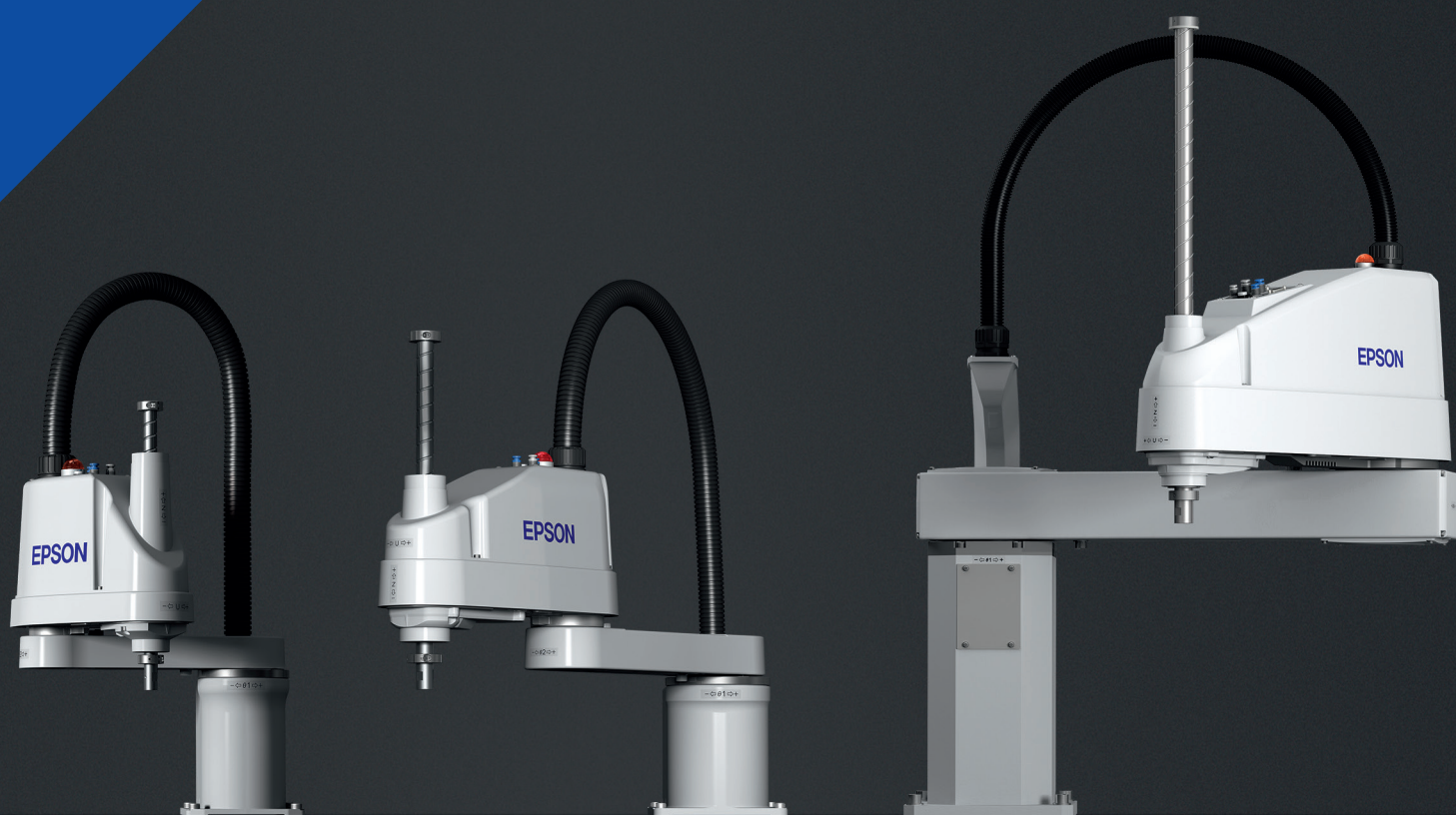LS Series

Simple and smart

EPSON®
EXCEED YOUR VISION

Reduced to the essentials

As powerful as you need them to be, and as cost-effective as you would like them to be. The Epson LS series impresses both with its performance, as well as with its low acquisition and operating costs.

The Epson LS 4-axis robot (including controller) is a worthwhile investment from just 10,000 Euro, and is designed to work in environments which up to now were reserved for linear systems or less flexible machines.

Advantages at a glance

Low acquisition and operating costs

Includes RC90 controller and simulation software

Fully versatile: more flexible than linear systems

Reliable and durable

Epson LS3-401S

Load capacity: 3kg
Range: 400mm
Price from **10,000 Euro** plus VAT

Epson LS6-602S

Load capacity: 6kg
Range: 600mm
Price from **13,000 Euro** plus VAT

Advanced Epson LS Series

Precision guaranteed. The three LS models vary in load capacity and range. Each robot is also available in a cleanroom version.

What's included:

Epson robots and controller

1x Epson RC+ program CD including simulator

2x mounting bracket sets for the RC90 robot controller

1x set of 3m power and signal cables

1x emergency stop plug

1x standard I/O plug

1x plug set for user cabling

1x backup disk for the RC90 robot controller

1x USB programming cable (RC90)

User manuals on CD

1x Installation/Safety manual

Optional extras:

Extended power and signal cable (5m / 10m)
450 Euro/520 Euro

Tool adapter for easy installation of end effectors on Z axis: **400 Euro**

Epson LS20-A04S

Load capacity: 20kg
Range: 1,000mm
Price: **18,500 Euro** plus VAT

SCARA Light LS3 designs

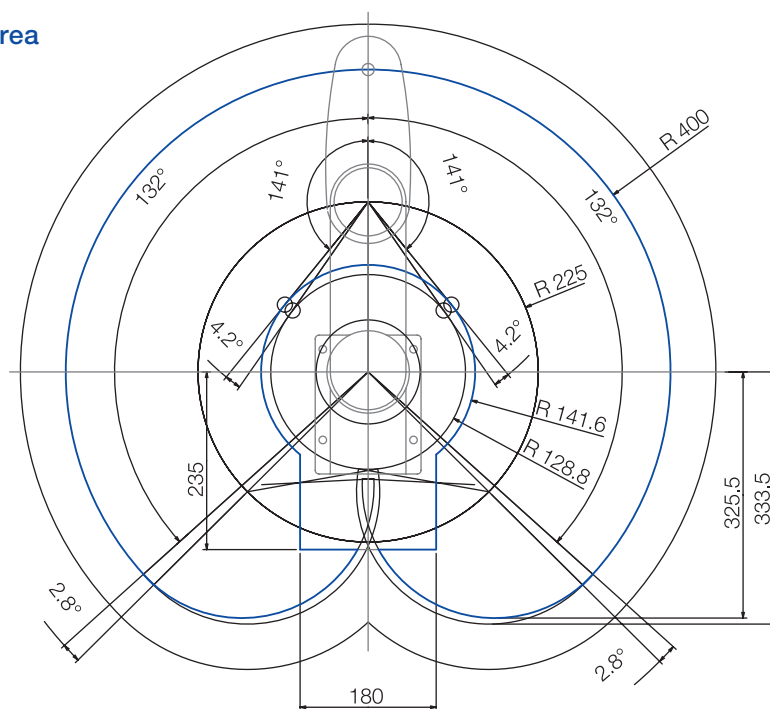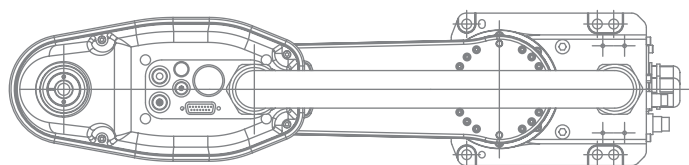|	SCARA-Light LS3-401S
Design	4-axis
Load capacity	3 kg
Horizontal range	400 mm
Vertical range	150 mm
Arm length	J1 225 mm + J2 175 mm
Range orientation	J4 +/-360°
Horizontal repeatability	J1, J2 +/-0.01 mm
Vertical repeatability	J3 +/-0.01 mm
Orientation repeatability	J4 +/-0.01°
Maximum work area	J1 +/-132°, J2 +/-141° J3 150 mm, J4 +/-360°
Maximum axis speed	J1, J2 6,000 mm/s J3 1,100 mm/s, J4 2,600°/s
Moment of inertia	0.005 / 0.05 kg m^2 nom./max.
Permanent press-in force	100 N
Electrical user cabling	Connection for 1x 15-pin D-Sub connector
Pneumatic user cabling	Connections for compressed air supply (1 x Ø 4 mm and 2 x Ø 6 mm)
Installation type	Floor
External/internal Z axis	Ø 16 h7 / Ø 11 mm
Cleanroom option	ISO 4
Power and signal cable	3 m
Controller	RC90
Certificates	RoHS Directive: 2002/92/EC ANSI/RIA: R15.06-1999 NFPA 79 (2007 Edition) CSA/CAN Z434-03 (February 2003) EC Machine Directive 2006/42/EC
Weight	14 kg
Price plus VAT	From 10,000.00 Euro

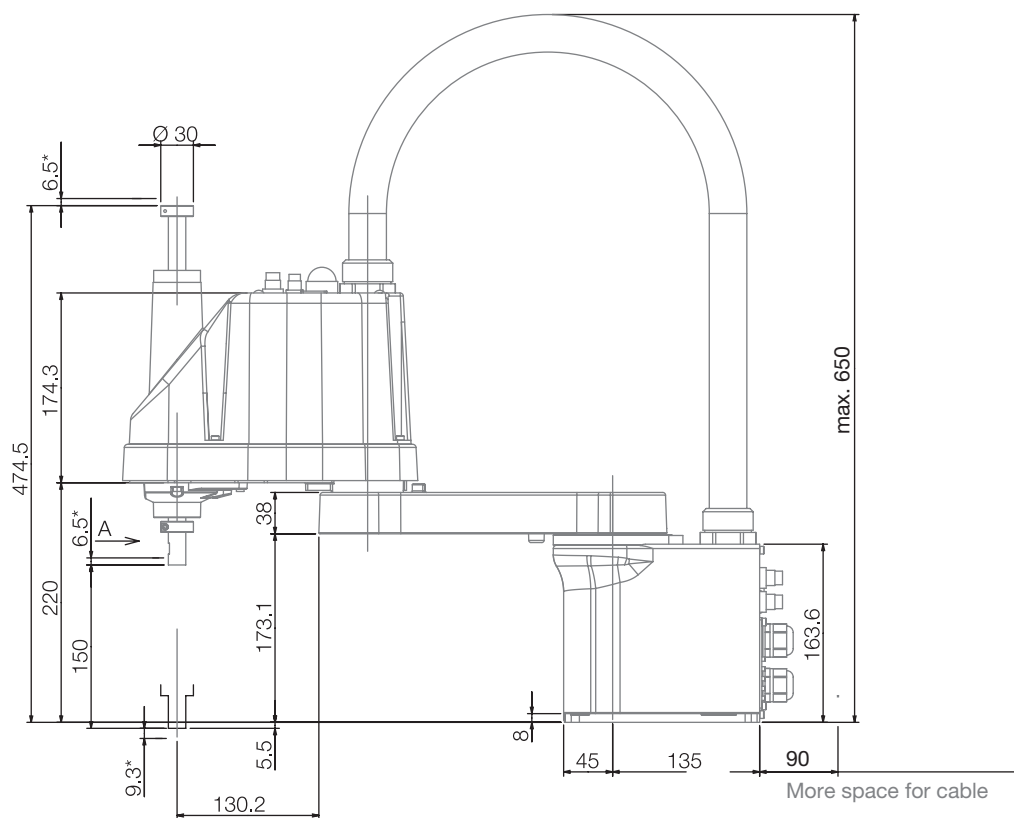J1 = Axis 1   J2 = Axis 2   J3 = Axis 3   J4 = Axis 4
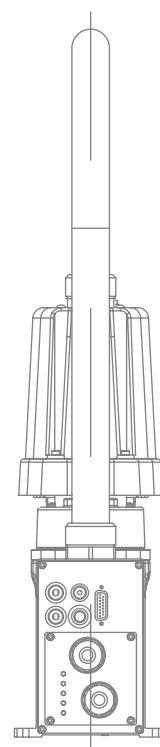
Work area

