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# UL Solutions for Commercial and Professional Food Service Equipment

We can help you meet the challenges of a competitive global market with services that streamline safety, energy efficiency and performance testing.



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# Commercial and professional food service equipment testing and certifications

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 commercial food service equipment manufacturers, helping you meet the complex challenges of today's competitive global market with services that streamline safety, energy efficiency and performance testing to international, national and regional standards.

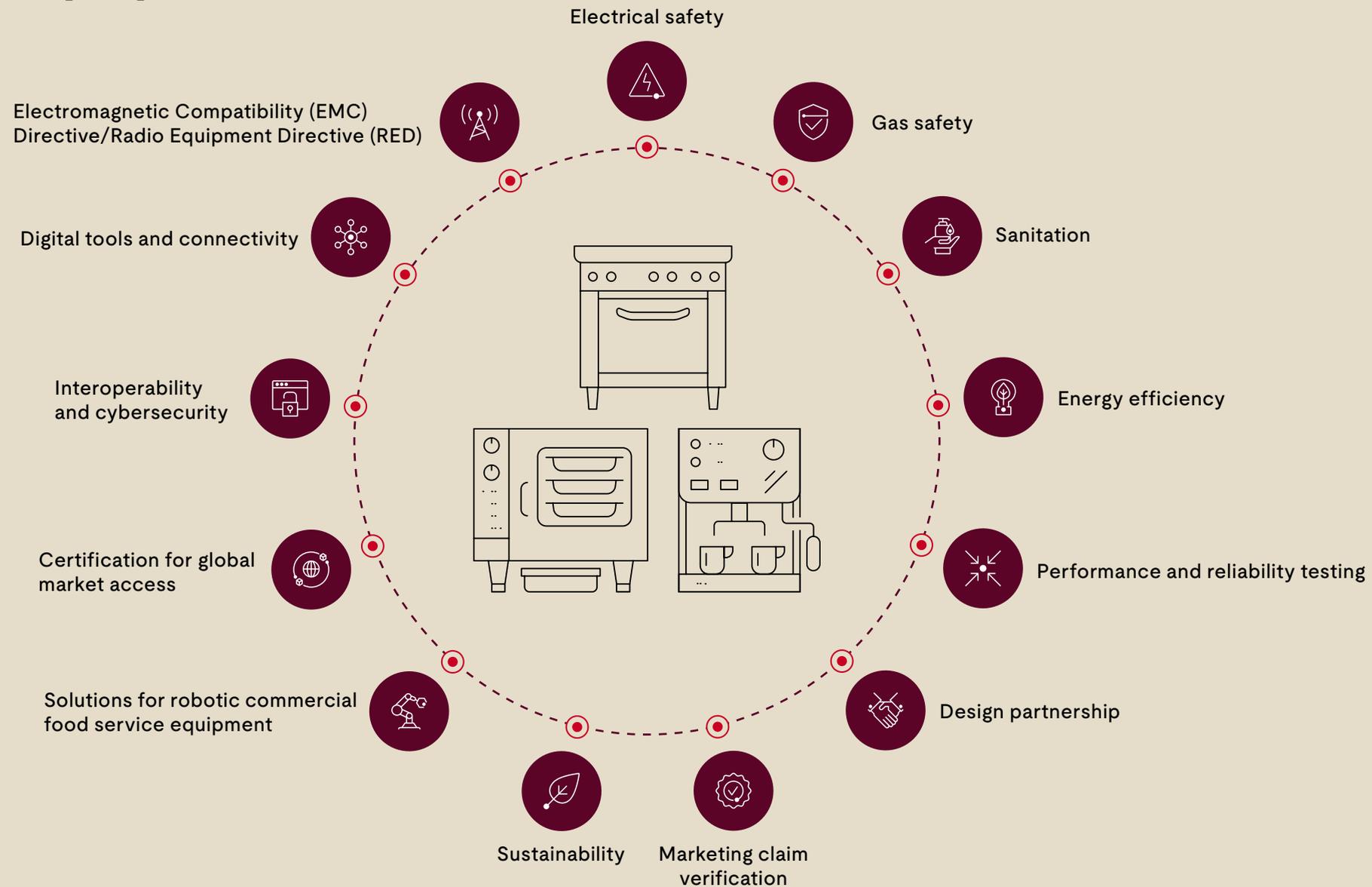
We deliver high-quality and high-performance services that help turn technology trends into a competitive advantage to get your innovations to market faster and leverage the UL Mark — one of the most recognized in the world — to build trust and confidence with your customers.

