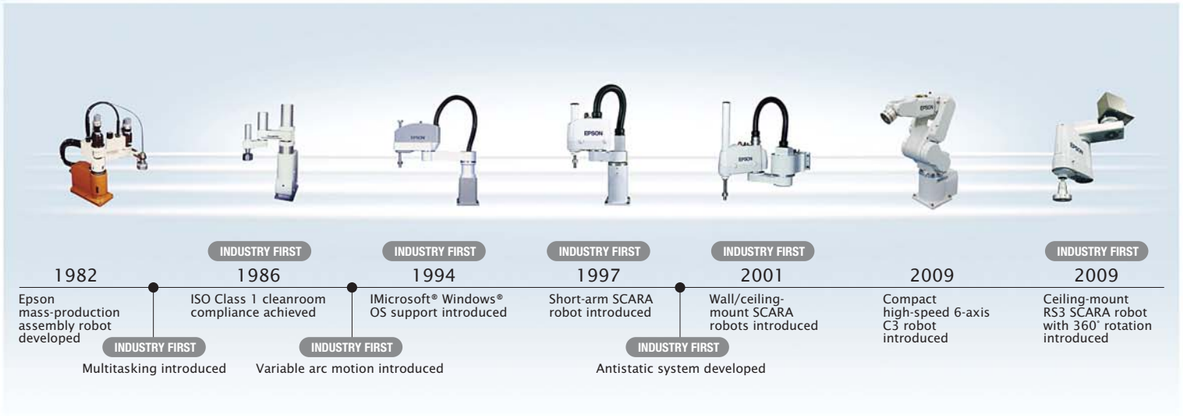
EPSON
EXCEED YOUR VISION

EPSON Robots Specifications Catalog

- SCARA Robots
- 6-Axis Robots
- Robot Controllers
- System Options

The Power of Choice

EPSON Robots – More Solutions, More Ease of Use, More Power of Choice



Epson Robots first came to the North and South American market back in 1984 as the EPSON Factory Automation group began to share it's expertise in high precision small parts assembly with other manufacturers on a worldwide basis. Originally created to support internal automation needs, EPSON Robots quickly became popular in many of the top manufacturing sites throughout the world. Over the past nearly 28+ years EPSON Robots has been leading the industry for small parts assembly applications and has introduced many industry firsts including PC based controls, compact SCARA robots, and much more.
Our focus is to build robots and automation products to help benefit the global manufacturing strategies put in place by many of the top worldwide manufacturers. EPSON Robots are now busy at work in thousands of manufacturing facilities throughout the world.

SCARA Robots

Look no further for your next SCARA robot as EPSON gives you more power of choice than ever before. With 200+ models available in sizes from 175 – 1,000 mm in reach and payloads up to 20kg, chances are that EPSON has the model and configuration you need for your next application.

G-Series SCARA Robots

G-Series robots feature Max-R, a new high rigidity arm design that achieves ultra-high speed, ultra-high precision and low vibration. This puts EPSON G-Series robots in the top of their class.

RS-Series SCARA Robots

RS-Series are the most unique and flexible SCARAs available in the market today. With the ability to cross back under as well as reach behind itself, RS-Series robots are able to utilize the entire workspace underneath the arm. As a result there is no lost space in the center of the work envelope. Enjoy all the benefits of a typical EPSON SCARA robot plus more!

LS-Series SCARA Robots

LS-Series SCARAs open up realms of opportunities for manufacturers searching for a reduced cost automation solution by offering high performance and great reliability our users have come to expect from EPSON but, at a lower cost. LS-Series SCARAs were created as the reduced cost solution for factories looking for maximum value without giving up performance.

6-Axis Robots

The SlimLine body and compact wrist pitch axis of EPSON's 6-axis robots enable greater motion range and less mechanical restrictions. These robots are able to easily reach into confined and restricted work spaces from many angles with smooth motion making C-Series and S-Series robots the most flexible 6-axis robots available in the market today.

C-Series and S-Series 6-Axis Robots – New Unique SlimLine Design

C-Series compact 6-axis robots lead the industry with best in class cycle time, precision and motion range. They are high speed, compact 6-axis robots that provide superior performance for even the most demanding and complex application.

S-Series 6-axis robots are high speed, mid range 6-axis robots with a small footprint and advanced flexibility. They are ideal for applications which require longer reach and heavier payloads.

SCARA Robots						6-Axis Robots			Robot controllers	System options
G series				LS series		RS series	C series	S series		
G1	G3	G6	G10/G20	LS3/LS6		RS3/RS4	C3	S5	RC620+ RC180 RC90	■Robot controller options ■Software options ■Robot manipulator options ■System option quick-reference table
03 T	03 T W/C	03 D P T W C	03 D P T W C	04 T		03 C	03 T W C	04 P T W C		
4-axis MAX1/3-axis 1.5Kg	MAX3Kg	MAX6Kg	MAX10/20Kg	MAX3/6Kg		MAX3/4Kg	MAX3Kg	MAX5Kg		
P5-6	P7-10	P11-14	P15-18	P19-22		P23-26	P27-28	P29-30	P31-32	P33-38

03 Clean type ISO 03 (Class 10 equiv.) ESD suppression

04 Clean type ISO 04 (Class 100 equiv.)

D Protected type IP54

P Protected type IP65

T Table Top mount

W Wall mount

C Ceiling mount

W/C Wall/ceiling multi-layout mount

The Power of Choices

G-Series SCARA Robots

Industry Leading Mini SCARA

- Arm Lengths from 175 to 225 mm
- Ultra Compact yet Extremely Powerful
- 3 Axis Models Available

Specifications

		4-axis		3- axis	
		G1-171*	G1-221*	G1-171*Z	G1-221*Z
Mounting type		Table Top		Table Top	
Arm length	Arm #1, #2	175 mm	225 mm	175 mm	225 mm
Max. operating speed	Joints #1, #2	2630 mm/s	3000 mm/s	2630 mm/s	3000 mm/s
	Joint #3	1200 mm/s		1200 mm/s	
	Joint #4	3000 deg/s		-	
Weight (cables not included)		8 kg		8 kg	
Repeatability	Joints #1, #2	±0.005 mm	±0.008 mm	±0.005 mm	±0.008 mm
	Joint #3	±0.01 mm		±0.01 mm	
	Joint #4	±0.01 deg		-	
Max. motion range	Joint #1	±125 deg		±125 deg	
	Joint #2 (Cleanroom model)	±140 deg (±140 deg)	±152 deg (±149 deg)	±135 deg (±123 deg)	±135 deg (±132 deg)
	Z stroke (Cleanroom model)	100 mm (80 mm)		100 mm (80 mm)	
	Joint #4	±360 deg		-	
Payload	Rated	0.5 kg		0.5 kg	
	Maximum	1 kg		1.5 kg	
Standard cycle time*1		0.29 sec	0.30 sec	0.29 sec	0.30 sec
Joint #4 allowable moment of inertia*2	Rated	0.0003 kg·m²		-	
	Maximum	0.004 kg·m²		-	
Motor power consumption	Joint #1	All joints: 50 W			
	Joint #2				
	Joint #3				
	Joint #4				
Joint #3 down force		50 N			
Electric lines		24Pin (D-Sub 9+D-sub 15)			
Pneumatic lines		Φ4mm×1, Φ6mm×2			
Installation environment		Standard/Cleanroom*3 &ESD			
Available controllers		RC180, RC620+			
Safety standards		CE compliant, ANSI/RIA15.06-1999			

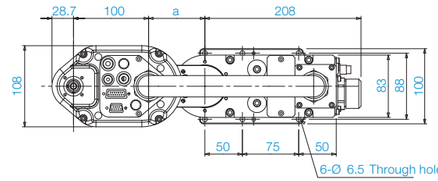
*1:Cycle time based on round-trip arch motion (100mm horizontal, 25mm vertical) with 0.5kg payload (path coordinates optimized for maximum speed).
*2:When payload center of gravity is aligned with Joint #4 ; if not aligned with Joint #4, set parameters using INERTIA command.
*3:Complies with ISO Class 3 (ISO14644-1) and older Class 10 (less than 10 0.1μm particles per 28,317cm³:1cft) cleanroom standards.

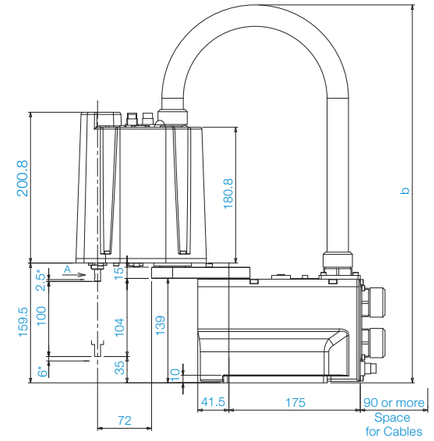
Outer Dimensions (Table Top Mounting)

G1-171 / G1-221

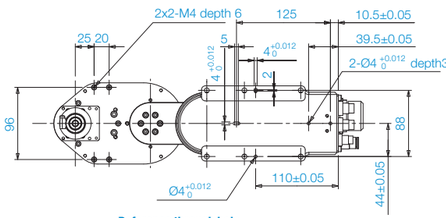
[Unit: mm]

Standard-model

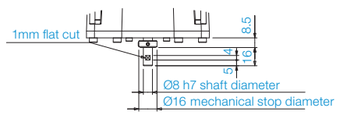




*indicates the stroke margin by mechanical stop.



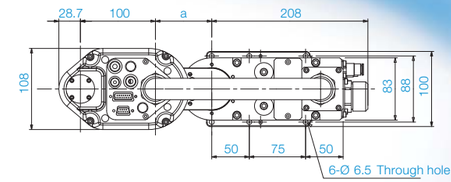
Reference through hole
(View from the bottom of the base)

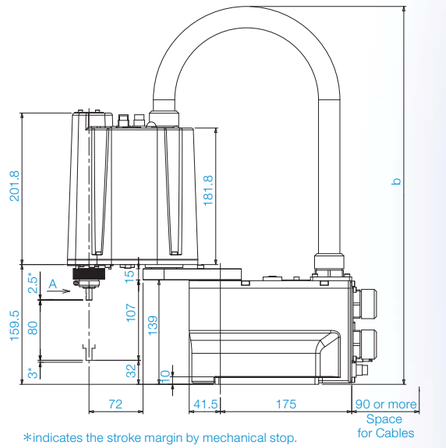


Detail of "A"
(Calibration point position of Joints #3 and #4)

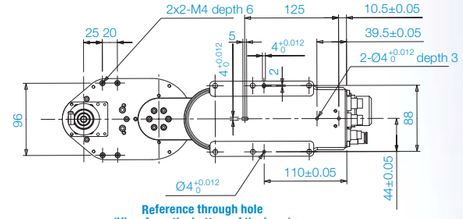
	G1_171S	G1_221S
a	75	125
b	Max.515	Max.545

Cleanroom-model

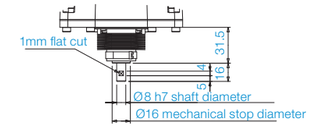




*indicates the stroke margin by mechanical stop.



Reference through hole
(View from the bottom of the base)

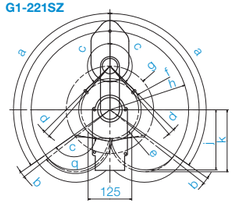


Detail of "A"
(Calibration point position of Joints #3 and #4)

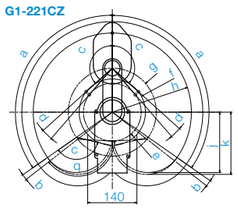
	G1_171CS	G1_221CS
a	75	125
b	Max.515	Max.545

Motion Range (Table Top Mounting)

G1-221SZ



G1-221CZ



Model	4-axis				3-axis			
	G1-171S	G1-171C	G1-221S	G1-221C	G1-171SZ	G1-171CZ	G1-221SZ	G1-221CZ
g Length of Arm #1 (mm)	75		125		75		125	
h-g Length of Arm #2 (mm)	100		100		100		100	
f Motion range	64.3		59.6	64.8	70.9	86.4	89.2	94.4
a Motion range of Joint #1 (deg)	125		125		125			
c Motion range of Joint #2 (deg)	140		152	149	135	123	135	132
e Mechanical stop area	60.4	62.6	52.8	56.2	69.2	82.5	82.2	
b Joint #1 angle to hit mechanical stop (deg)	3		3		3			
d Joint #2 angle to hit mechanical stop (deg)	3		4	5	1.3	3	4	7

G-Series SCARA Robots

Compact, Ultra Powerful and Low Cost

- Arm Lengths from 250 to 350 mm
- Leader in its Class for Both Cycle Time and Precision
- Best in Class Motion Range

Straight

Curved (R)/Curved (L)

Specifications

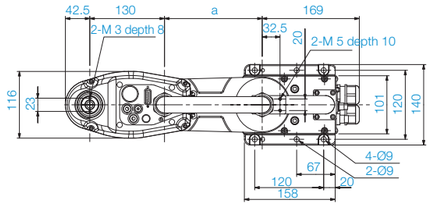
		G3-251*	G3-301**-*		G3-351**-*	
Mounting type		Table top	Table top	Multiple*1	Table top	Multiple*1
Arm length	Arm #1, #2	250 mm	300 mm		350 mm	
Max. operating speed	Joints #1, #2	3550 mm/s	3950 mm/s		4350 mm/s	
	Joints #3	1100 mm/s				
	Joints #4	3000 deg/s				
Weight (cables not included)		14 kg				
Repeatability	Joints #1, #2	±0.008 mm	±0.01 mm		±0.01 mm	
	Joints #3	±0.01 mm				
	Joints #4	±0.005 deg				
Max. motion range Straight	Joints #1	±140 deg	±140 deg	±115 deg	±140 deg	±120 deg
	Joints #2	±141 deg	±142 deg	±135 deg	±142deg	
	(Cleanroom model)	(±137 deg)	(±141 deg)	(±135 deg)	(±142deg)	
Curved	Joint #1 Right hand	—	-125～150 deg	—	-110～165 deg	-105～130 deg
	Left hand	—	-150～125 deg	—	-165～110 deg	-130～105 deg
	Joint #2 Right hand	—	-135～150 deg	—	-120～165 deg	-120～160 deg
	(Cleanroom model)		(-135～145 deg)		(-120～160 deg)	(-120～150 deg)
	Left hand	—	-150～135 deg	—	-165～120 deg	-160～120 deg
	(Cleanroom model)		(-145～135 deg)		(-160～120 deg)	(-150～120 deg)
Common	Joint #3	150 mm				
	(Cleanroom model)	(120 mm)				
	Joint #4	±360 deg				
Payload	Rated	1 kg				
	Maximum	3 kg				
Standard cycle time*2		0.36 sec	0.37 sec		0.37 sec	
Joint #4 allowable moment of inertia*3	Rated	0.005 kg·m²				
	Maximum	0.05 kg·m²				
Motor power consumption	Joint #1	200 W				
	Joint #2	150 W				
	Joint #3	150 W				
	Joint #4	150 W				
Joint #3 down force		150 N				
Electric lines		15Pin (D-Sub)				
Pneumatic lines		Φ4mm×1, Φ6mm×2				
Installation environment		Standard /Cleanroom*4 & ESD				
Available controllers		RC180, RC620+				
Safety standards		CE compliant, ANSI/RIA15.06-1999				

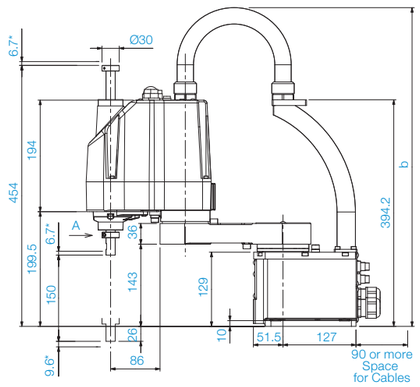
*1:Can be mounted on wall or ceiling.
*2:Cycle time based on round-trip arch motion (300mm horizontal, 25mm vertical) with 1kg payload (path coordinates optimized for maximum speed).
*3:When payload center of gravity is aligned with Joint #4 ; if not aligned with Joint #4, set parameters using INERTIA command.
*4:Complies with ISO Class 3 (ISO14644-1) and older Class 10 (less than 10 0.1μm particles per 28,317cm³:1cft) cleanroom standards.

