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EXCEED YOUR VISION

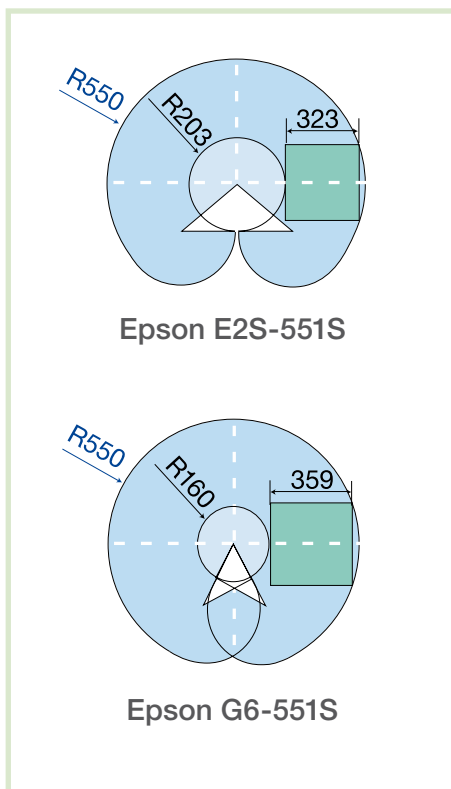
*Epson  
Robots* **G-Series**

The Epson G-series SCARA:  
Greater performance – higher productivity



# The Epson G-series SCARA: Greater performance – higher productivity

With the G-series, Epson introduces their latest SCARA generation to the market. At present, the complete range comprises of 168 versions with reaches of between 450 to 1,000 millimetres and a load capacity of up to 20 kg. Equipped with the Epson Smart-Motion Technology, the G-Scaras work much faster than their predecessors, offering significantly enlarged working range. All this is topped up with the usual high precision and reliability.



Comparison of the working ranges

The working range of the G-series is 23 % larger.

Next to a considerable improvement in the Z axis speed, the range of movement has also been increased again. The speed and the load capacity of the G-series robots has been increased by 20 to 100 percent compared to previous models. Thanks to the improved motor management, they are also able to carry out very fast operations accurately with greater extensions.

All robot arms of the G-series are available as standard, cleanroom class 10 / ISO 4<sup>(1)</sup> or IP54/65 configurations. Each model can be selected between a pedestal, wall or ceiling mount.

Together with the compact control system RC180 and the image processing Smart Vision, the G-series provides great performance and high ease of use.



<sup>(1)</sup> Class 10 according to US FED STD 209E (old), ISO 4 according to ISO 14644-1.

## Name syntax

		45		D
		55	1	DR
				DW
				S
				SR
G	6	65	3 or 4	SW
	10	85		P
	20	A0		PR
				PW
				C
				CR
				CW

Category      Reach  
1. + 2. Arm      Z-axis  
length      Version

= Example:  
payload up to 6kg,  
650mm reach,  
320mm Z-axis,  
Standard Wall mounting  
= **G6-653SW**



G6-653SW



G20-A04S

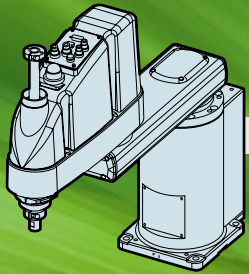


IP65-Version  
G10-854P

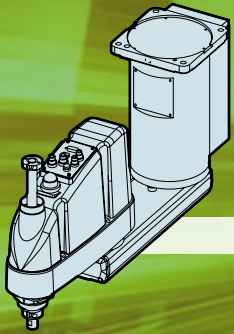
## G-Series

		G6	G10	G20
Payload (nom./max.)		3/6kg	5/10kg	10/20kg
Reach 1. + 2. Arm				
450mm	45	•	–	–
550mm	55	•	–	–
650mm	65	•	•	–
850mm	85	–	•	•
1.000mm	A0	–	–	•
Z-axis length <sup>(1)</sup>				
180mm	1	•	•	•
320mm	3	•	–	–
420mm	4	–	•	•
Versions				
Standard	S	•	•	•
Wall mount	W	•	•	•
Celling mount	R	•	•	•
Cleanroom/ESD	C	•	•	•
IP54	P	•	•	•
IP65	P	•	•	•

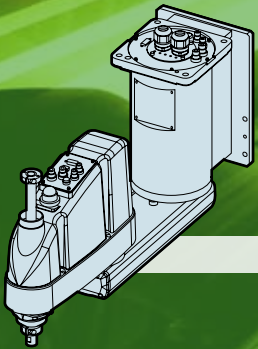
<sup>1)</sup> The usable Z-axis length is shortened by 30 mm for clean-room and IP54/IP65 machines.