Working with a single, experienced service provider means that you gain measurable cost- and time-saving benefits. No need to submit the same product over and over to earn the multiple certifications required to bring many commercial appliances to the global market. And if you qualify for the UL Data Acceptance Program (DAP), you can further reduce assessment time by conducting testing in your own facilities.

Rely on UL Solutions to help you with your testing and certification projects for:

- Electric and gas commercial cooking appliances
- Commercial food-preparing equipment
- Coffee machines
- Commercial refrigeration equipment
- Ware washing machines

# UL Solutions services for commercial and professional food service equipment



# Go farther and faster with UL Solutions



## Reach global markets faster

As global compliance experts, we can help you streamline your testing and certification schedule and enable you to access world markets using one local testing laboratory.



## Work with a leading issuer of the IECEE CB certificates

We are an active driver in international committees of standards harmonization. Benefit from our local testing services and a single access point for international certifications. Use our CB Test Reports to obtain CB Certificates in CB Scheme member countries and many other nonmember countries.



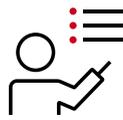
## Verify efficiency and performances aspects

Collaborate with highly specialized engineers not only to verify energy efficiency performance but also to assess a variety of your product's performance aspects. Develop customized test protocols to validate the overall quality, reliability, and performance of your products or components in the market.



## Get your new product innovations ready for connected ecosystems

Meet regulatory and industry requirements for wireless performance, connectivity and cybersecurity through independent testing and certification. We offer comprehensive product development support, including technical services, prototype reviews and reliability testing to help you bring new products to market quickly.



## Benefit from local expertise

Get specialized training and insights in your language. Benefit from a wide range of online and on-site training specifically developed for your engineers, product developers and compliance professionals. On-site training will typically include valuable hands-on time with your products, so you know that interpretations and feedback will be timely, accurate and impactful.



## Use one trusted contact for all your business needs

We offer support for every step of your product development journey — including risk analysis (mechanical risk, electric shock, fire risk, flame risk, and explosion risk associated with leakage of a combustible refrigerant in confined spaces), quality assurance, regulatory compliance reviews, energy efficiency testing and environmental certifications.



# Getting ready for global markets

## Product 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 access advisory and training services for your global access needs. In this way, we can help you understand your compliance and market access requirements.



UL Marks appear on billions of products globally, they serve as a recognized symbol of trust in our customers' products and reflect an unwavering commitment to advancing our safety mission.

The UL Mark demonstrates that we have evaluated and 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.

## IECEE and CB SCHEME



When you want to export an electrical or electronic product globally, the CB Certificate and Test Report is one of the key elements to consider. The IECEE 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 Solutions has four National Certification Bodies (NCB). NCBs operate national certification schemes for electrotechnical equipment and components and issue CB Test Certificates. CB Test Certificates are based on Test Reports. We conduct testing at one of our many CB Testing Laboratories (CBTLs).