Outer Dimensions (Table Top Mounting) G3-251 / G3-301 / G3-351

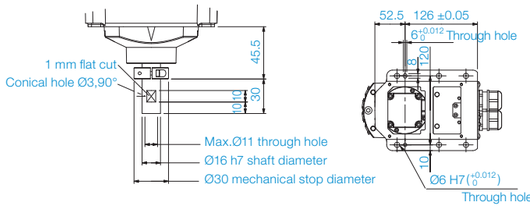
[Unit: mm]

Standard-model





*indicates the stroke margin by mechanical stop.

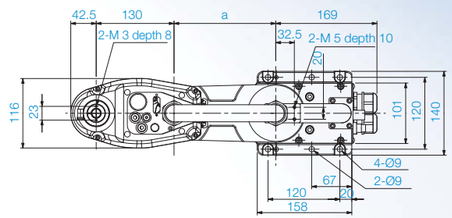


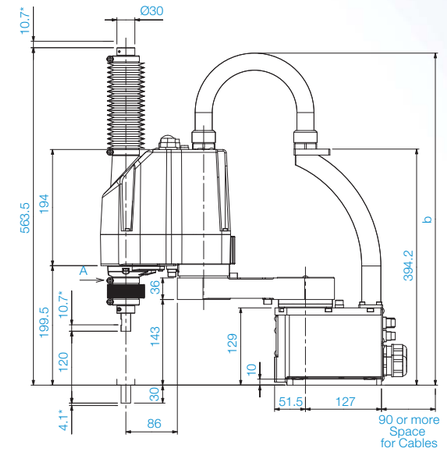
Detail of "A"
(Calibration point position of Joints #3 and #4)

Reference through hole
(View from the bottom of the base)

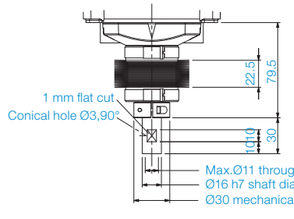
	G3_251S	G3_301S	G3_351S
a	120	170	220
b	Max.545	Max.575	Max.595

Cleanroom-model

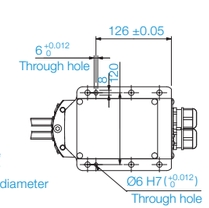




*indicates the stroke margin by mechanical stop.



Detail of "A"
(Calibration point position of Joints #3 and #4)



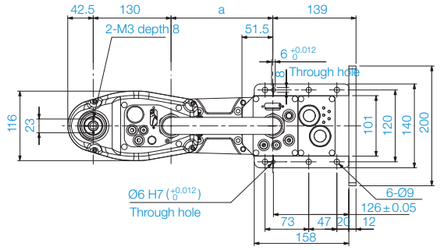
Reference through hole
(View from the bottom of the base)

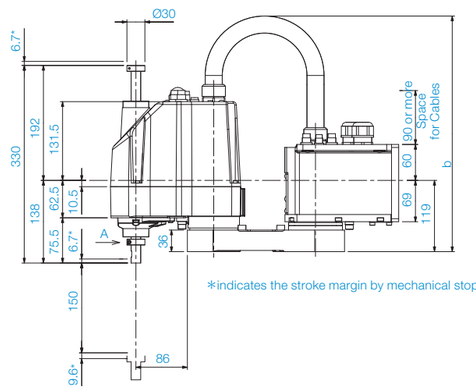
	G3_251C	G3_301C	G3_351C
a	120	170	220
b	Max.545	Max.575	Max.595

Outer Dimensions (Multiple Mounting)

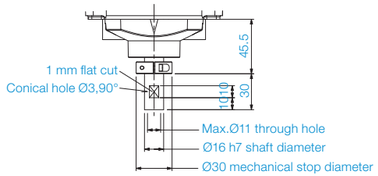
[Unit: mm]

Standard-model

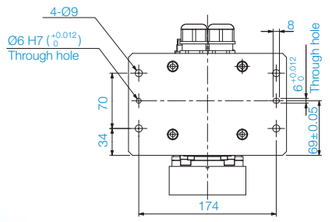




*indicates the stroke margin by mechanical stop.



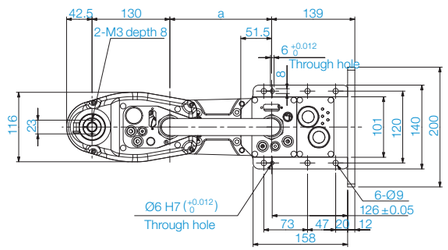
Detail of "A"
(Calibration point position of Joints #3 and #4)

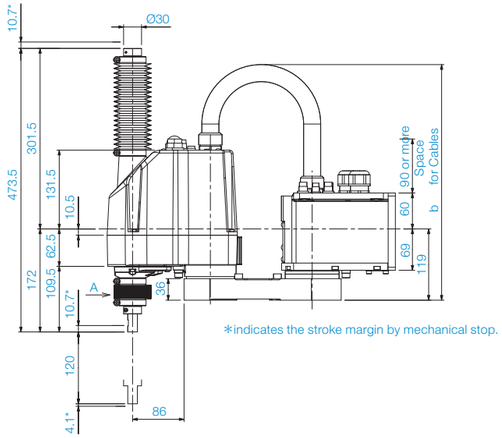


Reference through hole
(View from the bottom of the base)

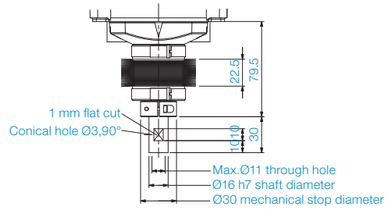
	G3_301SM	G3_351SM
a	170	220
b	Max.410	Max.450

Cleanroom-model

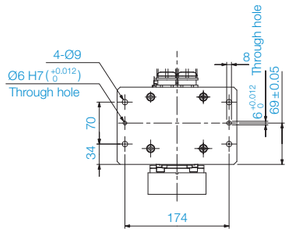




*indicates the stroke margin by mechanical stop.



Detail of "A"
(Calibration point position of Joints #3 and #4)



Reference through hole
(View from the bottom of the base)

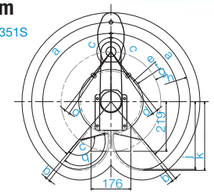
	G3_301CM	G3_351CM
a	170	220
b	Max.410	Max.450

Motion Range (Table Top Mounting)

[Unit: mm]

Straight Arm

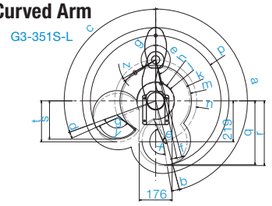
G3-351S



Model	Straight Arm					
	G3-251S	G3-251C	G3-301S	G3-301C	G3-351S	G3-351C
g Length of Arm #1 (mm)	120		170		220	
h-g Length of Arm #2 (mm)	130		130		130	
f Motion range	84	92	104.8	107.1	142.3	146.6
a Motion range of Joint #1 (deg)	140					
c Motion range of Joint #2 (deg)	141	137	142	141	142	
e Mechanical stop area	79.3		96.2		134.2	
b Joint #1 angle to hit mechanical stop (deg)	2					
d Joint #2 angle to hit mechanical stop (deg)	2.3	6.3	3.8	4.8	3.8	

Left-Curved Arm

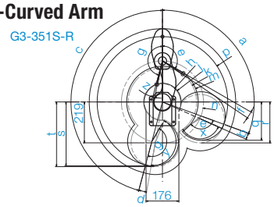
G3-351S-L



Model	Left-Curved Arm			
	G3-301S-L	G3-301C-L	G3-351S-L	G3-351C-L
n Length of Arm #1 (mm)	170		220	
p-n Length of Arm #2 (mm)	130		130	
m,j Motion range	120.7, 86.8		191.6, 100.3	191.6, 107.5
a,c Motion range of Joint #1 (deg)	150, 125		165, 110	
e,g Motion range of Joint #2 (deg)	150, 135	145, 135	165, 120	160, 120
h,k Mechanical stop area	79.5, 113.2		97.0, 183.0	97.0, 184.2
b,d Joint #1 angle to hit mechanical stop (deg)	3, 6		5, 4	
f,z Joint #2 angle to hit mechanical stop (deg)	3.3, -	8.3, 3.8	2.8, 3.8	7.8, 3.8

Right-Curved Arm

G3-351S-R



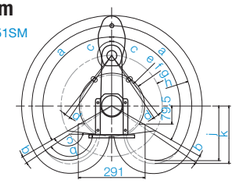
Model	Right-Curved Arm			
	G3-301S-R	G3-301C-R	G3-351S-R	G3-351C-R
n Length of Arm #1 (mm)	170		220	
p-n Length of Arm #2 (mm)	130		130	
m,j Motion range	120.7, 86.8		191.6, 100.3	191.6, 107.5
a,c Motion range of Joint #1 (deg)	125, 150		110, 165	
e,g Motion range of Joint #2 (deg)	135, 150	135, 145	120, 165	120, 160
h,k Mechanical stop area	79.5, 113.2		97.0, 183.0	97.0, 184.2
b,d Joint #1 angle to hit mechanical stop (deg)	6, 3		4, 5	
f,z Joint #2 angle to hit mechanical stop (deg)	3.3, -	3.3, 8.3	3.8, 2.8	3.8, 7.8

Motion Range (Multiple Mounting)

[Unit: mm]

Straight Arm

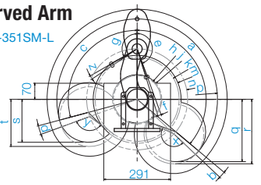
G3-351SM



Model	Straight Arm	
	G3-301SM/CM	G3-351SM/CM
g Length of Arm #1 (mm)	170	220
h-g Length of Arm #2 (mm)	130	130
f Motion range	120.7	142.3
a Motion range of Joint #1 (deg)	115	120
c Motion range of Joint #2 (deg)	135	142
e Mechanical stop area	112	134.2
b Joint #1 angle to hit mechanical stop (deg)	4	
d Joint #2 angle to hit mechanical stop (deg)	3.8	

Left-Curved Arm

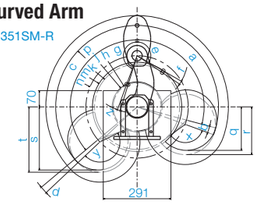
G3-351SM-L



Model	Left-Curved Arm	
	G3-351SM-L	G3-351CM-L
n Length of Arm #1 (mm)	220	
p-n Length of Arm #2 (mm)	130	
m,j Motion range	191.9, 107.5	191.9, 125.6
a,c Motion range of Joint #1 (deg)	130, 105	
e,g Motion range of Joint #2 (deg)	160, 120	150, 120
h,k Mechanical stop area	103.3, 183.0	
b,d Joint #1 angle to hit mechanical stop (deg)	3.3, 5	2, 5
f,z Joint #2 angle to hit mechanical stop (deg)	2.8, 3.8	12.8, 3.8

Right-Curved Arm

G3-351SM-R



Model	Right-Curved Arm	
	G3-351SM-R	G3-351CM-R
n Length of Arm #1 (mm)	220	
p-n Length of Arm #2 (mm)	130	
m,j Motion range	191.9, 107.5	191.9, 125.6
a,c Motion range of Joint #1 (deg)	105, 130	
e,g Motion range of Joint #2 (deg)	120, 160	120, 150
h,k Mechanical stop area	103.3, 183.0	
b,d Joint #1 angle to hit mechanical stop (deg)	5, 3.3	5, 2
f,z Joint #2 angle to hit mechanical stop (deg)	3.8, 2.8	3.8, 12.8

G6

G-Series SCARA Robots

Compact, High Speed and Powerful

- Arm Lengths from 450 to 650 mm
- High Rigidity Arm = Ultra High Speed
- Best in Class Motion Range

Specifications

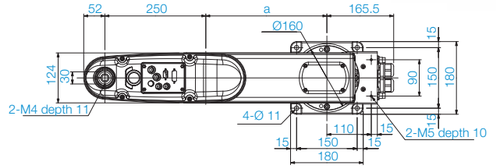
		G6-45**			G6-55***			G6-65***		
Mounting type		Table top	Ceiling	Wall	Table top	Ceiling	Wall	Table top	Ceiling	Wall
Arm length	**Arm #1, #2**	450 mm			550 mm			650 mm		
Max. operating speed	**Joints #1, #2**	6440 mm/s			7170 mm/s			7900 mm/s		
	Joint #3	G6-**1**=1100 mm/s / G6-**3**=2350 mm/s								
	Joint #4	2400 deg/s								
Weight (cables not included)		27 kg		29 kg	27 kg		29 kg	28 kg		29.5 kg
Repeatability	**Joints #1, #2**	±0.015 mm								
	Joint #3	±0.01 mm								
	Joint #4	±0.005 deg								
Max. motion range	**Joint #1**	±152 deg	±120 deg	±105 deg	±152 deg		±135 deg	±152 deg		±148 deg
	Joint #2	Z:0～-270 mm ±147.5 deg Z:-270～-330 mm ±145 deg	±130 deg		±147.5 deg					
	Joint #3	G6-**1**=180 mm / G6-**3**=330 mm (Environment specification is standard-model)								
		G6-**1**=180 mm / G6-**3**=300 mm (Environment specification is cleanroom or Protected-model)								
	Joint #4	±360 deg								
Payload	**Rated**	3 kg								
	Maximum	6 kg								
Standard cycle time*1		0.33 sec			0.36 sec			0.38 sec		
Joint #4 allowable moment of inertia*2	**Rated**	0.01 kg·m²								
	Maximum	0.12 kg·m²								
Motor power consumption	**Joint #1**	400 W								
	Joint #2	400 W								
	Joint #3	200 W								
	Joint #4	100 W								
Joint #3 down force		150 N								
Electric lines		15Pin (D-Sub), 9Pin (D-sub)								
Pneumatic lines		Φ4mm×2, Φ6mm×2								
Installation environment		Standard/Cleanroom*3&ESD/Protection*4								
Available controllers		RC180, RC620+								
Safety standards		CE compliant, ANSI/RIA15.06-1999								

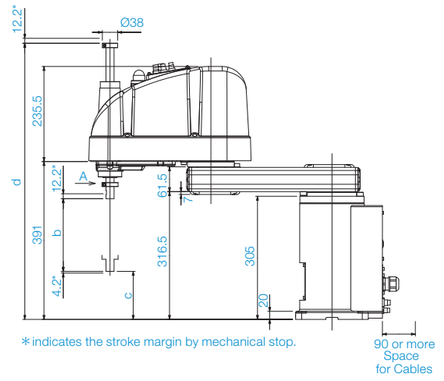
*1:Cycle time based on round-trip arch motion (300mm horizontal, 25mm vertical) with 1kg payload (path coordinates optimized for maximum speed).
*2:When payload center of gravity is aligned with Joint #4 ; if not aligned with Joint #4, set parameters using INERTIA command.
*3:Complies with ISO Class 3 (ISO14644-1) and older Class 10 (less than 10 0.1μm particles per 28,317cm³:1cft) cleanroom standards.
*4:G6-***D* protected type with optional bellows complies with IP54; G6-***P* complies with IP65.

