EPSON INDUSTRY SOLUTIONS CENTER – **WE‘LL FIND YOUR SOLUTION!**

Epson
Industrial
Solutions
Center

Experience all our Epson robots in action. In a workshop cell you can build, simulate and improve your automation application 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.

WOULD YOU LIKE TO ARRANGE AN APPOINTMENT?

CALL US AT
+49 2159 538 1800

OR SEND AN E-MAIL TO
info.rs@epson.de

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EPSON SPIDER ROBOTS RS3 AND RS4

REQUIRES LITTLE SPACE AND REACHES EVERY CORNER

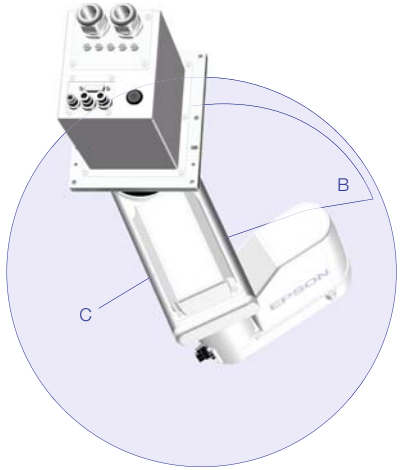
EPSON®
EXCEED YOUR VISION

EPSON SPIDER
LIKE A SPIDER IN ITS WEB

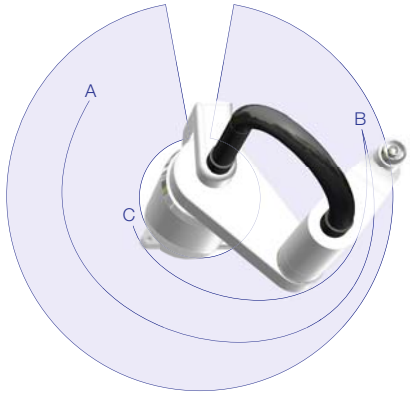
The Epson Spider is extremely compact and incredibly fast. Due to its unique design, this 4-axis robot can reach 100% of the positions in its action field offering you everything you need for efficient production.

The Epson Spider closes the gap
The tool axis is positioned centrally over the production area. This allows the Epson Spider to directly access every point within its cylindrical work area. These “short-cut” movements can significantly reduce cycle times. In addition, the Epson Spider requires very little space.

In conventional SCARA robots, the work area design is kidney shaped – resulting in what are known as “dead zones”. In addition, the outward robot arm orientation means that longer travel paths have to be taken into account.



Cylindrical working range with no dead zone



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

ADVANTAGES 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: Ø 700 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: Ø 1100 mm
Pallet size: e. g. 600 x 800 mm
Also available in cleanroom protection class

THE DESIGN:
AS UNIQUE AS IT IS ADVANTAGEOUS

Inwardly oriented second axis

INCREASED PRODUCTIVITY WITH REDUCED SPACE REQUIREMENT

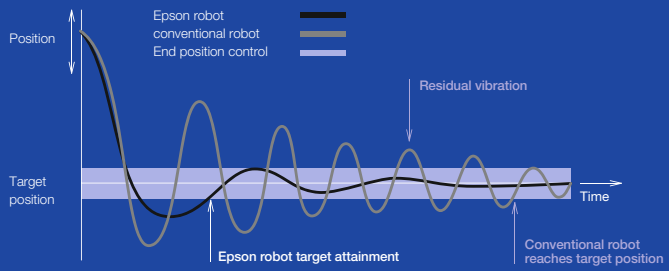
– **Overhead installation:** The independent mounting base is no longer an obstacle. This eliminates the “dead zone“ present with conventional SCARA robots.

– **Inward orientation of the second horizontal base axis:** The zero position can be traversed – ideal for movements in cramped environments.

– **Internal wiring:** This increases the working range of the two horizontal base axes to 450°. The resulting overlapping working ranges allow a position to be approached in up to four arm orientations.