## CE and UKCA marking

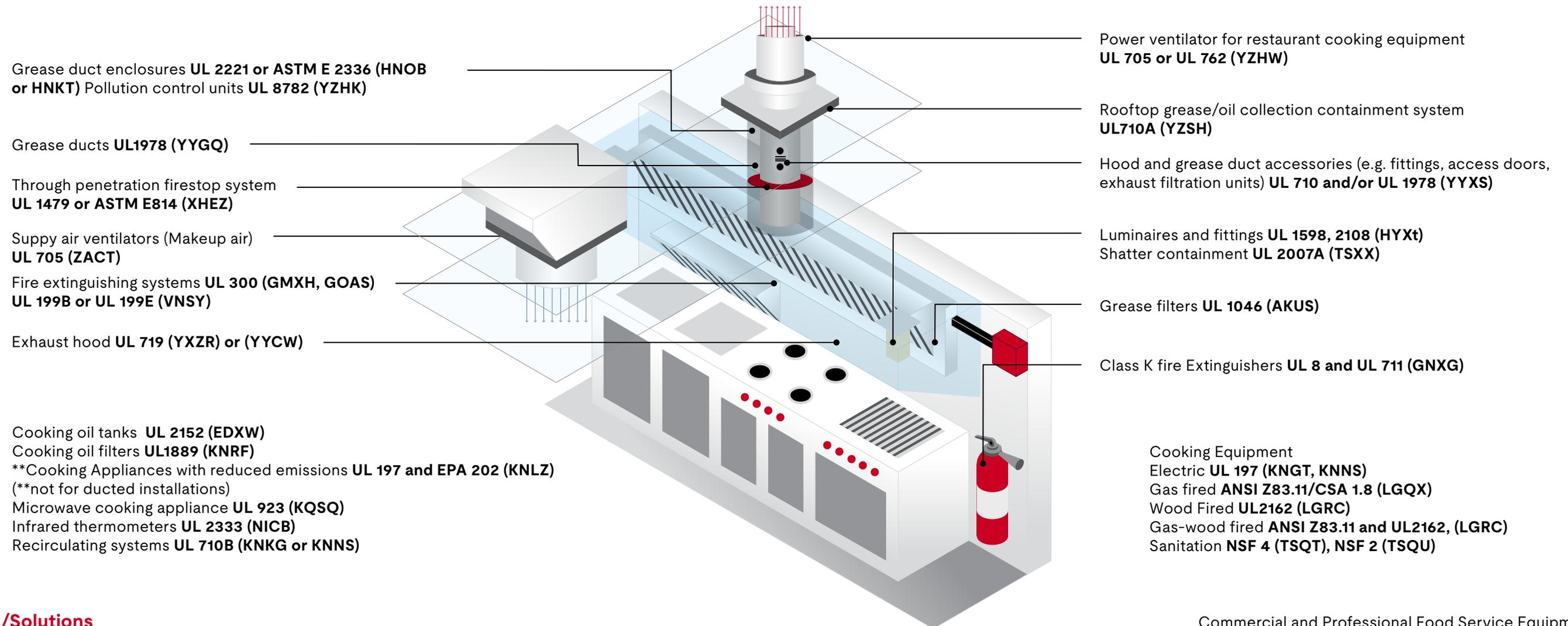
The Conformité Européenne (CE) marking is essential in the European Economic Area (EEA). The CE marking demonstrates that your product complies with all the applicable EU directives and regulations. Although the CE marking is a self-declaration, understanding how to navigate complex European mandatory CE marking requirements, as well as voluntary certification programs, can help speed up your time to market.

In addition to compliance with safety regulations under the Low Voltage or Machinery Directive, we can help conduct investigations and testing in accordance with the Gas Appliances Regulations (GAR 2016/426), EMC Regulation, RoHS Directive, Radio Equipment Directive (RED) and others. We can also help conduct investigations and testing for the Food Contact Regulation and German Food and Feed Code (LFGB).

With our extensive knowledge of European and U.K. standards, we support you in testing your products and compiling the associated documentation required to declare CE and UKCA marking compliance. We are 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).

# North American commercial cooking standards and UL certification (Listing) categories

These standards are representative of the types of safety and other standards applicable to commercial and professional food service equipment





# Sanitation testing and certification for North America

When selling your food service, commercial kitchen and other commercial appliance equipment products in North America, many operators will insist on compliance with applicable NSF sanitation standards recognized by the American National Standards Institute (ANSI). Minimum requirements are established for the sanitary design, construction and performance of many products intended for use in retail food establishments.

## **Basic considerations include:**

- Determining whether an appliance will hold food at safe temperatures for extended durations.
- Evaluating that the product can be cleaned and will not present a source for microbiological, chemical or physical contamination.
- Assessing materials for durability, general cleanliness and potential toxicity to food.

## Products evaluated

We have the expertise to assess a wide variety of food service equipment.

