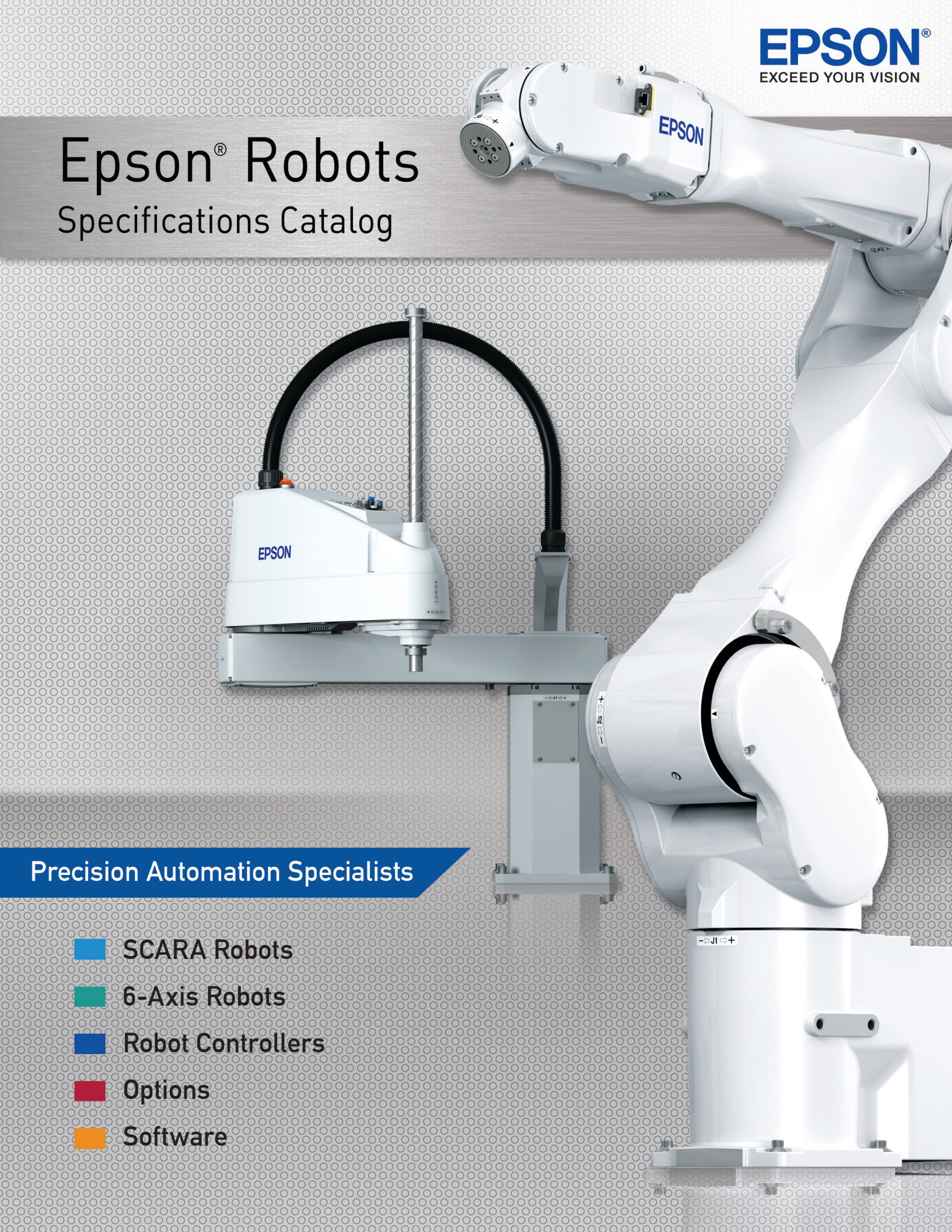
EPSON®
EXCEED YOUR VISION

Epson® Robots

Specifications Catalog



Precision Automation Specialists

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

Why Epson Robots?

As precision automation specialists, the Epson Robots team has been building automation products for over 35 years.

Leading the industry in small-parts-assembly applications, we've introduced many firsts. As a result, our innovative products are hard at work in thousands of manufacturing facilities throughout the world.

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1 Leading Epson technology

- Epson is the #1 SCARA robot manufacturer in the world
- We introduced the world's first folding-arm 6-Axis robot
- Many of our robots contain integrated motion sensors to reduce vibration and increase performance

2 What you need, when you need it

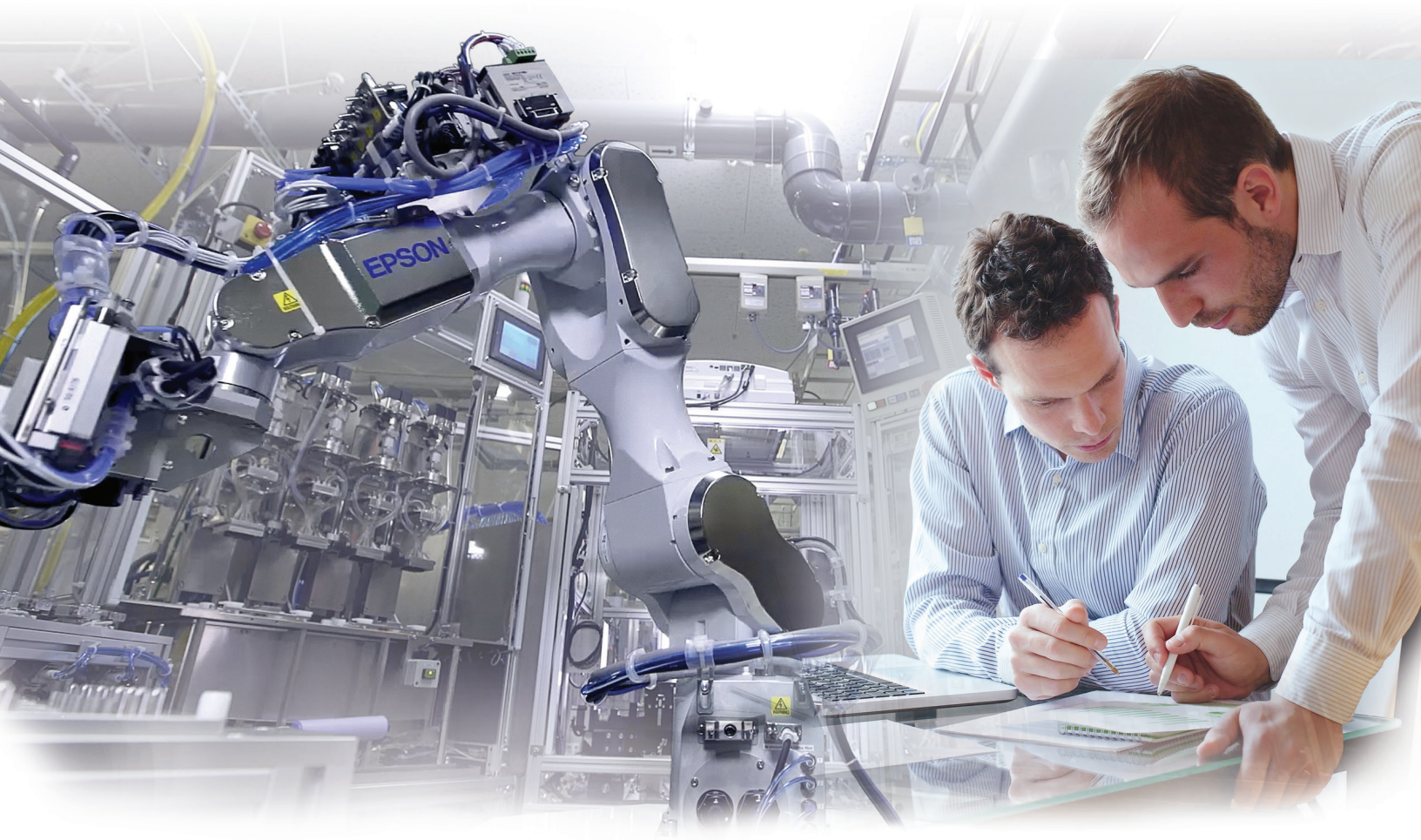
- The Epson lineup features 6-Axis robots with payloads up to 8 kg and a reach ranging from 450 to 1,480 mm
- We offer a wide range of integrated options including Vision Guidance, Force Guidance and more

3 Intuitive programming software

- Epson RC+® software is extremely user-friendly, making automation setup fast and easy

4 Reliability you can count on

- Our team is dedicated to helping you find the best solution for your automation needs
- Epson robots are long-lasting and require little maintenance



1982
Epson mass-production-assembly robot developed

INDUSTRY FIRST
Multitasking introduced

INDUSTRY FIRST
1986
ISO Class 1 cleanroom compliance achieved

INDUSTRY FIRST
1994
Microsoft® Windows® OS support introduced

INDUSTRY FIRST
1997
Compact SCARA robot introduced

PC-based Robot Controller

INDUSTRY FIRST
Anti-static robots developed

INDUSTRY FIRST
2001
Wall/ceiling-mount SCARA robots introduced

2003
UL robots introduced

2009
Compact, high-speed 6-Axis C3 robot introduced

INDUSTRY FIRST
2009
Ceiling-mount RS3 SCARA robot with 360° rotation introduced

2013
Epson's 4th generation PC open-architecture controller introduced

INDUSTRY FIRST
2016
Flexion N2 6-Axis robot with folding-arm design introduced

COMPACT **6-AXIS**

Why Choose Epson 6-Axis Robots?