– **Cylindrically shaped working range:** In order to reach the tool axis zero point, both horizontal base axes have the same arm length. In place of the usual kidney-shaped working ranges of SCARA robots, the Epson Spider robot’s working range is a perfect cylinder.

Epson Smart Motion: Precision brought to the point



The revolutionary-motor management from Epson – Smart Motion – is used in all Epson robot systems. It allows the robots to reach their end positions more accurately and quickly, with lower vibrations. Even with very short cycle times, the Epson robot gets to its point more quickly, more precisely, and in a more product-friendly manner.

IDEAL APPLICATION IN:
PRODUCTION LINES

No costly system idling, rapid production line changeover for new products, system adaptation to market segment or work cell expansion – the Epson Spider is perfectly suited to an economic and flexible cell design with interlinked work processes.

SYSTEM REQUIREMENTS
– Production 11 different key sets
– max. 0.1 % permissible error rate
– +/- 0.04 mm required accuracy
– limited construction space

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

ADVANTAGES 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 SPIDER RS3:
COMPACT AND MANOEUVRABLE

	EPSON SPIDER RS3
Design	Inwardly oriented horizontal articulated arm
Load capacity	1/3 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 m²
User cabling	**electrical** D-Sub connector for 1x 15-pin plug **pneumatic** connectors for compressed air supply (1x Ø 4 mm and 2x Ø 6 mm)
Z axis	16 H7 / 11 mm external / internal
Insertion force	150 N continuous
Weight	17 kg
Control	RC700-A
Manipulator design	Mounting option ceiling Protection & ESD: ISO3 & ESD
Available options	Internal wiring unit, longer cable (5 m / 10 m / 20 m), tool adapter, Force Sensor

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

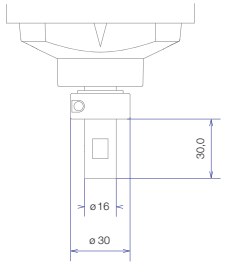
Package

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

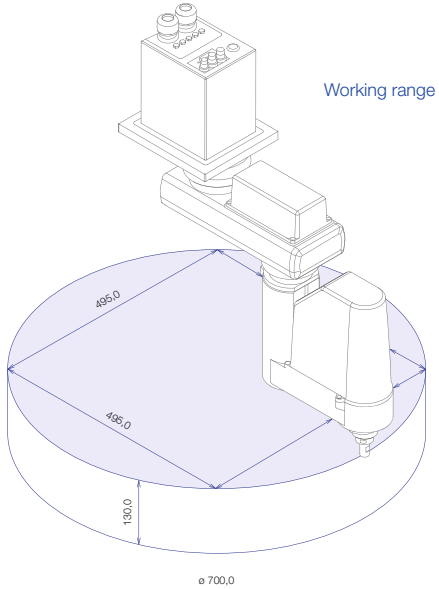
Available options

- Longer power and signal cable (5 m / 10 m / 20 m)
- 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

