

Spider RS3 and RS4 series

Compact  
Spiders reach  
every corner



**EPSON®**  
EXCEED YOUR VISION

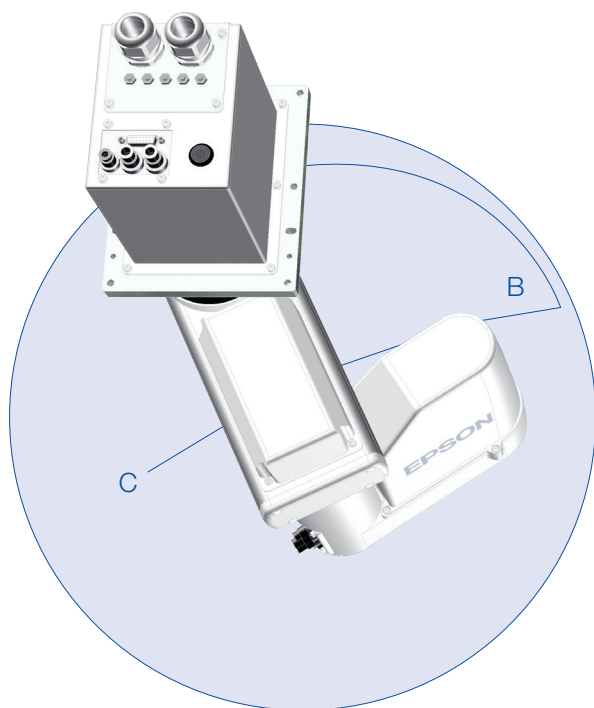
# Like a spider in its web

A unique four-axis design makes the Epson Spider extremely compact and incredibly fast. Its outstanding precision means it can reach 100% of the positions in its action field, offering you everything you need for efficient production.

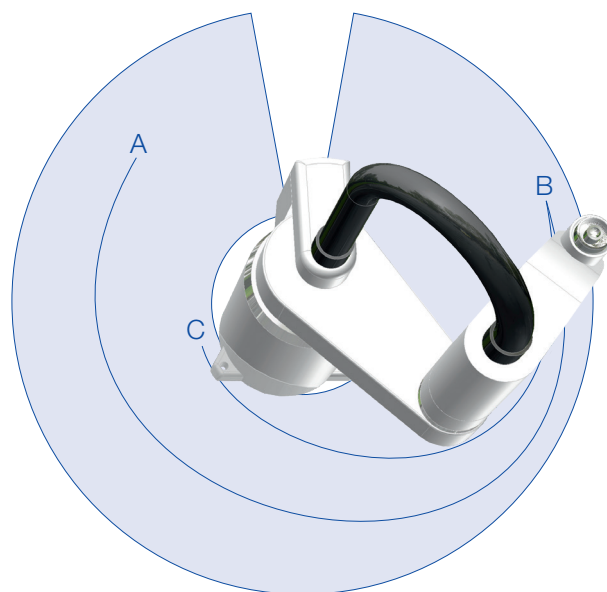
## Closing the gap

The tool axis is positioned centrally over the production area, allowing the Epson spider to reach every point of the cylindrical work area directly, with “shortcut” movements, whilst requiring very little space.

In conventional SCARA robots, the work area design is kidney-shaped, known as ‘dead space’ and an outward robot arm orientation means that travel paths are longer. The Epson Spider does not have any dead space, resulting in more efficient and productive travel paths.