Epson's space-saving 6-Axis robots enable a remarkable range of motion with fewer mechanical restrictions.

Our robots can reach in to confined workspaces from many angles with ultra smooth motion, making the **Flexion™ N-Series, C-Series and S-Series robots** some of the most flexible 6-Axis robots available in the market today.

World's first folding-arm design

- Epson's innovative Flexion N-Series offers significant advantages in motion and workspace efficiency

SlimLine design

- Saves valuable factory floor space and allows our robots to fit where other robots can't — without compromising power, speed or reach
- Compact wrist pitch enables our robots to access hard-to-reach places in confined spaces

Proven technology

- Epson 6-Axis robots utilize the same controls, software and motion technologies found in our industry-leading SCARA robots

Why Epson SCARA Robots?

Epson's lineup of over 300 models gives users the power to choose from more options than ever before.

Hundreds of models available

- A variety of configurations to meet your diverse application needs
- Sizes ranging from 175 to 1,000 mm in reach
- Payloads up to 20 kg
- Tabletop, wall and ceiling mount options

Fast speeds

- Best-in-class cycle times for more efficient throughput

Extreme precision

- Repeatability up to 5 microns

SCARA Robots

G-Series SCARA Robots

G-Series robots feature Max-R, a new high rigidity arm design that achieves high speed, high precision and low vibration. G-Series SCARA robots have a wide variety of sizes from 175 – 1,000 mm in reach, with up to 20kg payloads.

RS-Series SCARA Robots

RS-Series are the most unique and flexible SCARA robots 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 SCARA robots 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.

T-Series All-in-One SCARA Robots

The perfect alternative to complex slide-based solutions, these space-saving robots install in minutes. And, they include the same intuitive software and powerful features found in Epson's high-end robots.

SCARA Robots							
G-Series				LS-Series	T-Series	RS-Series	N-Series
G1	G3	G6	G10/G20	LS3/LS6/LS20	T3	RS3/RS4	N2
03 T	03 T W/C	03 D P T W C	03 D P T W C	04 T	T	03 C	T C
4-axis MAX 1/3-axis 1.5 Kg	MAX 3Kg	MAX 6Kg	MAX 10/20Kg	MAX 3/20Kg	MAX 3Kg	MAX 3/4Kg	MAX 2.5
8 - 9	10 - 13	14 - 17	18 - 21	22 - 27	28 - 29	30 - 33	34 - 35

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 Tabletop mount
W Wall mount
C Ceiling mount
W/C Wall/ceiling multi-layout mount

6-Axis Robots

N-Series 6-Axis Robots

The latest offering in Epson's 6-Axis family features a revolutionary compact folding arm design which maximizes motion efficiency for faster cycle times. Packed with unique technology exclusive to this model, the N-Series is setting a new industry standard for 6-Axis robots.

C-Series 6-Axis Robots

C-Series 6-Axis robots lead the industry with best in class cycle time, and a new SlimLine design backed by precision and motion range. This compact robot offers exceptional performance for even the most demanding and complex application.

S-Series 6-Axis Robots

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.

6-Axis Robots					Controllers	Options	Software
es	C-Series			S-Series			
	C3	C4/C4L	C8/C8L/C8XL	S5/S5L	RC700A RC620+ RC180 RC90	■Software options ■Robot controller options ■End effector options ■System option quick-reference table	■Epson RC+ program development software
	03 T W C	03 T C	03* 04* W C	04 P T W C			
Kg	MAX 3 Kg	MAX 4 Kg	MAX 8 Kg	MAX 5 Kg			
	36 - 37	38 - 39	40- 43	44 - 45	46 - 49	50 - 58	59 - 61

*C8XL - 04 *C8/C8L - 03 *2014 Fuji-Keizai World Wide Robot Market Report

G1 G-Series SCARA Robots

Industry-Leading Mini SCARA

- High Precision Repeatabilities Down to 0.005 mm
- Arm Lengths from 175 to 225 mm
- Ultra Compact yet Extremely Powerful
- 3-Axis Models Available

Specifications

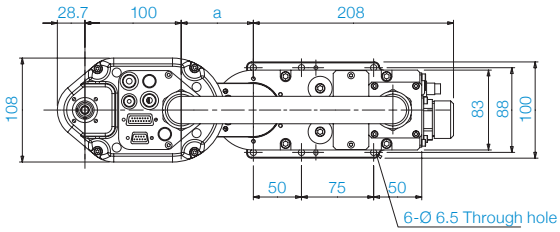
		4-Axis		3-Axis	
		G1-171	G1-221	G1-171xZ	G1-221xZ
Mounting type		Tabletop		Tabletop	
Arm length	Arm #1, #2	175 mm	225 mm	175 mm	225 mm
Max. operating speed	Joints #1, #2	2630 mm/s	3000 mm/s	2630 mm/s	3000 mm/s
	Joint #3	1200 mm/s		1200 mm/s	
	Joint #4	3000 deg/s		–	
Weight (cables not included)		8 kg		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)
	Joint #3 Std Joint #3 Clean	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 Maximum	0.0003 kg•m2 0.004 kg•m2		– –	
Motor power consumption	Joint #1 Joint #2 Joint #3 Joint #4	All joints: 50 W			
Joint #3 downward 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+, RC700A			
Safety standards		CE, ANSI/RIA15.06-2012, UL 1740			

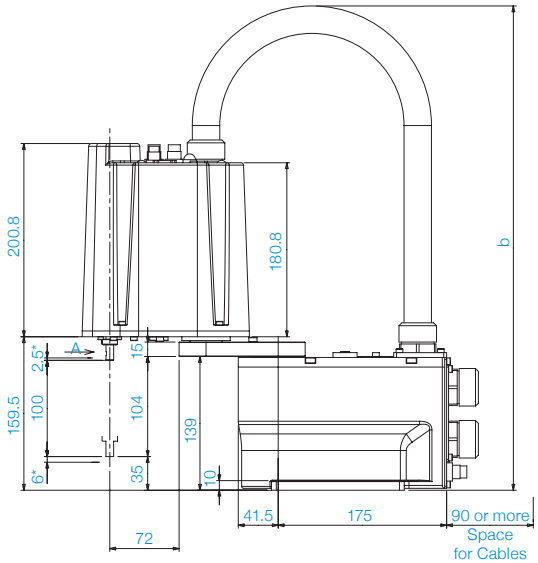
1 Cycle time based on round-trip arch motion (100mm horizontal, 25mm vertical) with 0.5kg payload (path coordinates optimized for maximum speed).
2 When payload center of gravity is aligned with Joint #4 ; if not aligned with Joint #4, set parameters using INERTIA command.
3 Complies with ISO Class 3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

Outer Dimensions (Tabletop Mounting)

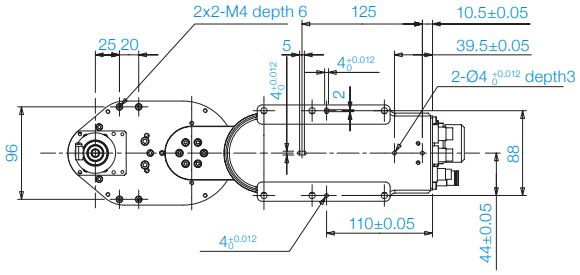
[Units: mm]

Standard-model

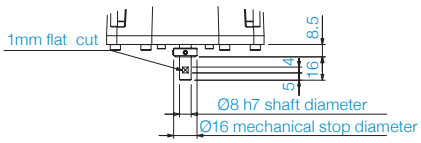




∗ indicates the stroke margin by mechanical stop.