Top view

132° 141° 141° 132°

R 400

R 225

4.2° 4.2°

R 141.6

R 128.8

235

2.8° 2.8°

325.5 333.5

180

Side view

Ø 30

6.5*

174.3

474.5

6.5*

A

220

150

173.1

38

5.5

8

9.3*

130.2

45 135 90

max. 650

163.6

More space for cable

Rear view

*Mechanical stopper

SCARA Light LS6 designs
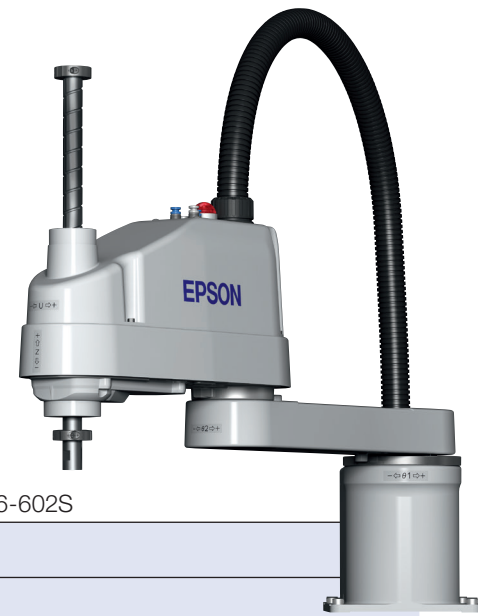
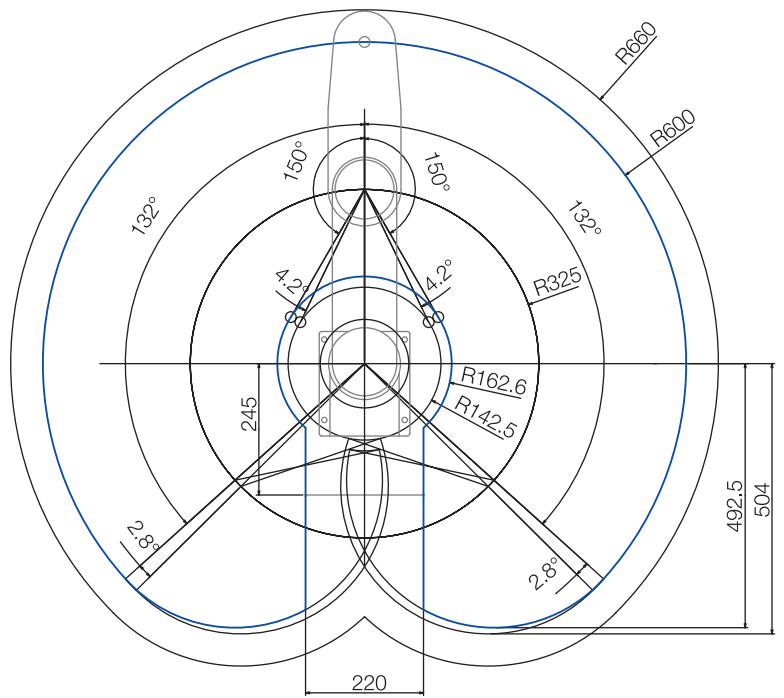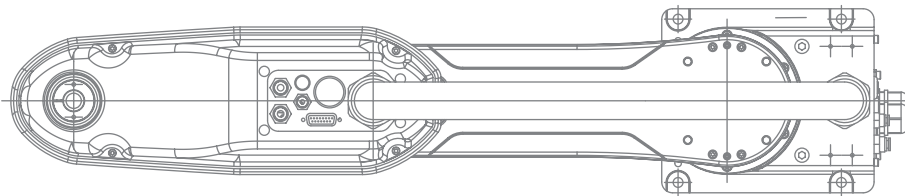|	SCARA-Light LS6-602S
Design	4-axis
Load capacity	6 kg
Horizontal range	600 mm
Vertical range	200 mm
Arm length	J1 325 mm + J2 275 mm
Range orientation	J4 +/-360°
Horizontal repeatability	J1, J2 +/-0,02 mm
Vertical repeatability	J3 +/-0,01 mm
Orientation repeatability	J4 +/-0.01°
Maximum work area	J1 +/-132°, J2 +/-150° J3 200 mm, J4 +/-360°
Maximum axis speed	J1, J2 6,800 mm/s J3 1,100 mm/s, J4 2.000°/s
Moment of inertia	0.01 / 0.12 kg m² nom./max.
Permanent press-in force	100 N
Electrical user cabling	Connection for 1x 15-pin D-Sub connector
Pneumatic user cabling	Connections for compressed air supply (1 x Ø 4 mm and 2 x Ø 6 mm)
Installation type	Floor
External/internal Z axis	Ø 20 h7 / Ø 14 mm
Cleanroom option	ISO 4
Power and signal cable	3 m
Controller	RC90
Certificates	RoHS Directive: 2002/92/EC ANSI/RIA: R15.06-1999 NFPA 79 (2007 Edition) CSA/CAN Z434-03 (February 2003) EC Maschinenrichtlinie 2006/42/EC
Weight	17 kg
Price plus VAT	From 13,000.00 Euro

