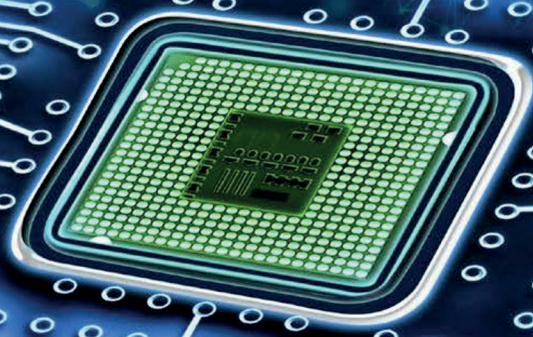




WE ELECTRONICS

Global Leader in Electronic Manufacturing



ROBOTS IN ELECTRONICS MANUFACTURING

Sensitive handling of electronic components

In the field of electronics manufacturing, time-consuming and repetitive, complex tasks are still often carried out manually. But robotics is becoming more and more important, not only for parts handling. Whether assembling or soldering and inspecting components, robots can also play to their strengths when assembling small parts. Visual and haptic inspection is a standard application for robotics. PCB assembly is considered labour-intensive and quality-critical. For example, with variable and flexible components such as ribbon cables and plug connections or the connection of assemblies. Here, the use of automation brings complete independence from operator errors, higher quality and better documentability across all processes. Even when testing electronic assemblies such as in-circuit tests (ICT), the robot not only takes over monotonous routines, but also ensures precise repeatability. And the robot offers another advantage: maximum flexibility. This is important in an environment where, for example the assemblies to be tested or PCB assemblies change frequently. We can meet all these requirements and many more with our extensive robot portfolio.

MASTERING CHALLENGES LEARNING FROM EXPERIENCE

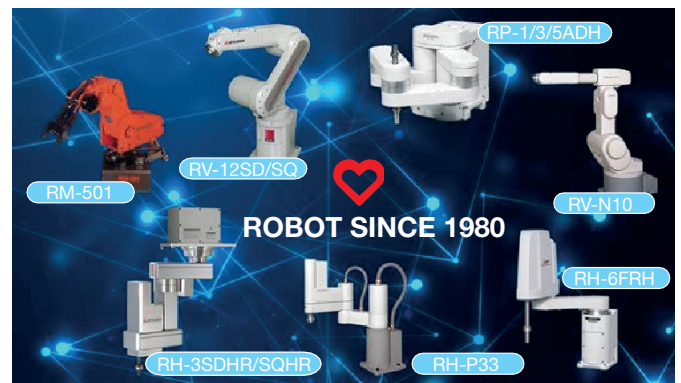
We know our way around

As a manufacturer of power semiconductors, power switches and servo motors, we use in-house automation components in our own production lines, from simple sensors to complete robot cells. This means we are very close to the perfect process. Because we know the industry-specific requirements from experience.

ELECTRONICS MANUFACTURING

Our passion

Our experience in the field of electronics manufacturing is extensive and long. Mitsubishi Electric has been developing products for industrial automation and electronics since 1921. Since 1980, we have been a pioneer in the production of superior robots for the electronics industry. Here we are regarded as the innovation driver for robots that are becoming ever smaller, faster and more powerful.



OUR KNOW-HOW



Trust

Tradition, innovation and the constant striving for improvement form the basis of our business. Renowned manufacturers all over the world trust us. Did you know that it takes only 30 seconds to produce a popular game console with the help of 32 robotic systems? Or that Mitsubishi Electric uses its own semiconductors in its drives such as frequency converters and servos?

INTELLIGENT FUNCTION

Solution-oriented

The most important at a glance:

- Certified ESD robot with special paint according to IEC61340-5-1
- Clean room requirements according to ISO 14644
- Intelligent joining with 100 % monitoring for complete documentation
- Standing, hanging or ceiling mounting
- Adhesive or potting application for a 3D geometry
- SmartPlus options ensure maximum precision and extreme speed even at changing temperatures, predictive maintenance and motion optimisation thanks to MAISart® technology (AI, Deep learning)
- it's available special model with internal wiring and piping specification
- SECS/GEM protocol available with PLC robot integrated solutions.



CAPTURE FORCES, MOMENTS AND POSITION

Force Moments Sensor

The MELFA robots are equipped with techniques and knowhow to achieve the automation of force-sensitive operations such as assembly, insertion and inspection. This is particularly important for the handling of sensitive components such as printed circuit boards or multi-layers.

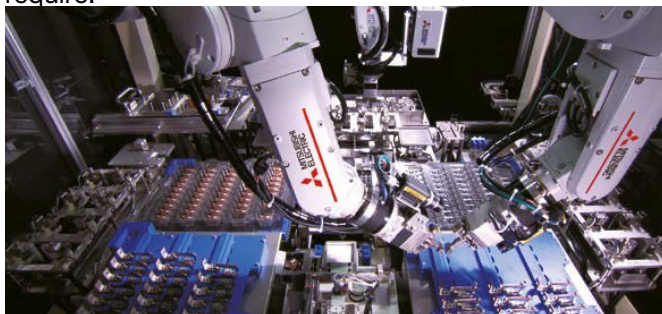


MELFA
Smart Plus

PRECISION AND COORDINATION

Sensitive handling

In addition to increasing the productivity and quality of production, sensitive handling of the individual components is important in electronics production. That's why our robots have a range of capabilities specifically designed to handle electronics manufacturing. For example, the functionalities enable processing of most materials, surfaces and precise-fit orientation. We offer the necessary flexibility, efficiency and security that the respective processes require.



COMPACT, FUNCTIONAL AND CONNECTABLE

One for all(s)

Mitsubishi Electric controllers are slim and compact. All controllers are programmed in the same programming language and use the same options, regardless of which robot is connected to them. A wide range of functions and network connections are available to the user with this standard multi-talent. In addition to various standard interfaces, communication interfaces for Profibus, Profinet, EtherCAT, OPC UA, Ethernet/IP, DeviceNet, CC-Link and CCLink IE are available.



TECHNICAL CLEANLINESS

In the context of particle contamination on the component, there is always the requirement to define the particle emission of automation components such as our MELFA robot. Keywords here are the visual appearance of visible parts, hygiene and the functionality of components. Particle emission is defined in cleanroom standards, so this is often used as a reference, including in ISO 14644-1 and ISO 14698. Our robots have ISO Class certification. All certifications class depending on the robot models. For more details or certifications request, please contact us, directly.

Global Leader in Electronic Manufacturing

VERSATILITY AT A GLANCE

Excerpt from the product portfolio



TYPE	RV-4FR(L)M	RV-7FR(L-LL)M	RV-13FR(L)M	RV-20FRM	RV-5AS
Load capacity kg	4	7	13	20	5
Range radius mm	515-649	713-908-1503	1094-1388	1094	910
ESD version	YES	YES	YES	YES	YES
Internal wiring and piping*	Special Model	Special Model	Special Model	Special Model	Standard

TYPE	RH-1FRHR	RH-3FRHR	RH-3FRH	RH-6FRH	RH-12FRH	RH-20FRH
Load capacity kg	1	3	3	6	12	20
Range radius mm	550	350	350-450-550	350-450-550	550-700-850	850-1000
ESD version	YES	YES	YES	YES	YES	YES
Internal wiring and piping	Standard	Standard	Standard	Standard	Standard	Standard

*For industrial vertical robot are available special models (SH) with internal wiring and piping up to J6 axis.

Clean room models and official certifications issued by the FRAUNHOFER organization are available.
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