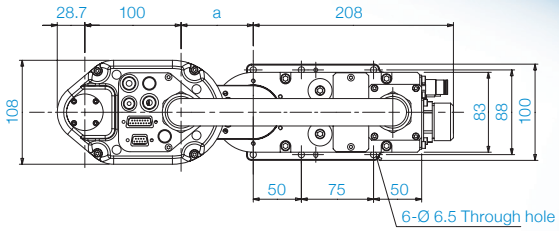
Reference through hole
(View from the bottom of the base)

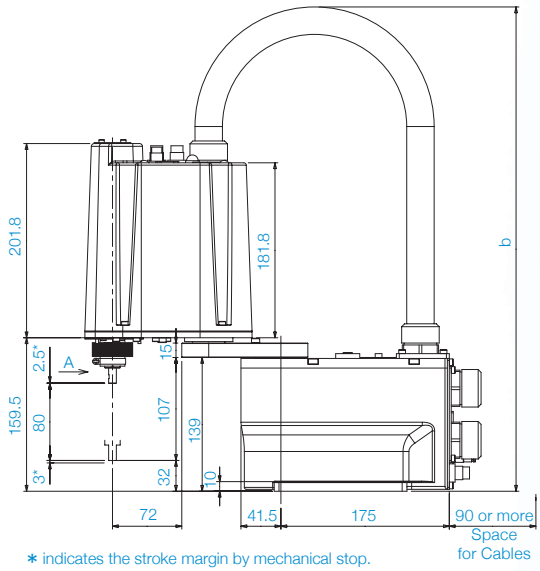


Detail of "A"
(Calibration point position of Joints #3 and #4)

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

Cleanroom-model





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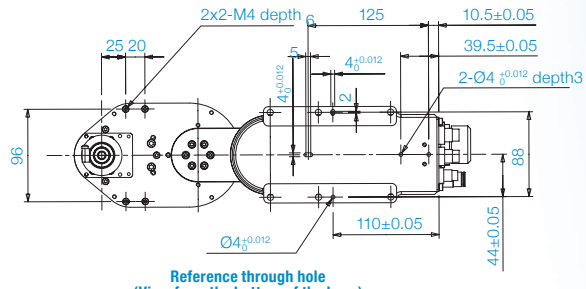
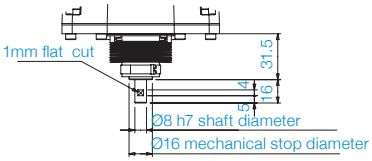


Reference through hole
(View from the bottom of the base)

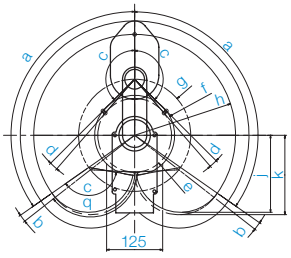


Detail of "A"
(Calibration point position of Joints #3 and #4)

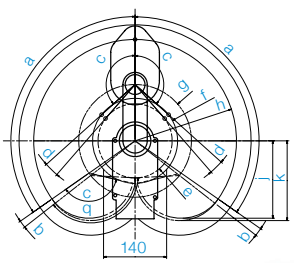
	G1_171C	G1_221C
a	75	125
b	Max. 515	Max. 545

Motion Range (Tabletop 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		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		3	
d Joint #2 angle to hit mechanical stop (deg)	3		4	5	1.3	3	4	7

G3 G-Series SCARA Robots

Compact and Ultra Powerful

- Arm Lengths from 250 to 350 mm
- Handles Small, Heavy Payloads up to 3 kg
- Fast Cycle Times for Increased Productivity
- Available with Straight or Curved Arm

Specifications

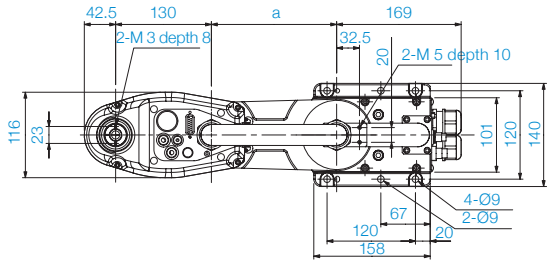
			G3-251	G3-301		G3-351	
Mounting type			Tabletop	Tabletop	Multiple	Tabletop	Multiple
Arm length		Arm #1, #2	250 mm	300 mm		350 mm	
Max. operating speed		Joints #1, #2	3550 mm/s	3950 mm/s		4350 mm/s	
		Joint #3	1100 mm/s				
		Joint #4	3000 deg/s				
Weight (cables not included)			14 kg				
Repeatability		Joints #1, #2	±0.008 mm	±0.01 mm		±0.01 mm	
		Joint #3	±0.01 mm				
		Joint #4	±0.005 deg				
Max. motion range	Straight	Joint #1	±140 deg	±140 deg	±115 deg	±140 deg	±120 deg
		Joint #2 (Cleanroom model)	±141 deg (±137 deg)	±142 deg (±141 deg)	±135 deg (±135 deg)	±142 deg (±142 deg)	
	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 (Cleanroom model)	–	-135~150 deg (-135~145 deg)	–	-120~165 deg (-120~160 deg)	-120~160 deg (-120~150 deg)
		Left hand (Cleanroom model)	–	-150~135 deg (-145~135 deg)	–	-165~120 deg (-160~120 deg)	-160~120 deg (-150~120 deg)
	All models	Joint #3 Cleanroom model	150 mm 120 mm				
		Joint #4	±360 deg				
Payload		Rated	1 kg				
		Maximum	3 kg				
Standard cycle time[1]			0.36 sec	0.37 sec		0.37 sec	
Joint #4 allowable moment of inertia[2]		Rated	0.005 kg•m1				
		Maximum	0.05 kg•m1				
Motor power consumption		Joint #1	200 W				
		Joint #2	150 W				
		Joint #3	150 W				
		Joint #4	150 W				
Joint #3 downward force			150 N				
Electric lines			15Pin (D-Sub)				
Pneumatic lines			Φ4mm×1, Φ6mm×2				
Installation environment			Standard/Cleanroom[3] & ESD				
Available controllers			RC180, RC620+, RC700A				
Safety standards			CE, ANSI/RIA15.06-2012, UL 1740				

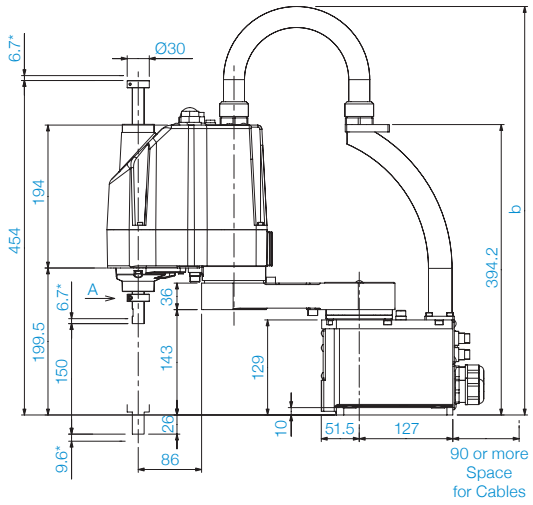
1 Cycle time based on round-trip arch motion (300mm horizontal, 25mm vertical) with 1kg payload (path coordinates optimized for maximum speed).
2 When payload center of gravity is aligned with Joint #4 ; if not aligned with Joint #4, set parameters using INERTIA command.
3 Complies with ISO Class 3 (ISO14644-1)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

Outer Dimensions (Tabletop Mounting)

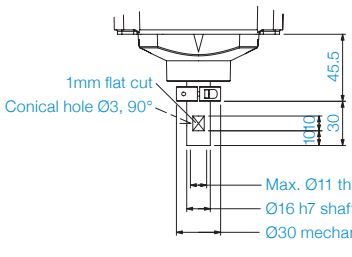
[Units: mm]

Standard-model

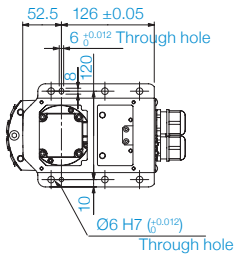




∗ indicates the stroke margin by mechanical stop.