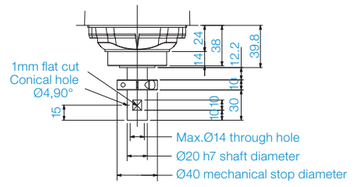
Outer Dimensions (Table Top Mounting) G6-45 / G6-55 / G6-65

[Unit: mm]

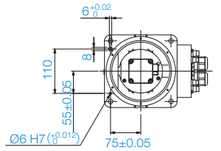
Standard-model







Detail of "A"
(Calibration point position of Joints #3 and #4)

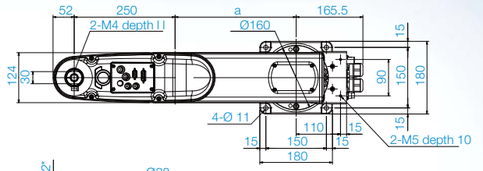


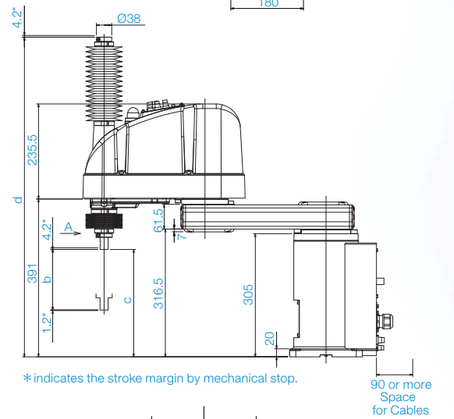
Reference through hole
(View from the bottom of the base)

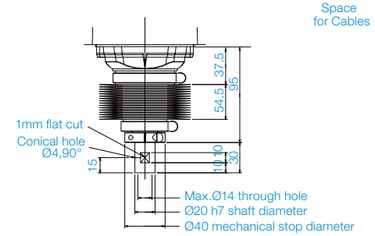
	G6-45*S	G6-55*S	G6-65*S
a	200	300	400

	G6-**1S	G6-**3S
b	180	330
c	119	-31
d	684	834

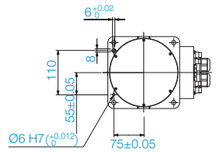
Cleanroom-model







Detail of "A"
(Calibration point position of Joints #3 and #4)

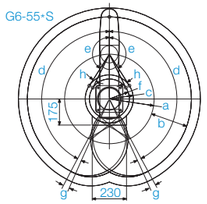


Reference through hole
(View from the bottom of the base)

	G6-45*C	G6-55*C	G6-65*C
a	200	300	400

	G6-**1C	G6-**3C
b	150	330
c	116	-34
d	792	942

Motion Range (Table Top Mounting)

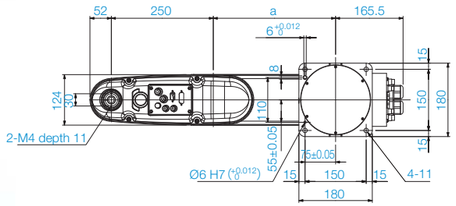


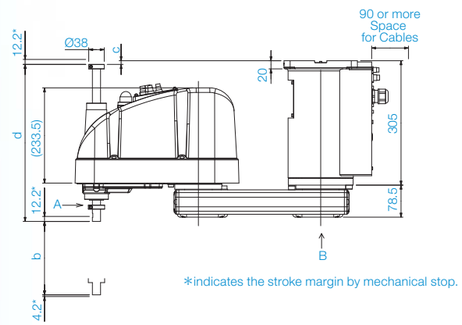
Model	Table Top Mounting					
	G6-45*S/D		G6-45*C/P/D bellows		G6-55**	G6-65*
a Length of Arm #1 (mm)	200				300	400
b Length of Arm #2 (mm)	250					
c Motion range	Z:0～-270	134.8	Z:0～-240	134.8	161.2	232
	Z:-270～-330	143.5	Z:-240～-300	153.9		
d Motion range of Joint #1 (deg)	152					
e Motion range of Joint #2 (deg)	Z:0～-270	147.5	Z:0～-240	147.5	147.5	
	Z:-270～-330	145	Z:-240～-300	142		
f Mechanical stop area	124.4				133.8	207.5
g Joint #1 angle to hit mechanical stop (deg)	3.5					
h Joint #1 angle to hit mechanical stop (deg)	Z:0～-270	3	Z:0～-240	3	6.3	
	Z:-270～-330	5.5	Z:-240～-300	8.5		

Outer Dimensions (Ceiling Mounting)

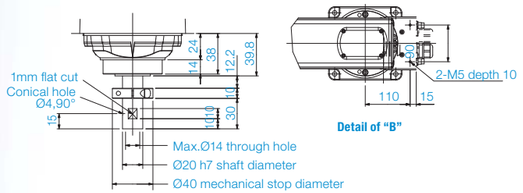
[Unit: mm]

Standard-model





*indicates the stroke margin by mechanical stop.



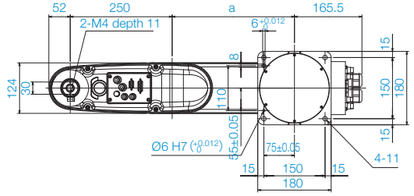
Detail of "A"
(Calibration point position of Joints #3 and #4)

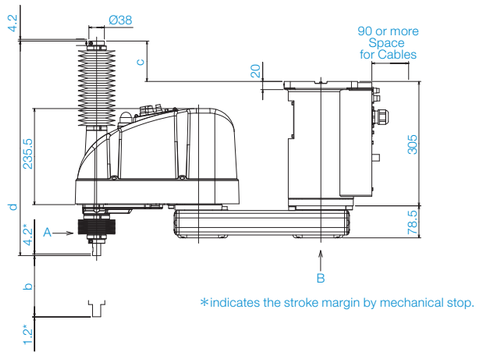
Detail of "B"

	G6-45*SR	G6-55*SR	G6-65*SR
a	200	300	400

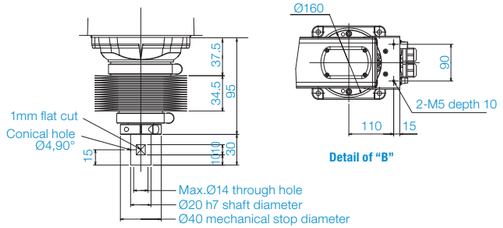
	G6-**1SR	G6-**3SR
b	180	330
c	-9	141
d	385	535

Cleanroom-model





*indicates the stroke margin by mechanical stop.



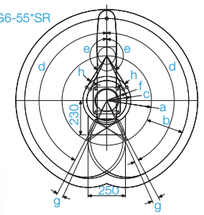
Detail of "A"
(Calibration point position of Joints #3 and #4)

Detail of "B"

	G6-45*CR	G6-55*CR	G6-65*CR
a	200	300	400

	G6-**1CR	G6-**3CR
b	150	300
c	99	249
d	526	676

Motion Range (Ceiling Mounting)

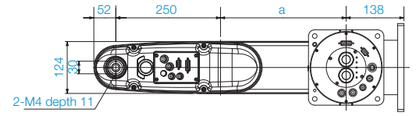


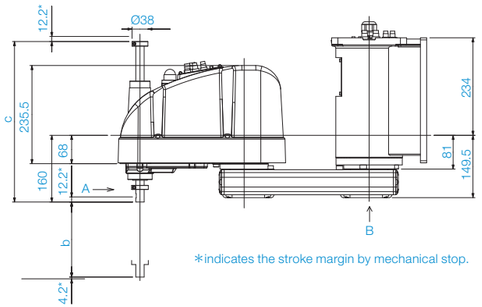
Model	Ceiling Mounting			
	G6-45**R	G6-55*SR/DR	G6-55*CR/PR/DR bellows	G6-65**R
a Length of Arm #1 (mm)	200	300		400
b Length of Arm #2 (mm)	250			
c Motion range	195.5	161.2	172.1	232
d Motion range of Joint #1 (deg)	120	152		
e Motion range of Joint #2 (deg)	130	147.5	145	147.5
f Mechanical stop area	182.4	146.8		207.5
g Joint #1 angle to hit mechanical stop (deg)	5.5	3.5		
h Joint #2 angle to hit mechanical stop (deg)	3.8	3.3	5.8	6.3

Outer Dimensions (Wall Mounting)

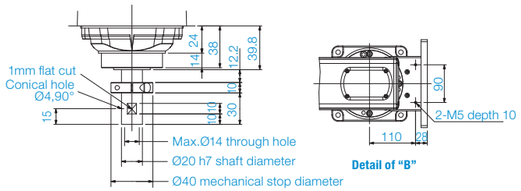
[Unit: mm]

Standard-model

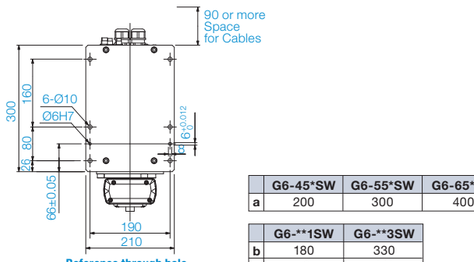




*indicates the stroke margin by mechanical stop.



Detail of "B"

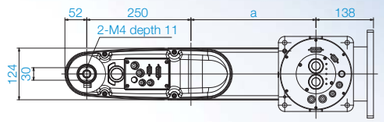


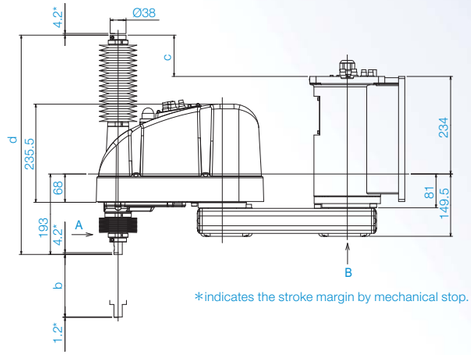
Reference through hole
(View from the bottom of the base)

	G6-45*SW	G6-55*SW	G6-65*SW
a	200	300	400

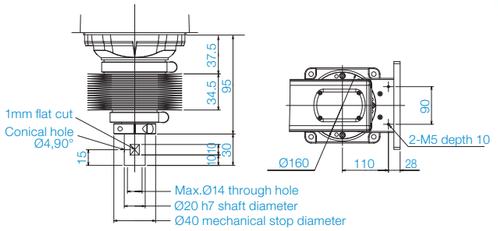
	G6-**1SW	G6-**3SW
b	180	330
c	-9	141
d	385	535

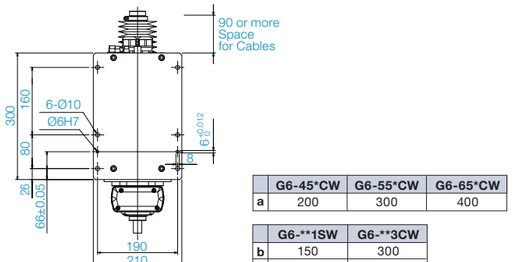
Cleanroom-model





*indicates the stroke margin by mechanical stop.



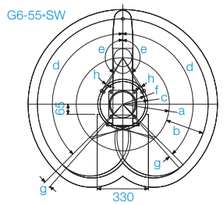


Reference through hole
(View from the bottom of the base)

	G6-45*CW	G6-55*CW	G6-65*CW
a	200	300	400

	G6-**1SW	G6-**3CW
b	150	300
c	99	249
d	526	676

Motion Range (Wall Mounting)



Model	Wall Mounting			
	G6-45**W	G6-55*SW/DW	G6-55*CW/PW/DW bellows	G6-65**W
a Length of Arm #1 (mm)	200	300		400
b Length of Arm #2 (mm)	250			
c Motion range	195.5	161.2	172.1	232
d Motion range of Joint #1 (deg)	105	135		148
e Motion range of Joint #2 (deg)	130	147.5	145	147.5
f Mechanical stop area	182.4	146.8		207.5
g Joint #1 angle to hit mechanical stop (deg)	3.5			7.5
h Joint #2 angle to hit mechanical stop (deg)	3.8	3.3	5.8	6.3

G10

High Rigidity = Ultra High Speed + Heavy Payload

- Arm Lengths from 650 to 850 mm
- Reduced Residual Vibration for Faster Accel/Decel Rates

G20

Long Reach and Heavy Payload

- Arm Lengths from 850 to 1,000 mm
- Monocoque Design Provides for Higher Rigidity Over Longer Lengths

Specifications

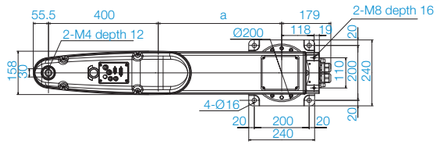
		G10-65**			G10/20-85***			G20-A0***		
Mounting type		Table top	Ceiling	Wall	Table top	Ceiling	Wall	Table top	Ceiling	Wall
Arm length	**Arm #1, #2**	650 mm			850 mm			1000 mm		
Max. operating speed	**Joints #1, #2**	8800 mm/s			11000 mm/s			11500 mm/s		
	Joint #3	G10/20-**1**=1100 mm/s /G10/20-**4**=2350 mm/s								
	Joint #4	2400 deg/s			G10=2400 deg/s /G20=1700 deg/s			1700 deg/s		
Weight (cables not included)		46 kg		51 kg	48 kg		53 kg	50 kg		55 kg
Repeatability	**Joints #1, #2**	±0.025 mm								
	Joint #3	±0.01 mm								
	Joint #4	±0.005 deg								
Max. motion range	**Joint #1**	±152 deg	±107 deg		±152 deg		±107 deg	±152 deg		±107 deg
	Joint #2	±152.5 deg	±130 deg		±152.5 deg(±122.5 deg)* deg(122.5 deg)*		*:bellow (Environment specification is cleanroom or Protected-model)	Z:-360 ～-390 G10/20**1** / G10/20**4**=±151		
	Joint #3	G10/20-**1**=180 mm / G10/20-**4**=420 mm (Environment specification is standard-model)								
		G10/20-**1**=150 mm / G10/20-**4**=390 mm (Environment specification is cleanroom or Protected-model)								
	Joint #4	±360 deg								
Payload	**Rated**	5 kg			G10=5 kg /G20=10kg			10 kg		
	Maximum	10 kg			G10=10 kg /G20=20kg			20 kg		
Standard cycle time *1		0.34 sec			0.37 sec			0.42 sec		
Joint #4 allowable moment of inertia*2	**Rated**	0.02 kg・m²			G10=0.02 kg・m²/G20=0.05 kg・m²			0.05 kg・m²		
	Maximum	0.25 kg・m²			G10=0.25 kg・m²/G20=0.45 kg・m²			0.45 kg・m²		
Motor power consumption	**Joint #1**	750 W								
	Joint #2	600 W								
	Joint #3	400 W								
	Joint #4	150 W								
Joint #3 down force		250 N								
Electric lines		15Pin (D-Sub), 9Pin (D-Sub)								
Pneumatic lines		Φ4mm×2, Φ6mm×2								
Installation environment		Standard/Cleanroom*3 & ESD/Protection*4								
Available controllers		RC180, RC620+								
Safety standards		CE compliant, ANSI/RIA15.06-1999								

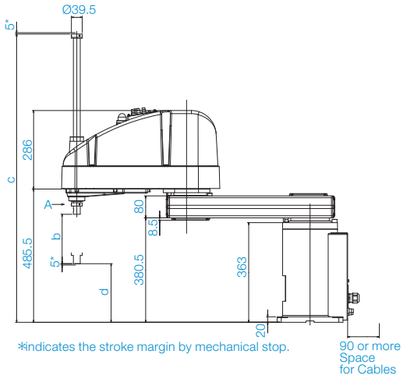
*1:Cycle time based on round-trip arch motion (300mm horizontal, 25mm vertical) with 2kg payload (path coordinates optimized for maximum speed).
*2:When payload center of gravity is aligned with Joint #4 ; if not aligned with Joint #4, set parameters using INERTIA command.
*3:Complies with ISO Class 3 (ISO14644-1) and older Class 10 (less than 10 0.1μm particles per 28,317cm³:1cft) cleanroom standards.
*4:G10-***D* with optional bellows complies with IP54; G10-***P* complies with IP65.

