OUR 6-AXIS ROBOTS ARE FREE TO MOVE

INCREASED FLEXIBILITY FOR COMPLEX HANDLING
ABOUT EPSON

6-AXIS ROBOT

Epson, a subsidiary of Seiko Corporation, launched the first robots in the 1980ies. Those were used for precise and fast assembly of Seiko watches. Soon Epson industrial robots and controllers started to conquer markets all over the world. Today, Epson Factory Automation is one of the leading companies producing high-quality robot systems with branches on all five continents.

- In-house Research and Development department for automation processes
- 1984 first freely available Epson SCARA robot in Japan
- One of the world’s most comprehensive SCARA model ranges
- 1997 first PC-based controller
- Inventor of the Spider: a unique SCARA robot with 450° envelope

EPSON ROBOT SYSTEMS — TO SPEED UP YOUR PRODUCTION RUN

Our robots palletise, saw, mill, drill, grind, mount, move and assemble. They work precisely and at breathtaking speed in these and many other applications — often up to 24 hours a day.

As one of the pioneers in robotics we know exactly what the main feature of the combination of kinematics and intelligent control must be apart from speed and precision: Reliability! That is because the standstill of an installation resulting in a loss of production is expensive, very expensive. Therefore to us, innovation means more than just up-to-date robot technology. Every day, our development engineers strive to make our robot systems even more economical, flexible and reliable — under all conditions.

Integrated automation
We offer you a flexibly expandable range of products with different integrated components. Among these are a great number of SCARA robots and 6-axis robots for diverse applications as well as controllers and software. Everything engages perfectly and is easy to operate.

SERVICE AND SUPPORT

Our service and support program helps you to tap the full potential of your Epson robot systems.

Feasibility studies
Instead of theoretical simulations we offer cycle time tests with real robots. There are many ways in which you benefit from those studies. Prior to your investment you are provided with optimal robot configuration and installation site as well as precise cycle times. That is how you get maximum planning and project security.

Pre-sales support
How can a robot system be efficiently integrated into an installation? How can cycle times be optimised? How can the robot program be integrated into external software? Our application engineers advise you during planning as well as during implementation.

Training
Whether you need introductory seminars, or programming, maintenance or operator trainings — our experts share their knowledge with you and your employees.

After-sales support
Hotline service, repair service on site, inspection and individual maintenance concepts as well as spare part packages tailored to your needs are only some examples of how we do everything to have your production running non-stop.

Central spare part stocking
All spare parts are rapidly delivered from our central warehouse in Meerbusch, Germany.
MAXIMUM MOBILITY IN THE SMALLEST SPACE

To tap the full potential of your installation, there is one thing you cannot do without: Robots that are fast, precise and reliable. Epson robots stand for reliability to set the standards. In every respect. All models. Just like the extremely reliable SCARA and cartesian robots, Epson ProSix 6-axis robots also combine those features. Thanks to their spherical work envelope, they are perfectly suitable for spatial applications such as complex parts handling or assembling. And they require surprisingly little space.

Compact, free, flexible
Due to the high number of degrees of freedom, Epson ProSix 6-axis robots provide for maximum flexibility and smoothly manage complex operations. Small production cell? No problem. Our engineers have optimised the kinematics-envelope ratio.

The result is a particularly slim robot design with integrated media feed-through. The small interference contours also reduce the risk of collision if several robots work inside the same cell — that means an increase in safety, reliability, flexibility and efficiency.

Since the elbow radius is smaller and the swivel range bigger, the innovative joint geometry, which was exclusively developed by Epson, proves extremely advantageous in confined envelopes. Or, to put it simply: more performance per area.

The Epson philosophy:
Simpler is better is more economical
You are not going to find any expensive stand-alone solutions at Epson. We rely on a conclusive control concept and 6-axis programming that guarantee you maximum flexibility. That is why both Epson controllers — the RC180 slave controller and the Windows-based RC620 master controller — can be used with all Epson robots.

Thanks to a modular design, a reduced number of assemblies and the use of some identical components we also use for our SCARA robots, Epson ProSix 6-axis robots are particularly robust and easy to maintain.

EPSON PROSIX SERIES — JUST THE RIGHT TYPE FOR YOUR APPLICATION

Epson ProSix 6-axis robots convince through high-speed, precise travel. Standard cycle times of up to 0.37 seconds at repeatabilities of +/-0.02 mm ensure a high throughput and increase economic viability.
Epson ProSix 6-axis robots are made for complex handling and assembling workpieces. Thanks to the compact design and Epson joint geometry, they are particularly easily manoeuvred and feel completely at home even in confined envelopes.

