Navigating New Safety Requirements for Robotic Commercial Kitchen Equipment

UL Solutions

Safety. Science. Transformation.™

Introduction

Driven by food safety regulations, demand to improve productivity, decreasing cost of robot production and growing investments in automated solutions, demand for robotics and automation in the food industry has surged significantly.

A game-changing step into the future of the industry, the robotic commercial kitchen equipment is generating much interest due to the ability to save time, standardize processes, reduce costs as well as build a complete cooking experience, by delivering healthy, freshly cooked, gourmet food, safely and efficiently.

Commercial robots generally operate in public places, in commercial environments near humans, so increasing the safety of robots operating in environments where people are present is important. Any inaccuracy in the robotic kitchen equipment's functionality could lead to mechanical, electrical safety and robot-human interaction risks such as a vast disruption in the production process. Therefore, we can help manufacturers demonstrate safety and increase the confidence to deliver a reliable and functional commercial product without compromise, protect brand reputation and build consumer trust.

Together with UL Standards & Engagement, we have been actively participating and engaging in the development of safety standards for commercial robots. We have designed an Outline of Investigation, the first standard to address the most comprehensive solution to evaluate the robotic commercial kitchen equipment.

World's first and only Outline of Investigation for robotic commercial kitchen equipment

Advancing the safety of robotic commercial kitchen with testing and certification to UL 3320, the OOI for Robotic Commercial Kitchen Equipment

As demand for robotic commercial kitchen continues to grow, UL Solutions recommends taking safety design principles into consideration since the beginning but there are no existing standards that completely address all the safety and reliability risks.

The UL 3320 provides a set of requirements addressing the risk of personal injury due to collaboration with robots and reference the applicable standards for the primary product functions for compliance of the overall unit, providing a clear path to enter the marketplace.

The in-scope products for the voluntary testing to UL 3320, the OOI for Robotic Commercial Kitchen Equipment are:

- Robotic kitchen equipment powered by line-voltage supply with a maximum voltage of 1,000 V AC or DC, and/or may be battery-powered incorporating a battery supply with a maximum rated voltage of 250 V DC.
- Commercial kitchen equipment with robots or automated systems intended to be used in lieu of, or in collaboration with, instructed or skilled commercial kitchen staff to perform cooking and/or motor-operated food preparing operation in commercial kitchens associated with, but not limited to, restaurants, hospitals, or other business establishments where they are not ordinarily accessible to the public.

OOI

The OOI shall be used in conjunction with the product's requirements covered in their respective scopes and additional standards may also apply that are not listed below, based on components, or features not anticipated or not fully addressed by the references below:

- UL 197, the Standard for Safety Commercial Electric Cooking Appliances
- UL 763, the Standard for Safety Motor-Operated Commercial Food Preparing Machines
- UL 2595, the Standard for Safety General Requirements for Battery- Powered Appliances
- UL 3300, the Outline of Investigation for Service, Communication, Information, Education and Entertainment (SCIEE) Robots
- UL 60730-1, the Standard for Automatic Electrical Controls - Part 1: General Requirements
- UL 746C, the Standard for Safety Polymeric Materials – Use in Electrical Equipment Evaluations

Service offering

Design partnership and training

- Introduction to OOI
- Control evaluation
- Risk assessment considerations
- Customized courses

Preliminary investigation (P/I)

- Component review in compliance with applicable standards
- Gap analysis (including risk assessment)
- Proposed test program

Safety certification

- Safety certification (UL Mark)
- Sanitation certification (UL EPH Mark)
- Single-unit/batch certificate

Field evaluation

- Uses the same standards as certification
- Short timeframe
- Evaluation can start at the factory
- Evaluation finishes at the installation site

Our reliability testing services offer the following benefits:

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

How UL Solutions can help

- An early engagement with UL Solutions experts in the product design process can help speed time to market, avoid redesign costs and incorporate the necessary testing and compliance plans into your design roadmap. With our deep technical expertise, we can:
- Help bring innovative robot technologies to market faster.
- Introduce to UL 3320 and a risk assessment consideration at the design stage of your products to assist you in building a safety framework/road map for your innovative products.
- Help with a preliminary investigation for component evaluation for compliance with standards and defining a gap analysis.
- Provide a clear path to market acceptance through a UL certified product, receiving unparalleled acceptance among code officials, consumers, retailers, specifiers, and others in the supply chain.
- Safeguard the reliability of the products, evaluating the performance and durability and establishing the expected service life requirements under normal and stressful conditions, differentiating them against their competitors.
- Verify that products work as expected with all other relevant devices and conform to all appropriate standards and technology platforms.

Find out how UL Solutions can help when it comes to Robotic Commercial Kitchen Equipment at Robotic Commercial Kitchen Equipment.

Contact us today at: appliances@ul.com or learn more at UL.com

UL.com/Solutions

CS1363250