Examples include:

- Cooking and heating appliances
- Commercial refrigerators and freezers
- Dispensing freezers (ice cream and gelato machines)
- Food and beverage dispensers
- Automatic ice-making equipment
- Bulk milk dispensers
- Ware washing equipment (dishwashers)
- Commercial powered food preparation equipment, such as mixers and grinders
- General food service equipment, such as tables, pans, hoods, and utensils
- Air curtains for entranceways

## Sanitation standards tested

The many sanitation standards that we test against include:

- NSF/ANSI 2 – Food Equipment
- NSF/ANSI 3 – Commercial Ware washing Equipment
- NSF/ANSI 4 – Commercial Cooking, Rethermalization and Powered Hot Food Holding and Transport Equipment

- NSF/ANSI 5, Water Heaters, Hot Water Supply Boilers, and Heat Recovery Equipment
- NSF/ANSI 6 – Dispensing Freezers
- NSF/ANSI 7 – Commercial Refrigerators and Storage Freezers
- NSF/ANSI 8 – Commercial Powered Food Preparation Equipment
- NSF/ANSI 12 – Automatic Ice Making Equipment
- NSF/ANSI 13 – Refuse Processors and Processing Systems
- NSF/ANSI 18 – Manual Food and Beverage Dispensing Equipment
- NSF/ANSI 20 – Commercial Bulk Milk Dispensing Equipment
- NSF/ANSI 25 – Vending Machines For Food and Beverages
- NSF/ANSI 37 – Air Curtains for Entrance ways in Food and Food Service Establishments
- NSF/ANSI 51 – Food Equipment Materials
- NSF/ANSI 59 – Mobile Food Carts
- NSF/ANSI 169 – Special Purpose Food Equipment and Devices
- Lead Content Certification
- UL 2007A, Shatter Containment of Lamps for Use in Regulated Food Establishment
- UL 2333, Infrared Thermometers

The UL Mark for Sanitation appears on food equipment products complying with NSF/ANSI sanitation standards and other food equipment hygiene codes and requirements. For products connected to the potable water distribution system that are evaluated for low lead in accordance with NSF/ANSI 372, the Health Effects mark is available. The UL Mark is recognized as a trusted symbol of your commitment to food safety by code authorities in all 50 U.S. states and in all of Canada's provinces and territories.



# Energy efficiency testing and certification services

We are a global leader in energy efficiency product testing and certification, supporting businesses throughout the entire product development, testing and certification life cycle. Energy efficiency regulations are on the rise, and we are committed to helping manufacturers navigate this dynamic space.

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## Energy performance optimization

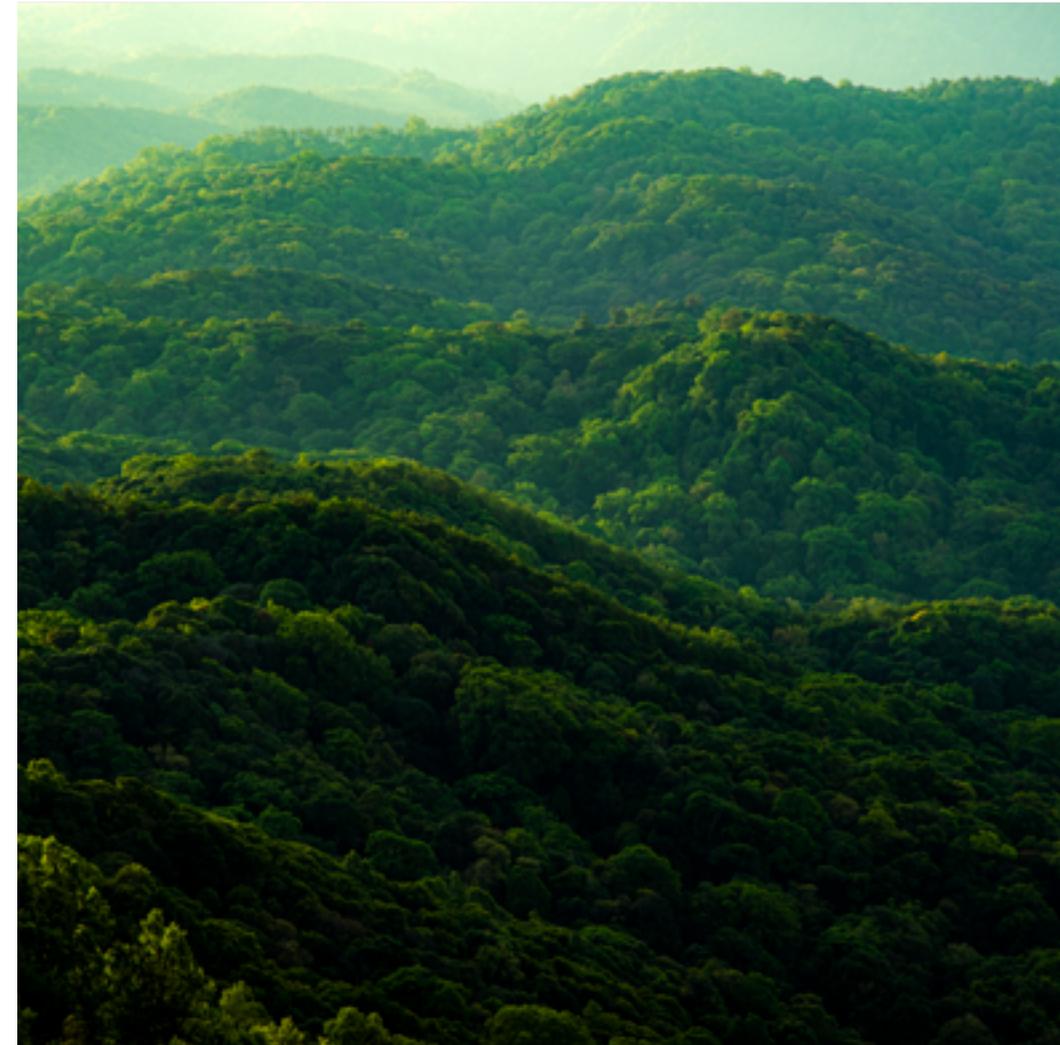
Energy testing and data submission for:

- U.S. Department of Energy (DOE)
- U.S. Environmental Protection Agency (EPA)
- ENERGY STAR® program
- California Energy Commission (CEC)
- Department of Natural Resources Canada (NRCan)
- Other international requirements

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## UL Energy Verification Mark

Saying your products are energy efficient is important, but so is demonstrating it to help consumers believe your energy efficiency claims. The UL Energy Verification Mark demonstrates compliance with energy efficiency standards. It addresses compliance with testing regulations and procedures of any energy efficiency scheme, e.g., DOE, European Energy Efficiency (EE) Label and other mandatory or voluntary EE schemes. The Mark helps consumers have confidence in your energy efficiency testing and claims because it comes from a trusted, independent third party — UL Solutions.



# Our product engineering services

Ensuring an appliance's safety, reliability and performance is critical to the success of any professional and commercial appliance manufacturer. Our product reliability and performance test services can help you evaluate the performance and durability of your appliances and identify any potential issues or risks associated with them.

We offer a comprehensive range of product reliability and product performance test services for commercial appliances, including:

## **Safety testing**

Our safety testing services on commercial kitchen appliances evaluate gas leak, overheating protection, flame failure and electrical safety features.

## **Performance testing**

Our performance testing services evaluate the speed, temperature range, accuracy, efficiency and recovery time of your commercial appliances under various operating conditions.

## **Reliability testing**

Our reliability testing services evaluate the durability of your commercial kitchen appliances under normal and stressful conditions, such as rapid temperature change and maximum load.

## **Endurance testing**

Our endurance testing services evaluate the durability and performance of your commercial kitchen appliances under daily use and maximum continuous use conditions.

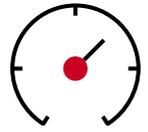
## **Environmental testing**

Our environmental testing services evaluate the durability and performance of your commercial kitchen appliances under extreme temperatures, humidity, dust and vibration.

## **Our reliability testing services offer the following benefits to your food service business:**

- Safeguard the reliability of your commercial kitchen appliances
- Identify potential issues or risks associated with your commercial kitchen appliances
- Evaluate the performance and durability of commercial kitchen appliance products
- Establish the expected service life requirements for commercial kitchen appliances under normal and stressful conditions
- Help protect the reputation and credibility of your food service equipment business





# 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 extensive experience. 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.

## Services include:



Competitive benchmarking



Performance improvement



Marketing claim verification



Test protocol creation



Consumer evaluation

UL Solutions also provides fully customized services. Our skills, techniques, tools and processes — developed and honed by decades of reliability experience with 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
- Root cause analysis
- Corrective action
- Warranty analysis and projections
- Test fixture design/fabrication
- Retail testing
- Package testing



# UL Marketing Claim Verification

Marketing claims are everywhere in the global market, but it's often difficult for customers to determine which ones are accurate. Differentiate your product in the market with the UL Marketing Claim Verification program, which provides independent, reputable verification of your marketing claims.

