EPSON®
EXCEED YOUR VISION

6-AXIS ROBOTS

Why Epson® Robots?

As precision automation specialists, the Epson Robots team has been building automation products for over 35 years.

Leading the industry in small-parts-assembly applications, we've introduced many firsts. As a result, our innovative products are hard at work in thousands of manufacturing facilities throughout the world.

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1 Leading Epson technology

- Epson is the #1 SCARA robot manufacturer in the world
- We introduced the world's first folding-arm 6-Axis robot
- Many of our robots contain integrated motion sensors to reduce vibration and increase performance

2 What you need, when you need it

- The Epson lineup features 6-Axis robots with payloads up to 8 kg and a reach ranging from 450 to 1,480 mm
- We offer a wide range of integrated options including Vision Guidance, Force Guidance and more

3 Intuitive programming software

- Epson RC+® software is extremely user-friendly, making automation setup fast and easy

4 Reliability you can count on

- Our team is dedicated to helping you find the best solution for your automation needs
- Epson robots are long-lasting and require little maintenance

Why Choose Epson 6-Axis Robots?

Epson's space-saving 6-Axis robots enable a remarkable range of motion with fewer mechanical restrictions.

Our robots can reach in to confined workspaces from many angles with ultra smooth motion, making the **Flexion™ N-Series, C-Series and S-Series robots** some of the most flexible 6-Axis robots available in the market today.

World's first folding-arm design

- Epson's innovative Flexion N-Series offers significant advantages in motion and workspace efficiency

SlimLine design

- Saves valuable factory floor space and allows our robots to fit where other robots can't—without compromising power, speed or reach
- Compact wrist pitch enables our robots to access hard-to-reach places in confined spaces

Proven technology

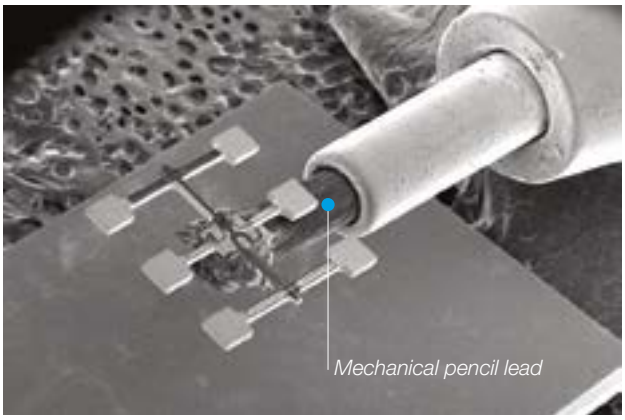
- Epson 6-Axis robots utilize the same controls, software and motion technologies found in our industry-leading SCARA robots

Advantage Epson

Epson's proprietary **Quartz Micro Electro Mechanical Systems (QMEMS) Technology*** with special gyro sensors

- **Significantly reduces** residual vibration, resulting in faster cycle times
- **Works automatically** as part of Epson's high-performance servo technology

* On C4, C8 and Flexion N-Series products



A QMEMS element for a gyroscopic sensor is shown balanced on the tip of a pencil lead

Epson RC+ Software

- **Intuitive graphical interface** significantly reduces programming time
- **Open architecture** provides the flexibility to achieve maximum productivity with minimum programming overhead
- **Easy-to-use** integrated options like Force Guidance, Vision Guidance, GUI Builder and more can help reduce overall development time