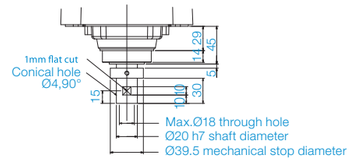
Outer Dimensions (Table Top Mounting) G10-65 / G10/20-85 / G20-A0

[Unit: mm]

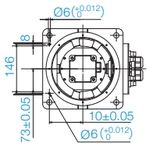
Standard-model







Detail of "A"
(Calibration point position of Joints #3 and #4)

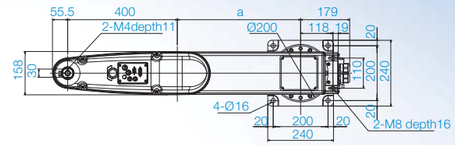


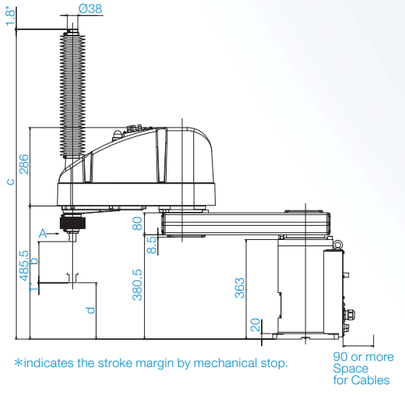
Reference through hole
(View from the bottom of the base)

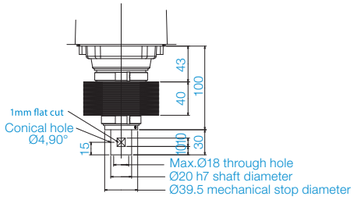
	G10-65*S	G10/G20-85*S	G20-A0*S
a	250	450	600

	G10/G20-**1S	G10/G20-**4S
b	180	420
c	813.5	1053.5
d	213.5	-26.5

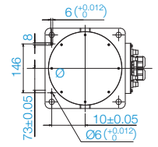
Cleanroom-model







Detail of "A"
(Calibration point position of Joints #3 and #4)

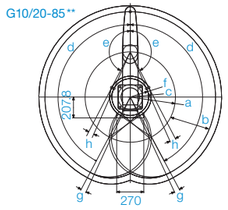


Reference through hole
(View from the bottom of the base)

	G10-65*C	G10/G20-85*C	G20-A0*C
a	250	450	600

	G10/G20-**1C	G10/G20-**4C
b	150	390
c	870.5	1129.5
d	205.5	-34.5

Motion Range (Table Top Mounting)

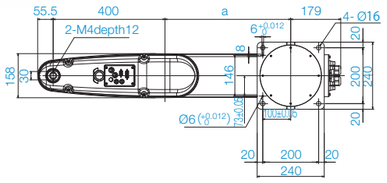


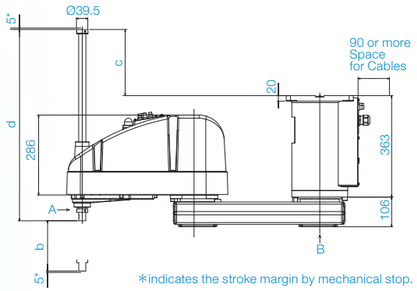
Model	Table Top Mounting				
	G10-65**	G10/20-85*			G20-A0
		S/D		C/P/D bellows	
a Length of Arm #1 (mm)	250	450			600
b Length of Arm #2 (mm)	400	400			400
c Motion range	212.4	207.8	Z:0～-360	207.8	307
			Z:-360 ～-390	218.3	
d Motion range of Joint #1 (deg)	152	152			152
e Motion range of Joint #2 (deg)	152.5	152.5	Z:0～-360	152.5	152.5
			Z:-360 ～-390	151	
f Mechanical stop area	199.4	183.3			285.4
g Joint #1 angle to hit mechanical stop (deg)	3	3			3
h Joint #1 angle to hit mechanical stop (deg)	3.5	3.5	Z:0～-360	3.5	3.5
			Z:-360 ～-390	5	

Outer Dimensions (Ceiling Mounting)

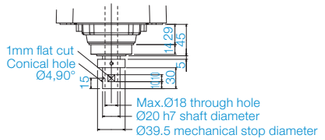
[Unit: mm]

Standard-model

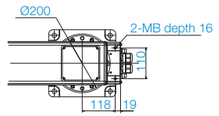




∗indicates the stroke margin by mechanical stop.



Detail of "A"
(Calibration point position of Joints #3 and #4)

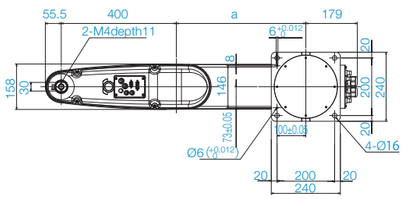


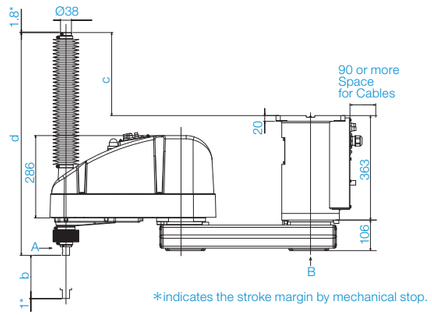
Detail of "B"

	G10-65*SR	G10/G20-85*SR	G20-A0*SR
a	250	450	600

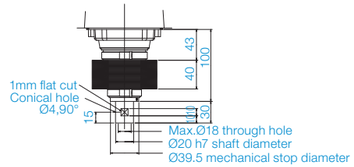
	G10/G20-**1SR	G10/G20-**4SR
b	180	420
c	-27.5	212.5
d	420	660

Cleanroom-model

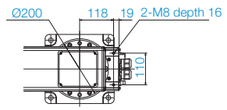




∗indicates the stroke margin by mechanical stop.



Detail of "A"
(Calibration point position of Joints #3 and #4)

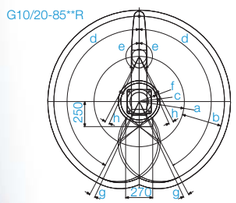


Detail of "B"

	G10-65*CR	G10/G20-85*CR	G20-A0*CR
a	250	450	600

	G10/G20-**1CR	G10/G20-**4CR
b	150	390
c	29.5	288.5
d	515	774

Motion Range (Ceiling Mounting)

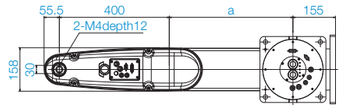


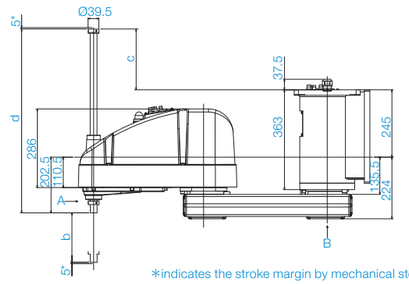
Model	Ceiling Mounting			
	G10-65**R	G10/20-85*		G20-A0**W
		SR/DR	CR/PR/DR bellows	
a Length of Arm #1 (mm)	250	450		600
b Length of Arm #2 (mm)	400	400		400
c Motion range	306.5	207.8	218.3	307
d Motion range of Joint #1 (deg)	107	152		152
e Motion range of Joint #2 (deg)	130	152.5	151	152.5
f Mechanical stop area	291.2	183.3		285.4
g Joint #1 angle to hit mechanical stop (deg)	3	3		3
h Joint #2 angle to hit mechanical stop (deg)	3.5	3.5	5	3.5

Outer Dimensions (Wall Mounting)

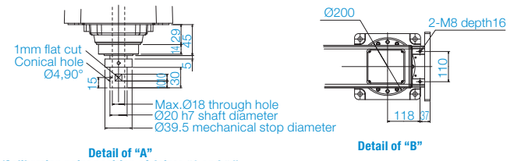
[Unit: mm]

Standard-model



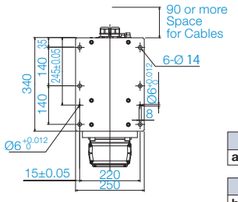


∗indicates the stroke margin by mechanical stop.



Detail of "A"
(Calibration point position of Joints #3 and #4)

Detail of "B"

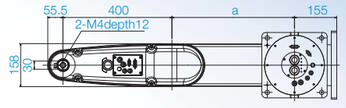


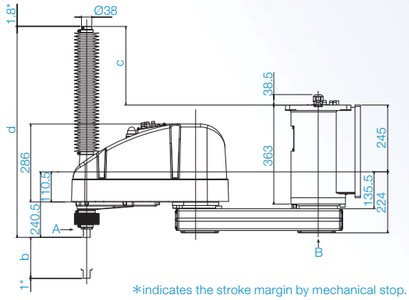
Reference through hole
(View from the bottom of the base)

	G10-65*SW	G10/G20-85*SW	G20-A0*SW
a	250	450	600

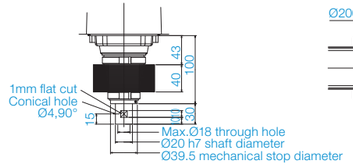
	G10/G20-**1SW	G10/G20-**4SW
b	180	420
c	-27.5	212.5
d	420	660

Cleanroom-model



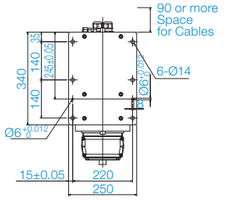


∗indicates the stroke margin by mechanical stop.



Detail of "A"
(Calibration point position of Joints #3 and #4)

Detail of "B"

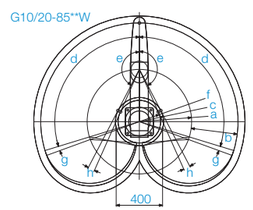


Reference through hole
(View from the bottom of the base)

	G10-65*CW	G10/G20-85*CW	G20-A0*CW
a	250	450	600

	G10/G20-**1CW	G10/G20-**4CW
b	150	390
c	29.5	288.5
d	515	774

Motion Range (Wall Mounting)



Model	Wall Mounting			
	G10-65**W	G10/20-85*		G20-A0**W
		SW/DW	CW/PW/DW bellows	
a Length of Arm #1 (mm)	250	450		600
b Length of Arm #2 (mm)	400	400		400
c Motion range	306.5	207.8	218.3	307
d Motion range of Joint #1 (deg)	107	107		107
e Motion range of Joint #2 (deg)	130	152.5	151	152.5
f Mechanical stop area	291.2	183.3		285.4
g Joint #1 angle to hit mechanical stop (deg)	3	3		3
h Joint #2 angle to hit mechanical stop (deg)	3.5	3.5	5	3.5

The Power of Choice

LS3

LS-Series SCARA Robots

Fast, Compact and Low Cost

- Arm Length 400 mm
- Compact Footprint Robot
- High Performance at a Low Cost

Specifications

		LS3-401*
Mounting type		Table Top
Arm length	Arm #1, #2	400 mm
Max. operating speed	Joints #1, #2	6000 mm/s
	Joint #3	1100 mm/s
	Joint #4	2600 deg/s
Weight (cables not included)		14 kg
Repeatability	Joints #1, #2	±0.01 mm
	Joint #3	±0.01 mm
	Joint #4	±0.01 deg
Max. motion range	Joint #1	±132 deg
	Joint #2	±141 deg
	Joint #3 (Cleanroom model)	150 mm (120 mm)
	Joint #4	±360 deg
Payload	Rated	1 kg
	Maximum	3 kg
Standard cycle time*1		0.42 sec
Joint #4 allowable moment of inertia*2	Rated	0.005 kg·m2
	Maximum	0.05 kg·m2
Motor power consumption	Joint #1	200 W
	Joint #2	100 W
	Joint #3	100 W
	Joint #4	100 W
Joint #3 down force		100 N
Electric lines		15Pin (D-Sub)
Pneumatic lines		Φ4mm×1, Φ6mm×2
Installation environment		Standard /Cleanroom*3
Available controllers		RC90
Safety standards		CE compliant, ANSI/RIA15.06-1999

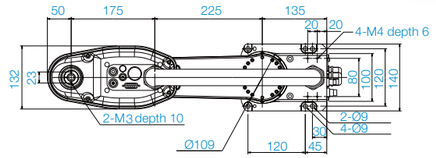
*1:Cycle time based on round-trip arch motion (300mm horizontal, 25mm vertical) with 1kg payload (path coordinates optimized for maximum speed).
*2:When payload center of gravity is aligned with Joint #4 ; if not aligned with Joint #4, set parameters using INERTIA command.
*3:Complies with ISO Class 4 cleanroom standards.

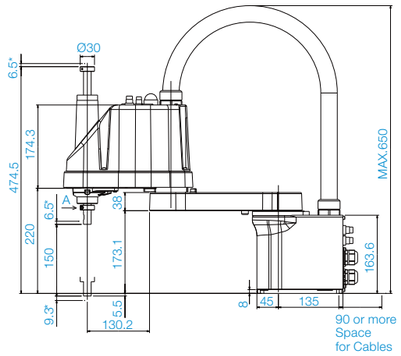
Outer Dimensions (Table Top Mounting)

LS3-401

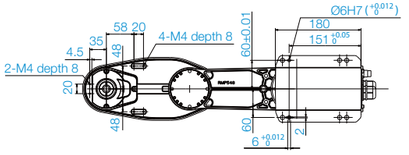
[Unit: mm]

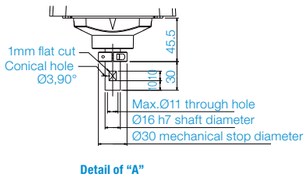
Standard-model





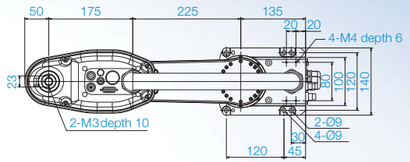
*indicates the stroke margin by mechanical stop.