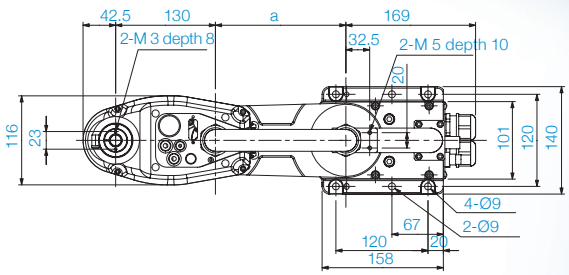
Detail of "A"
(Calibration point position of Joints #3 and #4)

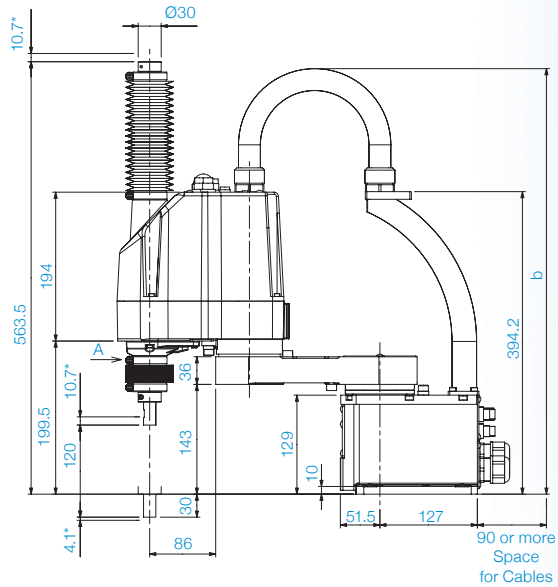


Reference through hole
(View from the bottom of the base)

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

Cleanroom-model





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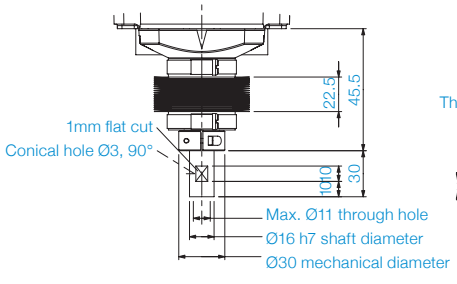
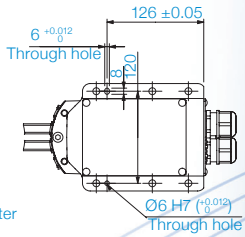


Detail of "A"
(Calibration point position of Joints #3 and #4)



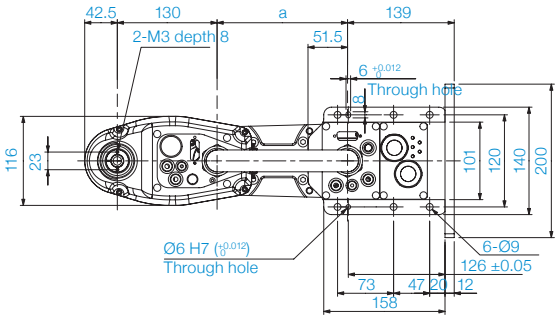
Reference through hole
(View from the bottom of the base)

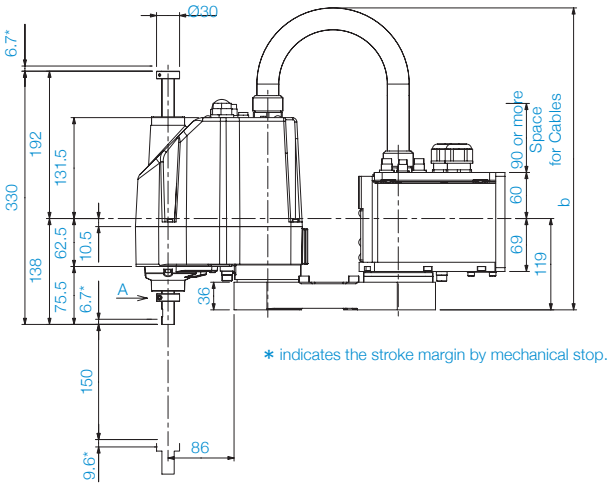
	G3_251C	G3_301C	G3_351C
a	120	170	220
b	Max. 545	Max. 575	Max. 595

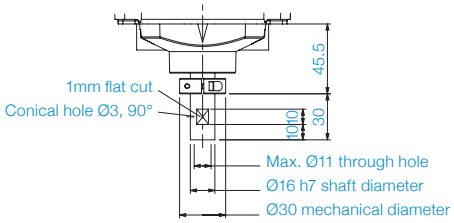
Outer Dimensions (Multiple Mounting)

[Units: mm]

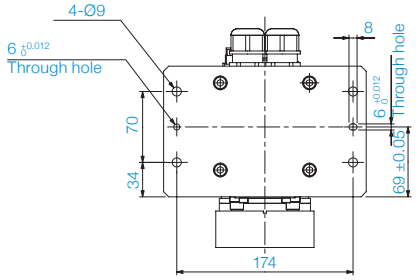
Standard-model







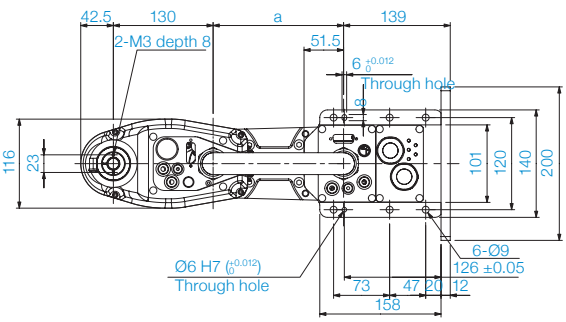
Detail of "A"
(Calibration point position of Joints #3 and #4)

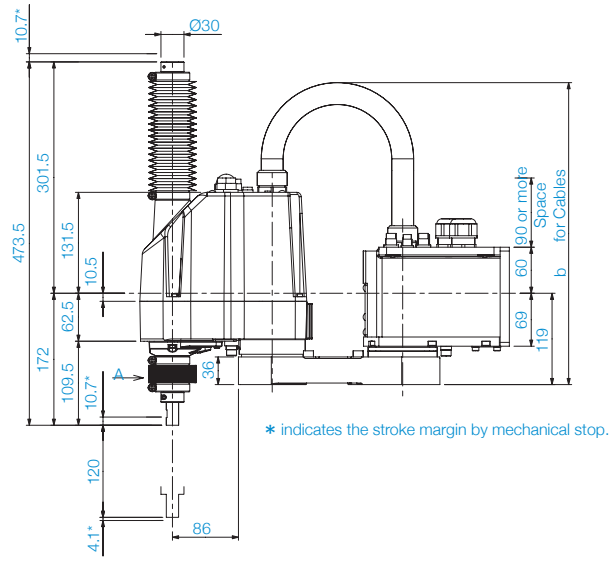


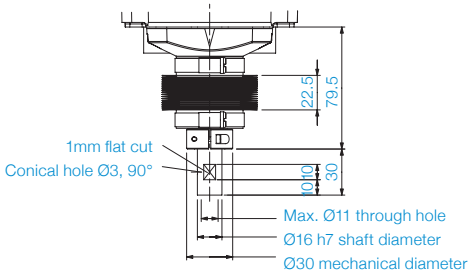
Reference through hole
(View from the bottom of the base)

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

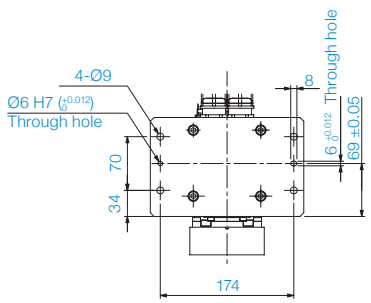
Cleanroom-model







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



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

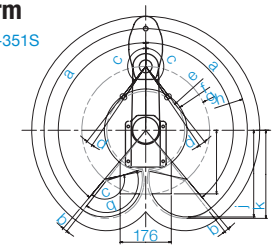
	G3_301CM	G3_351CM
a	170	220
b	Max. 410	Max. 450

Motion Range (Tabletop Mounting)

[Units: mm]