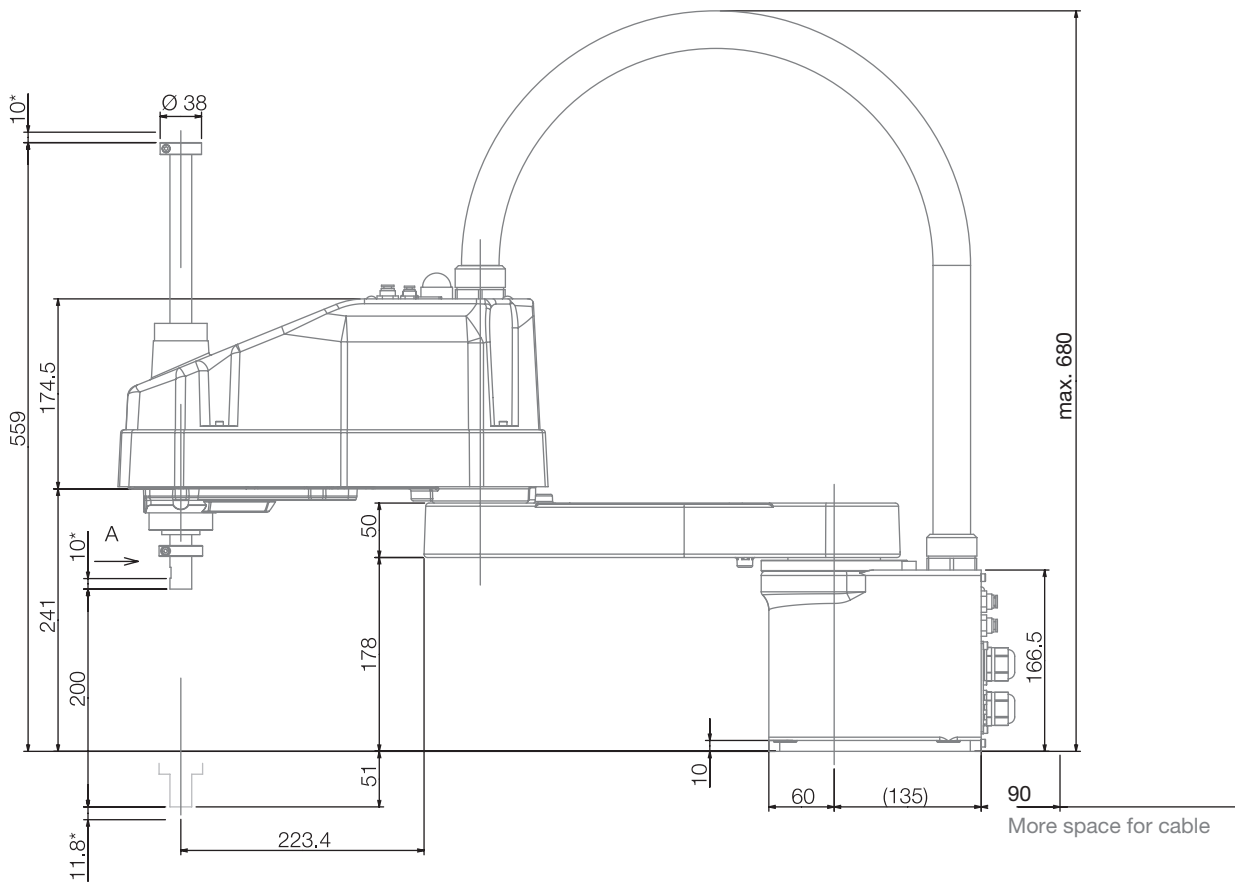J1 = Axis 1   J2 = Axis 2   J3 = Axis 3   J4 = Axis 4
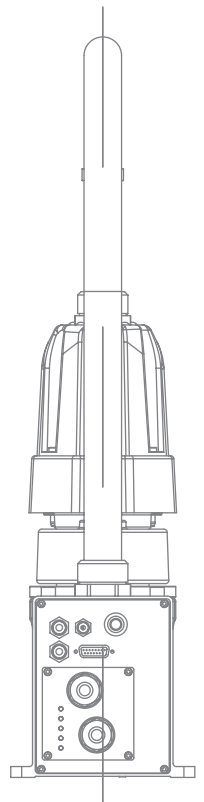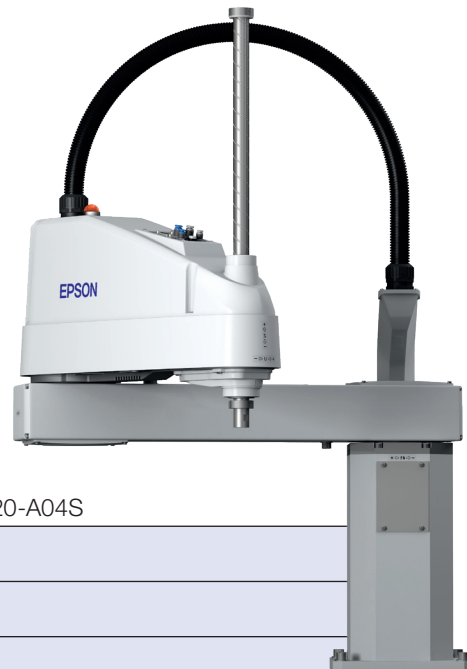
Work area