As an example, the UL Verified Mark can help demonstrate that your commercial cooking appliances limit emission of grease-laden air to the room to under 5 mg/m<sup>3</sup> avg. using the EPA-202 test method based on your specifications and food types used.

Buyers and code authorities need to know the number of grease-laden emissions your product produces before deciding if your product requires a hood for the food types you specify. UL Verification allows you to mark and market your products with the specific number of grease-laden effluents over eight hours while cooking the food types of your choosing. The UL Verified Mark can be placed on your product in addition to packaging, online and print marketing. We also publish the verification on [verify.UL.com](http://verify.UL.com).

It's time to add credibility to your claims with the UL Verified Mark.

To learn more, visit [VerifyUL.com](http://VerifyUL.com)

## Claim Module

Customizable claim language that highlights performance

## Basic Verification Mark

Indicates the claim has been tested and verified by UL Solutions



## Unique Identifier

Enables users to look up more information about a specific marketing claim Verified by UL Solutions at [VerifyUL.com](http://VerifyUL.com).

# U.S. Environmental Protection Agency (EPA) Test Method 202

EPA 202 verification testing considers:

- Limits on the amount of grease-laden vapors discharged into the air
- Assurance that all smoke and grease-laden vapors are adequately captured during cooking

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## Emissions test

This test is conducted to verify that the grease-laden effluent at the exhaust outlet of the system does not exceed an average of 5.0 mg/m<sup>3</sup> of exhausted air sampled at a maximum product capacity over a continuous eight-hour cooking period. Operation below this threshold infers that the appliance can be used without being positioned under an external ventilating hood.

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## Capture test

As part of the test procedure, the cooking appliances are loaded with specified food products such as french fries, frozen chicken pieces, meat cakes or roasting chickens and operated until the food product is overcooked, i.e., very well done. During each cooking cycle, a visual examination is performed to verify that the hood assembly completely captures all emissions and shows no evidence of visible smoke or grease-laden air escaping from the hood assembly through the discharge port or through external seams, joints, penetrations and the portion of the hood that captures grease-laden vapors.

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## Additional product listing

In addition to the verification letter report service described above, we can also offer listing of some products, including these EPA 202 tests. Recirculating systems listed under the Commercial Cooking Appliances with Integral Recirculating Ventilation Systems product category (KNKG) are provided with an integral cooking appliance. Recirculating systems listed under the Hoods/Recirculating Systems for Use with Specified Commercial Cooking Appliances (YZCT) are intended for installation with the UL Listed commercial cooking appliances specified on markings provided on the recirculating system. UL 710B, the Standard for Recirculating Systems, includes several tests to evaluate the performance of the recirculating system that are conducted with each representative cooking appliance model with which it is intended to be used.