Straight Arm

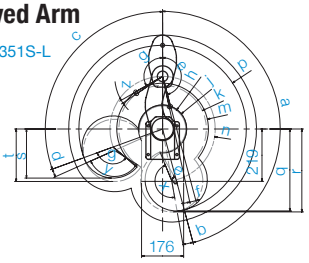
G3-351S



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

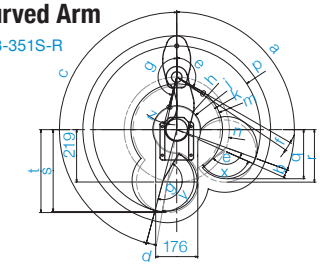
G3-351S-L



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



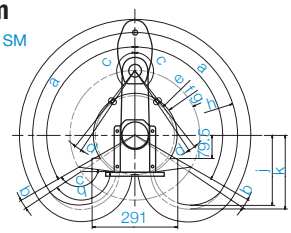
Model	Right-Curved Arm			
	G3-301S-R	G3-301C-R	G3-351S-R	G3-351C-R
n Length of Arm #1 (mm)	170		220	
p-n Length of Arm #2 (mm)	130		130	
m,j Motion range	120.7, 86.8		191.6, 100.3	191.6, 107.5
a,c Motion range of Joint #1 (deg)	125, 150		110, 165	
e,g Motion range of Joint #2 (deg)	135, 150	135, 145	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)

[Units: mm]

Straight Arm

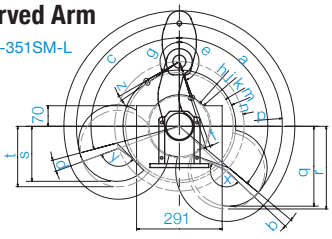
G3-351SM



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

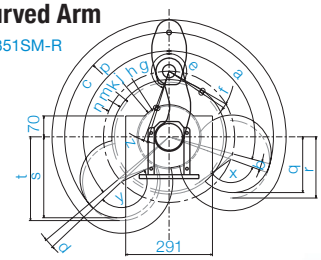
G3-351SM-L



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

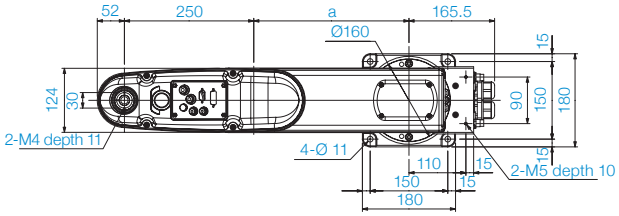
		G6-45x			G6-55x			G6-65x		
Mounting type		**Tabletop**	**Ceiling**	**Wall**	**Tabletop**	**Ceiling**	**Wall**	**Tabletop**	**Ceiling**	**Wall**
Arm length	**Arm #1, #2**	450 mm			550 mm			650 mm		
Max. operating speed	**Joints #1, #2**	6440 mm/s			7170 mm/s			7900 mm/s		
	Joint #3	180 (150 clean) = 1100 mm/sec 330 (300 clean) = 2350 mm/sec								
	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~-270mm ±147.5 deg Z:-270~-330mm±145 deg	±130 deg		±147.5 deg					
	Joint #3 Std	180 mm / 330 mm								
	Joint #3 Clean	150 mm / 300 mm								
	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 downward 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+, RC700A								
Safety standards		CE, ANSI/RIA15.06-2012, UL 1740								

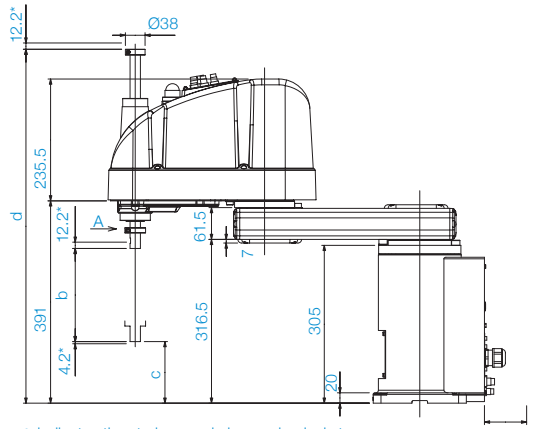
1 Cycle time based on round-trip arch motion (300mm horizontal, 25mm vertical) with 1kg payload (path coordinates optimized for maximum speed).
2 When payload center of gravity is aligned with Joint #4 ; if not aligned with Joint #4, set parameters using INERTIA command.
3 Complies with ISO Class 3 (ISO14644-1)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

Outer Dimensions (Tabletop Mounting)

[Units: mm]

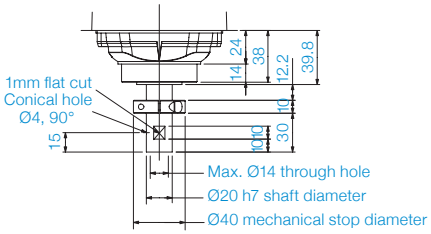
Standard-model



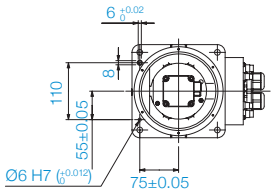


∗ indicates the stroke margin by mechanical stop.

90 or more Space for Cables



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

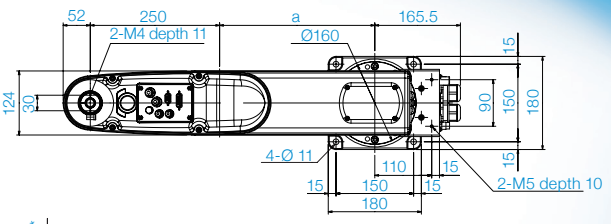


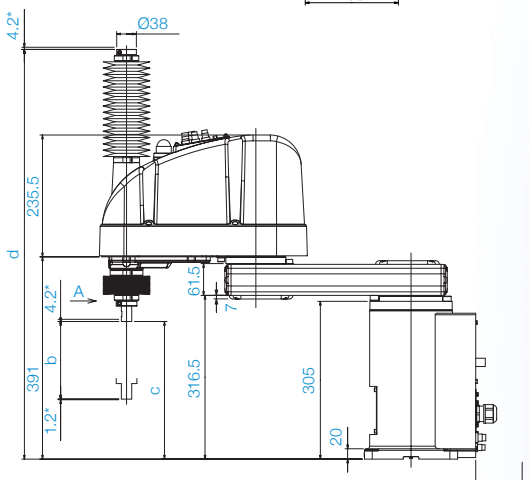
Reference through hole
(View from the bottom of the base)

	G6-45xS	G6-55xS	G6-65xS
a	200	300	400

	G6-xx1S	G6-xx3S
b	180	330
c	119	-31
d	684	834

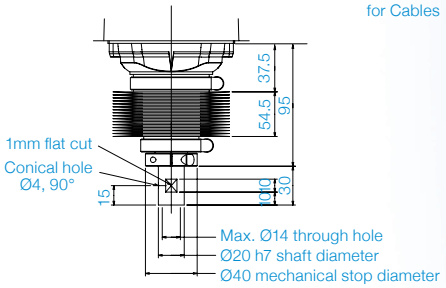
Cleanroom-model



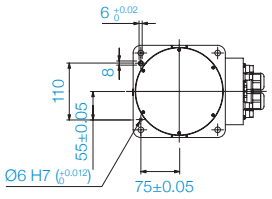


∗ indicates the stroke margin by mechanical stop.