Cylindrical working range with no dead zone



Conventional SCARA robots:  
Kidney-shaped working range with dead zone

### Benefits at a glance:

- Short cycle times
- Overlapping working ranges; no dead zones
- Compact, ideal for confined workspaces
- Outstanding joining properties
- High insertion forces
- Excellent repeatability
- Intuitive direct teaching
- Reduced maintenance effort; durability
- High operational reliability



### Epson Spider RS3

- Load capacity: 3 kg
- Range: 350 mm
- Maximum square working range: 495 x 495 mm
- Maximum working range: Ø700 mm
- Pallet size: e. g. 400 x 600 mm
- Also available in cleanroom protection class



### Epson Spider RS4

- Load capacity: 4 kg
- Range: 550 mm
- Maximum square working range: 777 x 777 mm
- Maximum working range: Ø1100 mm
- Pallet size: e. g. 600 x 800 mm
- Also available in cleanroom protection class

# Unique and advantageous

## Increased productivity with less space required

### Overhead mounting:

The independent mounting base, common in most SCARA robots, is no longer an obstacle with Epson Spider robots, eliminating the 'dead zone'. The second horizontal base axis has an inward orientation, enabling the zero position to be traversed to give maximum agility in confined environments.

### Internal wiring:

Increases the working range of the two horizontal base axes to 450°, allowing the working ranges to be overlapped. At the same time a position can be approached in up to four arm-orientations.

### Cylindrical shape working range:

Both horizontal base axes have the same arm length so they can reach the zero point of the tool axis, allowing a perfect cylindrical working range.



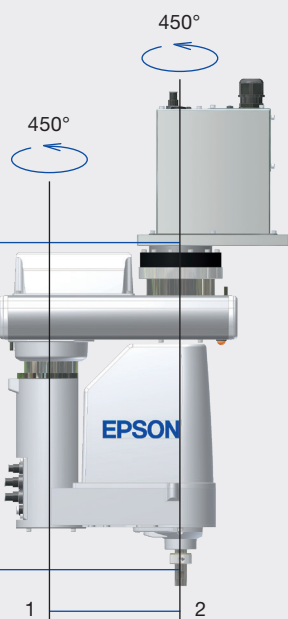
Inward orientation of second axis

## Overhead mounting

Base plate for ceiling mounting

Tool centre point (TCP)  
= robot zero point

Arm 1 = Arm 2



# Ideal for production lines

Avoid expensive idling of systems and benefit from quick conversion of production lines for new products, flexible adaptation of system-to-market segment, and easy connection to existing work cells. The Epson Spider is perfectly suited to an economic and flexible cell design with integrated work processes.

## Example scenario - car key manufacturing:

### System requirements:

Production of 11 different key sets  
Max. 0.1 % permissible error rate  
+/- 0.04 mm required accuracy  
Limited construction space

### Solution:

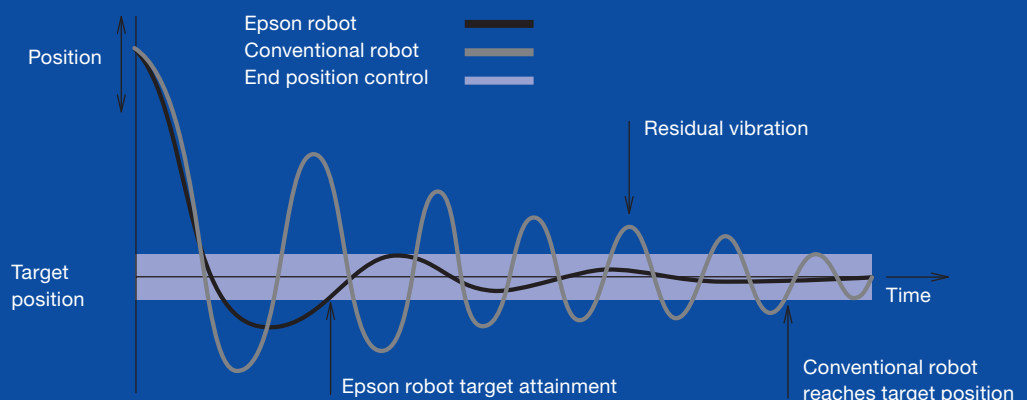
2x Epson Spider RS4-551S  
1x Epson RC620+ controller  
2x high speed milling spindles  
6x CNC axes  
Communication via D-I/O and TCP/IP

### Benefits at a glance:

Flexible production  
Cost reduction through compact standard units and reuse  
No special cell design necessary  
Programming simplified by middleware  
Reduced spare parts inventory  
Parallel systems for cycle time reduction  
Distributed creation of special equipment

## Epson Smart Motion: Gets to the point fast

The revolutionary motor management from Epson Smart Motion is used in all Epson robot systems. It allows the robots to reach their end positions faster, with greater accuracy and with fewer vibrations. Whatever manufacturing challenges you face, Epson robots get to the point.