Top view

Side view

Rear view

*Mechanical stopper

7

Designs of the SCARA Light LS20

	SCARA-Light LS20-A04S
Design	4-axis
Load capacity	20 kg
Horizontal range	1,000 mm
Vertical range	420 mm
Arm length	J1 550 mm + J2 450 mm
Range orientation	J4 +/-360°
Horizontal repeatability	J1, J2 +/-0.025 mm
Vertical repeatability	J3 +/-0.01 mm
Orientation repeatability	J4 +/-0.01°
Maximum work area	J1 +/-132°, J2 +/-152° J3 420 mm, J4 +/-360°
Maximum axis speed	J1, J2 11,250 mm/s J3 2,020 mm/s, J4 1,400°/s
Moment of inertia	0.05 / 0.45 kg m^2 nom./max.
Permanent press-in force	250 N
Electrical user cabling	Connections for 1x 15-pin and 1x 9-pin D-Sub connectors
Pneumatic user cabling	Connections for compressed air supply (2 x Ø 4 mm and 2 x Ø 6 mm)
Installation type	Floor
External/internal Z axis	Ø 25 h7 / Ø 18 mm
Cleanroom option	ISO 4
Power and signal cable	3 m
Controller	RC90
Certificates	RoHS Directive: 2002/92/EC ANSI/RIA: R15.06-2012 NFPA 79 (2007 Edition) CSA/CAN Z434-03 (February 2003) CE Marking - Machinery, Low Voltage, EMC Directive
Weight	50 kg
Price plus VAT	From 18,500.00 Euro

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

Rear view

Work area

132° 152° 152° 132°

R1064
R1000

R550

3.6° 3.6°

R260.7
R232.8

265

818
832.1

2° 2°

290

Top view

Side view

ø 39.5

(145.1)

4*

15

1053.5

259.3

A →

4*

484.5

420

290

290

8

B

40
102.6

60°

max. 1100

546.3

280

377.2

58
80**

18.5

3*

26.5

120 137 150**
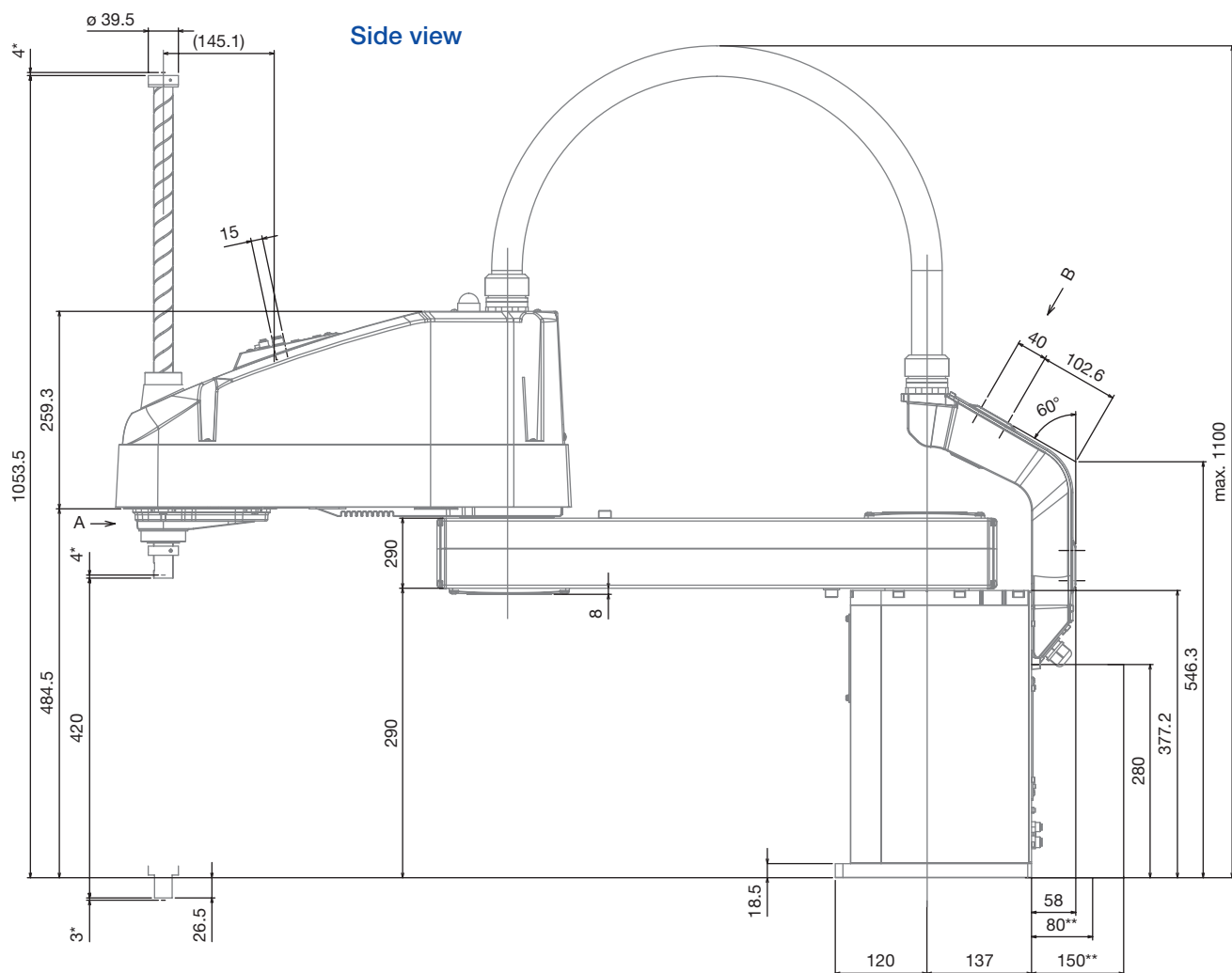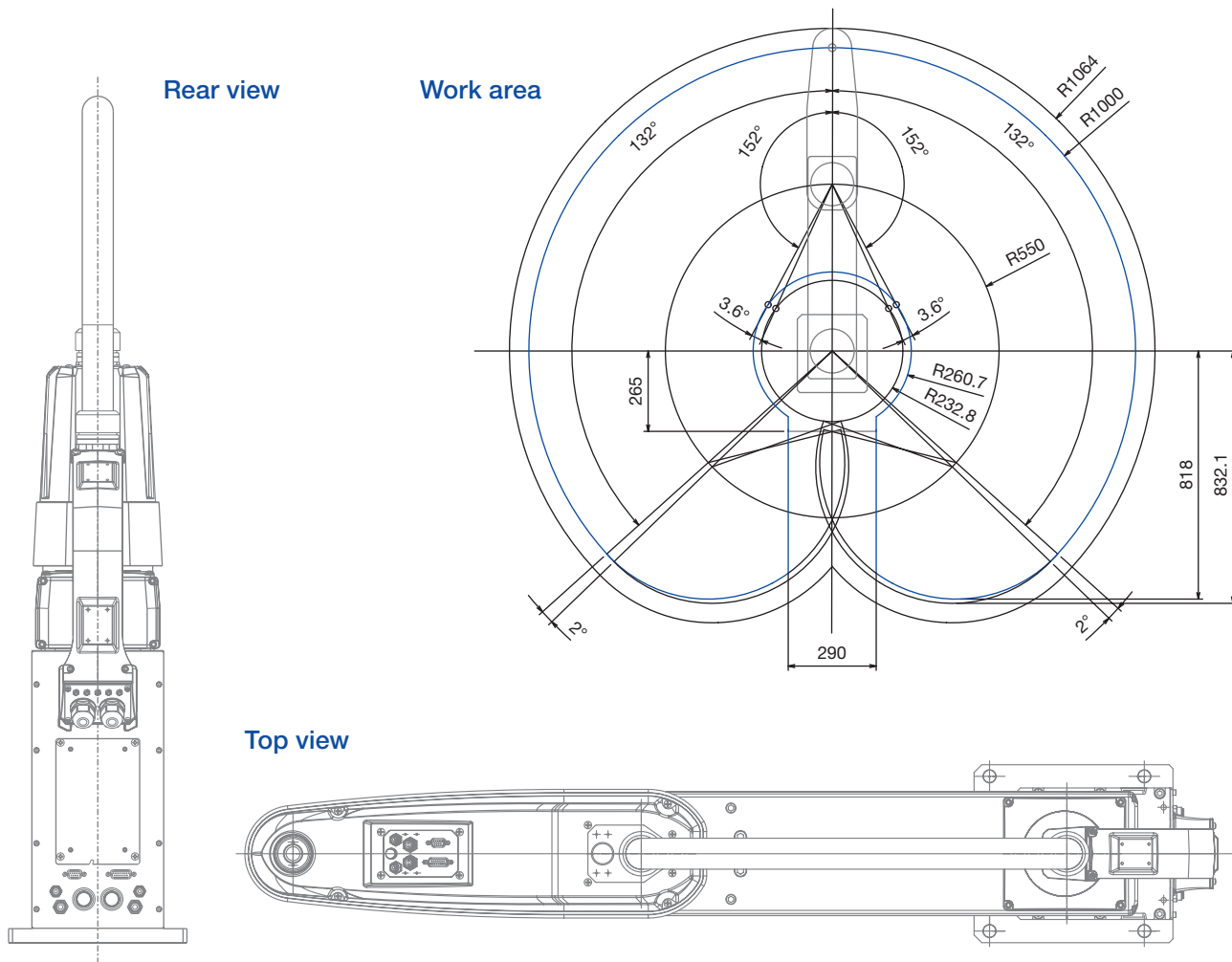
*Mechanical stopper **more space for cable

