

Electronics_KUKA Wafer Handling Solution



The **KUKA Wafer Handling Solution** is a mobile robotic solution that enables automated material transportation in semiconductor production. Production of the highly sensitive semiconductors places the highest demands on the process in terms of climate control, cleanliness and functionality. Furthermore, the components are highly vulnerable to mechanical damage. Mobile, sensitive and autonomous, the KUKA Wafer Handling Solution is the ideal response to the demanding requirements of cleanroom production.

The application consists of four components:

- Standardized automated guided vehicle (AGV)
- LBR iiwa lightweight robot
- Sophisticated wafer handling application including gripper
- Software

All components are from KUKA and are certified. This results in extremely short commissioning times. The application enables the handling of transport boxes for 200 mm and 300 mm wafers.

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The advantages of the individual components

KMP 200 CR mobile platform

- Omnidirectional motion with Mecanum wheels enables navigation in confined spaces
- Utmost precision with positional accuracy of up to ± 5 mm
- Laser scanners enable autonomous motion without floor markings
- Sensor systems for detecting steps and holes
- Sensor systems for detecting obstacles on the path

LBR iiwa 14 R820 CR lightweight robot

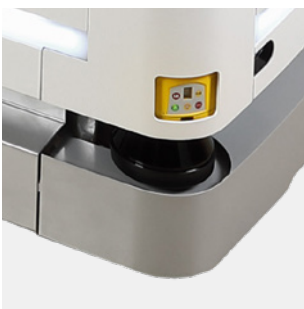
- Payload capacity of up to 14 kg
- Sensitive robot enables force-controlled, vibration-free handling of the wafer transport boxes
- Co-existence between robot and operator
- Simple commissioning with “easy-to-teach” applications
- Excellent scalability with offset-based robot motions

Wafer handling application including gripper

- Gripper system patented by KUKA
- Earthquake protection
- Stacking and component sensors
- Camera
- Storage system for transport boxes for 200 mm and 300 mm wafers

Software

- Standardized interfaces (E82, E84) enable smooth integration into existing material control system
- Integrated fleet manager for multi-robot solutions
- Certifications in accordance with ISO class 3 (IPA), UL 1740 and UL 1998
- Navigation and localization with KUKA.NavigationSolution and SLAM method



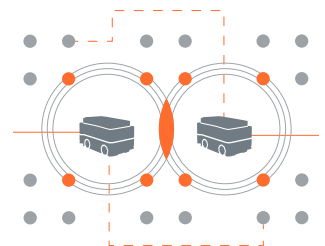
The **laser scanner** enables autonomous motion without floor markings



The sensitive **LBR iiwa 14 R820 CR** enables collaboration in the same workspace without safety fencing



For the safe handling of wafer transport boxes of different sizes, the **gripper** is equipped with numerous features



KUKA.NavigationSolution enables simple, intuitive and graph-based navigation

For further information please contact us at
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