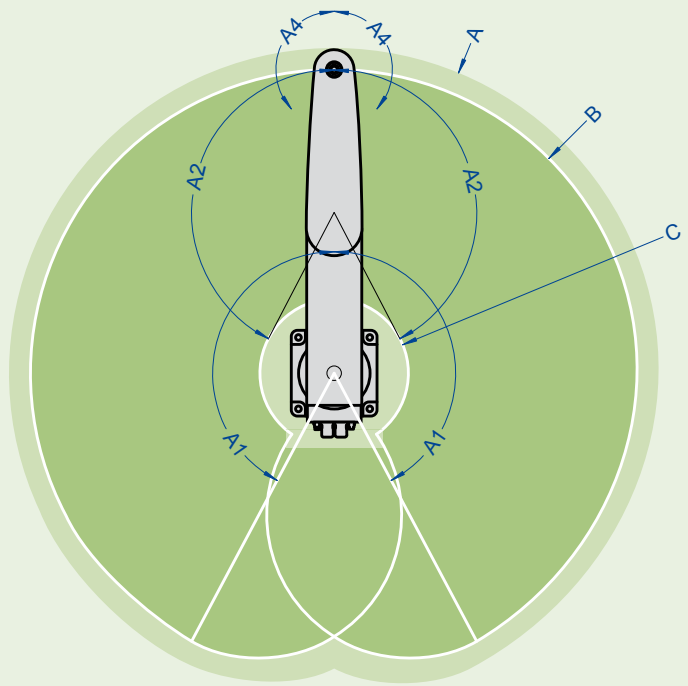
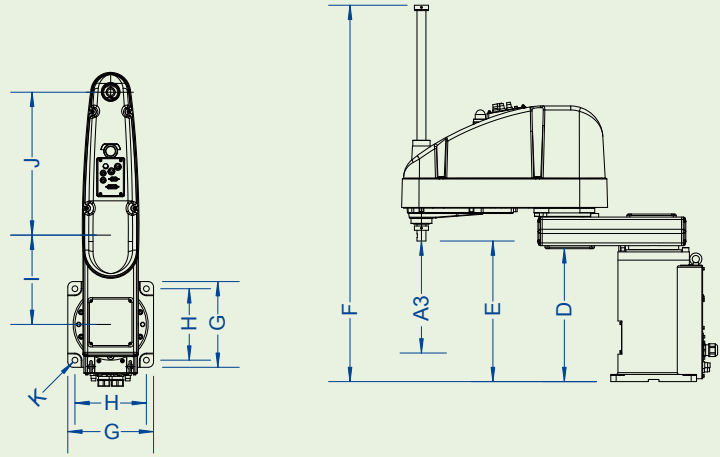
Pedestal mount