9

A true space-saving miracle: RC90 controller

Small, compact and flexible, the RC90 is ideal for small work cells and can be installed in a control cabinet. This flexible application can be operated as a stand alone or integrated system.

Use as a slave within a network or as a master to control multiple robots and peripheral devices. It comes with serial interfaces, expansion I/O cards and an Ethernet port, but should you require additional inputs/outputs, you can expand your system cost-effectively and flexibly to suit your needs.
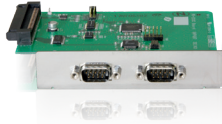
TP2 mobile operating unit

900 Euro
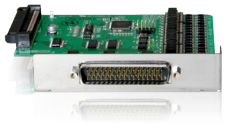
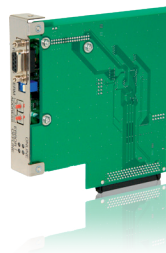**I/O expansion**

I/O expansion card
810 Euro

I/O expansion cable kit
360 Euro (block and cable)

I/O expansion kit
1,750 Euro
(card, block and cable)

RS-232C serial interface

320 Euro

Fieldbus cards

Slave
Profibus, ProfiNet, DeviceNet,
CC-Link, EtherCat
770 Euro each

EtherNet/IP
920 Euro

Master
Profibus, DeviceNet, Ethernet/IP
1,700 Euro each

All prices
exclude VAT

Epson RC+ 7.0 development interface - powerful, efficient, intuitive

Thanks to its intuitive Windows control interface, open structure and integrated image processing, programming applications is incredibly quick and easy.

The unique Epson-developed SPEL+ script language, enables you to programme a very wide range of robot motions, from simple pick and place application to complex multi-manipulator line control.
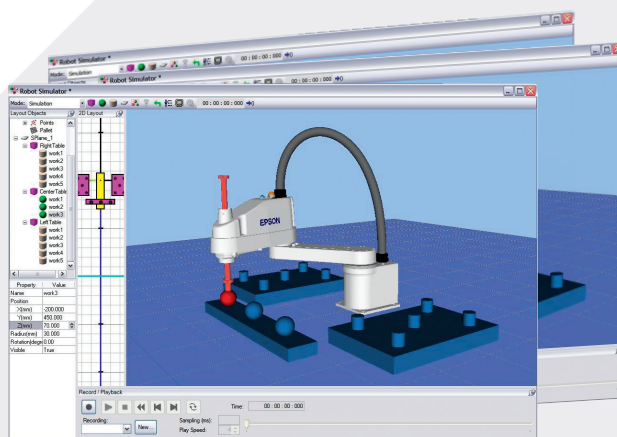
The Epson RC+ Simulator allows you to carry out risk-free testing, comparison and process visualisation before any robot implementation.