# Epson Spider RS3: Compact and agile

Epson spider RS3	
Design	Inwardly oriented horizontal articulated arm
Load capacity	1 or 3 kg
Range	Horizontal (J1 + J2) 350 mm (175 + 175) Vertical (J3) 130 or 100 mm (cleanroom) Orientation (J4) +/- 720°
Repeatability	Horizontal (J1 + J2) +/- 0,01 mm Vertical (J3) +/- 0,01 mm Orientation (J4) +/- 0,01°
Mass moment of inertia	0,005/0,05 kg m <sup>2</sup>
User cabling	Electrical: connection for 1x 15-pin D-Sub connector Pneumatic: connections for compressed air supply (1x Ø 4 mm and 2x Ø 6 mm)
Z axis	16 H 7 / 11 mm external / internal
Insertion force	150 N continuous
Weight	17 kg
Control	RC700-A
Manipulator design	Mounting option ceiling Protection and ESD: ISO3 and ESD
Available options	Internal wiring unit, longer cable (5m / 10m / 20m), tool adapter, Force Sensor

J1 = Axis 1      J2 = Axis 2      J3 = Axis 3      J4 = Axis 4

## What's included:

Epson robot and controller  
70g grease for Z axis  
1x plug for emergency stop  
1x set user plugs  
1x backup disk for robot controller  
1x Epson RC+ program CD including simulation software  
1x USB programming cable  
1x CD manual  
1x installation/safety manual  
1x set 3m motor and signal cables

## Optional:

Longer power and signal cable (5m / 10m / 20m)  
Tool adapter to facilitate installation of end-effectors to the Z axis  
Internal wiring unit routes 15 electrical wires and two pneumatic lines internally through the manipulator to the end-effector  
Epson Force Sensor for the greatest precision in force-controlled applications