Ceiling mount



Wall mount



G6-553C

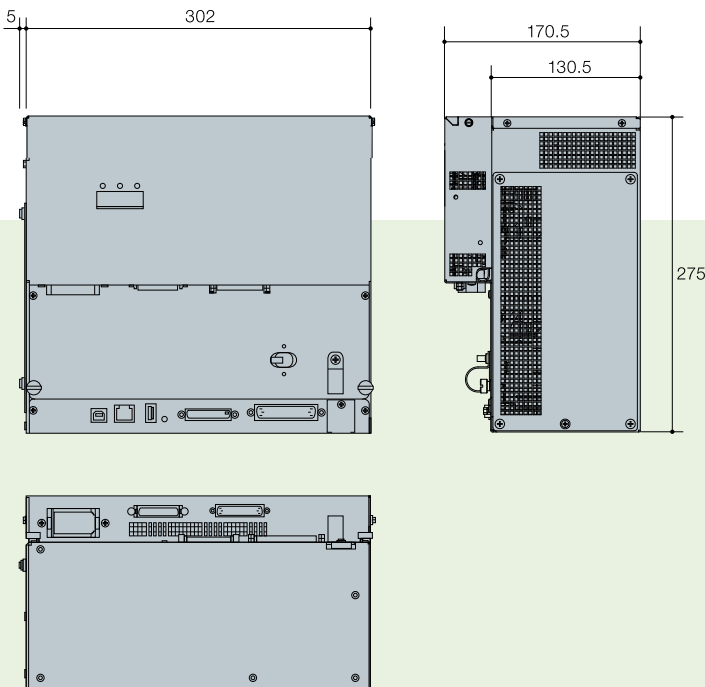
		G6-45x	G6-55x	G6-65x	G10-65x	G10-85x	G20-85x	G20-A0x
<b>Payload nom./max.</b>	(kg)	3/6			5/10		10/20	
<b>Reach</b>	(mm)	450	550	650	650	850	850	1,000
<b>Repeat accuracy +/-</b>								
<b>Axes 1+2</b>	(mm)	± 0.015			± 0.025		± 0.025	
<b>Axis 3</b>	(mm)	± 0.010			± 0.010		± 0.010	
<b>Axis 4</b>	(°)	± 0.005			± 0.005		± 0.005	
<b>Max. Speed +/-</b>								
<b>Axes 1+2</b>	(mm/s)	6,440	7,170	7,900	8,900	11,000	11,000	11,500
<b>Axis 3</b>	(mm/s)	1,100/2,350			1,100/2,350		1,100/2,350	
<b>Axis 4</b>	(°/s)	2,400			2,400		1,700	
<b>Moment of inertia nom./max.</b>	(kg m <sup>2</sup> )	0.01/0.12			0.02/0.25		0.05/0.45	
<b>Ø Z-Axis outer/inner</b>	(mm)	20/14			25/18		25/18	
<b>Insertion force Z-Axis <sup>(1)</sup></b>	(N)	150			250		250	
<b>Working area</b>								
<b>A</b>	(mm)	502	602	702	705.5	905.5	905.5	1,055.5
<b>B</b>	(mm)	450	550	650	650	850	850	1,000
<b>C</b>	(mm)	134.8	161.2	232	212.4	207.8	207.8	307
<b>A1</b>	(°)	± 152	± 152	± 152	± 152	± 152	± 152	± 152
<b>A2</b>	(°)	± 142	± 147.5	± 147.5	± 152.5	± 151	± 151	± 152.5
<b>Z-stroke</b>								
<b>A3</b>	(mm)	180 / 330 (150 / 300 for clean-room and IP54 / 65)			180 / 420 (150 / 390 for clean-room and IP54 / 65)		180 / 420 (150 / 390 for clean-room and IP54 / 65)	
<b>A4</b>	(°)	± 360			± 360		± 360	
<b>Dimensions</b>								
<b>D</b>	(mm)	309.5			372		372	
<b>E</b>	(mm)	299			393.5		393.5	
<b>F</b>	(mm)	684/834			813.5/1,053.5		813.5/1,053.5	
<b>G</b>	(mm)	180			240		240	
<b>H (hole centre distance)</b>	(mm)	150x150			200x200		200x200	
<b>I</b>	(mm)	200	300	400	250	450	450	600
<b>J</b>	(mm)	250			400		400	
<b>K</b>	(mm)	4-Ø11			4-Ø16		4-Ø16	
<b>Weight</b>								
Pedestal mount	(kg)	27	27	28	46	48	48	50
Ceiling mount	(kg)	27	27	28	46	48	48	50
Wall mount	(kg)	29	29	29.5	51	53	53	55
<b>User cabling</b>								
Electrical		24 wires ( 15 pin + 9 pin D-Sub)						
Pneumatic		4 (2x Ø 4mm und 2x Ø 6mm)						
<b>Ambient conditions</b>								
Temperature		5 – 40°C						
Humidity		10 – 80%, non-condensing						
<b>Design of Manipulator</b>								
Mounting		Pedestal mount, Ceiling mount, Wall mount						
Cleanroom & ESD		Cleanroom class 10 respectively ISO 4 <sup>(2)</sup>						
IP Protection class		Standard / IP54 / IP65						
<b>Security reference</b>		CE Declaration of Conformity, Safety Class 3						
<b>Controller</b>		Epson RC180						

<sup>1)</sup> Shorttime higher values are allowed. <sup>2)</sup> Class 10 US FED STD 209E (old), ISO 4 ISO 14644-1.

# Epson RC180 Robot control system

The Epson RC180 control system is small and compact featuring the diversity and reliability that is typical for products originating from Epson.

The programming of the Epson RC180 control system is intuitive and powerful. This is achieved by an external computer and programmes can therefore be created comfortably from your desktop. Furthermore, the control system offers full network capability – an ideal requirement for larger projects that are administered by several developers. The programming environment is available in German, English and French.