Loading and unloading machines
Loading and unloading of conveyors, pallet systems, plastic injection moulding machines or metal foundry machines are just some of the tasks in this field which Epson ProSix 6-axis robots perform precisely and reliably. Typical work cells can be converted into fully automatic production cells, such as the complete, automated process for plastic injection moulding machines with removal, cooling and deburring in just one operation cycle.

Assembling and equipping
Manual activities during assembly and equipping are not only inefficient, but also fault-prone. Another aspect is the naturally limited movability of the human arm. Epson ProSix 6-axis robots feature maximum freedom of movement, an angle of rotation of +/-135° of joint #5 and the capability to flip over of joint #3. Apart from that, even the smallest parts can be precisely assembled. Process continuity and reproducibility allow a high savings potential while at the same time improving quality.

Epson ProSix 6-axis robots are just the perfect solution for:

- loading and unloading machines
- assembling and equipping
- packaging and palletising
- testing, measuring and inspecting
- most diverse automation applications
- handling tools and workpieces
- cutting, grinding, deburring, polishing (with different IP codes)

Packaging and palletising
Up-to-date packagings ask for a high degree of flexibility of the packaging lines. That is to ensure ever shorter product changeover times and high process reliability. Epson 6-axis robots have it all under control. They package and palletise even highly sensitive parts. With Conveyor Tracking, the robot can place parts on moving conveyors or pick them up from there. In that process, the objects are detected by a camera or sensor.

Testing, measuring and inspecting
Quality inspections, test runs prior to series production, data measurement — they all require precise detection. With Epson robots in combination with a high-performance integrated vision system, those tasks can even be performed with high clock rates. That way, an Epson 6-axis robot can place a part on a storage place and rotate joint #6 in front of the Epson Vision System so that the camera can detect all relevant surfaces. If the predefined parameters of the product deviate from the tolerance values, the product is recognised as defective and sorted out.

Cleanroom and IP versions
The perfect robot for every environment: Epson ProSix 6-axis robots are available as cleanroom versions and also with different IP codes.

Individual service
Please feel free to contact us so we can find the ideal solution for your application, conduct feasibility studies and efficiently integrate the robot system into your installation. Our application engineers advise you during planning and implementation.
THE EPSON CONCEPT: TO TAKE IT ONE STEP FURTHER

We optimise every detail to improve the performance and at the same time reduce the robot volume. Compact, powerful, absolutely reliable. That is the Epson robot philosophy which is more than just an empty promise. Try it!

Optimal joint geometry

Thanks to the improved joint geometry, joint #5 has an angle of rotation of +/–135° and has thus a considerably greater freedom of movement.

The elbow radius, that is the distance from the pivotal point of joint #5 to the flange for the hand, is smaller — for maximum moveability, even in confined envelopes.

Joint #3 is considerably smaller — which is space-saving.

More flexibility thanks to the capability to flip over of joint #3

The capability to flip over of joint #3 not only helps to flexibly design production cells making full use of the envelope, but also reduces cycle times.

Less interference contours

If more than one robot works in a confined space, the risk of collision increases. That is why all models of the Epson ProSix 6-axis robot series have considerably less interference contours — thanks to the slim design on the one hand and the integrated media feed-through on the other. The advantages: maximum reliability of the installation and low maintenance costs.

Connections on the Epson ProSix C3 6-axis robot

Motor function indicator lamp
Connection for brake release unit
Connection for user wiring (9-pin D-Sub connector)
Four connections for compressed-air supply with pressure plug (2 × Ø 4 mm and 2 × Ø 6 mm)
Power cable
Signal cable

Connections on the Epson ProSix S5 and SSL 6-axis robots

Motor function indicator lamp
Connection option for brake release unit (option)
Connection for user wiring (15-pin D-Sub connector)
Two connections for compressed-air supply with pressure plugs (2 × Ø 6 mm)
Power cable
Signal cable
BECAUSE QUALITY IS THE BEST REMEDY

Like all Epson robot systems, Epson ProSix 6-axis robots also feature a series of advantages. High-quality components ensure longevity and high availability. The design also focuses on reliability — starting from well-established design principles to easy accessibility of all components.

