

A person wearing khaki pants and orange gloves is using a leaf blower to clear a path. The path is covered in dry, yellow autumn leaves. The background shows a grassy area and trees under a bright sky. A red rectangular box is overlaid on the left side of the image, containing white text.

Power tools and lawn and garden machinery compliance in a global market



Solutions

Safety. Science. Transformation.™



Introduction

For power tool and lawn garden machinery manufacturers targeting global markets, it is more important than ever to choose the right testing expert to help guide you through the complexities of compliance and certification. Meeting rigorous regulations for power tools safety and performance requires the right knowledge and expertise to navigate critical certification challenges.

Key trends driving growth in the market include:

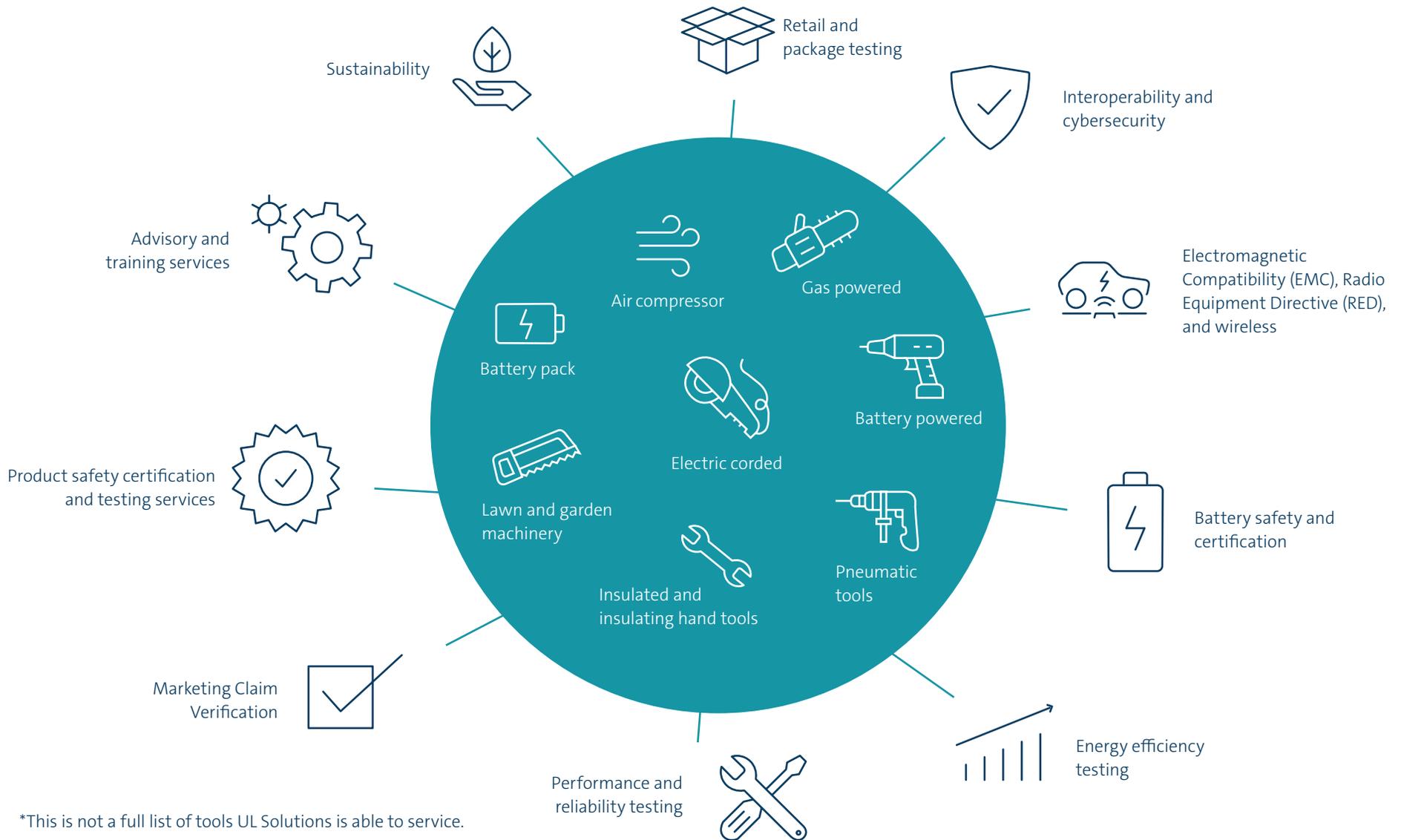
- demand for easy-to-operate portable tools
- battery powered
- connectivity
- energy efficiency

