

# LR Mate 200iB/5WP Food Robot

## Basic Description

The LR Mate 200iB/5WP Food Robot is the latest in the popular LR Mate series of mini robots, which has an installed base of over 10,000 units worldwide. Developed to meet the stringent requirements of the food industry, the new robot features an enclosed rust-free construction that can withstand sanitizers used in the food industry and prevent food contamination.

## LR Mate 200iB, the Solution for:

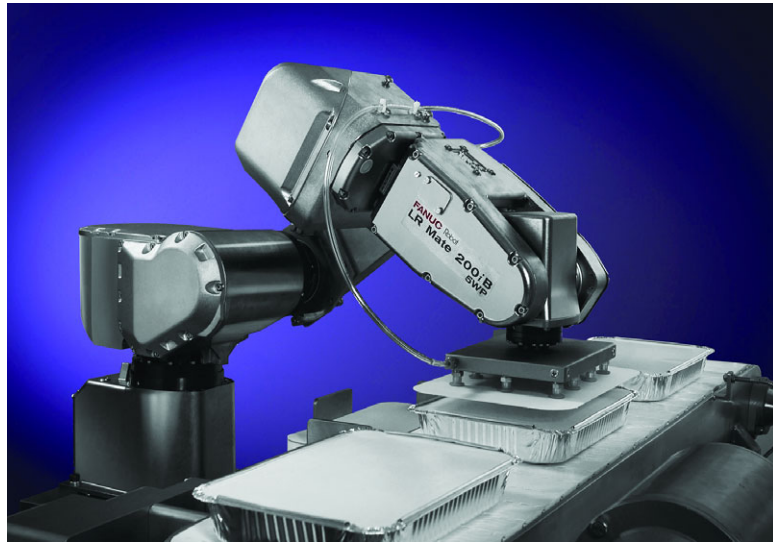
Primary or secondary food processing: packing, kitting, assembly, transfer, handling.

## Benefits

- 6 axes of motion to maximize application flexibility
- Capable of working with primary (unpacked) and secondary (packed) food products
- Designed with no moisture retention areas to resist bacteria growth and rust
- Manufactured with food-grade grease and USDA-certifiable parts
- Highly reliable robots at 62,000 hours MTBF
- Mechanical unit is rated IP65
- Available with one-phase 110V/220V options

## Features

- Coating is electroless nickel plating
- Aluminum casted motor covers
- Stainless plate covers
- Partially exposed parts treated with anti-corrosion material
- Teflon gaskets for covers



- Fluorine rubber oil seals
- Encoder back-up battery unit in remote location
- Air-purge kit to purge the mechanical unit with low pressure air for waterproof performance
- Enclosed double acting air valves using RDO (outputs) present for gripper actuation. No RDI (input) signal interface at J4.

## Food Robot is designed to meet the following requirements:

- Ability to withstand chemical sanitizers (Chlorine and Quaternary Ammonia based) with water rinse (IP65 rated)
- Ability to avoid food contamination
- Grease (food grade grease)
- Paint/Coating (no coating at all or USDA-certifiable coating)
- Rust (no rusting)
- Bacteria growth (easy to clean with no moisture retention areas)

## FANUC Robotics has based this design criteria on the following methodology:

Typical food processing equipment for handling raw food is usually made of stainless steel to resist the cleaning procedures that use aggressive alkali cleaners and strong acid sanitizers. During a typical cleaning procedure of food-processing equipment, customers follow these steps:

1. Foam alkali-based cleaner is sprayed on the equipment to remove large particles of food residue and soil. A strong alkali cleaner is used (example: Blitz-Blue, pH 12.2 for 1% water-based solution). A foam agent helps to keep the alkali cleaner soaking on the surface for up to two hours.
2. Foam alkali-based cleaner is then rinsed by spraying water (50-100 psi; 100° F -115° F) on the equipment. At this stage, 90% of soil and most of the bacteria are removed.