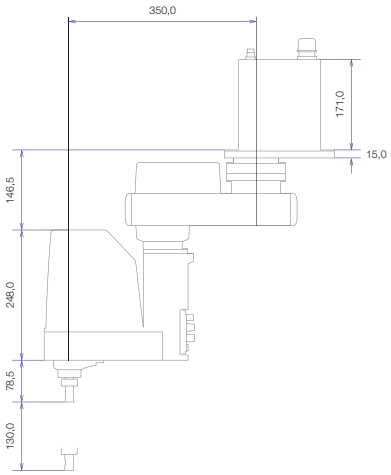
Manual flange



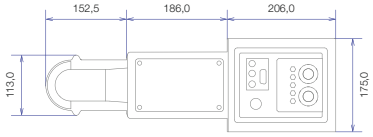
Working range



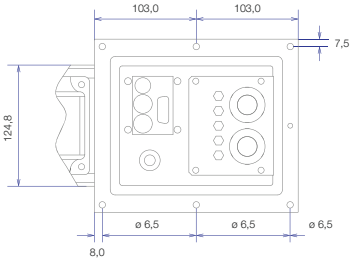
Side view



Top view



Base



EPSON SPIDER RS4:
INCREASED RANGE AND LOAD CAPACITY

	EPSON SPIDER RS4
Design	Inwardly oriented horizontal articulated arm
Load capacity	1/4 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 m²
User cabling	**electrical** D-Sub connector for 1x 15-pin plug **pneumatic** connectors 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 & ESD: ISO3 & ESD
Available options	Internal wiring unit, longer cable (5 m / 10 m / 20 m), tool adapter, Force Sensor

J1 = Axis 1 **J3** = Axis 3
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Available options

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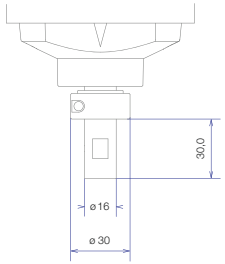
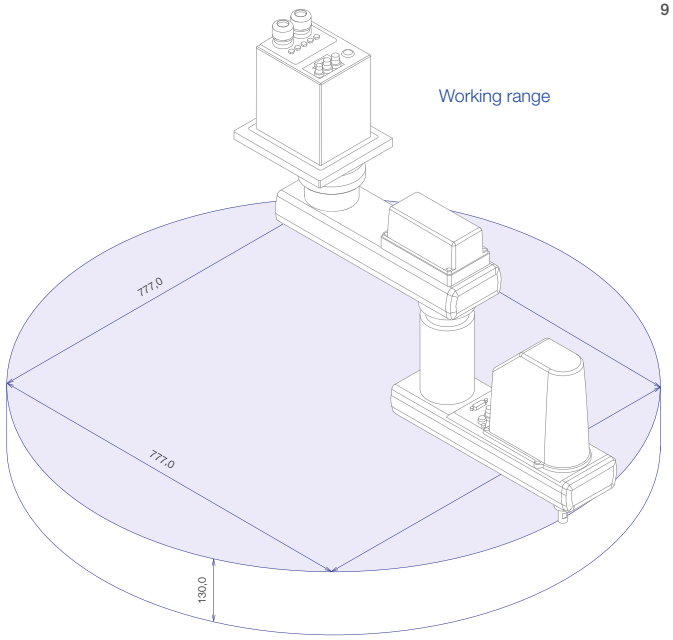
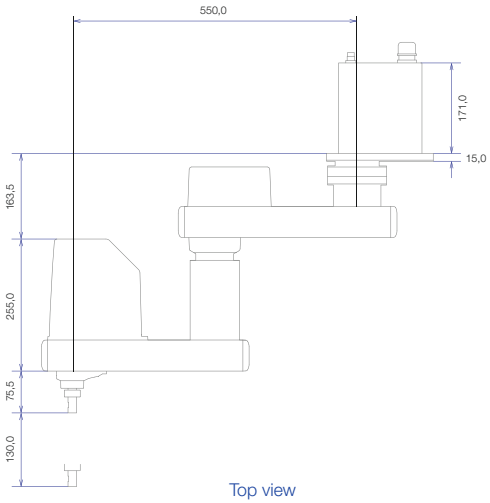
Manual flange



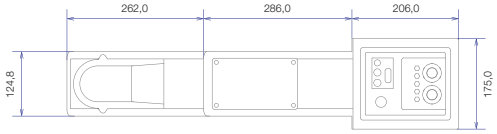
Working range



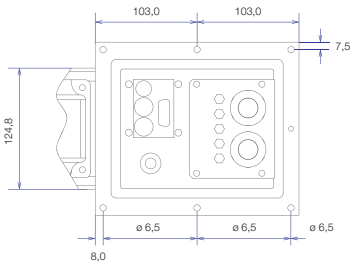
Side view



Top view



Base



SIMULATION
OF ROBOT CELLS

Good preparation is everything. Plan and visualise all procedures in your production process, validate your program offline initially and carry out troubleshooting and editing work without leaving your desk. With the Epson RC Simulator, which is included in the software package, you save time and money – throughout all phases.