As a global safety science leader with broad business intelligence and a deep understanding of the regulatory landscape, UL Solutions is a trusted partner to power tool manufacturers helping you demonstrate the safety and compliance of your products reaching the global market faster. We help deliver high-quality and high-performance devices and help turn technology trends into a competitive advantage to get your innovations to market faster and leverage one of the most recognized Marks in the world to build trust and confidence with your customers.

UL Solutions provides a recognized team of local experts knowledgeable on the latest tool standards, including UL Solutions safety and International Electrotechnical Commission (IES) standards, and a dedicated global network of independent, competent, consistent and capable product certification bodies and testing laboratories delivering comprehensive compliance solutions for power tools and batteries.

Power tool and lawn and garden machinery manufacturers can reduce time-to-market and costs by collaborating with a single service provider for multiple certifications, getting specialized training and insight and leveraging our strong connections with retailers as well as key industry stakeholders as the Power Tool Institute (PTI), the Outdoor Power Equipment Institute (OPEI) and the European Power Tool Association (EPTA).

UL Solutions services for power tool and lawn and garden machinery manufacturers



UL Solutions safety testing and certification services

When launching a new product, you want to be sure that it complies with market requirements. As a leading expert in safety science, UL Solutions can provide certification and testing as well as market entry advisory and training services for your global access needs. In this way, we can help you understand your compliance and market access requirements.

UL Mark

The UL Mark is one of the most accepted certification marks in North America, appearing on 22 billion products annually. The UL Mark demonstrates that we have tested representative samples of your product and determined that the product meets specific, defined requirements. Throughout the world, we are the only certification organization authorized to issue the UL Mark.

CE and UKCA marking

CE (conformité européenne) marking is essential in the European Economic Area (EEA). The CE marking demonstrates that your product complies with all the applicable European Union directives and regulations. Although the CE marking is a self-declaration, understanding how to navigate complex European mandatory CE marking requirements, as well as voluntary certification programs, can help speed up your time to market. In addition, to get the CE marking on power tools according to EMC and RED directives, it is necessary to have the products tested by a Notified Body.

With an extensive knowledge of European and UK standards, we support you in testing your products and in compiling the associated documentation required to declare CE and UKCA Marking compliance. UL is a Notified Body for CE marking and an Approved Body for UKCA marking. We offer flexible, customized services to help you fulfill Declarations of Conformity (DoC) and Technical Documentation Files (TDF).

IECEE CB Scheme

When you want to export an electrical or electronic product globally, the certified body (CB) test report is one of the key elements to consider. The CB Scheme is an international system for mutual acceptance of test reports and certificates dealing with safety. The International Electrotechnical Committee for Conformity Testing to Standards for Electrical Equipment (IECEE) oversees the CB Scheme.

UL is a National Certification Body (NCB). NCBs operate national certification schemes for electrotechnical equipment and components and issue CB Test Certificates. CB Test Certificates are based on Test Reports. Testing is conducted at one of our many CB Testing Laboratories (CBTLs).