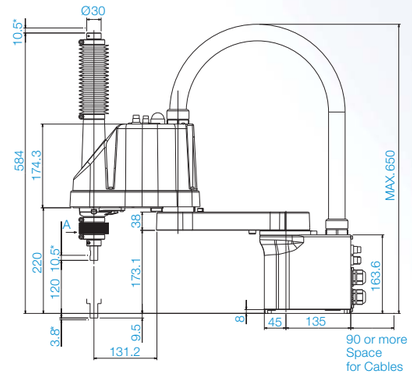




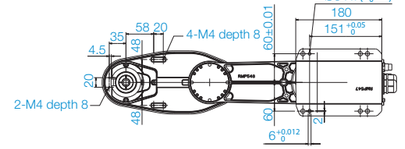
Detail of "A"

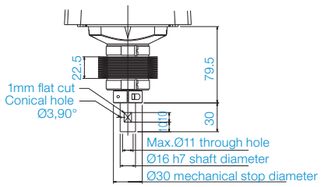
Cleanroom-model





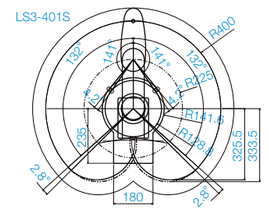
*indicates the stroke margin by mechanical stop.

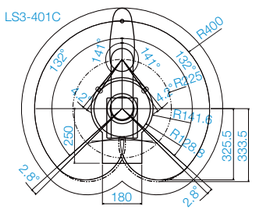




Detail of "A"

Motion Range (Table Top Mounting)





The Power of Choice

LS6

LS-Series SCARA Robots

Low Cost and High Performance

- Arm Length 600 mm
- Industry Leading Ease of Use
- High Performance at a Low Cost

Specifications

		LS6-602*
Mounting type		Table Top
Arm length	Arm #1, #2	600 mm
Max. operating speed	Joints #1, #2	6800 mm/s
	Joint #3	1100 mm/s
	Joint #4	2000 deg/s
Weight (cables not included)		17 kg
Repeatability	Joints #1, #2	±0.02 mm
	Joint #3	±0.01 mm
	Joint #4	±0.01 deg
Max. motion range	Joint #1	±132 deg
	Joint #2	±150 deg
	Joint #3 (Cleanroom model)	200 mm (170 mm)
	Joint #4	±360 deg
Payload	Rated	2 kg
	Maximum	6 kg
Standard cycle time*1		0.39 sec
Joint #4 allowable moment of inertia*2	Rated	0.01 kg·m²
	Maximum	0.12 kg·m²
Motor power consumption	Joint #1	200 W
	Joint #2	200 W
	Joint #3	100 W
	Joint #4	100 W
Joint #3 down force		100 N
Electric lines		15Pin (D-Sub)
Pneumatic lines		Φ4mm×1, Φ6mm×2
Installation environment		Standard /Cleanroom*3
Available controller		RC90
Safety standards		CE compliant, ANSI/RIA15.06-1999

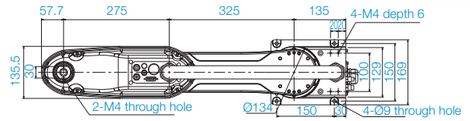
*1:Cycle time based on round-trip arch motion (300mm horizontal, 25mm vertical) with 1kg payload (path coordinates optimized for maximum speed).
*2:When payload center of gravity is aligned with Joint #4 ; if not aligned with Joint #4, set parameters using INERTIA command.
*3:Complies with ISO Class 4 cleanroom standards.

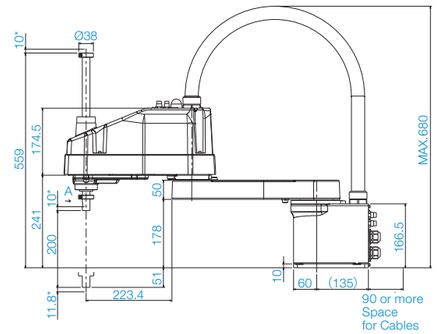
Outer Dimensions (Table Top Mounting)

LS6-602

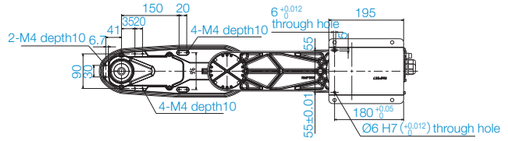
[Unit: mm]

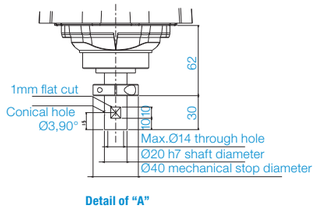
Standard-model





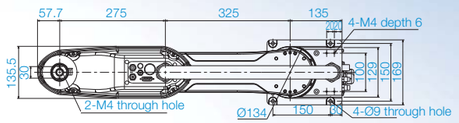
*indicates the stroke margin by mechanical stop.

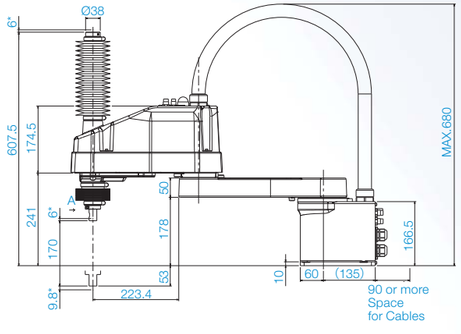




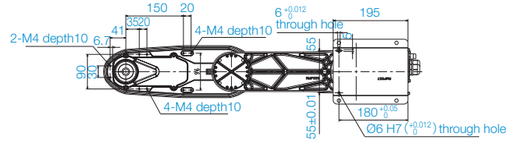
Detail of "A"

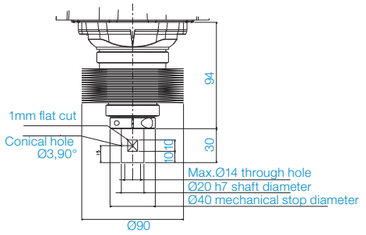
Cleanroom-model





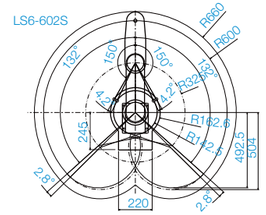
*indicates the stroke margin by mechanical stop.

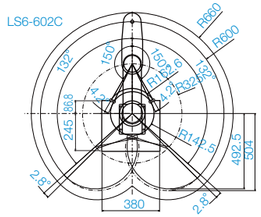




Detail of "A"

Motion Range (Table Top Mounting)





EPSON

The Power of Choices

RS3

RS-Series SCARA Robots

High Performance SCARA Plus

- Arm Length 350 mm
- New, Unique Work Space Design
- Industry Leading Work Envelope Usage

Specifications

		RS3-351*
Mounting type		Ceiling
Arm length	Arm #1, #2	350 mm
Max. operating speed	Joints #1, #2	6237 mm/s
	Joint #3	1100 mm/s
	Joint #4	2600 deg/s
Weight (cables not included)		17 kg
Repeatability	Joints #1, #2	±0.01 mm
	Joint #3	±0.01 mm
	Joint #4	±0.01 deg
Max. motion range	Joint #1	±225 deg
	Joint #2	±225 deg
	Joint #3 (Cleanroom model)	130 mm (100 mm)
	Joint #4	±720 deg
Payload	Rated	1 kg
	Maximum	3 kg
Standard cycle time*1		0.34 sec
Joint #4 allowable moment of inertia*2	Rated	0.005 kg·m²
	Maximum	0.05 kg·m²
Motor power consumption	Joint #1	400 W
	Joint #2	200 W
	Joint #3	150 W
	Joint #4	100 W
Joint #3 down force		150 N
Electric lines		15Pin (D-Sub)
Pneumatic lines		Φ4mm×1, Φ6mm×2
Installation environment		Standard/Cleamroom*3&ESD
Available controllers		RC180, RC620+
Safety standards		CE compliant, ANSI/RIA15.06-1999

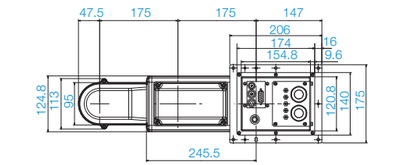
*1:Cycle time based on round-trip arch motion (300mm horizontal, 25mm vertical) with 1kg payload (path coordinates optimized for maximum speed).
*2:When payload center of gravity is aligned with Joint #4 ; if not aligned with Joint #4, set parameters using INERTIA command.
*3:Complies with ISO Class 3 (ISO14644-1) and older Class 10 (less than 10 0.1μm particles per 28,317cm³:1cft) cleanroom standards.

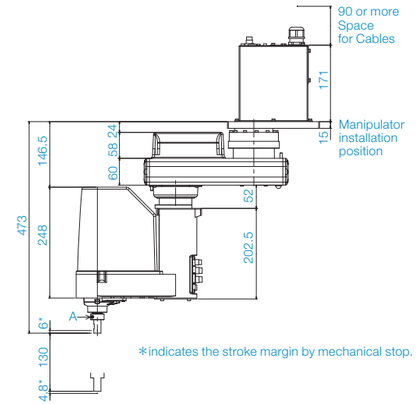
Outer Dimensions (Ceiling Mounting)

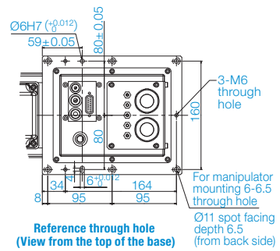
RS3-351

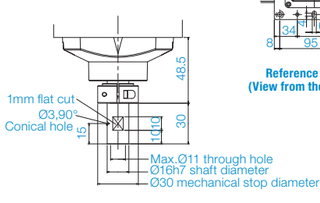
[Unit: mm]

Standard-model



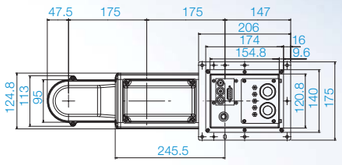


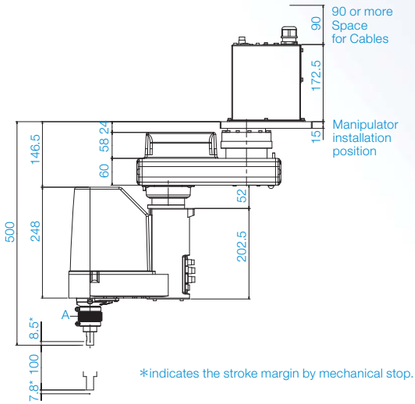


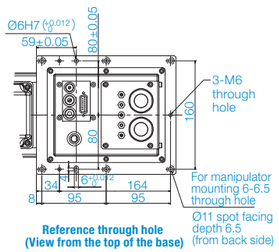


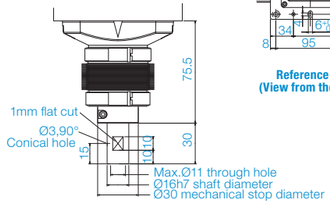
Detail of "A"
(Calibration point position of Joints #3 and #4)

Cleanroom-model



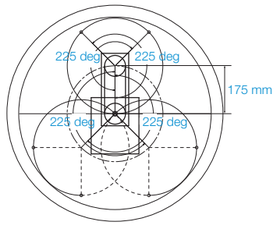






Detail of "A"
(Calibration point position of Joints #3 and #4)

Motion Range (Ceiling Mounting)



Model	RS3-351*
Arm #1 Length (mm)	175
Arm #2 Length (mm)	175
Joint #1 Motion range (deg)	±225
Joint #2 Motion range (deg)	±225

RS4

RS-Series SCARA Robots

Industry Leading Work Space Design

- Arm Length 550 mm
- Superior Cycle Throughout
- Extremely Flexible for Cell or Line Assembly

Specifications

		RS4-551*
Mounting type		Ceiling
Arm length	Arm #1, #2	550 mm
Max. operating speed	Joints #1, #2	7400 mm/s
	Joint #3	1100 mm/s
	Joint #4	2600 deg/s
Weight (cables not included)		19 kg
Repeatability	Joints #1, #2	±0.015 mm
	Joint #3	±0.01 mm
	Joint #4	±0.01 deg
Max. motion range	Joint #1	±225 deg
	Joint #2	±225 deg
	Joint #3 (Cleanroom model)	130 mm (100 mm)
	Joint #4	±720 deg
Payload	Rated	1 kg
	Maximum	4 kg
Standard cycle time*1		0.39 sec
Joint #4 allowable moment of inertia*2	Rated	0.005 kg•m2
	Maximum	0.05 kg•m2
Motor power consumption	Joint #1	400 W
	Joint #2	400 W
	Joint #3	150 W
	Joint #4	100 W
Joint #3 down force		150 N
Electric lines		15Pin (D-Sub)
Pneumatic lines		Φ4mm×1, Φ6mm×2
Installation environment		Standard/Cleanroom*3 &ESD
Available controllers		RC180, RC620+
Safety standards		CE compliant, ANSI/RIA15.06-1999

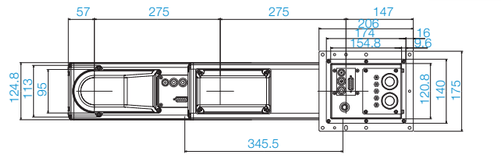
*1:Cycle time based on round-trip arch motion (300mm horizontal, 25mm vertical) with 1kg payload (path coordinates optimized for maximum speed).
*2:When payload center of gravity is aligned with Joint #4 ; if not aligned with Joint #4, set parameters using INERTIA command.
*3:Complies with ISO Class 3 (ISO14644-1) and older Class 10 (less than 10 0.1μm particles per 28,317cm³:1cft) cleanroom standards.