Integrated software tools for the Epson RC+ 7.0 development environment

Command
One-line command editor.

Compiler
Programme checking (syntax, definition, value range, and many more).

Debugger
Programme with stop points / step mode.

DLL-functions
Access to external DLL functions.

Editor
Create SPEL+ programs:
Online help, syntax check, label lists, detection and colour display of keywords, parameters and comments, parameter list, definition jump.

Error text editor
Creation of your own, application-specific, error messages.

File management
Create and access files and databases (Excel, Access, SQL).

IO label editor
Edit names for I/O / markers / fieldbus I/O for the data sizes bit, byte, and word.

IO monitor
Display the status of I/O / markers / fieldbus I/O for the data sizes bit, byte, and word. Allows you to create special user displays.

Macro editor
Create a SPEL+ program as a programming aid.

Robot manager
Contains all information and control elements relevant to robots – inserted in clear windows: set-up, edit points, loop parameters, tool and robot coordinate systems, load capacity and moment of inertia. The robot trip points can be used to switch power on and off, complete a reset or complete a home run.

Stack editor
Display the program branches.

System history
Record errors, events and warnings (diagnostics).

Task manager
Display called multi-tasks, traps, and their statuses, display current program line.

Variable editor
Display / edit current variable values.

Maintenance manager
Create / load / display backups, controller reset.

Simulator
Plan and visualise processes, validate programs.

Software options

Conveyor tracking
Synchronise position with conveyor running.

External control point (ecp)
Guide the workpiece contour easily and precisely along an external point.

Force sensing
Real-time robot force measurement.

Gui builder
For the fast, easy creation of your own user interface based on the Epson SPEL+ programming language.

Optical character recognition (OCR)
Reliably detect fonts and symbols and check printing – even under challenging conditions.

PG motion system
Read conveyor speeds via encoders.

RC+ API
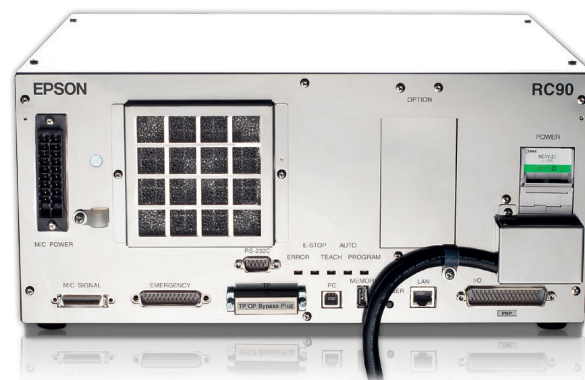Integrate your application in external software, develop user interfaces, and use databases.

Security option
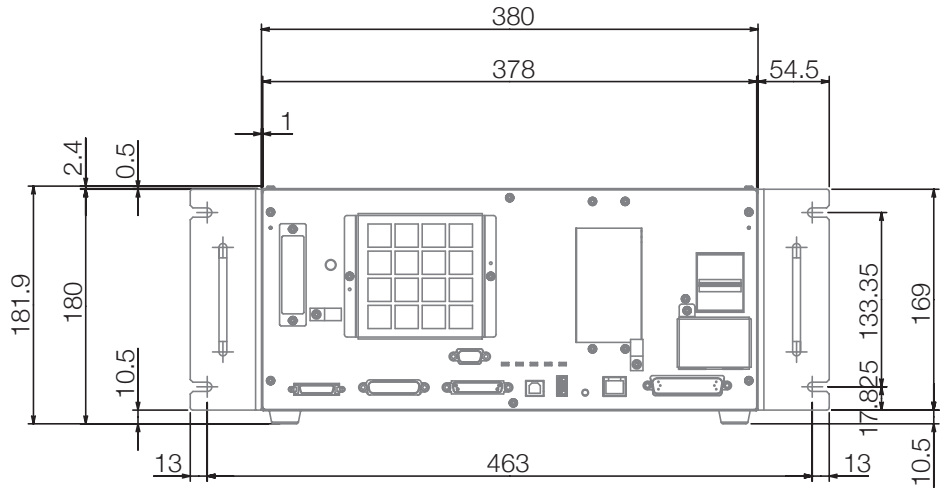Increased security through user management and usage control.

Vision guide 7.0
Powerful Epson image processing system.

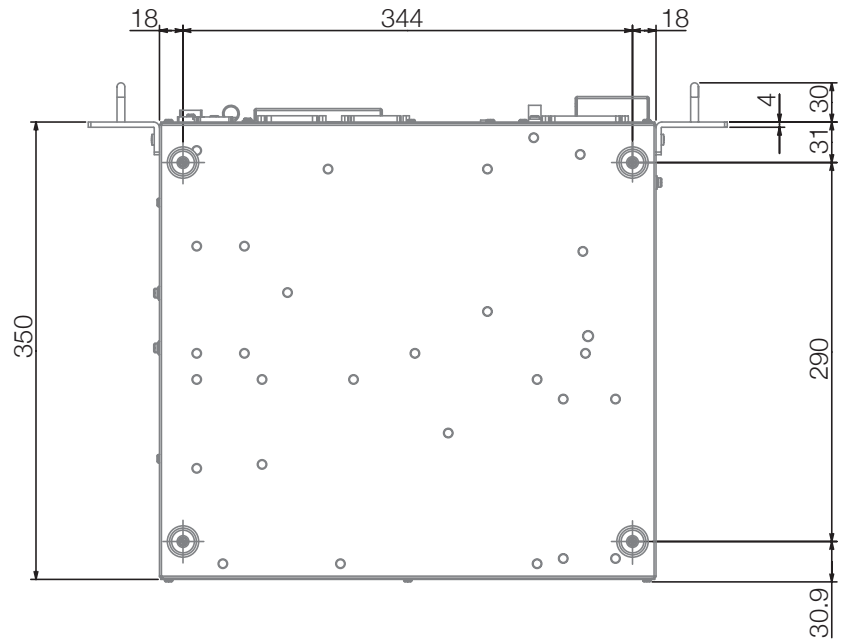# Everything in view, Everything under control: RC90 controller