3. Acid cleaner is then applied (by brush or pressure spraying).  
Examples: Litalox LF-Red, pH 1.9 for 1% solution or San-Tec 5. Acid serves a few purposes: (a) neutralizes any alkali remaining from step 1; (b) helps to remove calcification build-up in some food environments; (c) cleans any remaining food residue; (d) kills remaining bacteria.
4. Finally, equipment is rinsed either with water or steam to remove the cleaner.

This procedure is performed as often as once a day. Diluted (~1%) alkali-based cleaner or acid sanitizer will darken the bare aluminum if spilled and immediately cleaned/wiped. Long contact time and high concentrations will corrode the aluminum surfaces.

FANUC Robotics understands that customers will be installing robots next to the current food-processing equipment. Chemical companies have advised FANUC Robotics about a cleaning procedure that can use less aggressive agents but provide the same effective sanitizing action.

**FANUC Robotics' proposed procedure to clean food-handling (non-processing) equipment:**

1. When the food-processing equipment around the robot is cleaned with strong acid/alkali agents, the robot must be covered with a protective bag to prevent spills of acid/alkali agents. However, it is expected that occasional spills or overspray of Blitz-Blue (pH 12.2 of 1% solution) or Litalox LF-Red (pH 1.9 of 1% solution) may occur. In that case, the customer is required to wash the spills/overspray immediately.

2. Perform cleaning of large, incidental food soils with a towel. Some neutral detergent cleaner may be used to remove greasy soils.
3. Spray with water.
4. Use hand-spray bottle to apply neutral sanitizer (Examples: Geron IV with pH 7.1 of Quaternary Ammonium

Chlorides, or AF404312 - Vigilquat pH 6.7. Solution of 0.25-.68 oz. (8-20mL) of AF404312 per one gallon of water (3.8L).

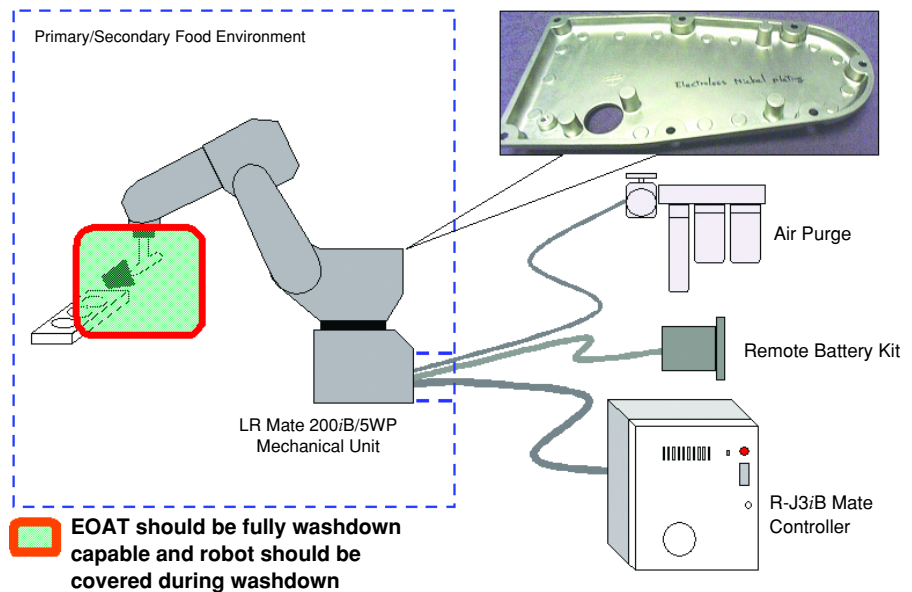
5. Rinse with water and air dry the robot.

The procedure can be performed daily on the Food Robot, but usually is done once per week.

**Sanitizers approved for use on the Food Robot**

Chemical Sanitizer	Commercial name <sup>1</sup>	Allowed
Quaternary Ammonium Chloride	GERON-IV, Vigilquat-4312, Ster-Bac®	Yes
Chlorine Based Sanitizer (12% Sodium Hypochlorite)	REG 13, Chlorilizerplus-0251, XY-12	Yes

<sup>1</sup> Please contact FANUC Robotics to inquire about chemicals used at your facility.



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