform stronger at high temperatures. The unique design of the Bosch LHX also allows for a higher idle RPM which provides increased idle output while reducing noise.

Cooler in the long run! Bosch alternator bearings run 10% to 15% cooler than the competition. When running at 6,000 alternator RPM, the Bosch bearings operate at less than 120°C while the closest competitor is 125°C, with some as high as 140°C!

Great Things Come in Small Packages

The Bosch LHX is an extreme long-life alternator that exceeds the brushless competition, feature-for-feature, in every category – including size. This power and feature packed alternator is up to 34% lighter than all of the brushless competition. By optimizing brushed alternator technology with state-of-the-art electronics and components, Bosch is able to eliminate the need for inefficient brushless technology and provide a compact, lightweight, rugged alternator that is highly suited for today's commercial vehicle needs.

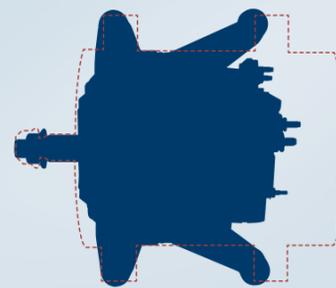
Sizing Up The Competition

Bosch LHX Alternators are up to 34% lighter than competitive brushless units! Bosch LHX Alternators are both smaller and lighter than competitive brushless units. Even at low and high alternator RPM's, Bosch LHX Alternators provide more power while being up to 34% lighter than the competition! Being lighter means:

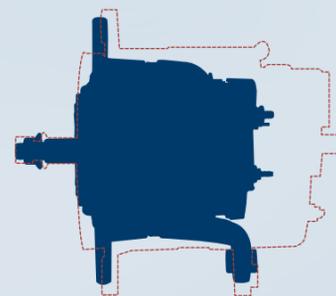
- ▶ Easier Installation
- ▶ Less drag on engine power, resulting in better fuel economy



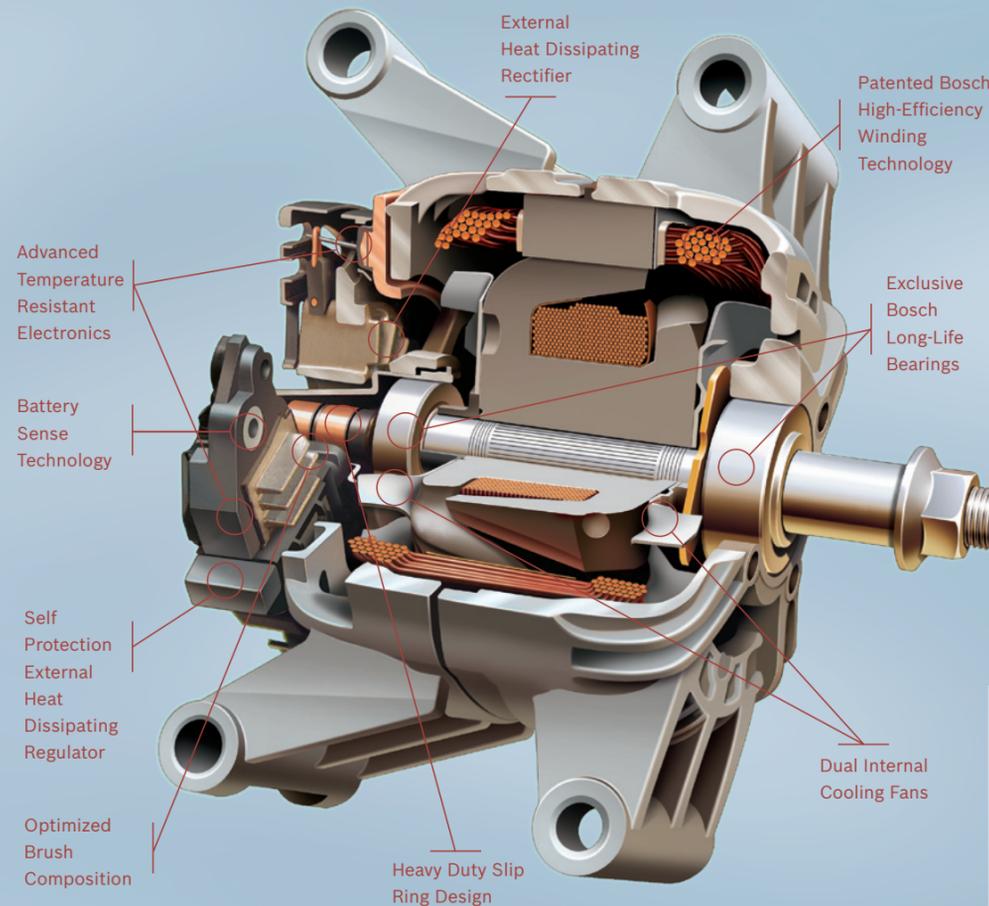
Bosch Long Haul® Extreme Versus Typical Brushless Units



Pad Mount



J180



Significantly higher power density and efficiency in a compact design when compared to any brushless alternator.

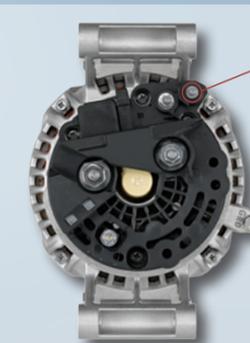
Larger, custom designed 6305 bearings with high temperature grease provide maximum bearing robustness under higher temperatures and belt forces for longer periods when compared to other bearings.

Specially designed dual internal fans to maximize cooling capability. Maintaining lower temperatures helps provide longer life.

Optimized brushes and slip rings utilize new materials providing a lifetime that is vastly superior to all known brushed alternators.

Small size and lightweight – nearly 15lbs less on average – as compared to a brushless alternator allow for easier and faster servicing.

Thermally protected external regulator, exclusive to Bosch Alternators protects the alternator electronics against short but extreme temperature spikes. This prevents premature failure by providing current while reducing voltage to cool the electronic components.



Battery Sense Technology

With Bosch's intelligent battery sense technology, simply connect the vehicle wiring harness to the proper terminal on the voltage regulator. No need to create "jumper wires".