90 or more Space for Cables



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

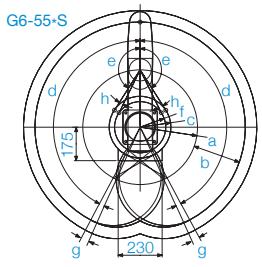


Reference through hole
(View from the bottom of the base)

	G6-45xC	G6-55xC	G6-65xC
a	200	300	400

	G6-xx1C	G6-xx3C
b	150	330
c	116	-34
d	792	942

Motion Range (Tabletop Mounting)

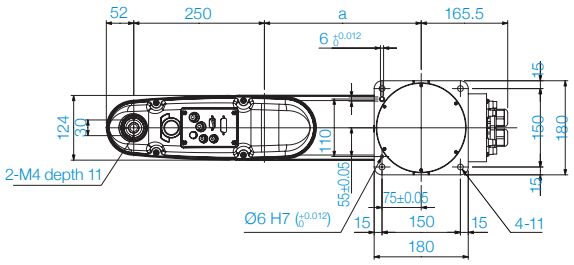


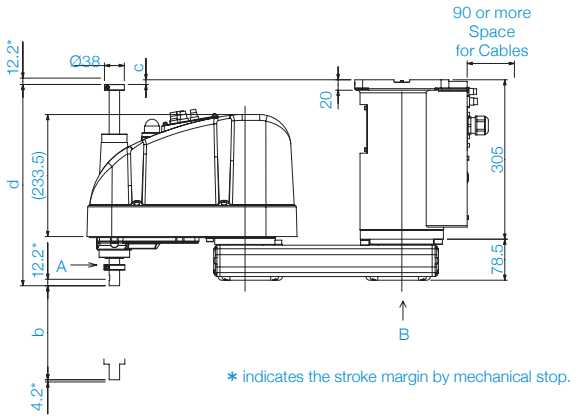
Model	Tabletop Mounting					
	G6-45xS/D		G6-45xC/P/D bellows		G6-55x	G6-65x
a Length of Arm #1 (mm)	200				300	400
b Length of Arm #2 (mm)	250					
c Motion range	Z: 0～-270	134.8	Z:0 ～ -240	134.8	161.2	232
	Z:-270～-330	143.5	Z:-240～-300	153.9		
d Motion range of Joint #1 (deg)	152					
e Motion range 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 Motion range of Joint #2 (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)

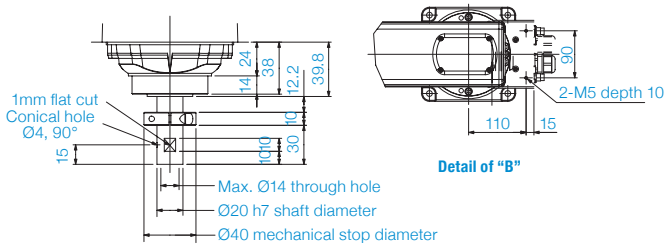
[Units: mm]

Standard-model





∗ indicates the stroke margin by mechanical stop.



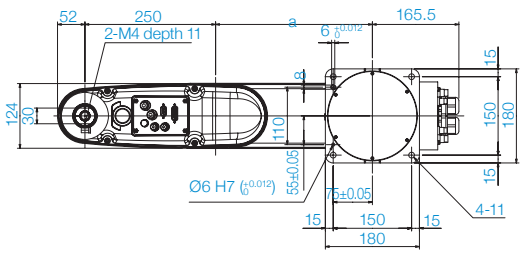
Detail of "B"

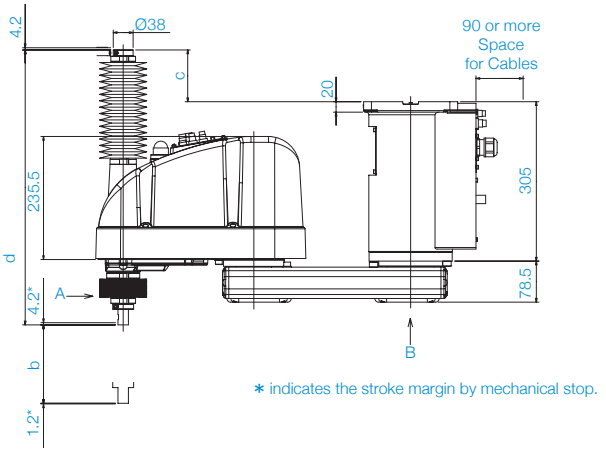
Detail of "A"
(Calibration point position of Joints #3 and #4)

	G6-45xSR	G6-55xSR	G6-65xSR
a	200	300	400

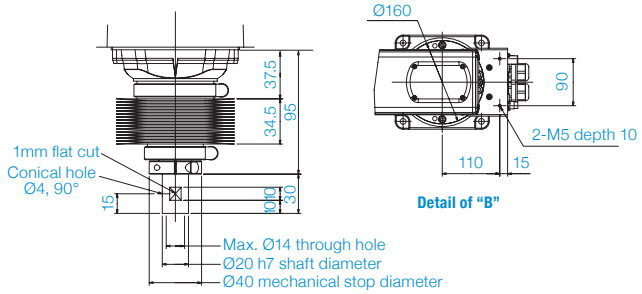
	G6-xx1SR	G6-xx3SR
b	180	330
c	-9	141
d	385	535

Cleanroom-model





∗ indicates the stroke margin by mechanical stop.



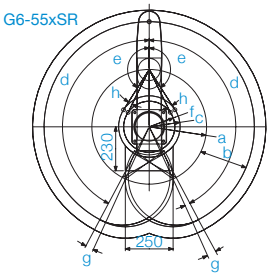
Detail of "B"

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

	G6-45xCR	G6-55xCR	G6-65xCR
a	200	300	400

	G6-xx1CR	G6-xx3CR
b	150	300
c	99	249
d	526	676

Motion Range (Ceiling Mounting)

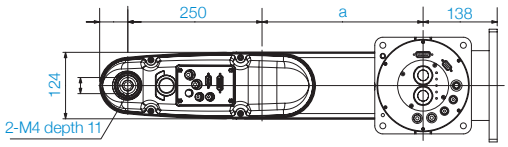


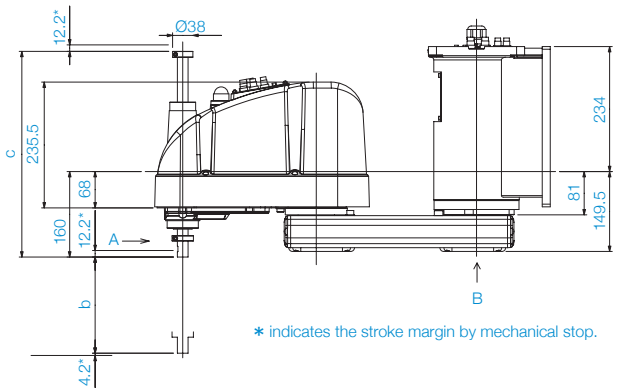
Model		Ceiling Mounting			
		G6-45xxR	G6-55xSR/DR	G6-55xCR/PR/DR bellows	G6-65xxR
a	Length of Arm #1 (mm)	200	300		400
b	Length of Arm #2 (mm)	250			
c	Motion range	195.5	161.2	172.1	232
d	Motion range of Joint #1 (deg)	120	152		
e	Motion range of Joint #2 (deg)	130	147.5	145	147.5
f	Mechanical stop 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

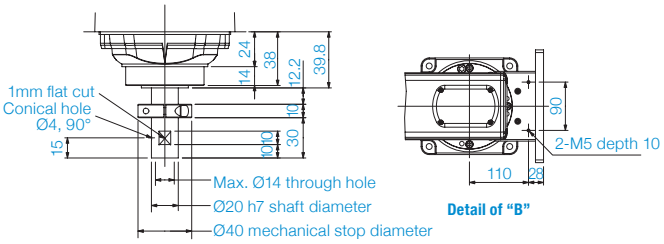
Outer Dimensions (Wall Mounting)

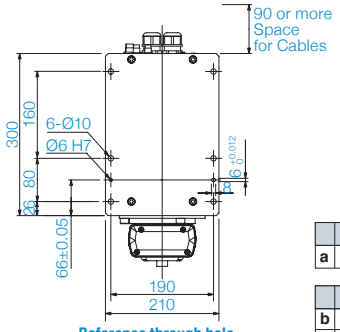
[Units: mm]

Standard-model





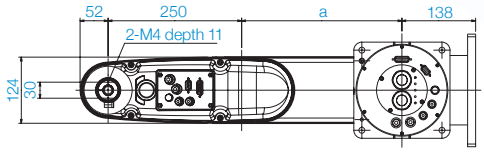


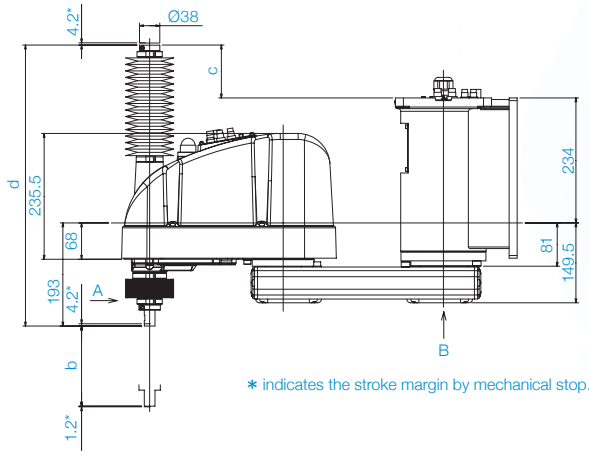


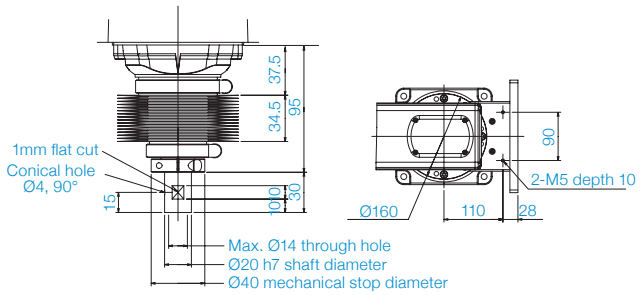
	G6-45xSW	G6-55xSW	G6-65xSW
a	200	300	400