We get to the point fast: Smart Motion
Smart Motion is the revolutionary motor management by Epson used in all Epson robot systems. At low vibration, Epson robots reach the end position much faster and much more precisely. Optimum positioning, short cycle times and increased path accuracy — be on the economical side with Smart Motion!

Economical and future-oriented complete solution
All important components are Epson components. They are developed in our research centres and produced in our quality-certified production facilities. Hardware and software match perfectly.

FLEXIBLE CONTROLLER CONCEPT

Central controller or compact slave controller — Epson ProSix 6-axis robots can be optimally controlled with the Epson controllers and smoothly integrated into your production processes. It all depends on what you need for your application.

Epson RC180 — the most compact, most lightweight and fastest controller of its performance class on the market
With its compact dimensions, the Epson RC180 is incredibly small. The controller was mainly developed to be operated as a stand-alone slave.

Epson RC620 — the powerful master controller for up to 20 axes
This controller has it all under control: robots, conveyors and other peripheral equipment. Due to its open Windows-based system design, it offers endless possibilities and is easy to operate. The RC620 supports Conveyor Tracking as well as most diverse bus protocols and interface expansions. For even more demanding system resources, there is the Epson RC620+.

For robots with eye contact
The high-performance integrated vision systems reliably detect and position parts — even in case of manufacturing deviations, part changes or varying light conditions. Epson Smart Vision: That is perfectly matching software and hardware.

Epson Smart Camera
Epson Smart Cameras have an integrated Machine Vision processor and are therefore separated from the robot controller. They can be used as stand-alone cameras or in a network of several cameras.

Epson controllers brochure in PDF at: www.epson.de/robots

As a result of overshooting, common motor controllers lead to increased deviations.

The result: imprecise positioning, poor interpolation and longer process times. Epson Smart Motion, however, minimizes overshooting. Epson robots are more precise and product-conserving and get to the point faster — even if cycle times are extreme.

Epson robot reaches target position
Common robot reaches target position
End position controller

Epson robot
Common robot
End position controller

Epson robot
Common robot
End position controller

Epson robot
Common robot
End position controller
TECHNICAL DATA

Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>EPSON PROSIX C3</th>
</tr>
</thead>
<tbody>
<tr>
<td>DESIGN</td>
<td>vertical articed arm</td>
</tr>
<tr>
<td>PAYLOAD</td>
<td>3/5 kg</td>
</tr>
<tr>
<td>REACH</td>
<td>665 mm (P point) 600, 665 max.</td>
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<tr>
<td>REPEATABILITY</td>
<td>+/-0.02</td>
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<tr>
<td>ADMISSIBLE</td>
<td>kgm²</td>
</tr>
<tr>
<td>MOMENT OF INERTIA</td>
<td>J4 0.15</td>
</tr>
<tr>
<td></td>
<td>J5 0.15</td>
</tr>
<tr>
<td></td>
<td>J6 0.1</td>
</tr>
<tr>
<td>USER WIRING</td>
<td>electrical: 1x D-Sub 9-pin</td>
</tr>
<tr>
<td></td>
<td>pneumatic: 4x tubes (2x Ø 4 mm and 2x Ø 6 mm)</td>
</tr>
<tr>
<td>WEIGHT</td>
<td>27 kg</td>
</tr>
<tr>
<td>CONTROLLER</td>
<td>RC180/RC620/RC620+</td>
</tr>
<tr>
<td>MANIPULATOR MODEL</td>
<td>mounting option floor/wall/ceiling</td>
</tr>
<tr>
<td></td>
<td>(also skewed or sunk)</td>
</tr>
<tr>
<td></td>
<td>cleanroom and ESD ISO 3</td>
</tr>
</tbody>
</table>

*Possible under special conditions (see manual).

Mounting

The Epson ProSix C3 6-axis robot can be mounted as required for the application. Apart from floor, wall and ceiling mounting, sunk and skewed mounting are also possible. Since there is no base and the cable duct is hidden, the work envelope is optimally used.