Epson RC+ features built-in source level debugger

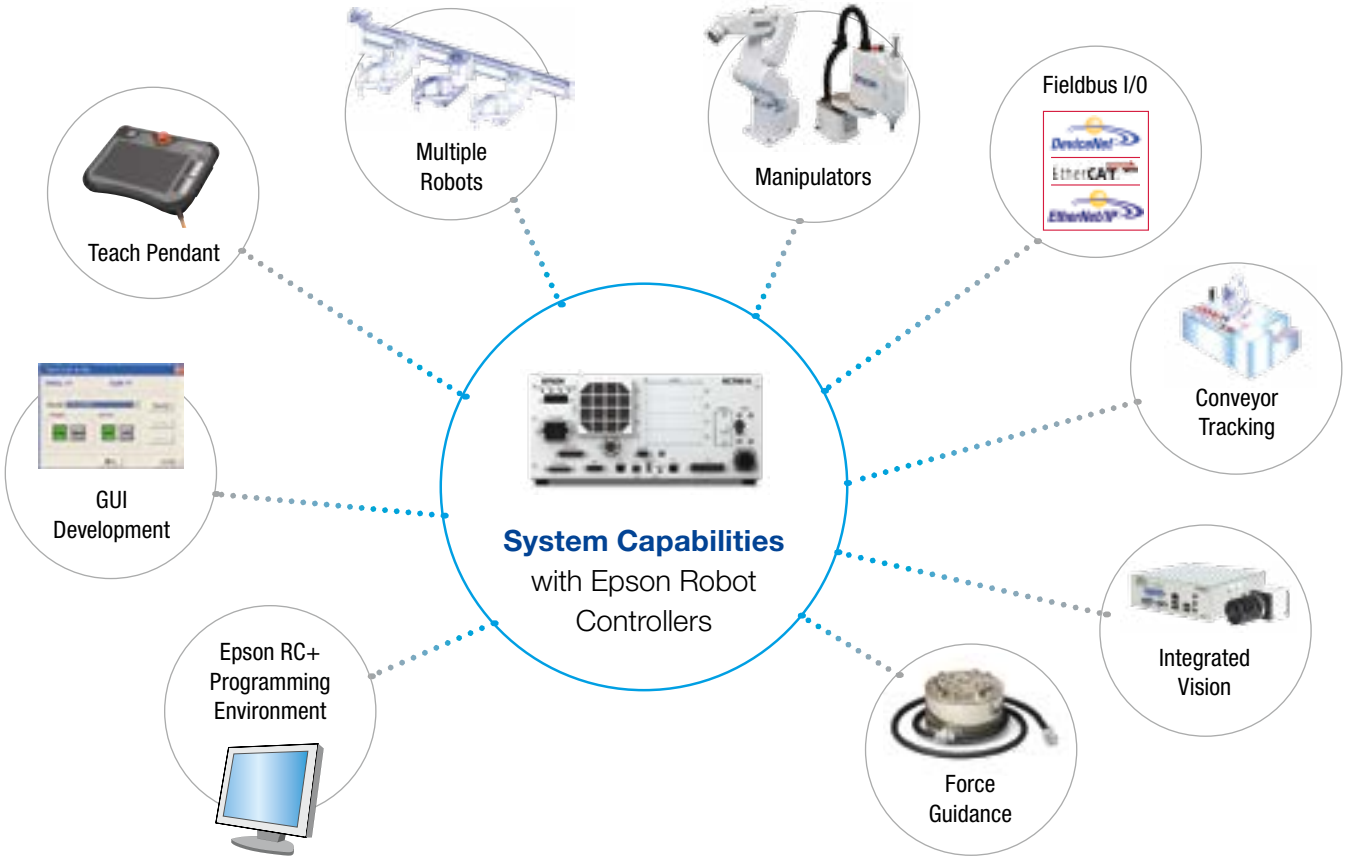
3D simulation included with Epson RC+ software

Epson Robots Precision Automation Specialists

For more than 35 years, the world's top manufacturers have relied on Epson Robots to reduce production costs, improve product quality, and increase their bottom line. Drawing on our global expertise in robotic solutions development, we are committed to providing customers with the tools they need to automate manufacturing processes and achieve higher productivity.