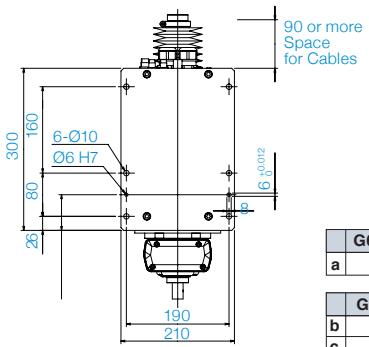
	G6-xx1SW	G6-xx3SW
b	180	330
c	-9	141
d	385	535

Cleanroom-model





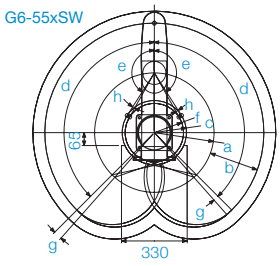




	G6-45xCW	G6-55xCW	G6-65xCW
a	200	300	400

	G6-xx1SW	G6-xx3CW
b	150	300
c	99	249
d	526	676

Motion Range (Wall Mounting)



Model		Wall Mounting			
		G6-45xxW	G6-55xSW/DW	G6-55xCW/PW/DW bellows	G6-65xxW
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

G-Series SCARA Robots

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

Specifications

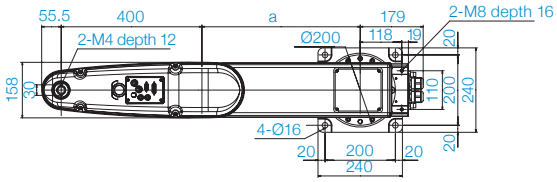
		G10-65x			G10/20-85x			G20-A0x		
Mounting type		**Tabletop**	**Ceiling**	**Wall**	**Tabletop**	**Ceiling**	**Wall**	**Tabletop**	**Ceiling**	**Wall**
Arm length	**Arm #1, #2**	650 mm			850 mm			1000 mm		
Max. operating speed	**Joints #1, #2**	8800 mm/s			11000 mm/s			11500 mm/s		
	Joint #3	180 (150 clean) =1100 mm/sec 420 (390 clean) =2350 mm/sec								
	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	For Clean/Protected models below Z=-360 ~-390	±151deg			
	Joint #3 Std	180 mm / 420 mm								
	Joint #3 Clean	150 mm / 390 mm								
	Joint #4	±360 deg								
Payload	**Rated**	5 kg			G10=5 kg / G20=10 kg			10 kg		
	Maximum	10 kg			G10=10 kg / G20=20 kg			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 downward 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+, RC700A								
Safety standards		CE, ANSI/RIA15.06-2012, UL 1740								

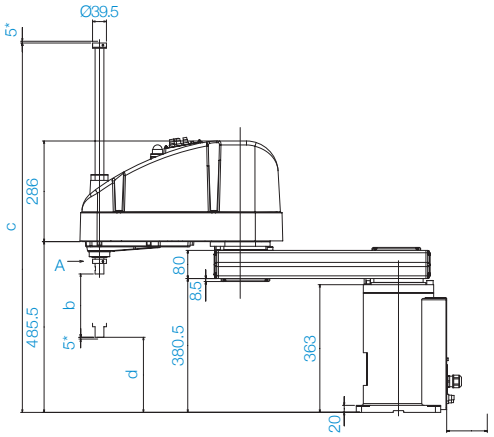
1 Cycle time based on round-trip arch motion (300mm horizontal, 25mm vertical) with 2kg payload (path coordinates optimized fo r maximum speed).
2 When payload center of gravity is aligned with Joint #4 ; if not aligned with Joint #4, set parameters using INERTIA command.
3 Complies with ISO Class 3 (ISO14644-1) and older Class 10 (less than 10 0.1µm particles per 28,317cm^3:1cft) cleanroom standards.
4 G10/G20 dustproof robots with optional bellows comply with IP54; G10/20 protected models comply with IP65.

Outer Dimensions (Tabletop Mounting)

[Units: mm]

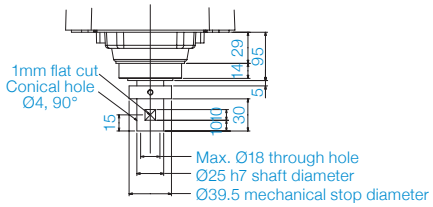
Standard-model



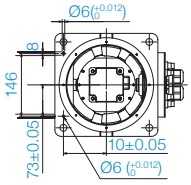


∗ indicates the stroke margin by mechanical stop.

90 or more Space for Cables



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

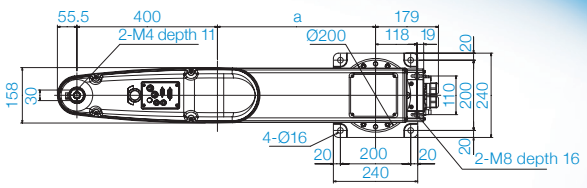


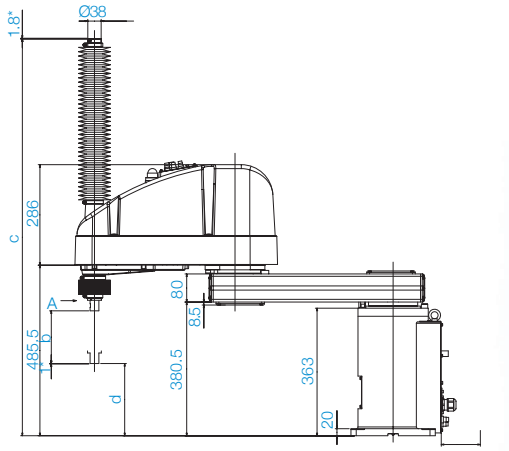
Reference through hole
(View from the bottom of the base)

	G10-65xS	G10/20-85xS	G20-A0xS
a	250	450	600

	G10/20-xx1S	G10/20-xx4S
b	180	330
c	813.5	1053.5
d	213.5	-26.5

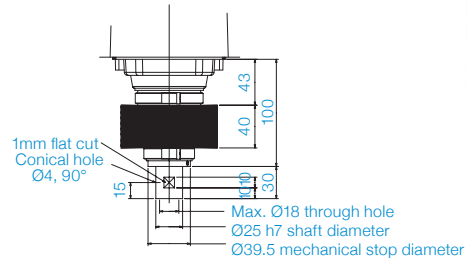
Cleanroom-model



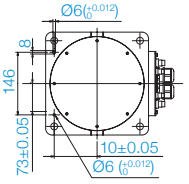


∗ indicates the stroke margin by mechanical stop.