### Scope of delivery G-Series / RC180 Controller

- 1x Manipulator
- Power cable 3m
- Signal cable 3m
- Emergency-Off plug
- Dummy connector for optional device connection
- Plug for standard I/O 50-pin Sub-D
- Epson RC+ 5.x CD
- Safety manual
- Manuals on CD:
  - Controller system
  - Manipulator
  - Programming
  - User Guide

Dimensions (WxDxH in mm)	302 x 170.5 x 275
CPU	Intel Celeron, in stand-alone version
Memory	128 MB Flash RAM, 128 KB battery buffered SRAM
Programming environment	Epson RC+
Program language	Epson SPEL+
Program options	VB-Guide, Epson Vision
Inputs/outputs	24/16, expandable up to 152/144
Program	Max. 4MB Code, corresponds to approx. 200 K program steps
Points	Up to 1,000 points per point file
Interfaces	2x USB for connecting up a PC and USB stick, Ethernet, 24/16 Standard I/O. <i>Optional available:</i> RS-232C, Fieldbus-Slave (Profibus/CC-Link/Devicenet) Ethernet-IP, up to 152/144 I/O's upgradeable
Main connection	230/240 Volt , single phase
Consumption	1,300 VA, depending on the manipulator connected to it
Weight	7 kg
Ambient temperature	5–40 °C
Humidity	20 - 80%, non condensing

# Epson Smart Vision

Great solutions at fair prices. Whenever compact, flexible and cost effective solutions are required for product recognition, quality assurance or other “visual” tasks, the new vision system Epson Smart Vision for Epson RC180 controller shows its strenghts.

The Epson Smart Vision convinces through its simple operation, straightforward installation. Thanks to the seamless Vision Editor integration into the robot programming environment

and the powerful geometry tools, the programming is exceptionally intuitive. Two camera versions (stationary and mobile) provide the necessary freedom for the system conception.



	SC300 (Fixed Camera)	SC300M (Mobile Camera)
<b>Resolution (pixel)</b>	640 x 480	640 x 480
<b>Sensor Type</b>	¼" Progressive Scan with Square Pixels	¼" Progressive Scan with Square Pixels
<b>Lens Type</b>	CS Mount	CS Mount
<b>Mounting Options</b>	Fixed Camera	Mobile Camera (Mobile head for mounting on end of robot arm)
<b>Mobile Camera Head Cable</b>	NA	5 Meter (Camera Link)
<b>Communications Interface</b>	Ethernet 10/100	Ethernet 10/100
<b>Image Operation Tools</b>	Open, Close, Erode, Dilate, Sharpen, Smooth, Flip, etc.	Open, Close, Erode, Dilate, Sharpen, Smooth, Flip, etc.
<b>Vision Tools</b>	Geometric Search, Polar Search, Normalized Correlation, Blob Analysis, Edge Finder, etc.	Geometric Search, Polar Search, Normalized Correlation, Blob Analysis, Edge Finder, etc.
<b>Other Vision Tools</b>	Frames, Lines, Points, Histogram, Statistics ...	Frames, Lines, Points, Histogram, Statistics ...
<b>Robot/Camera Calibrations</b>	Mobile, Fixed Upward, Fixed Downward (all wizard based)	Mobile, Fixed Upward, Fixed Downward (all wizard based)
<b>Dimensions (mm)</b>	154.13 (L) x 48.26 (H) x 60.05 (W)	Main Body: 150.19 (L) x 51.31 (H) x 60.55 (W) Mobile Head: 44.25 (L) x 48.77 (H) x 68.17 (W)
<b>Weight (kg)</b>	0.435	Main Body: 0.435 Mobile Head: 0.185
<b>Ambient Temperature</b>	0 – 45 °C	0 – 45 °C
<b>Power Consumption</b>	375 mA @ 24V DC (9W typical)	375 mA @ 24V DC (9W typical)
<b>Connectors</b>	RJ45 for Power; RJ45 for Ethernet	RJ45 for Power; RJ45 for Ethernet
<b>Certifications</b>	FCC Class A; CE Class A; RoHS Compliant	FCC Class A; CE Class A; RoHS Compliant

EPSON DEUTSCHLAND GmbH  
Otto-Hahn-Straße 4  
40670 Meerbusch

Tel.: +49 (0) 2159 / 538 1391  
Fax: +49 (0) 2159 / 538 3170  
E-Mail: robot.infos@epson.de

[www.epson.de/robots](http://www.epson.de/robots)

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