Multi-tiered Controller Offering

- **Gives customers the power** to select the right controller for the job
- **Open architecture** plus a wide variety of integrated options



Superior Technical Service and Support

- **Our robot experts** have many years of extensive training and experience, allowing them to help solve even the most difficult automation issues
- **Our technical team** is readily available to help with layout reviews, cycle time optimization, tooling ideas, component integration and more

1982	1986	1994	1997	2001	2003	2009	2009	2013	2016
Epson mass-production-assembly robot developed	ISO Class 1 cleanroom compliance achieved	Microsoft® Windows® OS support introduced	Compact SCARA robot introduced PC-based Robot Controller	Wall/ceiling-mount SCARA robots introduced	UL robots introduced	Compact, high-speed 6-Axis C3 robot introduced	Ceiling-mount RS3 SCARA robot with 360° rotation introduced	Epson's 4th generation PC open-architecture controller introduced	Flexion N2 6-Axis robot with folding-arm design introduced
INDUSTRY FIRST Multitasking introduced	INDUSTRY FIRST	INDUSTRY FIRST	INDUSTRY FIRST Anti-static robots developed	INDUSTRY FIRST			INDUSTRY FIRST		INDUSTRY FIRST

Flexion N-Series

Built in response to a growing demand for more efficient workspace utilization, the Flexion N-Series offers revolutionary technology that provides significant advantages. Packed with unique technology exclusive to Epson, Flexion N-Series robots set a new standard in 6-Axis technology with the world's first folding-arm design.

- **Maximize motion efficiency** for faster cycle times
- **Reduce the required workspace area** by up to 40 percent versus standard 6-Axis robots
- **Offer tight-space motion** capability
- **Minimize** elbow interference
- **Offer a reach up to 450 mm** and a 2.5 kg maximum payload

The unique folding-arm design *of the Flexion N-Series reduces the required workspace up to 40 percent compared to standard 6-Axis robots. Applications that were previously unattainable due to space restrictions are now possible.*

FLEXION N-SERIES SPECIFICATIONS

		FLEXION N2 (N2-A450)	
Mounting type		**Tabletop**	**Ceiling**
Number of axes		6	
Max. motion range	P point: through the center of J5	450 mm	
Wrist flange surface		532 mm	
Weight (cables not included)		19 kg	
Repeatability	Joint #1 - #6	±0.02 mm	
Max. motion range	Joint #1	±180°	
	Joint #2	±180°	
	Joint #3	±180°	
	Joint #4	±195°	
	Joint #5	±130°	
	Joint #6	±360°	
Payload	Rated	1 kg	
	Maximum	2.5 kg	
Allowable moment of inertia	Joint #4	0.2 kg•m^2	
	Joint #5	0.2 kg•m^2	
	Joint #6	0.08 kg•m^2	
Installed wire for customer use		15 wires (D-Sub) 8-Pin (RJ-45) Cat 5e or equivalent	
Installed pneumatic tube for customer use		Φ6 mm pneumatic tubes (2 tubes), allowable pressure: 0.59 Mpa (6 kgf/cm^2) (89 psi)	
Installation environment		Standard	
Available controllers		RC700A	
Safety standard		CE, ANSI/RIA 15.06-2012	

C4-Series

With exceptional flexibility and a slim, compact design, along with best-in-class cycle times and motion range, C-Series robots lead the industry in innovative 6-Axis solutions.

With high speeds and repeatability, plus a 4 kg maximum payload, C4 robots offer excellent performance for the most demanding and complex tasks.

C4

C4 robots have a **maximum horizontal reach up to 665 mm** and a maximum vertical reach up to 885 mm. They are available in standard and Clean/ESD models and can be installed in tabletop or ceiling mount configurations.

C4L

C4L robots have a **maximum horizontal reach up to 965 mm** and are available in standard and Clean/ESD models. They can be installed in tabletop or ceiling mount configurations.