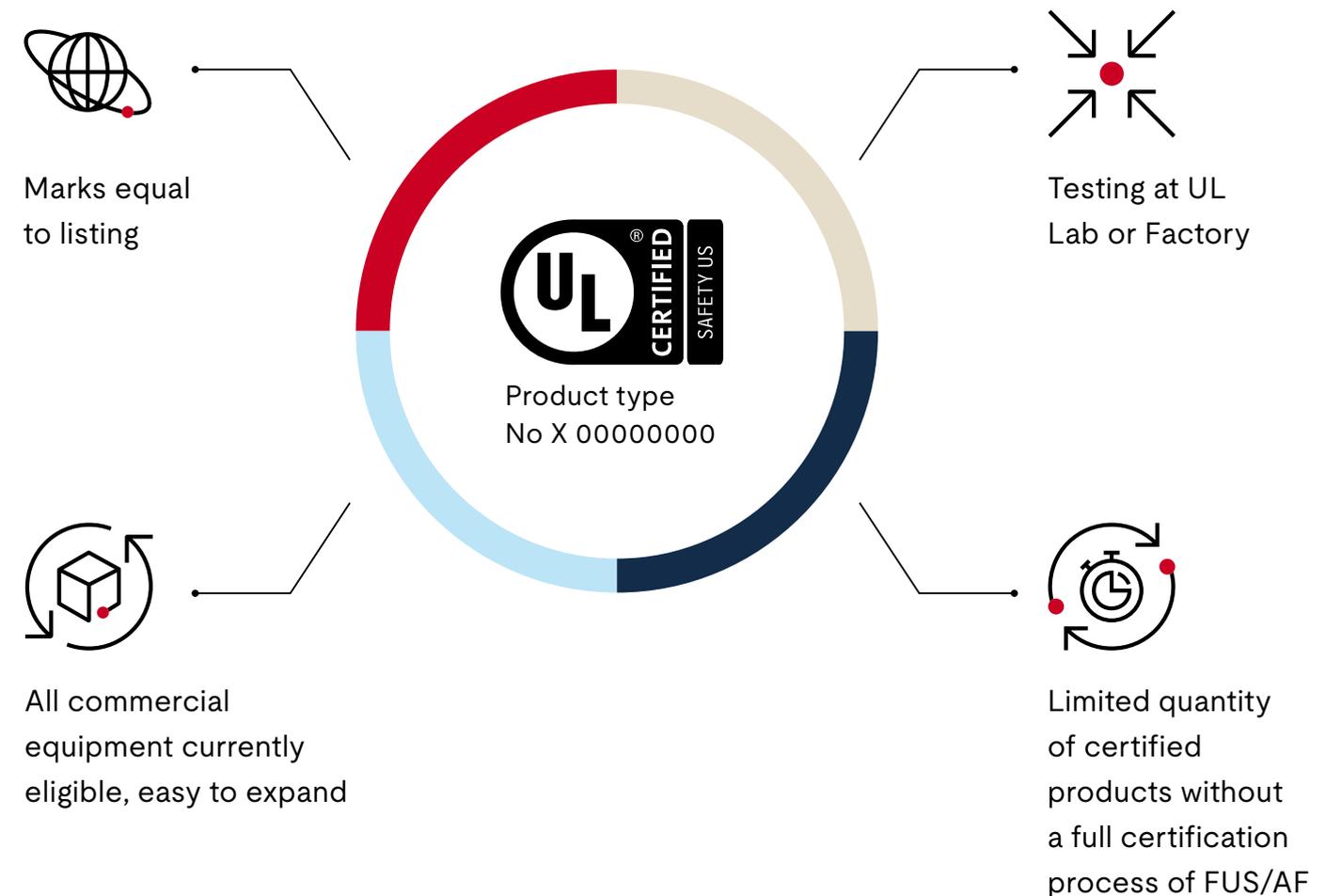
# Limited Production program

Our Limited Production program is a customized offering to give manufacturers the opportunity to ship a limited quantity of UL Certified products without the need to specify the final installation site and without incurring the full certification process with inspections and annual fees.

The Limited Production Certification is applicable to a limited batch of production in a limited timeframe. The construction review and evaluation can be done at our facility or yours. Note that possible destructive testing is anticipated depending on the category and technical requirements. If the product complies with the applicable requirements, the UL Mark can be applied to the whole batch to demonstrate that the products bearing the Mark are representative of the samples evaluated, tested and certified.

## Benefits

- Perfect fit for customized equipment
- No inspections or annual fees
- Satisfies the requirements of the local authorities
- No need to specify the final installation site



# Design partnership

Our Design Partnership Service enables early engagement with UL Solutions to help you understand the impact of regulatory requirements on your design before it reaches the certification stage.

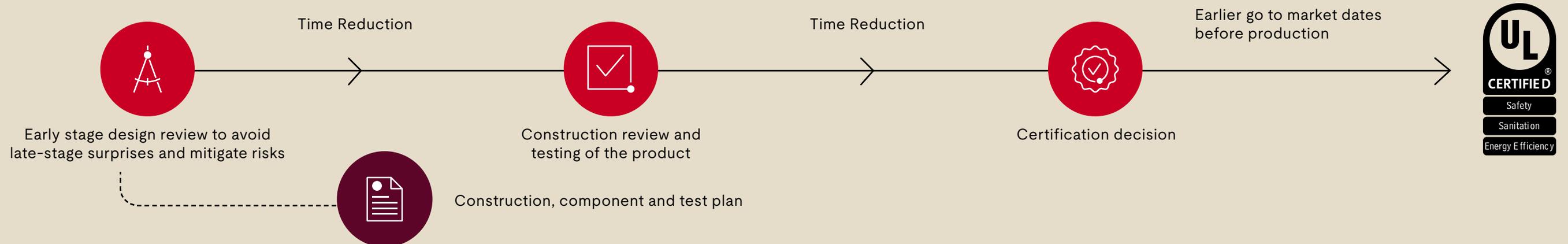
In today's global economy, organizations can gain competitive advantage by accelerating product development and entering new markets. By engaging with our experts early, our Design Partnership Service can help you effectively manage safety, compliance and regulatory risks and avoid late-stage delays and disruption to the certification process.