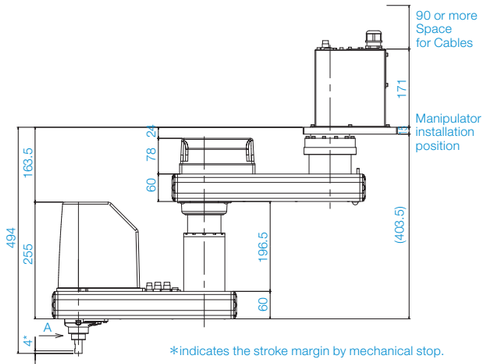
Outer Dimensions (Ceiling Mounting)

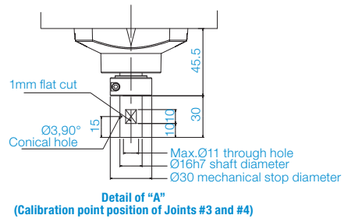
RS4-551

[Unit: mm]

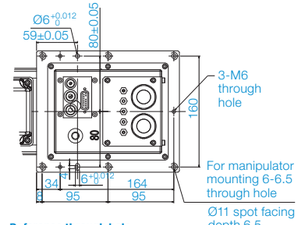
Standard-model





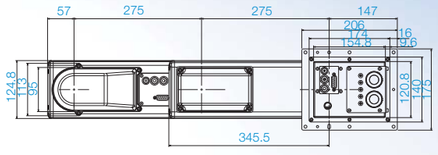


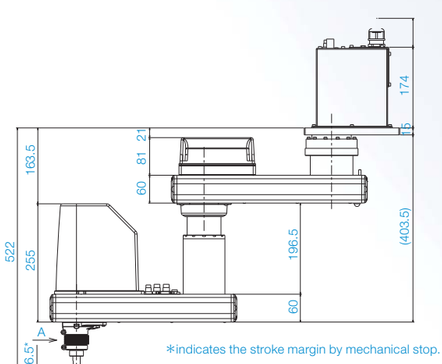
Detail of "A"
(Calibration point position of Joints #3 and #4)

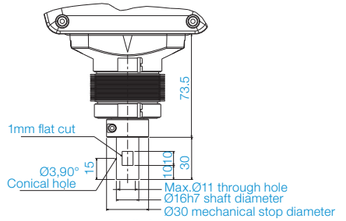


Reference through hole
(View from the top of the base)

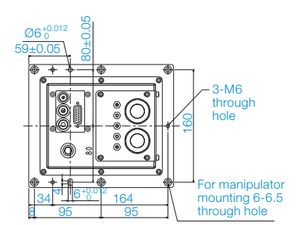
Cleanroom-model





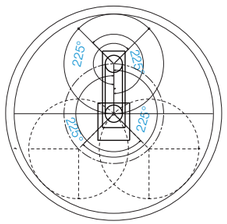


Detail of "A"
(Calibration point position of Joints #3 and #4)



Reference through hole
(View from the top of the base)

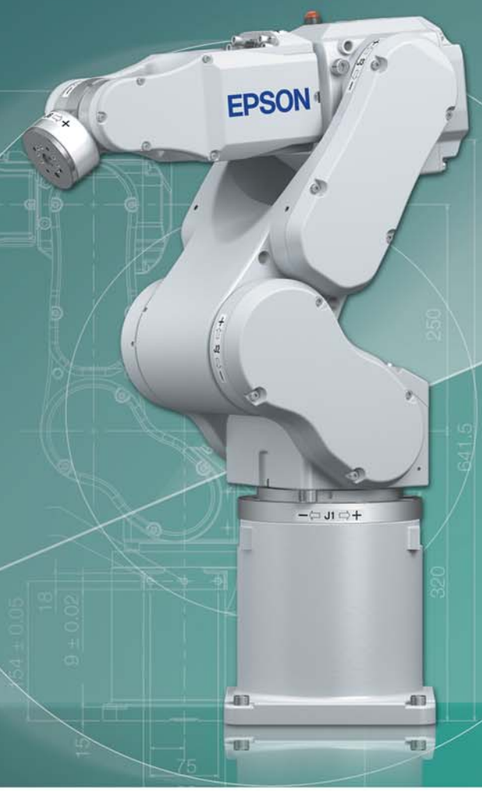
Motion Range (Ceiling Mounting)



Model	RS4-551*
Arm #1 Length (mm)	275
Arm #2 Length (mm)	275
Joint #1 Motion range (deg)	±225
Joint #2 Motion range (deg)	±225

The Power of Choice

6-Axis Robots



New, Unique SlimLine Design

- Industry Leading Cycle Rates
- Best in Class Motion Range
- Leader in Compact 6-Axis Robots
- Compact Wrist Design for Superior Agility

Specifications

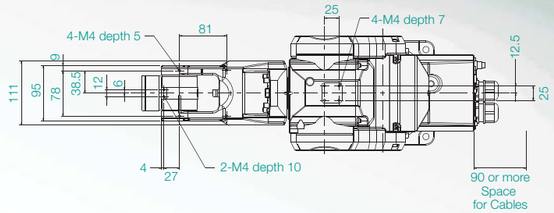
		C3			
Mounting type		Table Top	Ceiling	Skewed	Wall
Degrees of freedom		6			
Max. Motion Range	P point: through the center of J4/J5/J6	600 mm			
Wrist flange surface		665 mm			
Max. operating speed	Joint #1	450°/s			
	Joint #2	450°/s			
	Joint #3	514°/s			
	Joint #4	553°/s			
	Joint #5	553°/s			
	Joint #6	720°/s			
Weight(cables not included)		27 kg			
Repeatability	Joint #1-#6	±0.02 mm			
Max. Motion Range	Joint #1	±170 deg(±180 deg without the mechanical stop)			±30 deg
	Joint #2	-160 deg～+65 deg			
	Joint #3	-51 deg～+225 deg			
	Joint #4	±200 deg			
	Joint #5	±135 deg			
	Joint #6	±360 deg			
Payload	Rated	1 kg			
	Maximum	3 kg			
Standard cycle time*1		0.37 sec			
Allowable moment of inertia*2	Joint #4	0.15 kg・m²			
	Joint #5	0.15 kg・m²			
	Joint #6	0.1 kg・m²			
Motor power consumption	Joint #1	400 W			
	Joint #2	400 W			
	Joint #3	150 W			
	Joint #4	50 W			
	Joint #5	50 W			
	Joint #6	50 W			
Electric lines		9Pin (D-Sub)			
Pneumatic lines		Φ4mm×4			
Installation environment		Standard /Cleanroom*3 & ESD			
Available controllers		RC180, RC620+			
Safety standards		CE compliant, ANSI/RIA15.06-1999			

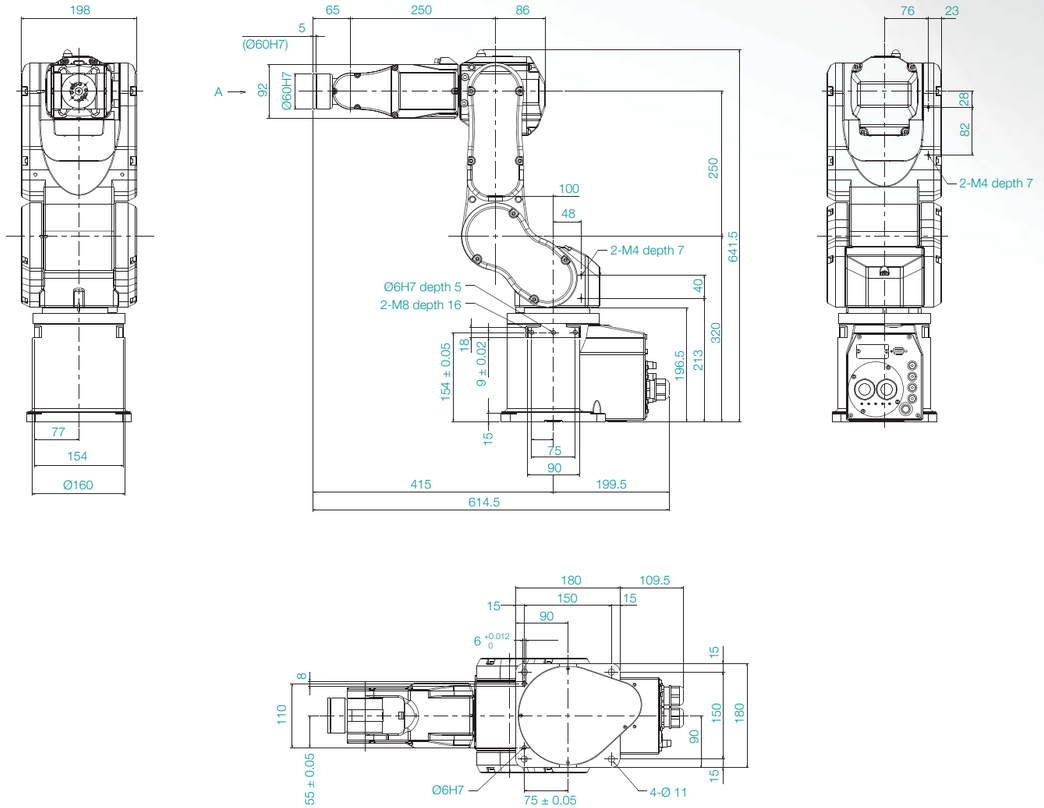
*1:Cycle time based on round-trip arch motion (300mm horizontal, 25mm vertical) with 1kg payload (path coordinates optimized for maximum speed).
*2:When payload center of gravity is aligned with Joint #4 ; if not aligned with Joint #4, set parameters using INERTIA command.
*3:Complies with ISO Class 3 (ISO14644-1) and older Class 10 (less than 10 0.1μm particles per 28,317cm³:1cft) cleanroom standards.

Outer Dimensions

C3

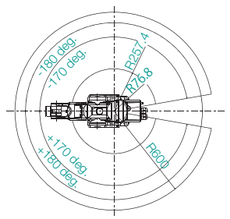
[Unit: mm]



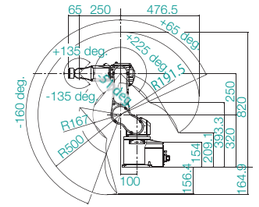


Motion Range

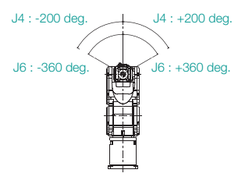
Top View



Lateral View



Front View



The Power of Choice

S5 6-Axis Robots

High Speed and Long Reach

- High Rigidity Arm = Ultra High Speed
- Long Reach and Heavy Payload
- Robust SlimLine Design for Increased Flexibility

Specifications

		S5-A701**			S5-A901**		
Mounting type		Table Top	Ceiling	Wall	Table Top	Ceiling	Wall
Degrees of freedom		6			6		
Max. Motion Range	P point: through the center of J4/J5/J6	706 mm			895 mm		
Wrist flange surface		786 mm			975 mm		
Max. operating speed	Joint #1	376°/s			270°/s		
	Joint #2	350°/s			280°/s		
	Joint #3	400°/s			300°/s		
	Joint #4	450°/s					
	Joint #5	450°/s					
	Joint #6	720°/s					
Weight (cables not included)		36 kg			38 kg		
Repeatability	Joint #1-#6	±0.02 mm			±0.03 mm		
Max. Motion Range	Joint #1	±170 deg		±30 deg	±170 deg		±30 deg
	Joint #2	-150 deg～+65 deg					
	Joint #3	-70 deg～+190 deg			-72 deg～+190 deg		
	Joint #4	±190 deg					
	Joint #5	±135 deg					
	Joint #6	±360 deg					
Payload	Rated	2 kg					
	Maximum	5 kg					
Standard cycle time*1		0.44 sec			0.49 sec		
Allowable moment of inertia*2	Joint #4	0.3 kg・m²					
	Joint #5	0.3 kg・m²					
	Joint #6	0.1 kg・m²					
Motor power consumption	Joint #1	400 W					
	Joint #2	400 W					
	Joint #3	200 W					
	Joint #4	50 W					
	Joint #5	50 W					
	Joint #6	50 W					
Electric lines		15Pin (D-Sub)					
Pneumatic lines		Φ6mm×2					
Installation environment		Standard /Cleanroom*3 & ESD/Protection*4					
Available controllers		RC180, RC620+					
Safety standards		CE compliant, ANSI/RIA15.06-1999					

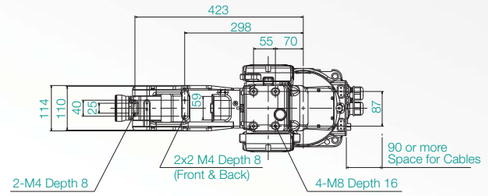
*1:Cycle time based on round-trip arch motion (300mm horizontal, 25mm vertical) with 1kg payload (path coordinates optimized for maximum speed).
*2:When payload center of gravity is aligned with Joint #4 ; if not aligned with Joint #4, set parameters using INERTIA command.
*3:Complies with ISO Class 4 (ISO14644-1) and older Class 100 (less than 100 0.1μm particles per 28,317cm³:1cft) cleanroom standards.
*4:Protected type complies with IP65.

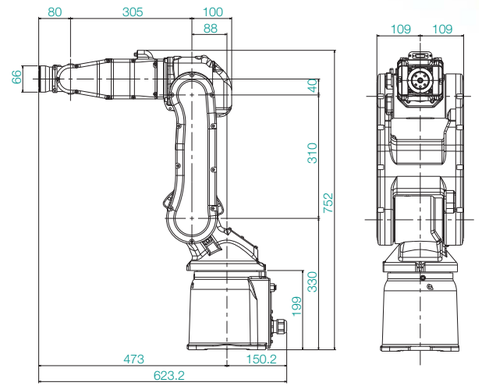
Outer Dimensions

S5-A701 / S5-A901

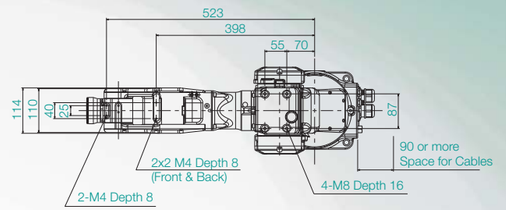
[Unit: mm]

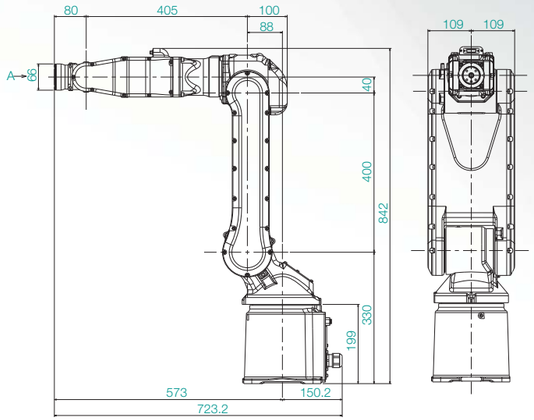
A701





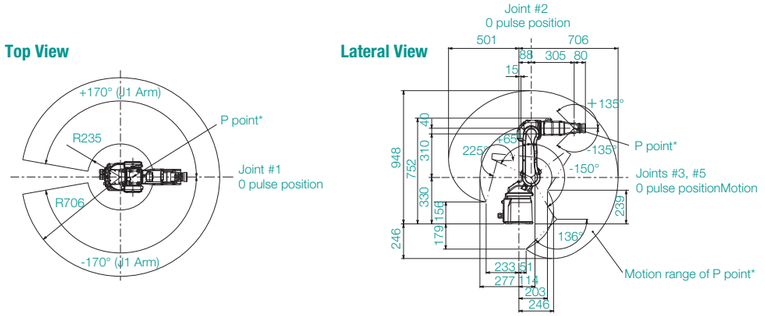
A901



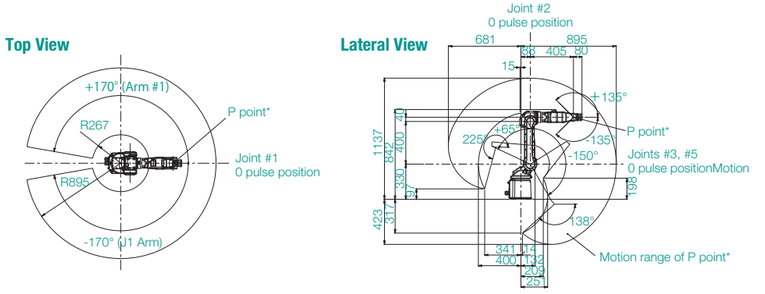


Motion Range

A701



A901



Robot Controllers

RC620+/RC180/RC90

RC620+

PC Based Controller

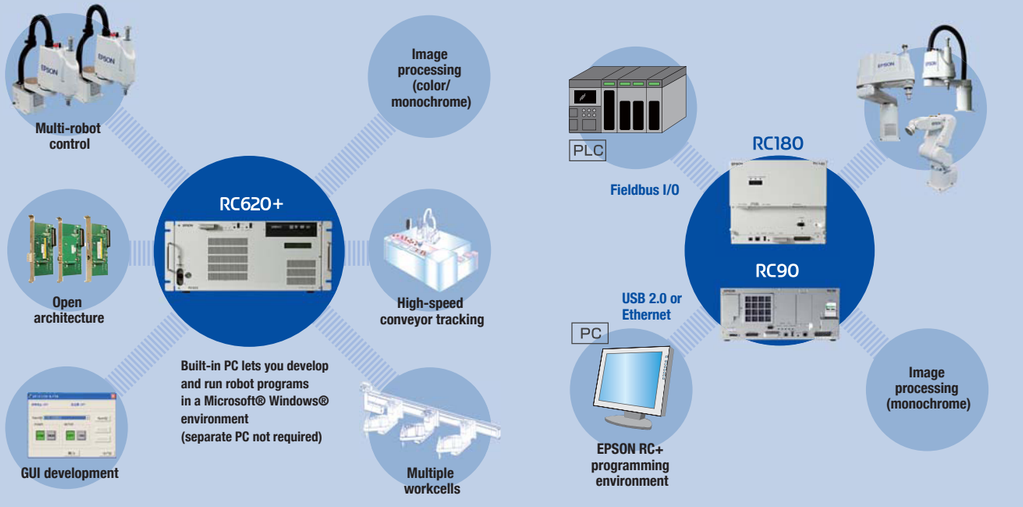
- PC Based Open Architecture Design
- Industry Leading Ease of Use with EPSON RC+ Software
- Fully Integrated Options including: Vision Guidance, .Net Connectivity, EtherNet/IP, DeviceNet, Profibus, Expansion I/O, Conveyor Tracking, Force Sensing and more