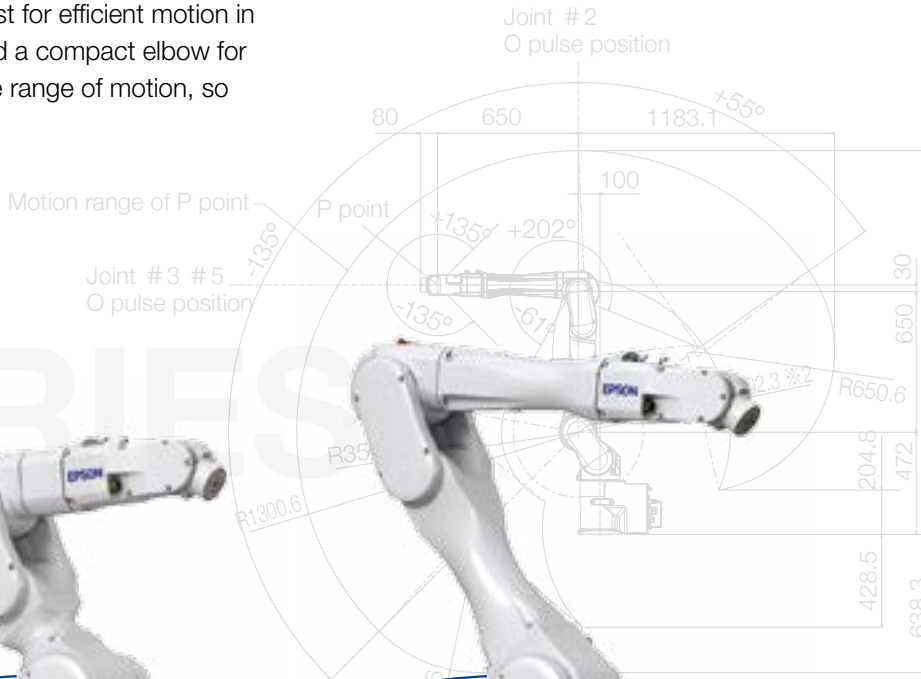
C4-SERIES SPECIFICATIONS

		C4 (C4-A601)		C4L (C4-A901)	
Mounting type		**Tabletop**	**Ceiling**	**Tabletop**	**Ceiling**
Number of axes		6			
Max. motion range	P point: through the center of J5	600 mm		900 mm	
Wrist flange surface		665 mm		965 mm	
Weight (cables not included)		27 kg		29 kg	
Repeatability	Joint #1 - #6	±0.02 mm		±0.03 mm	
Max. motion range	Joint #1	±170°			
	Joint #2	-160°~+65°			
	Joint #3	-51°~+225°			
	Joint #4	±200°			
	Joint #5	±135°			
	Joint #6	±360°			
Payload	Rated	1 kg			
	Maximum	4 kg (5 kg with arm-downward positioning)			
Standard cycle time[1]	1 kg	0.37 sec		0.47 sec	
Allowable moment of inertia	Joint #4	0.15 kg•m^2			
	Joint #5	0.15 kg•m^2			
	Joint #6	0.1 kg•m^2			
Electric lines		9-Pin (D-Sub)			
Pneumatic lines		Φ4 mm × 4			
Installation environment		Standard / Cleanroom[2] & ESD			
Available controllers		RC700A			
Safety standard		CE, ANSI/RIA 15.06-2012, UL 1740			

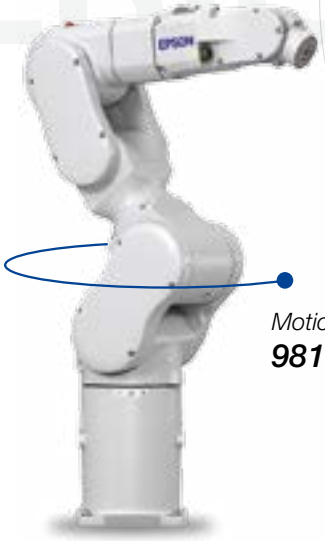
1 Cycle time based on round-trip arch motion (300 mm horizontal, 25 mm vertical).
2 Complies with ISO Class 3 (ISO 14644-1) and older Class 10 (> 10 0.1 µm particles per 28,317 cm^3:1ft^3) cleanroom standards.