At UL Solutions, we certify to many standards relevant to power tools and lawn and garden machinery, including but not limited to:

General tool requirements:

- IEC/UL 62841-1, the Standard for Electric Motor-Operated Hand-Held Tools, Transportable Tools and Lawn and Garden Machinery

Hand-held power tools:

- IEC/UL 62841-2-1, the Standard for Electric Motor-Operated Hand-Held Tools, Transportable Tools and Lawn and Garden Machinery
- IEC/UL 62841-2-2, the Standard for Electric Motor-Operated Hand-Held Tools, Transportable Tools and Lawn and Garden Machinery-Part 2-2: Hand-Held Screwdrivers and Impact
- IEC/UL 62841-2-3, the Standard for Electric Motor-Operated Hand-held Tools, Transportable Tools and Lawn and Garden Machinery - Safety - Part 2-3: Particular Requirements for Hand-Held Grinders, Disc-Type Polishers and Disc-Type Sanders
- IEC/UL 62841-2-4, the Standard for Electric Motor-Operated Hand-Held Tools, Transportable Tools and Lawn and Garden Machinery - Safety - Part 2-4: Particular Requirements for Hand-Held Sanders and Polishers Other Than Disc Type
- IEC/UL 62841-2-5, the Standard for Electric Motor-Operated Hand-Held Tools, Transportable Tools and Lawn and Garden Machinery-Part2-5: Hand-Held Circular Saws
- IEC/UL 62841-2-6, the Standard for Electric Motor-Operated Hand-Held Tools, Transportable Tools and Lawn and Garden Machinery - Safety - Part 2-6 Particular Requirements for Hand-Held Hammers
- IEC/UL 62841-2-11, the Standard for Electric Motor-Operated Hand-Held Tools, Transportable Tools and Lawn and Garden Machinery - Safety - Part 2-11 Particular Requirements for Hand-Held Reciprocating Saws

Transportable tools:

- IEC/UL 62841-3-1, the Standard for Electric Motor-Operated Hand-Held Tools, Transportable Tools and Lawn and Garden Machinery – Safety – Part 3-1: Particular Requirements for Transportable Table Saws
- IEC/UL 62841-3-9, the Standard for Electric Motor-Operated Hand-Held Tools, Transportable Tools and Lawn and Garden Machinery - Safety - Part 3-9: Particular Requirements for Transportable Mitre Saws

Lawn and garden equipment:

- IEC/UL 62841-4-1, the Standard for Electric Motor-Operated Hand-Held Tools, Transportable Tools and Lawn and Garden Machinery - Safety - Part 4-1: Particular Requirements For Chain Saws
- IEC/UL 62841-4-2, the Standard for Electric Motor-Operated Hand-Held Tools, Transportable Tools and Lawn and Garden Machinery - Safety - Part 4-2 Particular Requirements for Hedge Trimmers
- IEC 62841-4-3, Lawnmowers
- IEC 60335-2-107, Robotic Lawnmowers

Pneumatic tools:

- UL 7700-1, the UL LLC Outline of Investigation for Portable Pneumatic Tools

Insulated & Insulating Hand Tools:

- IEC 60900, the Standard for Hand tools for use up to 1000V AC and 1500V DC

Air compressors:

- UL 1450, the Standard for Motor-Operated Air Compressors, Vacuum Pumps, and Painting Equipment





UL Solutions services for battery packs and chargers

As major design elements and factors in electric power tools and lawn and garden machinery, batteries, battery packs and battery chargers are integral components. For many years in the power tool and lawn and garden machinery industry, battery power has been gaining in popularity over cord-connected and internal combustion engines. Battery technology, specifically lithium-ion batteries, has dominated the market. Thus there is a growing need for lightweight, compact and longer-running batteries with larger energy density, lower discharge rates and faster charging that can maintain energy density over repeated recharging.

At UL Solutions, we evaluate your lithium-ion batteries and battery packs to safety and performance standards. We also test and certify the chargers that go with them.

