Compact Spiders reach every corner

Spider RS3 and RS4 series
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 with ‘short cut’ movements, every point of the cylindrical work area directly, 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.
**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

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**Epson Spider RS3**
Load capacity: 3 kg
Range: 350 mm
Maximum square working range: 495 x 495 mm
Maximum working range: Ø 700 mm
Pallet size: e.g. 400 x 600 mm
Also available in cleanroom protection class

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**Epson Spider RS4**
Load capacity: 4 kg
Range: 550 mm
Maximum square working range: 777 x 777 mm
Maximum working range: Ø 1100 mm
Pallet size: e.g. 600 x 800 mm
Also available in cleanroom protection class
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, allow a perfect cylindrically working range.
Ideal for production lines

Avoid expensive idling of systems and benefit from quick conversion of production lines for new products, flexible adaptation of the 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

<table>
<thead>
<tr>
<th>Design</th>
<th>Epson spider RS3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Load capacity</td>
<td>1/3 kg</td>
</tr>
<tr>
<td>Range</td>
<td>Horizontal (J1 + J2) 350 mm (175 + 175) Vertical (J3) 130 or 100 mm (cleanroom)</td>
</tr>
<tr>
<td></td>
<td>Orientation (J4) +/- 720°</td>
</tr>
<tr>
<td>Repeatability</td>
<td>Horizontal (J1 + J2) +/- 0,01 mm Vertical (J3) +/- 0,01 mm Orientation (J4) +/- 0,01°</td>
</tr>
<tr>
<td>Mass moment of inertia</td>
<td>0,005/0,05 kg m²</td>
</tr>
<tr>
<td>User cabling</td>
<td>Electrical: connection for 1x 15-pin D-Sub connector Pneumatic: connections for compressed air supply (1x Ø 4 mm and 2x Ø 6 mm)</td>
</tr>
<tr>
<td>Z axis</td>
<td>16 H 7 / 11 mm external / internal</td>
</tr>
<tr>
<td>Insertion force</td>
<td>150 N continuous</td>
</tr>
<tr>
<td>Weight</td>
<td>17 kg</td>
</tr>
<tr>
<td>Control</td>
<td>RC700-A</td>
</tr>
<tr>
<td>Manipulator design</td>
<td>Mounting option ceiling Protection &amp; ESD: ISO3 &amp; ESD</td>
</tr>
<tr>
<td>Available options</td>
<td>Internal wiring unit, longer cable (5m / 10m / 20m), tool adapter, Force Sensor</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>J1 = Axis 1</th>
<th>J2 = Axis 2</th>
<th>J3 = Axis 3</th>
<th>J4 = Axis 4</th>
</tr>
</thead>
</table>

### 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 2 pneumatic lines internally through the manipulator to the end-effector
- Epson Force Sensor for the greatest precision in force-controlled applications
### Epson Spider RS4: Increased range and load capacity

**Epson spider RS4**

<table>
<thead>
<tr>
<th><strong>Design</strong></th>
<th>Inwardly oriented horizontal articulated arm</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Load capacity</strong></td>
<td>1/4 kg</td>
</tr>
<tr>
<td><strong>Range</strong></td>
<td>Horizontal (J1 + J2) 550 mm (275+275)</td>
</tr>
<tr>
<td></td>
<td>Vertical (J3) 130 or 100 mm (cleanroom)</td>
</tr>
<tr>
<td></td>
<td>Cleanroom (J4) +/- 720°</td>
</tr>
<tr>
<td><strong>Repeatability</strong></td>
<td>Horizontal (J1 + J2) +/- 0.015 mm</td>
</tr>
<tr>
<td></td>
<td>Vertical (J3) +/- 0.01 mm</td>
</tr>
<tr>
<td></td>
<td>Cleanroom (J4) +/- 0.01°</td>
</tr>
<tr>
<td><strong>Mass moment of inertia</strong></td>
<td>0.005/0.05 kg m²</td>
</tr>
<tr>
<td><strong>User cabling</strong></td>
<td>Electrical: connection for 1x 15-pin D-Sub connector</td>
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<td>Pneumatic: connections for compressed air supply (1x Ø 4 mm and 2x Ø 6 mm)</td>
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<td><strong>Z axis</strong></td>
<td>16 H 7 / 11 mm external / internal</td>
</tr>
<tr>
<td><strong>Insertion force</strong></td>
<td>150 N continuous</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>19 kg</td>
</tr>
<tr>
<td><strong>Control</strong></td>
<td>RC700-A</td>
</tr>
<tr>
<td><strong>Manipulator design</strong></td>
<td>Mounting option ceiling</td>
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**J1 = Axis 1  J2 = Axis 2  J3 = Axis 3  J4 = Axis 4**

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**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 2 pneumatic lines internally through the manipulator to the end-effector
- Epson Force Sensor for the greatest precision in force-controlled applications
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, reachability checks and robot motions.

Even simpler designs using the CAD-to-Point function
The CAD-to-Point function allows CAD data to be converted into robot points.
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 6-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
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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