C8-Series

Compact, yet powerful, with high repeatability, fast cycle times and payloads up to 8 kg, C8-Series robots are ideal for demanding applications requiring 6-Axis dexterity. Featuring a compact wrist for efficient motion in tight spaces, plus a long arm for greater reach, and a compact elbow for optimum workcell layout, these robots have a wide range of motion, so parts can be accessed from virtually any angle.



Motion range
791 mm



Motion range
981 mm

Motion range
1,480 mm

C8

C8 robots have a reach up to 791 mm and are available in Standard, Clean/ESD, and Protected (IP67) model configurations. They can be installed in tabletop or ceiling mount configurations.

C8L

C8L robots have a reach up to 981 mm and are available in Standard, Clean/ESD, and Protected (IP67) model configurations. They can be installed in tabletop or ceiling mount configurations.

C8XL

C8XL robots are ideal for applications that require a longer reach. With a reach up to 1,480 mm, C8XL robots are available in Standard, Clean/ESD, and Protected (IP67) model configurations. They can be installed in tabletop or ceiling mount configurations.

C8-SERIES SPECIFICATIONS

		C8 (C8-A701)	C8L (C8-A901)	C8XL (C8-A1401)
Mounting type		Tabletop		Ceiling
Number of axes		6		
Max. motion range	P point: through the center of J5	711 mm	901 mm	1,400 mm
Wrist flange surface		791 mm	981 mm	1,480 mm
Weight (cables not included)		49 kg (IP: 53 kg)	52 kg (IP: 56 kg)	62 kg (IP: 66 kg)
Repeatability	Joint #1 - #6	±0.02 mm	±0.03 mm	±0.05 mm
Max. motion range	Joint #1	±240°		
	Joint #2	-158°~+65°	-158°~+65°	-135°~+55°
	Joint #3	-61°~+202°		
	Joint #4	±200°		
	Joint #5	±135°		
	Joint #6	±360°		
Payload	Rated	3 kg		
	Maximum	8 kg		
Standard cycle time[1]	1 kg	0.31 sec	0.35 sec	0.53 sec
Allowable moment of inertia	Joint #4	0.47 kg•m^2		
	Joint #5	0.47 kg•m^2		
	Joint #6	0.15 kg•m^2		
Home		Home-return-less		
Installed wire for customer use		15-pin (D-Sub), 8-pin (RJ-45), 6-pin (for force sensor)		
Installed pneumatic tube for customer use		Φ6 mm x 2		
Installation environment		Standard (IP40) / Cleanroom[2] & ESD / IP67		
Applicable controller		RC700A		
Safety standard		CE, ANSI/RIA 15.06-2012, UL 1740		