PHASE 1
DESIGN

You can plan your robot cell in full size in advance and assess the expected cycle time for your application. This verifies feasibility before a single part for the system has been produced. System expansions can also be prepared in the simulation software to reduce down time.

PHASE 2
INTEGRATION

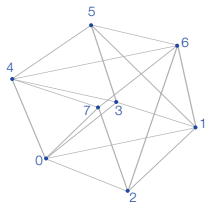
The program validation process is completed offline before the robots are delivered. This enables you to create programs in parallel – even complex motions can be displayed and evaluated. Collision risks are thus identified and equipment damage prevented.

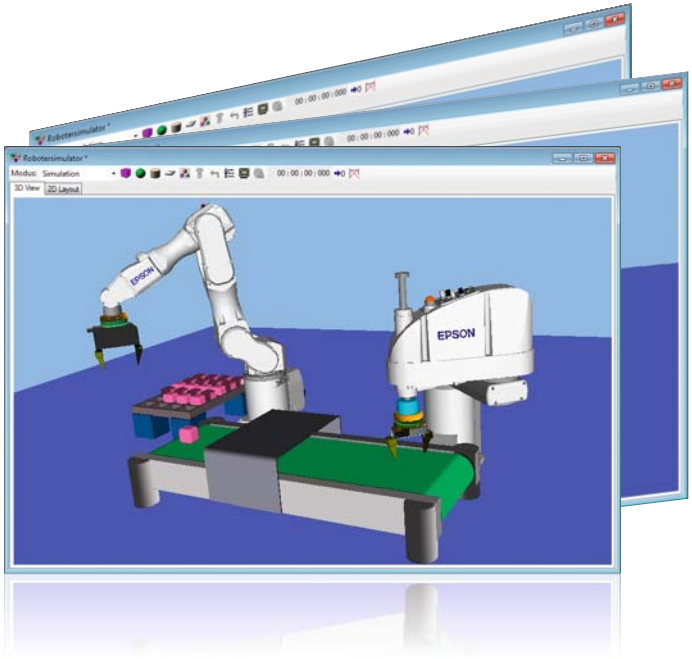
PHASE 3
OPERATION AND MAINTENANCE

Troubleshooting or program modifications can be carried out conveniently from your desk. Collision detection, reachability checks and robot motions can be visualised in a 3D layout.

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

SEIKO EPSON CORPORATION is one of the leading suppliers of high-tech robot systems that are renowned worldwide for their reliability. The product range includes 6-axis robots, SCARA robots, the SCARA entry-level LS models, the special Epson-developed Spider and N2 robot types, as well as the pioneering Dual Arm robot. Add to this, image processing, controls, and the Epson Force Sensor for force-controlled applications.

This gives SEIKO EPSON CORPORATION one of the most comprehensive model ranges of high precision industrial robots in the world, making them a technological pioneer for intelligently controlled automation processes.

Milestones

- **1982**
  Epson SCARA robots freely available in Japan for the first time
- **1986**
  Epson launches the first class 1 cleanroom robot
- **1997**
  Epson releases the first PC-based control
- **2008**
  Epson invents the right or left arm-enhanced SCARA robot G3
- **2009**
  Epson invents the Spider – a unique SCARA robot with no dead zones
- **2013**
  First application of Epson QMEMS® sensors in robotics, thus reducing vibrations in 6-axis kinematics
- **2014**
  Epson Compact Vision CV2: Epson's own ultra-fast image processing computer
- **2016**
  Epson N2 series: Unique, more agile and more space-saving 6-axis robot with folding arm
- **2017**
  Epson Dual Arm robot with human physiology-inspired arm geometry and 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