RC180 / RC90

Micro PowerDrive RC180 RC90 Controller

- Low Cost and High Performance
- Fast Robot Cycle and Program Execution Times
- Fully Integrated Options including: Vision Guidance, .Net Connectivity, EtherNet/IP (RC180), DeviceNet, Profibus, Expansion I/O and more

System Configuration



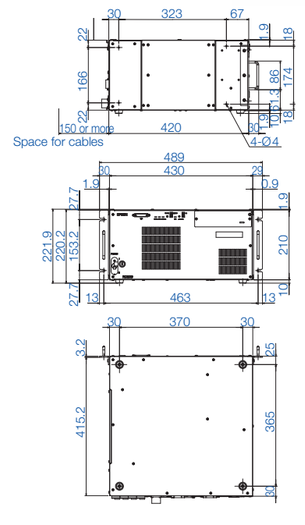
Shared features

- One-Click Backup
  All Controllers Feature a USB Interface for Easy Backup of Control Programs and Error Logs

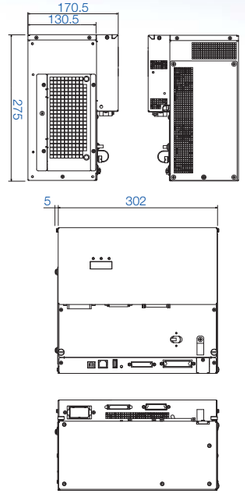
Outer Dimensions

[Unit: mm]

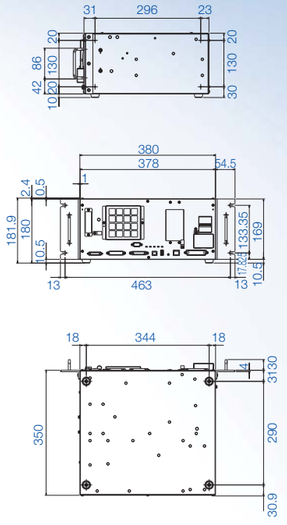
RC620+



RC180



RC90



Specifications

Model		RC620+ (UL specification: RC620-UL)		RC180 (UL specification: RC180-UL)		RC90	
Controllable axes		Up to eight (8) AC servo motors (Limited by the total motor power.)		Up to six (6) AC servo motors		4 AC servo motors	
Robot manipulator control	Programming language and Robot control software	EPSON RC+ 6.0(a multi-tasking robot language)		EPSON RC+ 5.0(a multi-tasking robot language)		EPSON RC+ 5.0(a multi-tasking robot language) Ver.5.4.1 or later is recommended.	
	Joint Control	Up to eight (8) joints Simultaneous control Software AC servo control		Up to six (6) joints Simultaneous control Software AC servo control		Up to 4 joints simultaneous control Software AC servo control	
	Speed Control	PTP motion : Programmable in the range of 1 to 100% CP motion : Programmable (Actual value to be manually entered.)		PTP motion : Programmable in the range of 1 to 100% CP motion : Programmable (Actual value to be manually entered.)		PTP motion : Programmable in the range of 1 to 100% CP motion : Programmable (Actual value to be manually entered.)	
	Acceleration/ deceleration control	PTP motion : Programmable in the range of 1 to100%; Automatic CP motion : Programmable (Actual value to be manually entered.)		PTP motion : Programmable in the range of 1 to 100%; Automatic CP motion : Programmable (Actual value to be manually entered.)		PTP motion : Programmable in the range of 1 to 100%; Automatic CP motion : Programmable (Actual value to be manually entered.)	
	Number of Manipulators	Max. 16 units (Max. 20 axes)		—		—	
Positioning control		PTP (Point-To-Point) CP (Continuous Path)					
Memory capacity		Maximum Object Size : 8 MB Point data area : 1000 points (per file) Backup variable area : Max. 400 KB (Includes the memory area for the management table.) Approx. 4000 variables (Depends on the size of array variables.)		Maximum Object Size : 4 MB Point data area : 1000 points (per file) Backup variable area : Max. 100 KB (Includes the memory area for the management table.) Approx. 1000 variables (Depends on the size of array variables.)		Maximum Object Size : 4 MB Point data area : 1000 points (per file) Backup variable area : Max. 100 KB (Includes the memory area for the management table.) Approx. 1000 variables (Depends on the size of array variables.)	
External input/output signals (standard)	Standard I/O	Input : 24 Output : 16	—	Input : 24 Output : 16	Including 8 inputs, 8 outputs with remote function assigned Assignment change allowed	Input : 24 Output : 16	Including 8 inputs, 8 outputs with remote function assignment change allowed
	Standard I/O (Drive Unit)	Input : 24 Output : 16	per Drive Unit	—		—	
Communication interface (standard)	Ethernet	2 channel		1 channel		1 channel	
	RS-232C	1 port		—		1 port	
Special slot (RC180/RC620: Max. 4 slots RC90: Max. 2 slots)	I/O	Input : 32 per board Output : 32 per board	Addition of 4 boards allowed	Input : 32 per board Output : 32 per board	Addition of 4 boards allowed	Input : 24 per board Output : 16 per board*	Addition of 2 boards allowed
	RS-232C	4 channel/board	Addition of 2 boards allowed	4ch per board	Addition of 2 boards allowed	2ch per board	Addition of 2 boards allowed
	Fieldbus I/O slave	PROFIBUS-DP DeviceNet CC-Link EtherNet/IP PROFINET	Addition of 1 board allowed	1ch per board PROFINET PROFIBUS-DP DeviceNet CC-Link EtherNet/IP	Addition of 1 board allowed	1ch per board PROFIBUS-DP DeviceNet CC-Link	Addition of 1 board allowed
	Pulse Generator	Number of Controlling axis 4ch per board	Addition of 4 boards allowed	—		—	
PCI slot	Frame grabber	Standard frame grabber Advanced frame grabber	Addition of 2 boards allowed	—		—	
	Fieldbusl/O master	PROFIBUS-DP DeviceNet EtherNet/IP	Addition of 1 board allowed	—		—	
Safety features		Emergency stop switch / Safety door input / Low power mode / Dynamic brake / Encoder cable disconnection error detection / Motor overload detection / Irregular motor torque (out-of-control Manipulator) detection / Motor speed error detection/Positioning overflow - servo error - detection / Speed overflow - servo error - detection / CPU irregularity detection / Memory check-sum error detection / Overheat detection at the Motor Driver Module / Relay welding detection / Over-voltage detection / AC power supply voltage reduction detection / Temperature error detection / Fan error detection		Emergency stop switch / Safety door input / Low power mode/ Dynamic brake / Encoder cable disconnection error detection / Motor overload detection / Irregular motor torque (out-of-control Manipulator) detection / Motor speed error detection / Positioning overflow - servo error - detection / Speed overflow - servo error - detection / CPU irregularity detection / Memory check-sum error detection / Overheat detection at the Motor Driver Module / Relay welding detection / Over-voltage detection / AC power supply voltage reduction detection / Temperature error detection / Fan error detection		Emergency stop switch / Safety door input / Low power mode / Dynamic brake / Encoder cable disconnection error detection / Motor overload detection / Irregular motor torque (out-of-control Manipulator) detection / Motor speed error detection / Positioning overflow - servo error - detection / Speed overflow - servo error - detection / CPU irregularity detection / Memory check-sum error detection / Overheat detection at the Motor Driver Module / Relay welding detection / Over-voltage detection AC power supply voltage reduction detection / Temperature error detection / Fan error detection	
Power Source		AC 200 V to AC 240 V Single phase 50/60 Hz		AC 200 V to AC 240 V Single phase 50/60 Hz		AC 200 V to AC 240 V Single phase 50/60 Hz	
Weight *1		4 axes spec : 22.5 kg 6 axes spec : 24.5 kg 8 axes spec : 22.5 kg		For SCARA robot*2 : 9.0 kg (Base unit without option) For Six-axis robot : 10.5 kg (Base unit + ProSix Driver Unit) Option unit : 1.0 kg (Incase of installing 2 option boards)		7.5 kg	

*1: Weight is inscribed on controller. Exercise caution when lifting; check weight and get additional manpower if needed. Keep fingers and toes clear when moving or repositioning.
*2:Including RS series.

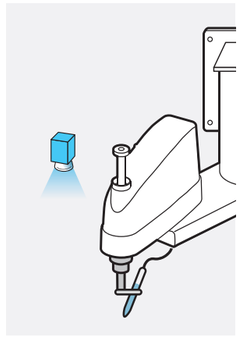
A wide range of integrated controller options are available to reduce development time for a wide variety of applications.

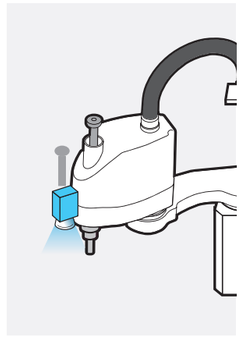
Vision Guide

Compatible controllers: **RC620+** RC180 RC90

Advanced Machine Vision Systems with Industry Leading Ease of Use for Easy Program Development

- Advanced image processing engine assists vision-to-robot calibration, making it much easier to align the robot's coordinate system with the camera's field of view.
- Simple setup—Point & click user interface is easy to learn and use.
- Advanced pattern matching and geometric search tools enable easy solution program development without writing code.





Teach Pendant TP1

Compatible controllers: **RC620+** **RC180** RC90

Versatile Control with Just a Few Keystrokes

- IP65-rated enclosure is sealed against oil and dust for reliable operation in adverse conditions. Shock-resistant construction helps protect unit from impact damage.
- Universal design ensures ease of use for both right-handed and left-handed operators.
- Connects directly to operator unit or controller interface card (Interface is built-in on RC180/RC620 controllers). Menus can be displayed in English, German, French, or Japanese.

Features

- Point data save, edit, and load functions
- Keyword candidate display, search, and line jump functions
- I/O and task monitoring functions
- Project/system data backup and restore functions
- Reduced operating speed in teach mode for enhanced safety and programming ease

Teaching Pendant TP2

Compatible controllers: RC620+ RC180 **RC90**

Easy-to-Use Pendant for Teaching

- Universal design ensures ease of use for both right-handed and left-handed operators.
- Connects directly to operator unit or controller interface card.

PG motion system

Compatible controllers: **RC620+** RC180 RC90

Control Peripheral Devices for Fully Integrated Process Automation

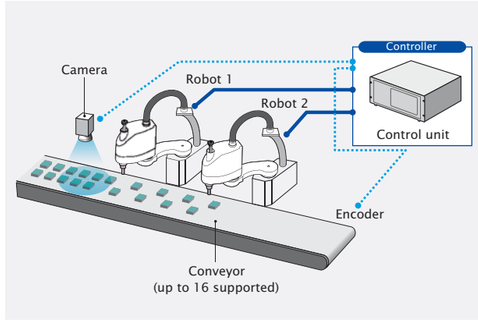
- EPSON RC+ software and pulse generator (PG) cards enable control of multiple third-party drives and motors.
- PG robots and standard EPSON RC+ system robots can be operated simultaneously, and controlled using the same commands.
- PG cards can be used to control X/Y tables, sliders, rotary tables, and a wide range of other production/inspection line peripherals.
- Each PG card has 4 channels, and can support from 1 to 4 robots. Up to 4 cards can be installed.

Conveyor Tracking

Compatible controllers: **RC620+** RC180 RC90

Precision Tracking for High-Productivity Pick-and-Place Operation

- Vision system with Vision Guide software detects moving parts for pick-and-place handling. Multi-conveyor, multi-effector setups are supported.
- Can automate manual kitting/packaging tasks and help maintain productivity with continuous conveyor operation. Can also be used for workpiece assembly.
- Simple start/stop program execution.



DVD Drive

Compatible controllers: **RC620+** RC180 RC90

The Convenience of a Built-In DVD Multi-Drive

- The RC620+ controller is equipped with a DVD drive* for easy program installation and data recording.

*Factory default option

Option Unit

Compatible controllers: RC620+ **RC180** RC90

Interface Cards Expand Your System Options

- Each option unit holds 2 interface cards; up to 2 option units can be mounted (4 interface cards total).

RAID Option

Compatible controllers: **RC620+** RC180 RC90

RAID Support for Enhanced Backup Data Integrity

- RAID support for high-integrity data backup.

*Requires RC620+ controller with high-speed CPU.

Memory Expansion

Compatible controllers: **RC620+** RC180 RC90

Give Your Controller a Memory Boost

- CPU memory can be increased from 1GB to 2GB.

Fieldbus I/O (Master)

Compatible controllers: **RC620+** RC180 RC90

Bidirectional High-Speed Peripheral Connectivity

- Support for DeviceNet®, PROFIBUS®, and Ethernet/IP® networked peripherals (1024-point I/O).

Operator Panel OP1

Compatible controllers: RC620+ **RC180** RC90

Easy Connectivity and Touchscreen Control

- Controller and error status display.
- Oil- and dust-resistant construction
- Simple start/stop program execution.

RS-232C Cards

Compatible controllers: **RC620+** **RC180** **RC90**

Expanded Serial Port Connectivity

- 4-port (for RC180/RC620+ controllers) and 2-port (for RC90 controllers) RS-232C cards to connect serial interface devices.

I/O Expansion Cards

Compatible controllers: **RC620+** **RC180** **RC90**

Expanded Input/Output Flexibility

- 32-point I/O (for RC180/RC620+ controllers) and 24 inputs/16 outputs (for RC90 controllers) expansion cards.

Fieldbus I/O (Slave)

Compatible controllers: **RC620+** **RC180** **RC90**

High-Speed Peripheral Connectivity

- Support for DeviceNet®, PROFIBUS®, CC-Link®, Ethernet/IP®, and PROFINET® networked peripherals (256-point I/O).

*Profinet® and Ethernet/IP® not supported on RC90 controller.

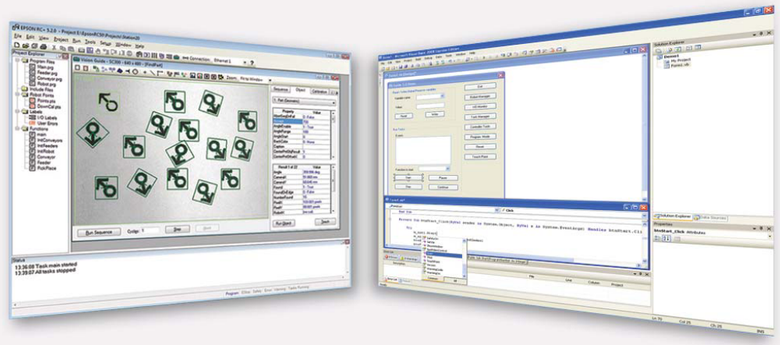
Epson's long experience in factory automation enables us to offer a wide array of easy-to-use software tools to help you achieve maximum productivity with minimum programming overhead.