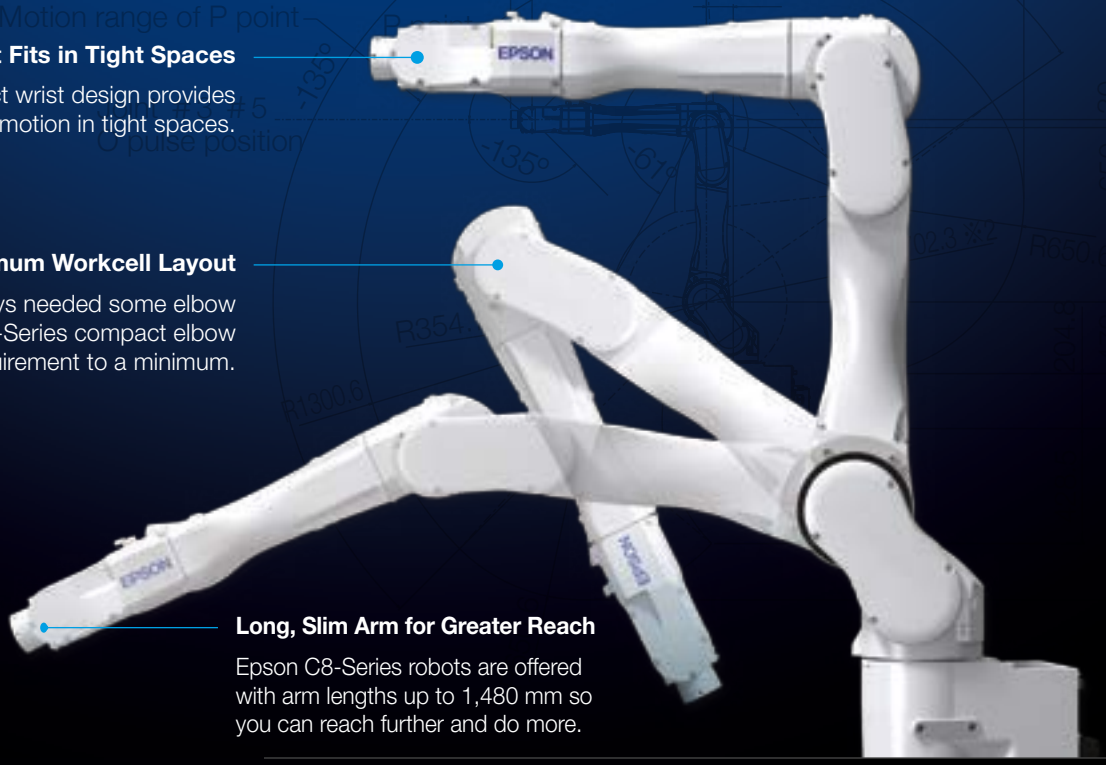
1 Cycle time based on round-trip arch motion (300 mm horizontal, 25 mm vertical).
2 C8 and C8L comply with ISO Class 3 (ISO 14644-1) cleanroom standards, and C8XL complies with ISO Class 4 (ISO 14644-1) cleanroom standards.

Compact Wrist Fits in Tight Spaces

Exceptionally compact wrist design provides efficient motion in tight spaces.

Compact Elbow for Optimum Workcell Layout

6-Axis robots have always needed some elbow room to operate in. The C8-Series compact elbow design keeps this requirement to a minimum.



Long, Slim Arm for Greater Reach

Epson C8-Series robots are offered with arm lengths up to 1,480 mm so you can reach further and do more.

S5-Series

These ultra fast, mid-range, 6-Axis robots feature a small footprint and advanced flexibility for the most demanding applications. They are ideal for tasks that require longer reach and heavier payloads.

S5

S5 robots have a reach up to 786 mm and payloads up to 5 kg. With ceiling, wall or tabletop mounting configurations, S5 robots are ideal for material handling and small-parts-assembly jobs.

S5L

The S5L is our long-arm S5-Series model. With a reach up to 975 mm, the S5L is the perfect fit for most mid-range, lower payload, 6-Axis applications.

S5-SERIES SPECIFICATIONS

		S5 (S5-A701)			S5L (S5-A901)		
Mounting type		**Tabletop**	**Ceiling**	**Wall**	**Tabletop**	**Ceiling**	**Wall**
Number of axes		6					
Max. motion range	P point: through the center of J5	706 mm			895 mm		
Wrist flange surface		786 mm			975 mm		
Weight (cables not included)		36 kg			38 kg		
Repeatability	Joint #1 - #6	±0.02 mm			±0.03 mm		
Max. motion range	Joint #1	±170°		±30°	±170°		±30°
	Joint #2	-150°~+65°					
	Joint #3	-70°~+190°			-72°~+190°		
	Joint #4	±190°					
	Joint #5	±135°					
	Joint #6	±360°					
Payload	Rated	2 kg					
	Maximum	5 kg					
Standard cycle time[1]	1 kg	0.44 sec			0.49 sec		
Allowable moment of inertia	Joint #4	0.3 kg•m^2					
	Joint #5	0.3 kg•m^2					
	Joint #6	0.1 kg•m^2					
Electric lines		15-Pin (D-Sub)					
Pneumatic lines		Φ6 mm × 2					
Installation environment		Standard / Cleanroom[2] & ESD / Protection[3]					
Available controllers		RC180, RC620+					
Safety standard		CE, ANSI/RIA 15.06-2012					

1 Cycle time based on round-trip arch motion (300 mm horizontal, 25 mm vertical).
2 Complies with ISO Class 4 (ISO 14644-1) and older Class 10 (> 10 0.1 µm particles per 28,317 cm^3:1ft^3) cleanroom standards.
3 Protected type complies with IP65.