Scope of delivery

- Epson robot and controller
- 1 Epson RC+ program CD including simulation software
- 2 sets of mounting brackets for the robot controller (RC180)
- 1 set of 3 m power and signal cable
- 1 emergency stop connector
- 1 connector for standard I/O
- 1 set of connectors for user wiring
- 2 sets of air connections (4 x straight and 4 x 90° angled each)
- 1 back-up disc of the robot controller (RC180)
- 1 USB programming cable (RC180)
- Manuals on CD
- 1 installation/safety manual
- 1 mouse and 1 keyboard (RC620)

Manipulator options

- Longer power and signal cables (5 m/10 m/20 m)
- Brake release unit
- Mounting bracket

This and further information as well as CAD data are provided at: www.epson.de/robots
## TECHNICAL DATA

### Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>EPSON PROSIX S5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PAYLOAD</strong></td>
<td>vertical articulated arm</td>
</tr>
<tr>
<td><strong>TRAGLAST</strong></td>
<td>Kg 5/7</td>
</tr>
<tr>
<td><strong>REACH</strong></td>
<td>239.0 mm</td>
</tr>
<tr>
<td><strong>COORDINATION</strong></td>
<td>+135° –135°</td>
</tr>
</tbody>
</table>
| **ADMISSIBLE MOMENT OF INERTIA** | kgm² J4 0.3  
|                                | kgm² J5 0.3 |
|                                | kgm² J6 0.1 |
| **USER WIRING**                | electrical 1 x D-Sub 15-pin |
|                                | pneumatic 2 x tubes (Ø) 6 mm |
| **WEIGHT**                     | Kg 35 |
| **CONTROLLER**                 | RC180 / RC620 / RC620+ |
| **MANIPULATOR MODEL**          | mounting option floor / wall / ceiling |
|                                | stainless steel |
|                                | IP class IP65 |

*Possible under special conditions (see manual).

### Mounting

Floor, wall or ceiling — you can mount Epson ProSix S5 6-axis robots on all three.

### Scope of delivery

- Epson robot and controller
- 1 Epson RC+ program CD including simulation software
- 2 sets of mounting brackets for the robot controller (RC180)
- 1 set of 3 m power and signal cable
- 1 emergency stop connector
- 1 connector for standard I/O
- 1 set of connectors for user wiring
- 1 set of air connections (2 x straight and 2 x 90° angled each)
- 1 back-up disc of the robot controller (RC180)
- 1 USB programming cable (RC180)
- Manuals on CD
- 1 installation/safety manual
- 1 mouse and 1 keyboard (RO620)

### Manipulator options

- Longer power and signal cables (5 m / 10 m / 20 m)
- Brake release unit

### Work envelope related to the pivotal point of joint #5

![Work envelope related to the pivotal point of joint #5](image)

### TECHNICAL DATA

<table>
<thead>
<tr>
<th>Mounting Option</th>
<th>Floor / Wall / Ceiling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payload</td>
<td>vertical articulated arm</td>
</tr>
<tr>
<td>Reach</td>
<td>239.0 mm</td>
</tr>
<tr>
<td>Coordination</td>
<td>+135° –135°</td>
</tr>
</tbody>
</table>
| Admissible      | kgm² J4 0.3  
| Moment of inertia | kgm² J5 0.3 |
| | kgm² J6 0.1 |
| Wiring          | electrical 1 x D-Sub 15-pin |
| | pneumatic 2 x tubes (Ø) 6 mm |
| Weight          | Kg 35 |
| Controller      | RC180 / RC620 / RC620+ |
| Manipulator     | mounting option floor / wall / ceiling |
| Model           | stainless steel |
| Class           | IP class IP65 |

*Possible under special conditions (see manual).
### Technical Data

#### Specifications

<table>
<thead>
<tr>
<th></th>
<th>EPSON PROSIX S5L</th>
</tr>
</thead>
<tbody>
<tr>
<td>DESIGN</td>
<td>Vertical articulated arm</td>
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<tr>
<td>PAYLOAD</td>
<td>9kg</td>
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<td>REACH</td>
<td>267mm/P point 895, 975 max.</td>
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<tr>
<td>REPEATABILITY</td>
<td>αmax = –0.5°, βmax = 0.5°</td>
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<tr>
<td>ADMISSIBLE MOMENT OF INERTIA</td>
<td>J4: 0.3, J5: 0.3, J6: 0.1</td>
</tr>
<tr>
<td>USER WIRING</td>
<td>Electrical: 1 x D-Sub 15-pin</td>
</tr>
<tr>
<td></td>
<td>Pneumatic: 2 x tubes (Ø) 6 mm</td>
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<tr>
<td>WEIGHT</td>
<td>38kg</td>
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<tr>
<td>CONTROLLER</td>
<td>RC180 / RC620 / RC620+</td>
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<tr>
<td>MANIPULATOR MODEL</td>
<td>Mounting option floor / wall / ceiling</td>
</tr>
<tr>
<td></td>
<td>Stainless steel 8X4</td>
</tr>
<tr>
<td></td>
<td>IP class IP65</td>
</tr>
</tbody>
</table>

*Possible under special conditions [see manual].