Designing with safety and compliance in mind can be more cost effective than reworking later. Our engineers start with initial discovery sessions to understand your needs and timelines, then work to help you gain the insights to head off the risks and costly retooling, retesting and redesigning.

## Our service can help you:

- Understand the implications of standards and regulatory requirements for your targeted markets before investing in component selection, hardware and software development and other critical milestones.
- Streamline your testing plan for safety, reliability, energy efficiency and performance while mitigating risk and increasing efficiency.
- Gain confidence before entering the certification stage of your project.

Even if you have passed the early stages of product design or are in full-scale production, it's not too late to engage in our Design Partnership Service. Our deep expertise in safety, compliance and global market access can help you at any stage of your product development cycle as you execute your go-to-market strategies. Our fast turnaround and cost-effective solutions will help minimize your risks in your product development lifecycle and help achieve your business objectives.





## A smart ecosystem

Known as the Internet of Things (IoT), a new generation of network-connected products has raised consumer expectations in terms of a product's capability and functionality. To remain competitive, manufacturers may need to integrate complex new technologies into their product designs. At the same time, they must meet both performance expectations and compliance standards while minimizing potential cybersecurity risks.

Through third-party testing for connectivity, interoperability and cybersecurity, you can bring your products safely into smart ecosystems while your customers and consumers can be confident that your product has undergone rigorous evaluation for security flaws and performs as expected in today's connected ecosystem.



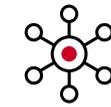
## EMC and RED testing services

Our global network of dedicated EMC testing facilities provides comprehensive and cost-effective assessments of commercial food appliances products 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) 7
- Foreign Certification Body (FCB) for Canada



## UL Solutions connectivity and interoperability services

Manufacturers must integrate new technologies into their product designs to stay ahead of the competition. Our connectivity and interoperability services can help.

Connectivity is a challenge shared across every industry with connected and smart products. Companies that prioritize a continuous comprehensive connectivity strategy and consider wireless interoperability, cybersecurity and EMC/radio will have a competitive advantage in the commercial food appliances industry.

Our facilities offer comprehensive testing, certification and advisory services to help evaluate if products connect to other devices and function in the way consumers expect. We offer services for the following:

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

**We also support such technologies as:**

- |             |                     |              |
|-------------|---------------------|--------------|
| • Bluetooth | • 5G                | • Works with |
| • Wi-Fi     | • Open Connectivity | SmartThings  |
| • Thread    | Foundation (OCF)    | • Open ADR   |
| • Zigbee    | • Radio Frequency   | • CTA-2045   |
| • Matter    | (RF)                |              |



## UL Solutions cybersecurity services

Cybersecurity for connected products is a major concern for commercial food appliances products 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 testing
- Vulnerability evaluation
- White box
- Black box
- Device-to-device
- End-to-end
- Out-of-box experience





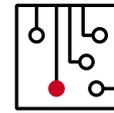
# Sustainability services

Our sustainability services give you control of your green strategies, helping transform your 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.

Our Environmental Claim Validation (ECV) provides you with credibility for your environmental sustainability claims. Our publicly available sustainable product database, UL SPOT, features validated products. Our sustainability offerings include Zero Waste to Landfill, Turbo Carbon™, sustainable packaging and UL 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
- Assessing reparability levels through the EN-standard-based Reparability Rating Program



# UL Solutions digital services

At UL Solutions, our digital tools and services provide commercial food appliances companies with a secure source for access to UL Solutions projects, documents and services.

## myUL® Client Portal

myUL, our project management platform, offers you 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®

Promote or locate UL Certified products with a certifications platform that contains UL Listed, Classified or Recognized products and components. UL 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. Product iQ creates premium value for users by helping them identify safer, compliant products and promote their UL Certified products to potential buyers.



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