Working range

495,0

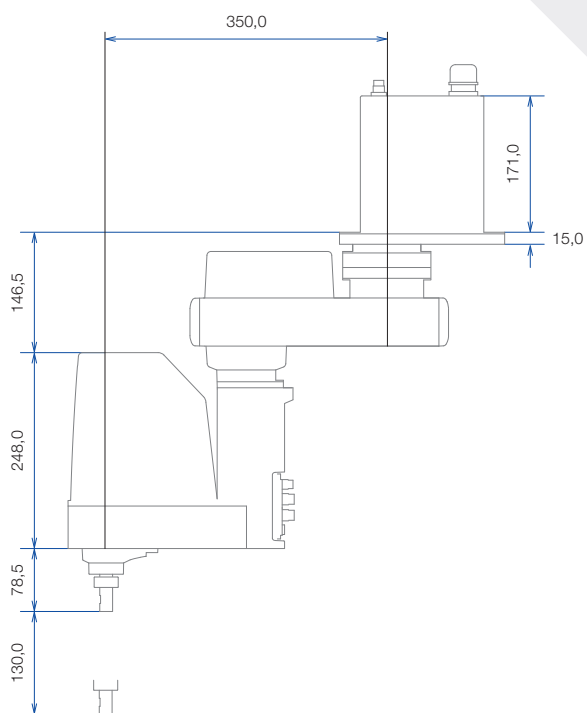
495,0

130,0

ø 700,0

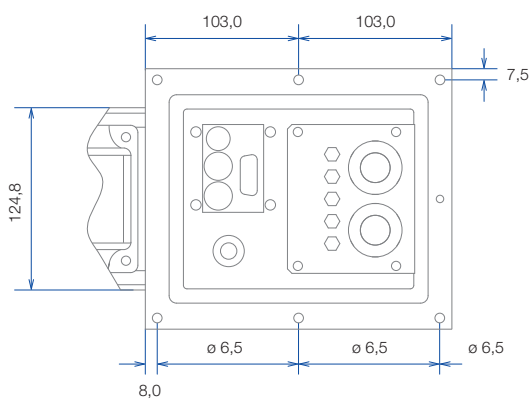
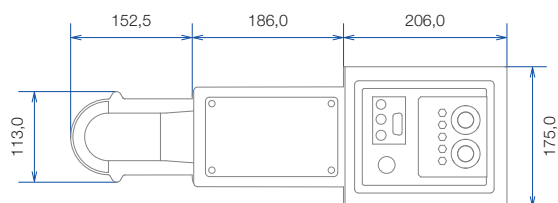


### Side view



Base

## Top view standard



# Epson Spider RS4:

## Increased range and load capacity

Epson spider RS4	
Design	Inwardly oriented horizontal articulated arm
Load capacity	1 or 4 kg
Range	Horizontal (J1 + J2) 550 mm (275 + 275) Vertical (J3) 130 or 100 mm (cleanroom) Cleanroom (J4) +/- 720°
Repeatability	Horizontal (J1 + J2) +/- 0,015 mm Vertical (J3) +/- 0,01 mm Cleanroom (J4) +/- 0,01°
Mass moment of inertia	0,005/0,05 kg m <sup>2</sup>
User cabling	Electrical: connection for 1x 15-pin D-Sub connector Pneumatic: connections for compressed air supply (1x Ø 4 mm and 2x Ø 6 mm)
Z axis	16 H 7 / 11 mm external / internal
Insertion force	150 N continuous
Weight	19 kg
Control	RC700-A
Manipulator design	Mounting option ceiling Protection class and ESD: ISO3 and ESD
Available options	Internal wiring unit, longer cable (5m / 10m / 20m), tool adapter, Force Sensor

J1 = Axis 1

J2 = Axis 2

J3 = Axis 3

J4 = Axis 4

### What's included:

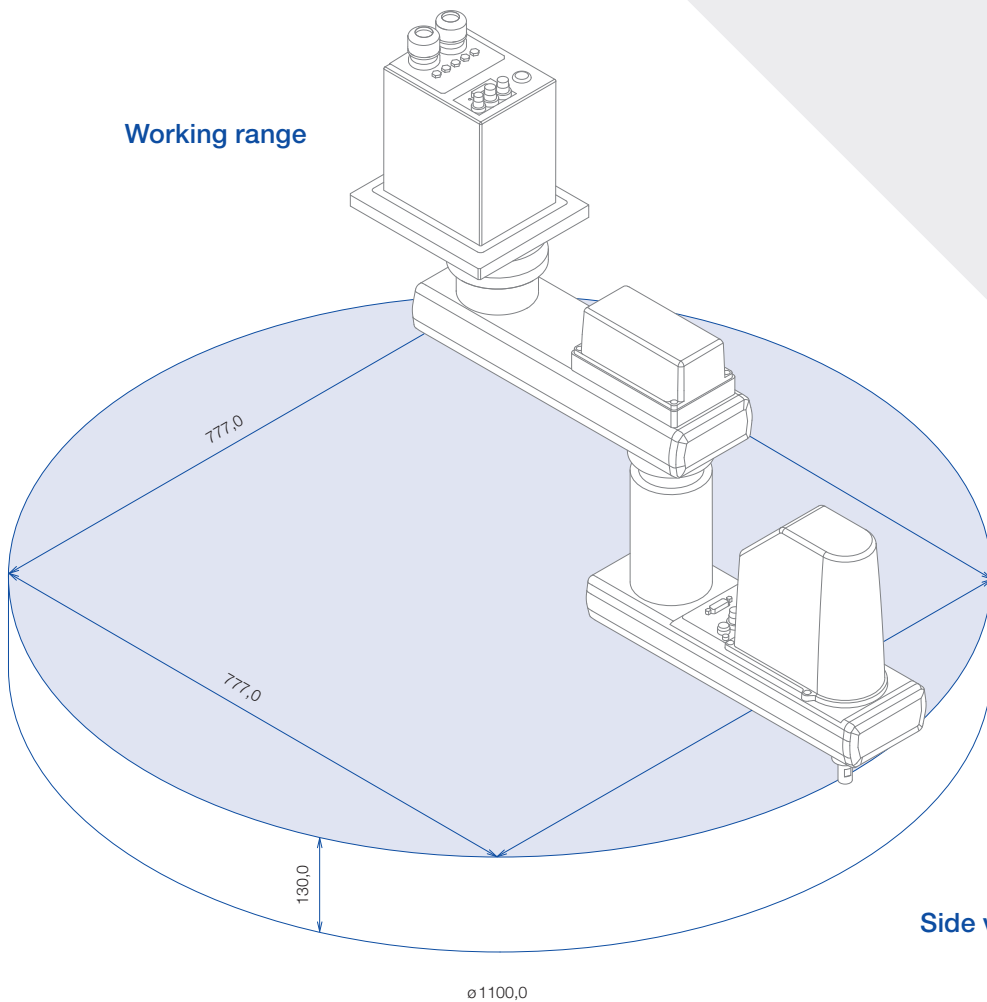
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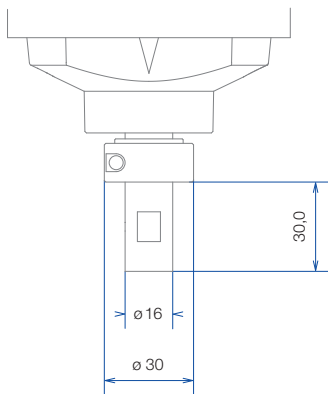