- UL 2595, the Standard for General Requirements for Battery-Powered Appliances
- IEC/UL 62841-1, the Standard for Electric Motor-Operated Hand-Held Tools, Transportable Tools and Lawn and Garden Machinery - Safety - Part 1: General Requirements (Keep Annex K – Annex is where the Battery tools and battery packs requirements are located)
- IEC/UL 60335-2-29, the Standard for Household and similar electrical appliances - Safety - Part 2-29: Particular requirements for battery chargers

Batteries are tested under such operating conditions as abnormal discharge, short circuiting and overcharging. For some tests, venting of cells is permitted, but fire or explosion is a non-compliant result. The specific methods and procedures of each test may depend on the design and configuration of the battery pack. Within the battery packs the specific requirements for the cells are covered by IEC 62133.

For battery packs and chargers, UL Solutions also offers electromagnetic compatibility (EMC) services, providing a customized package to optimize testing capabilities. This enables manufacturers to identify and resolve EMC problems as early as possible.

UL Solutions connectivity and interoperability services

Companies that prioritize a continuous comprehensive connectivity strategy — that consider wireless interoperability, cybersecurity and EMC/radio — will have a competitive advantage in the power tool and lawn and garden machinery industry. It should also be noted that connectivity is a challenge shared across every industry with connected and smart products.

At UL Solutions, we conduct connectivity and interoperability testing or create a test plan for a variety of use cases in real-world situations, allowing you to manage the risks and complex requirements of connected technologies. Our testing evaluates whether your product meets the applicable requirements. We will work side-by-side with your engineering team to develop internal protocols and test plans that meet your specific needs.

Our facilities offer comprehensive testing, certification and advisory services to help ensure products connect to other devices and function in the way consumers expect.

- Software performance
- Connectivity of wireless products
- Interoperability
- Usability

We also support such technologies as:

- Bluetooth
- Wi-Fi
- Thread
- Zigbee
- 5G
- Open Connectivity Foundation (OCF)
- Radio Frequency (RF)
- Works with Alexa (WWA)

EMC and RED testing services

Our global network of dedicated EMC test facilities provides comprehensive and cost-effective assessments of electronically-controlled tools and machinery that must comply with EMC regulations. Our state-of-the-art facilities offer an efficient EMC testing service to help meet your time-to-market requirements. We can customize the EMC testing process and documentation to your specific requirements by using automated software that improves process efficiency, analyzes results and reduces test cycles and costs.

Our EMC/radio laboratories are recognized:

- Notified Body for EMC (2014/30/EU) and RED (2014/53/EU) for Europe
- Telecommunication Certification Body (TCB) for the U.S. Federal Communications Commission (FCC)
- Conformity Assessment Body (CAB) – Notified Body for the European Union
- CTIA Authorized Testing Lab (CATL)
- Foreign Certification Body (FCB) for Canada





UL Solutions cybersecurity services

Cybersecurity for connected products is a major concern for power tool and lawn and garden machinery manufacturers, suppliers and end users.

At UL Solutions, our Marketing Claim Verification Internet of Things (IoT) Security Rating is a potent security verification and labeling solution for consumer IoT products. Our goal is to make security transparent and accessible while supporting consumers in making purchasing decisions. The IoT Security Rating offers manufacturers and distributors a means to demonstrate that their products deliver on their IoT security claims. The verified IoT Security Rating Mark empowers you to differentiate your product in the marketplace.

In the security sector, we provide additional services and can customize them according to the specific needs of each manufacturer.



Advisory and training services

- Training on security by design
- Secure Development Lifecycle (SDL) gap analysis
- Security framework assessment
- Supplier Cyber Trust Level



Certifications

- IoT Security Rating
- UL 2900, the Standard for Software Cybersecurity for Network-Connectable Products, Part 1: General Requirements
- IEC 62443
- UL Solutions Cybersecurity Assurance Program (UL CAP)
- Interoperability with Amazon Alexa Voice Service (AVS)



Testing

- Penetration
- Vulnerability evaluation
- White box
- Black box
- Device-to-device
- End-to-end
- Out-of-box experience

UL Solutions performance services

When you need to test a product to specific, identified internal protocols or identify and evaluate the performance of new products, our team of highly specialized engineers can assist you with their exceptional experience in the power tool and lawn and garden machinery industry. You can also benefit from a range of training and advisory services developed for certification and testing engineers, product developers and compliance professionals.