#### Mounting

Floor, wall or ceiling — you can mount Epson ProSix S5L 6-axis robots on all three.

- Floor mounting
- Wall mounting
- Ceiling mounting

#### Scope of delivery

- Epson robot and controller
- 1 Epson RC+ program CD including simulation software
- 2 sets of mounting brackets for the robot controller (RC180)
- 1 set of 3 m power and signal cable
- 1 emergency stop connector
- 1 connector for standard I/O
- 1 set of connectors for user wiring
- 1 set of air connections (2 x straight and 2 x 90° angled each)
- 1 back-up disc of the robot controller (RC180)
- 1 USB programming cable (RC180)
- Manuals on CD
- 1 installation/safety manual
- 1 mouse and 1 keyboard (RC620)

#### Manipulator options

- Longer power and signal cables (5m/10m/20m)
- Brake release unit

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This and further information as well as CAD data are provided at: [www.epson.de/robots](http://www.epson.de/robots)
Efficiently using resources

Saving resources is a holistic approach at Epson. Not only does it mean that we produce environmentally friendly, but that we also focus on sustainable quality. If strictly implemented, this also considerably increases efficiency, since we can reduce the operating and follow-up costs of our robots.

Size and weight are relevant to costs
Size and weight play an important role for the robot design. A slim design as well as minimised weight and power consumption lead to savings in operating costs, since it results in improved performance in minimum space. Dimension and design of the Epson automation solution are tailored to your application.

Optimum efficiency related to supplied power and payload
That is efficiency as required for economical production: Converting electric energy into kinetic energy so as to achieve high efficiency and short cycle times. Epson RC180 and RC620 controllers are extremely compact, consist of a smaller number of assemblies and feature low power loss. Thanks to that, the total energy consumption of the control system was reduced by almost 25%.

Economical — also in the long run
All Epson ProSix 6-axis robots stand out for a particularly low power consumption. The combination of maximum reliability and reusability of the components results in a high added value.

Mass reduced by 26% Thanks to the reduction of the deadload of the Epson S5 6-axis robot by 13 kg, efficiency related to supplied power and payload was optimised to save effective operating costs.

The green way: environment and sustainability

Environmental protection has a long tradition at Epson and is an integral part of the company philosophy. It is our aim to reduce the environmental impact of our products — from the concept to recycling, from the choice of materials and components to transport to reuse.

Saving energy — and costs
Energy is money and a real economic factor. Consistently we strive to develop particularly reliable, failsafe products which consume less and less energy. Since 1995, Epson has implemented an environmental management system based on a holistic approach.

Environmental Vision 2050 — our goals
With our Environmental Vision 2050, we set an example. One of our main intentions is to reduce our CO2 emissions during the complete life cycle of a product by 90% by 2050. Moreover, we are going to introduce reuse and recycling for all of our products and are engaged in protecting biodiversity.

Sustainable and environmentally friendly
Within the framework of our sustainability initiative, we have committed ourselves to high ethical and ecological standards. The annual “Epson Sustainability Report” documents how we ensure and continuously improve the good environmental performance of our products and production processes.

Life cycle assessment
Since the year 2000, we have been registering the environmental impact of individual items of our manufacturing program. Life cycle assessment gives information about how much raw material and energy a product consumes within the course of its production, use and disposal and what emissions are generated.

Better products for a better future®
Epson Industry Solutions Center — that’s where we find your solution!

Expertise concentrated on 500 m²: In cooperation with our partners, in our Meerbusch Industry Solutions Center we present solutions for the most diverse applications in industry. The fields include large format printing, retail solution and factory automation.

Factory automation: See all Epson robots in action. Our experts help you to set up, simulate and optimise your automation application in a workshop cell. The cell can be controlled and networked with all standard fieldbuses. In addition, we provide up-to-date peripheral equipment such as a Vision and Conveyor Tracking system.

You would like to arrange an appointment?
Call us at +49 2159 5381391 or just e-mail us at: robot.infos@epson.de