Working range

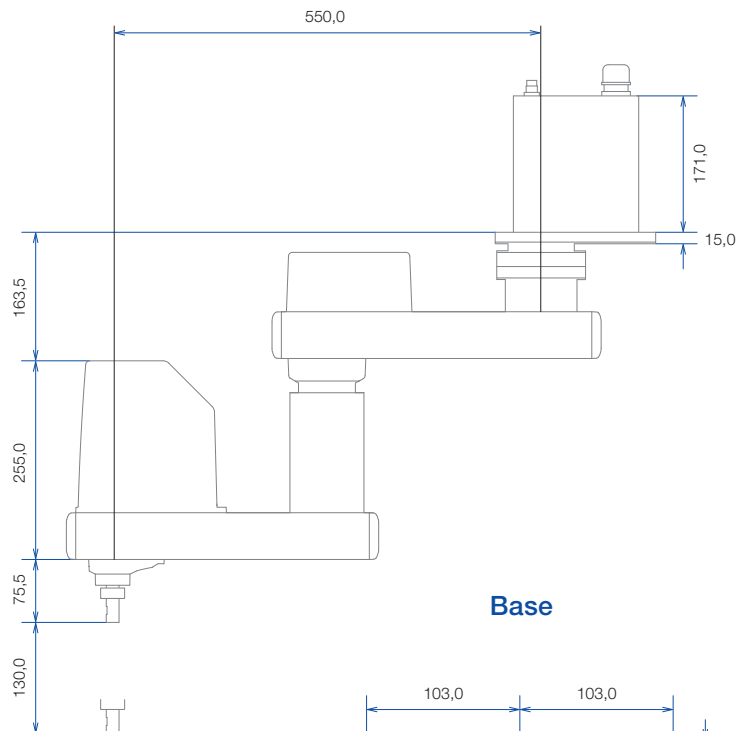
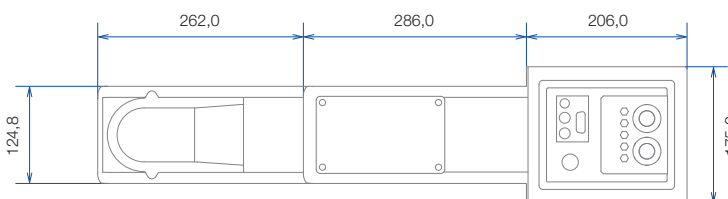