Options and Accessories

Integrated Vision Guidance

- **Highly regarded in the industry** as simple to use, with a wide variety of powerful tools, Epson Vision Systems have provided integrated robot guidance for over 20 years. Our Vision Guide software features high performance tools in an intuitive point-and-click environment.

Epson 6-Axis robots work with fixed or mobile-mounted cameras

Force Guidance

- **Epson Force Guide** integrates 6-Axis force sensing with our advanced servo system to provide high-precision-motion performance.
- **With high rigidity, performance and precision,** Epson Force Guide provides new application solutions that were not possible in the past.

Epson force sensors offer both high sensitivity and high rigidity, allowing for successful high-precision applications when teaching or vision are not enough

Additional I/O

- **Epson Robots** come standard with discrete input and output (I/O) electrical lines. However, many applications require additional I/O points for interfacing with peripheral workcell equipment such as conveyors, grippers, tooling, etc. For this reason, we offer additional I/O boards that can be easily installed.
- **Analog I/O boards** are available, providing both Analog In or Analog Out signals. Fully integrated with robot motion profiles, Analog I/O boards can be used for dispensing applications to sync robot motion with dispense flow.

Fieldbus Interface Options

- **Fieldbus I/O interfaces** are used in factories worldwide to reduce cabling costs and setup time, and promote standard device usage. However, there is not one accepted Fieldbus I/O standard. That's why we offer the following options:
  - Ethernet/IP
  - DeviceNet
  - EtherCAT
  - PROFINET
  - PROFIBUS
  - CC-Link

GUI Builder

- **Epson's GUI Builder** provides the tools necessary to create graphical user interfaces from within the Epson RC+ Development Environment. This allows users to work from one development environment, which helps reduce overall development time.
  - **Create GUIs** without Visual Studio or other third-party software tools
  - **Create and debug** GUI forms from your Epson RC+ project
  - **Full integration** with Epson Vision Guide to easily add vision image windows on forms

VERSATILITY

Industry Solutions

Epson Robots is a leading supplier to a wide variety of manufacturing industries including automotive, medical, electronics, consumer products, industrial and many more. Our customers range from large Fortune 100 companies to small manufacturing facilities.

- **Automotive:** Epson Robots are used to manufacture various automotive parts including brakes, clutch components, ignition systems, instrument panels, headlights, mirrors, locks and more.
- **Medical:** Popular with leading medical manufacturers, Epson Robots are used to create contact lenses, glasses, dental instruments, dental implants, hearing aids, pacemakers, blood test systems and much more.
- **Electronics:** Epson Robots are used in major electronic and semi-conductor facilities across the globe. Industry-specific applications include chip handling and placement, encoder assembly, board and laser diode testing, wire bonding and more.

Automation Applications

Epson Robots are extremely versatile and provide a wide range of automation possibilities:

- Assembly
- Pick and place
- Handling
- Packaging
- Kitting/Tray loading
- Machine tending
- Screw driving
- Dispensing
- Palletizing
- Lab analysis and testing
- Inspection and test
- Finishing
- Grinding

EPSON®
EXCEED YOUR VISION

Epson Business Solutions

Epson is a leading provider of innovative technology solutions that help businesses succeed. We partner with you to best meet your specific needs, focusing on:

- Improved productivity
- World-class customer service and support
- Cost-effective, high-quality solutions
- A commitment to the environment

Discover how Epson can help you work toward the future. **www.epson.com/forbusiness**

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