We provide advanced performance engineering services to develop product specifications and test plans and accurately execute test procedures so you can go to market with the confidence that your products will meet consumer expectations.

The services include:

- Competitive benchmarking
- Performance improvement
- Marketing claim verification
- Test protocol creation
- Consumer evaluation

UL Solutions also provides additional, customized services. Our skills, techniques, tools and processes — developed and honed by decades of reliability experience within Fortune 500 companies — help you reduce warranty costs and establish a sustainable competitive advantage in the marketplace. These services include:

- Reliability modeling
- Test plan creation
- Component testing
- System level testing
- Accelerated Life Testing (ALT)
- Highly Accelerated Life Testing (HALT)
- Multiple Environment Over Stress Testing (MEOST)
- Weibull analysis
- Root cause analysis
- Corrective action
- Warranty analysis and projections
- Test fixture design/fabrication
- Retails testing
- Package testing



Marketing Claim Verification

In today's highly connected, transparent marketplace, verification of marketing claims plays a crucial role in the decision-making process of buyers and consumers. Performance verification testing opens a world of new opportunities that can help manufacturers get an advantage over the competition by bringing credibility to a specific promotional statement. The UL Solutions Marketing Claim Verification program determines the accuracy of marketing claims — thanks to our science-based, customized assessment — and delivers the confidence that your marketing claim is credible.

A UL Solutions Verification program can be created for a product, process, system or facility. We can use various published standards or requirements for evaluating a marketing claim or even develop new assessment methods with you.





UL Solutions sustainability services

Our sustainability services give power tool and lawn and garden machinery companies control of their green strategies, helping transform their environmental leadership into greater market share, consumer trust and increased profitability. From helping establish clear strategies to validating green efforts and achievements, we empower your communication, innovations, progress and performance in the market.

UL Solutions Environmental Claim Validation (ECV) provides manufacturers with credibility for their environmental sustainability claims. Our publicly available sustainable product database, [UL SPOT](#), features validated products. Our sustainability solutions include [Zero Waste to Landfill](#), [Turbo Carbon™](#), [sustainable packaging](#) and [UL Solutions 360 Supply Chain Management software](#).

Our services include:

- Evaluating corporate-branded sustainability portfolios or programs, e.g., waste diversion programs
- Promoting the integration of sustainable thinking into new product development processes through staff training
- Validating innovative sustainability claims
- Establishing sustainability strategies to achieve corporate and environmental goals
- Enabling sustainable sourcing for retailers and buyers
- Linking product or portfolio sustainable value propositions to customer needs, enabling product differentiation and selection

UL Solutions digital services

At UL Solutions, our digital tools and services provide power tool and lawn and garden machinery companies with a secure source for access to UL Solutions projects, documents and services.

myUL Client Portal: easy access to in-depth information that empowers you to positively impact your bottom line. By providing you with better visibility and insight, our client portal can help you advance the pace of innovation, drive growth and increase speed to market.

With myUL, you can:

- Gain full visibility into quotes, orders and projects.
- See when we received product samples and when they have been returned, picked up, destroyed or archived.
- View UL Solutions reports, procedures and global certifications.
- Identify the companies responsible for your products.
- View the date, factory representative, type of product inspected, type of business, inspection center and any variation notices linked to your reports.

UL Product IQ: a certifications platform that contains UL Solutions Listed, Classified or Recognized products and components. UL Solutions Product iQ marries the longstanding UL Solutions certification information relied upon by millions of users with the intuitive design and user-friendliness of a modern search engine. UL Solutions Product iQ creates premium value for users by helping them identify safer, compliant products and promote their UL Solutions Certified products to potential buyers.

Learn more about UL Solutions services for power tools and outdoor machines or contact us for more information.





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