Side view

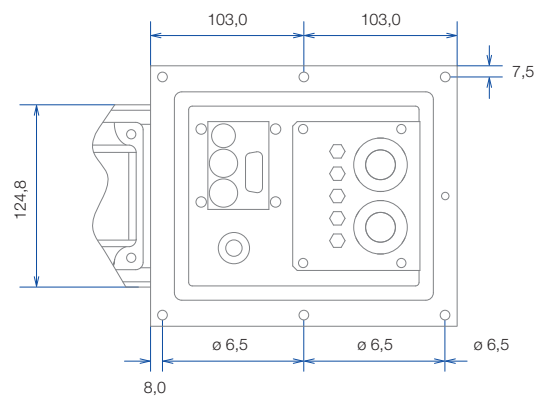
Manual flange



Top view standard



Base



# Simulation of robot cells

Good preparation is everything. Plan and visualise all procedures in your production, validate your program offline initially, and carry out troubleshooting and editing work easily, from your desk. With the Epson RC+ Simulator – included in the software package – you save time and money through all phases of your project.

## Phase 1 Design

Plan your robot cell at full size in advance and work out the expected cycle time for your application to check feasibility before a single part for the system has been made. Plan future system expansions in the simulation system to keep downtime to a minimum.

## Phase 2 Integration

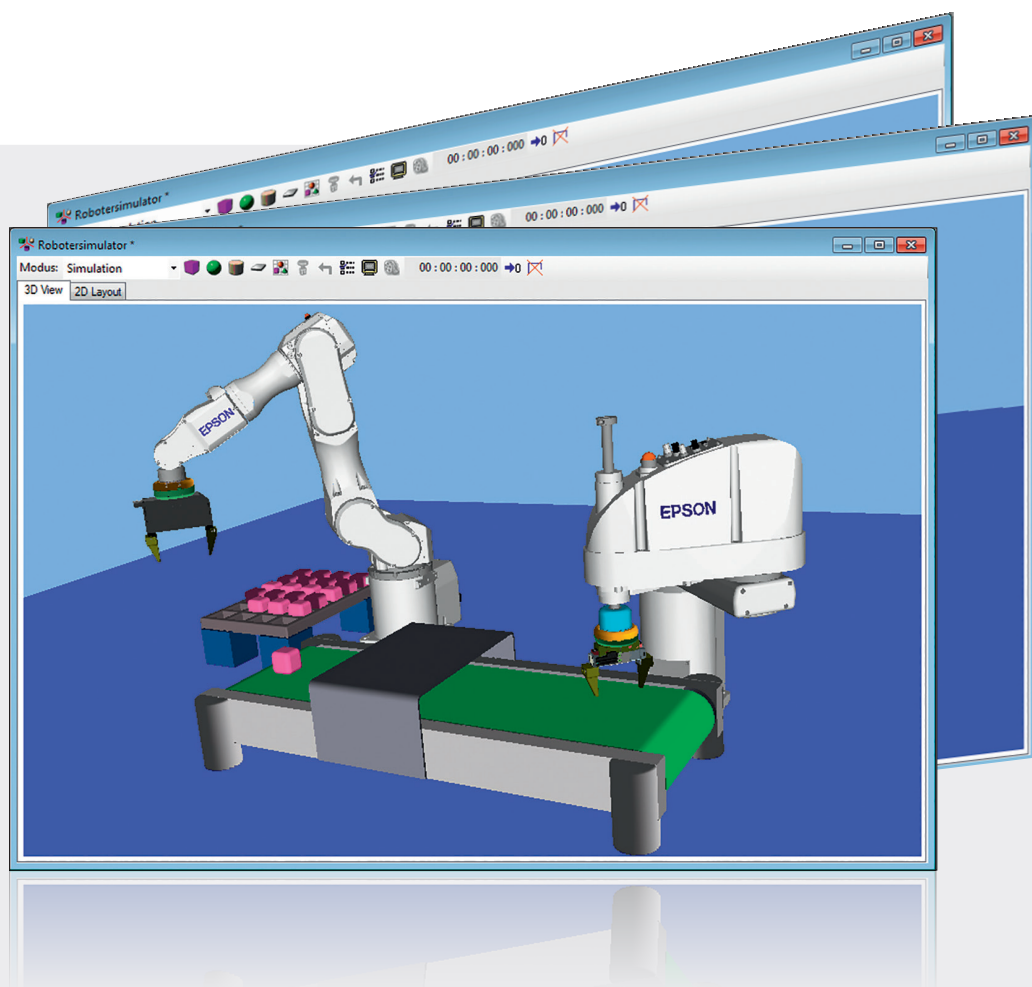
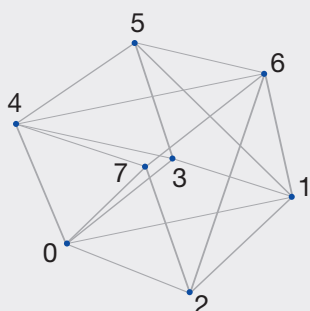
Completing the program validation process before the robots are delivered enables you to create programs at the same time, with the system capable of displaying and evaluating even complex motions. Collision risks are identified and equipment damage is prevented.