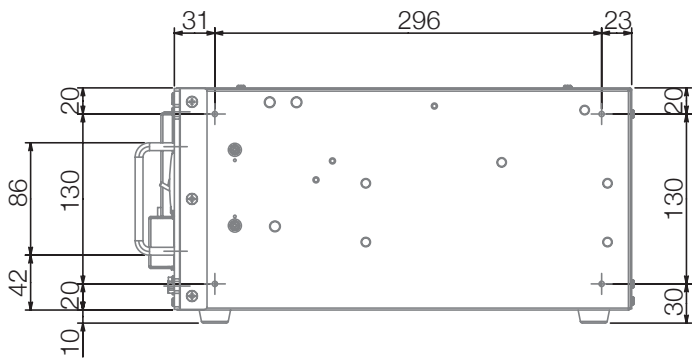|	RC90 controller
Ports	1x USB memory, 1x USB device 1x 10/100 base T-Ethernet 24/16 standard I/O channels – 8/8 as remote RS-232C Standard 1x channel
CPU	32-bits Microprocessor
Hardware option	Teach Pendant 2
Expansion card options	**I/O expansion** 24/16, 2 additional cards possible **I/O slave fieldbus cards** EtherCat, DeviceNet, Profibus, ProfiNet, CC-Link, Ethernet / IP, 1 additional card of each type possible **I/O fieldbus master cards** Profibus, DeviceNet, Ethernet / IP, 1 additional card of each type possible **RS-232C serial interface** 2 channels per card, 2 additional cards possible
Software options	RC+ API 7.0 previously VB Guide External Control Point Motion (ECP) GUI Builder
Development environment	Epson RC+ 7.0
Programming language	Epson SPEL+ multitasking-capable
Connection values	AC 200 V to AC 240 V, one-phase 50/60 Hz
Power consumption	Up to 2,500 VA – depending on manipulator model
Ambient temperature	5-40°C
Relative humidity	20% to 80% – non-condensing
Safety equipment	Emergency Stop button, safety door entry, low power mode, generator brake **Error detection** Encoder cable break **Detectors** Motor overload, motor speed error, irregular motor torque (manipulator out of control), overheating of a motor driver module, positioning overrun – servo error, speed overrun – servo error, CPU error, memory checksum error, relay drop-out, excess voltage, mains voltage outage, temperature deviation, fan error
Certifications	CE ANSI RIA R15.06-1999 EC Machinery Directive 2006/42/EC
Dimensions	380 x 350 x 180 mm
Price	Included in SCARA Light price

Front view

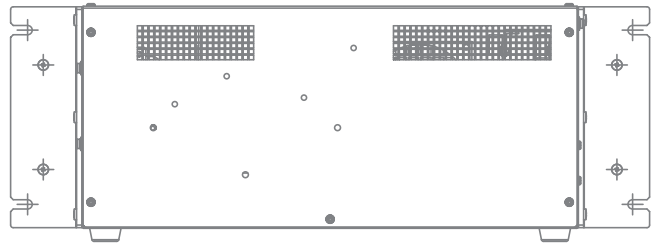## Top view

Side view

Rear view

If you are planning to send your system to the USA or Asia, you will generally require a NPN version RC90 Epson controller.
Please email info.rs@epson.de and note this on your order as controller retrofit is not possible.

About Epson

Epson robot systems. Accurate, fast and reliable

Our robots palletise, saw, mill, drill, grind, install, assemble and build together. They work with precision and at breathtaking speeds across a wide range of applications, often up to 24 hours a day.

Our product range includes one of the most comprehensive SCARA model ranges worldwide; 6-axis robots, controls and software.

Realise the full potential of your Epson Robot systems

We offer a comprehensive pre- and after-sales support programme as part of our service. This includes:

Feasibility studies for maximum planning and project security

Support during planning and implementation

Introductory seminars, programming/maintenance courses and operator training

Inspection and customised maintenance designs

Customer service telephone service and on-site repair service

Central spare part stocking

Epson Spider robot

The cost-effective miracle.
Due to its unique construction, the Epson Spider reaches every corner of its working area at unprecedented cycle times.

Epson SCARA robots

Available in over 400 versions, Epson SCARA robots are compact and powerful, delivering precise work even at high speeds.

Epson Robotic Solutions is one of the leading suppliers of high tech robot systems which is renowned worldwide for their reliability. The product range includes 6-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.

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 6-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
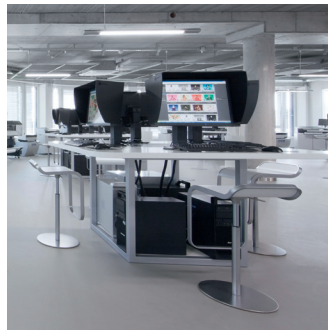
Epson controls

Maximum performance in the smallest of spaces. The Epson controllers are based on a robust, integrated system, and can control manipulators and peripheral devices.

Epson 6-axis robot

Flexibility through rotary-designed axes. Thanks to unprecedented point and path accuracy, complex work processes can be achieved with precision.

Epson Industrial Solutions Center – find your solution

Epson
Industrial
Solutions
Center

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

Call us on
+49 2159 538 1800

or send an email to
info.rs@epson.de

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Epson America Inc.
www.epsonrobots.com

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http://global.epson.com/products/robots/

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