VB Guide 6.0 / VB Guide 5.0

Compatible controllers
VB Guide 6.0: **RC620+** RC180 RC90
VB Guide 5.0: RC620+ **RC180** **RC90**

Program and Execute Robot Applications in a Familiar Windows® OS Environment

- Robots can be controlled using Visual Basic®, Visual C++®, Visual C#®,LabVIEW™, and other third-party programming languages.
- Robot status and variable values can be captured.
- Third-party .NET interface and database design tools can also be used for program development.
- The following EPSON RC+ windows and dialogs can be called from within a .NET application:
  - Robot Manager
  - I/O Monitor
  - Task Manager
  - Maintenance Dialog

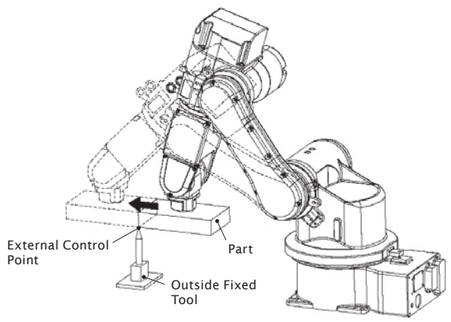


ECP

Compatible controllers
RC620+ **RC180** **RC90**

External Control Point Operation for Precise Positioning Without Complex Calculations

- For processes requiring the workpiece to be moved against a fixed tool, external control points can be used to ensure precise positioning.
- Up to 15 external control points can be set.

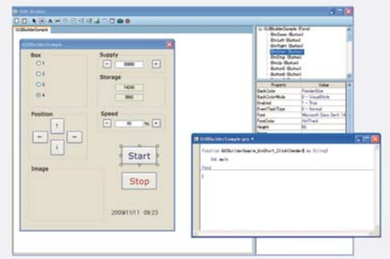


GUI Builder 6.0 / GUI Builder 5.0

Compatible controllers
GUI Builder 6.0: **RC620+** RC180 RC90
GUI Builder 5.0: RC620+ **RC180** **RC90**

Easily Create Custom Interfaces for Your Control Programs

- Quickly and easily create control program custom interfaces that can take the place of dedicated PLCs and display devices.
- Full-featured toolset is easy to learn and use.
- Enables simple GUI creation without using Visual Studio or other third-party software tools.
- Makes it easy to build a graphical user interface, even if you've never built one before.

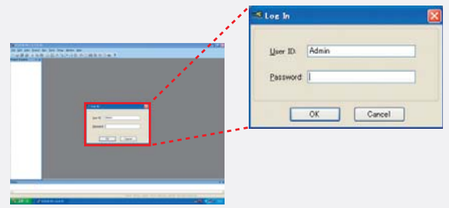


Security

Compatible controllers
RC620+ RC180 RC90

Restrict User Access to Programming Functions for Greater Safety and Security

- Password-based protection levels can be set to restrict access to some parts of the EPSON RC+ system.
- Helps prevent accidental or unauthorized alteration of control programs when multiple operators need to have access to basic controls.
- Keeps a log of every time changes are made to source code.



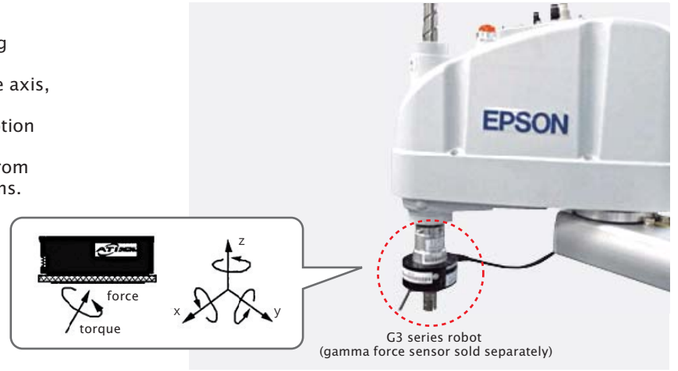
Force- Sensing

Compatible controllers
RC620+ RC180 RC90

Integrated Force-Sensing Technology for Realtime Force Control

- Allows you to easily integrate force-sensing capability into your control programs.*
- Force/torque values can be set for just one axis, or all six.
- Trigger values can be set to stop robot motion when a specific force level is reached.
- Up to two sensors can be mounted; data from sensors can be shared by multiple programs.

*ATI Industrial Automation, Inc. force/torque components must be purchased separately.



G3 series robot
(gamma force sensor sold separately)

OCR

Compatible controllers
RC620+ RC180 RC90

Optical Character Recognition of Text on Parts and Labels

- For use with optional Vision Guide software.
- Enables you to specify the font, font size, and number of characters of text that you want to read from an image.
- A font creation function lets you create SEMI fonts and user-defined fonts from imaged characters or ASCII conversion files.

Epson robot end effector options provide the enhanced functionality and configuration flexibility you need for full-process automation.

External Wiring Units

Compatible robot manipulators: **G6** **G10** **G20**

Simplifies Wiring when Mounting End Effector Options

- Enables easy, on-site connection of external wiring by users.
- Ideal for connecting Vision Guide system camera cables or other wiring.

Tool Adapters

Compatible robot manipulators: **G3** **G6** **G10** **G20** **LS3** **LS6** **RS3** **RS4**

Enhances Handling/Processing Versatility and Simplifies Effector Changes

Brake Release Units

Compatible robot manipulators: **C3** **S5**

Enables Brake Release so Robot Arm Can be Moved by Hand When Power is Switched Off

Power and Signal Cables

Compatible robot manipulators: **G1** **G3** **G6** **G10** **G20** **LS3** **LS6** **RS3** **RS4** **C3** **S5**

Standard 3m Cables, or Optional 5m and 10m Cables for Greater Freedom in Controller and Robot Placement

Camera Mounting Bracket

Compatible robot manipulators: **G3** **G6** **G10** **G20** **LS3** **LS6** **RS3** **RS4** **C3** **S5**

Securely Mount Machine Vision System Camera to Robot Arm

Bracket design varies according to robot; please specify model when ordering.

RC620+ DU Drive Unit

Compatible robot manipulators: **G1** **G3** **G6** **G10** **G20** **RS3** **RS4** **C3** **S5**

An External Drive Unit to Increase the Number of Robots that Can be Controlled with a Single RC620+ Controller

Controller Options	RC620+	RC180	RC90
Option unit	–	●	–
Operator Panel (OP1)	–	●	–
Teaching pendant (TP1)	●	●	–
Teaching pendant (TP2)	–	–	●
Vision Guide (5.0)	–	●	●
Vision Guide (6.0)	●	–	–
RS-232C cards	●	●	●
I/O expansion cards	●	●	●
Fieldbus I/O (Slave)	●	●	●
Fieldbus I/O (Master)	●	–	–
PG cards	●	–	–
Conveyor tracking	●	–	–
DVD drive	●	–	–
RAID option	●	–	–
CPU option	●	–	–
Memory expansion	●	–	–

Software Options	RC620+	RC180	RC90
VB Guide 5.0	–	●	●
VB Guide 6.0	●	–	–
ECP	●	●	●
GUI Builder 5.0	–	●	●
GUI Builder 6.0	●	–	–
Security	●	–	–
Force sensing	●	–	–
OCR	●	–	–

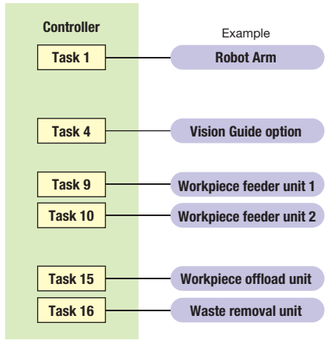
Robot Manipulator Options	G1	G3	G6	G10/G20	LS3	LS6	RS3/RS4	C3	S5/S5L
External wiring units	–	–	●	●	–	–	–	–	–
Tool adapters	–	●	●	●	●	●	●	–	–
Brake release units	–	–	–	–	–	–	–	●	●
Power and signal cables	●	●	●	●	●	●	●	●	●
Camera mounting bracket	–	●	●	●	●	●	●	●	●
RC620+DU drive unit	●	●	●	●	–	–	●	●	●

Multitask Programming Ease

Epson industrial robots use an easy-to-learn programming language that makes it simple to set up complex, multitask workflows.

Multitasking Function

With Epson's programming language, even complex multitask processes can be automated with ease. Up to 32 individual tasks can be seamlessly executed and controlled by a single program. 512-channel input/output expandability, Vision Guide machine vision, and pulse generator control of peripheral equipment can all be utilized to achieve full process automation.



Example Program

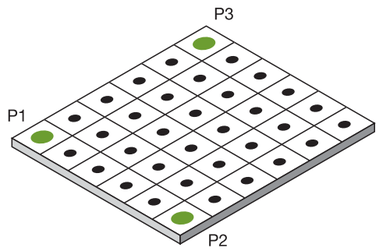
```
Function main
    Motor On            'Motor power on'
    Power High          'Power mode high'
    Speed 100           'Speed 100%'
    Accel 100, 100      'Acceleration 100%'

    If Sw(0) = On Then  'Is the I/O (input bit) on?'
        Jump P0         'Move the end effector to point 0'
    Else
        Jump P1         'Move the effector to point 1'
    EndIf

Fend
```

Easy Alignment with Palletized Parts

If parts are arranged in a rectangular layout and spaced at regular intervals, the PALLET command can be used to quickly and precisely position the end effector.



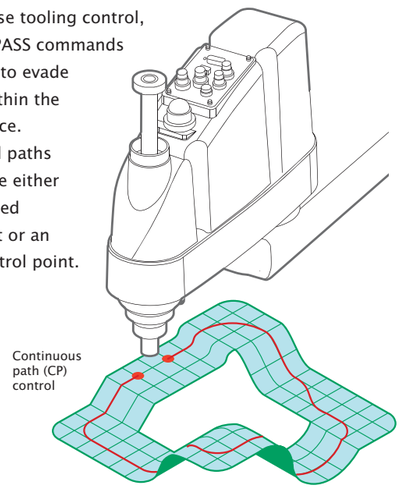
Simply set points P1, P2, and P3 — all other points are set automatically.

High Repeatability with Varying Payloads and End Effector Orientation

Once the operator has set workpiece and end effector weight, weight range, and effector orientation, acceleration is automatically adjusted to reduce residual vibration and ensure high repeatability.

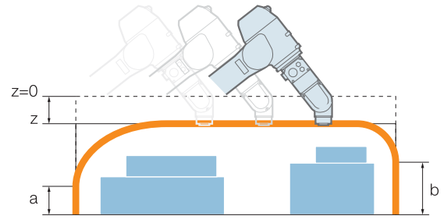
High-Speed, High-Precision, 3D Continuous Path Control

All Epson robot systems offer the fast, precise, three-dimensional continuous path (CP) control needed for high-productivity coating and sealant application processes. Advanced linear interpolation, arch interpolation, and free curve motion enable precise tooling control, and simple PASS commands can be used to evade obstacles within the workcell space. Programmed paths can reference either a tool-centered control point or an external control point.



3D Jump with Variable Arch for Ultra-Precise Short-Distance Movement

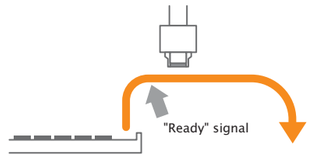
EPSON SCARA and ProSix robots all support JUMP command movements in three-dimensional space, and the arch described by the approaching and departing effector can be set to suit the work environment. Deceleration/acceleration of the approaching or departing head can be adjusted ensuring smooth, precise, short-distance motion that helps improve cycle time and product quality stability.



a: Z-axis vertical ascent (mm; departing)
b: Z-axis vertical descent (mm; approaching)
z: Horizontal travel (mm)

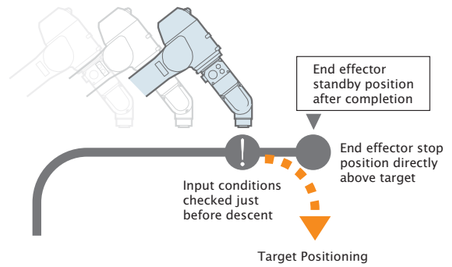
Parallel Processing for Higher Speed and Efficiency

Parallel processing enables you to control peripheral devices while the robot arm is in motion. Discrete I/O can be used to ensure synchronized control of multi-device processes for maximum throughput efficiency.



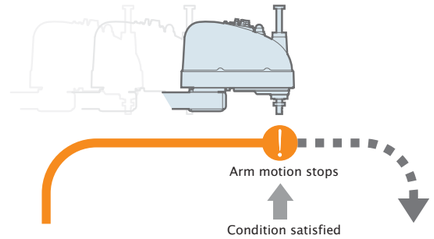
Conditional Stop (1)

Input conditions (set in advance via SENSE command) are checked just before the arm begins its descent. If the conditions are satisfied, the robot stops above the target, without descending.



Conditional Stop (2)

If input conditions (set in advance via TILL command) are satisfied during arm operation, the arm immediately decelerates and stops. Cycle time is reduced because arm movement can continue uninterrupted until conditions are met.



Operating Speed and Acceleration/Deceleration Settings

Operating speed and acceleration/deceleration of the arm can be set as a percentage of maximum from 1-100%.

PTP motion Maximum point-to-point speed is set as a percentage relative to the maximum acceleration speed. Ascent and descent speeds can also be set.

CP motion For continuous path motion, maximum end effector speed ranges up to 2000mm/s, and maximum acceleration/deceleration speed ranges up to 25000mm/s.

Teaching Methods

● Remote Teaching
Points are taught using the jog keys on the teaching unit to move the effector to the target. This method is especially useful for operations that require very high precision because the jog keys allow adjustment in units as small as the resolution of each axis.

● Direct Teaching
Points are taught by disengaging the motor of each axis and moving the effector to the target by hand. (Direct teaching is not supported for 6-axis robots.)

● MDI Teaching
Points are taught by inputting predetermined coordinate values without moving the arm.

With Epson Industrial Robots, You Get the Highest Standards of Safety and Reliability and the Support of a Global Sales and Service Network

■ Providing High-Quality Support, When and Where It's Needed

At Epson, our reputation is built on the high quality of our products and services, and maintaining that quality is a worldwide priority. Our support network for robotic products now includes eight regional centers, and we stand ready to meet the needs of customers in virtually every major market.

Drawing on our global expertise in customized robotic solution development, we will continue to provide customers with the tools they need to automate manufacturing processes and achieve higher productivity. By creating the world's most trusted and reliable industrial robots, we pledge to deliver the true customer value that is the hallmark of every Epson product.

Better Products for a Better Future™

At Epson, we know that planning for the future requires a strong commitment to the environment. That is why we strive to create innovative products that are reliable, recyclable, and energy efficient. Better products that use fewer resources help ensure a better future for us all.

Direct inquiries to

EPSON Robots
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ISO 9001 BUREAU VERITAS Certification — Epson FA Systems Dept. ISO9001 certified April 1995

ISO 14001 BUREAU VERITAS Certification — Epson FA Systems Dept. ISO14001 certified April 1998

Safety Precautions | Please read associated manuals carefully before installing or using our robot products. Always use products properly per guidelines in the manuals.