## Phase 3 Operation and maintenance

Troubleshoot and modify programs from your desk. Use the 3D layout to visualise collision detection and robot motions, and undertake reachability checks.

## Even simpler designs using the CAD-to-Point function

The CAD-to-Point function allows CAD data to be converted into robot points.



# About Epson

Epson Robotic Solutions is one of the leading suppliers of high tech robot systems that are renowned worldwide for their reliability. The product range includes six-axis robots, SCARA robots, the SCARA entry-level LS and T models, the special Epson-developed Spider and N2 robots types, as well as the pioneering Dual Arm robot. Added to this are image processing controls and the Epson Force Sensor for force-controlled applications.

This gives Epson Robotic Solutions one of the most comprehensive ranges of high-precision industrial robots in the world, making them a technological pioneer for intelligently controlled automation processes.

## Technological pioneer

### 1982

Epson SCARA robots freely available in Japan for the first time

### 1986

First class 1 cleanroom robot

### 1997

First PC-based controller

### 2008

Inventor of the right or left arm-optimised G3 SCARA robot

### 2009

Inventor of the spider – a unique SCARA robot with no dead zones

### 2013

First application of Epson QMEMS® sensors in robotics, reducing six-axis kinematics vibrations

### 2014

Epson Compact Vision CV2: Epson's own ultra-fast image processing computer

### 2016

Epson N2 series: World's first six-axis robot with folding arm - extremely compact and space-saving

### 2017

Epson Dual Arm robot with an arm geometry inspired by human physiology, as well as integrated sensors such as cameras, force sensors, and accelerometers

## Pre and after-sales support

Feasibility studies for maximum planning and project security

Support for planning and implementation

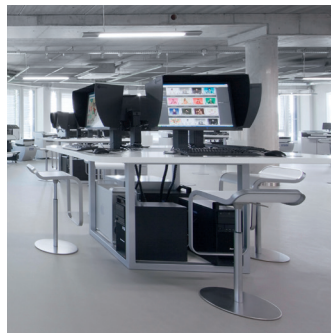
Introductory seminars, programming/maintenance courses, operator training

Inspection and individual maintenance concepts

Hotline service, on-site repair service

Central spare part stocking

# Epson Industrial Solutions Center – find your solution



Experience all our Epson robots in action. Build, simulate and improve your automation application in a workshop cell, with help from our experts. The cell can be controlled and networked using all conventional fieldbus systems. In addition, we can supply you with modern peripherals such as a vision and conveyor tracking system.

## Make an appointment

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