90 or more Space for Cables



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



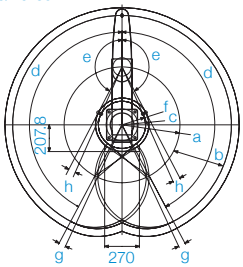
Reference through hole
(View from the bottom of the base)

	G10-65xC	G10/20-85xC	G20-A0xC
a	250	450	600

	G10/20-xx1C	G10/20-xx4C
b	150	390
c	870.5	1129.5
d	205.5	-34.5

Motion Range (Tabletop Mounting)

G10/20-85x

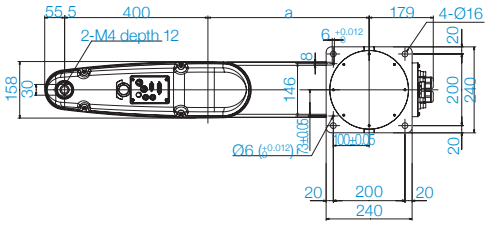


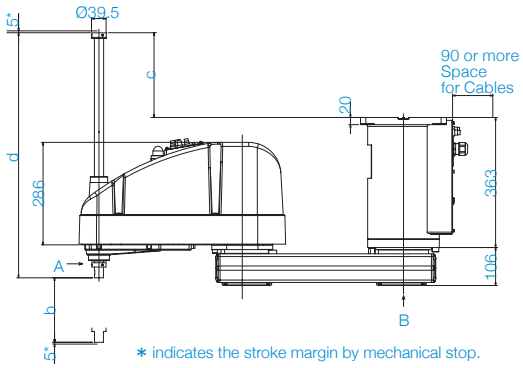
Model		Tabletop Mounting				
		G10-65x	G10/20-85x			G20-A0
			S/D	C/P/D bellows		
a	Length of Arm #1 (mm)	250	450			600
b	Length of Arm #2 (mm)	400	400			400
c	Motion range	212.4	207.8	Z:0 ~ -360	207.8	307
				Z:-360 ~ -390	218.3	
d	Motion range of Joint #1 (deg)	152	152			152
e	Motion range of Joint #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 #2 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)

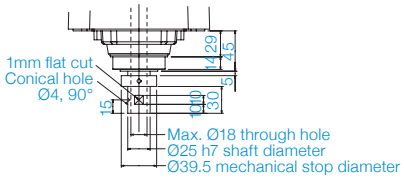
[Units: mm]

Standard-model

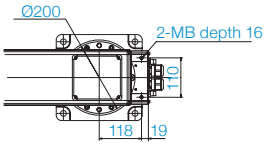




* indicates the stroke margin by mechanical stop.



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

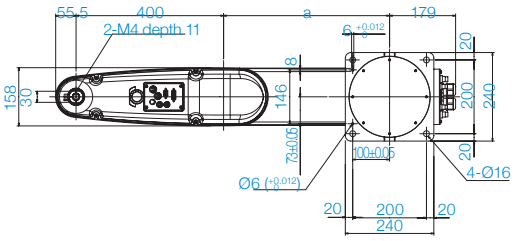


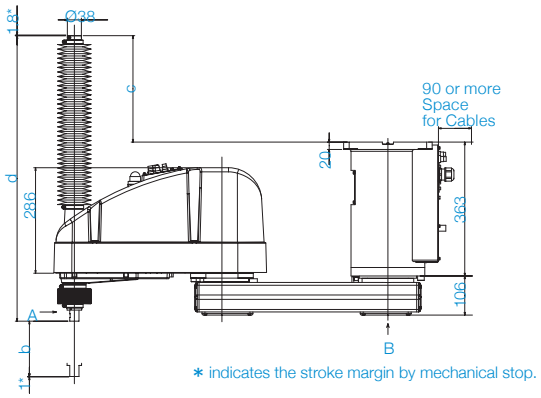
Detail of "B"

	G10-65xSR	G10/20-85xSR	G20-A0xSR
a	250	450	600

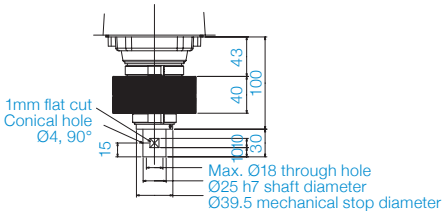
	G10/20-xx1SR	G10/20-xx4SR
b	180	420
c	-27.5	212.5
d	420	660

Cleanroom-model

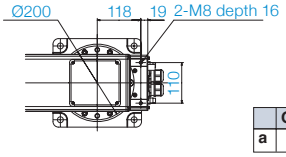




* indicates the stroke margin by mechanical stop.



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



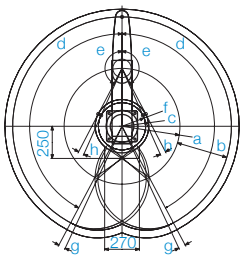
Detail of "B"

	G10-65xCR	G10/20-85xCR	G20-A0xCR
a	250	450	600

	G10/20-xx1CR	G10/20-xx4CR
b	150	390
c	29.5	288.5
d	515	774

Motion Range (Ceiling Mounting)

G10/20-85xxR

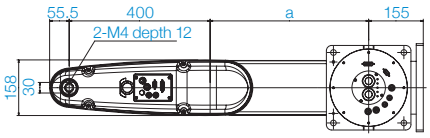


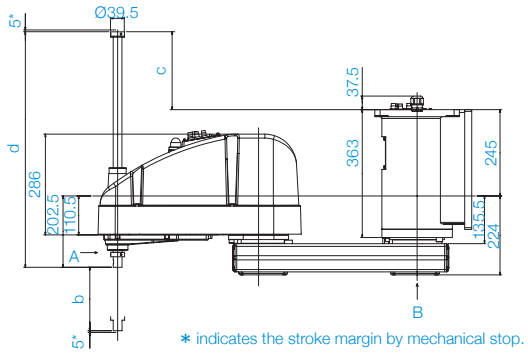
Model		Ceiling Mounting			
		G10-65xxR	G10/20-85x		G20-A0xxW
			SR/DR	CR/PR/DR bellows	
a	Length of Arm #1 (mm)	250	450		600
b	Length of Arm #2 (mm)	400	400		400
c	Motion range	306.5	207.8	218.3	307
d	Motion range of Joint #1 (deg)	107	152		152
e	Motion range of Joint #2 (deg)	130	152.5	151	152.5
f	Mechanical 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)

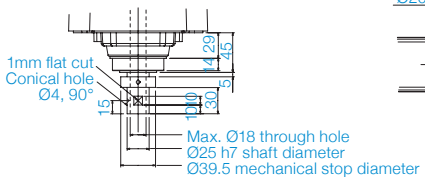
[Units: mm]

Standard-model

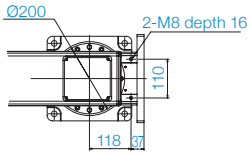




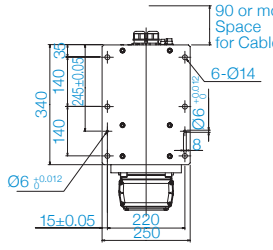
∗ indicates the stroke margin by mechanical stop.



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



Detail of "B"

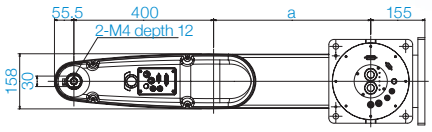


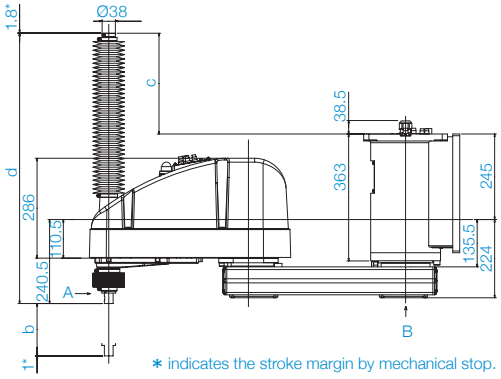
Reference through hole
(View from the bottom of the base)

	G10-65xSW	G10/20-85xSW	G20-A0xSW
a	250	450	600

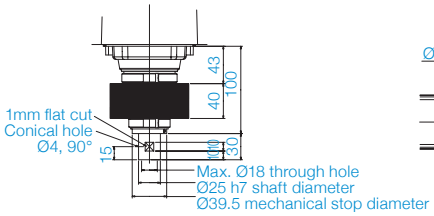
	G10/20-xx1SW	G10/20-xx4SW
b	180	420
c	-27.5	212.5
d	420	660

Cleanroom-model

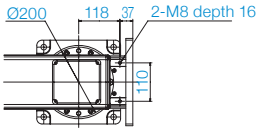




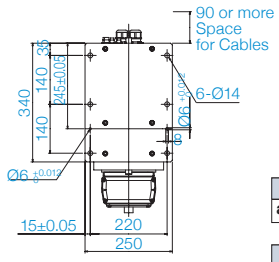
∗ indicates the stroke margin by mechanical stop.



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



Detail of "B"



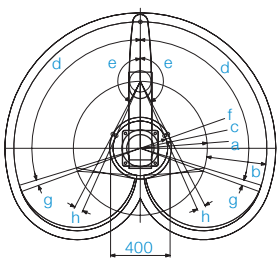
Reference through hole
(View from the bottom of the base)

	G10-65xCW	G10/20-85xCW	G20-A0xCW
a	250	450	600

	G10/20-xx1CW	G10/20-xx4CW
b	150	390
c	29.5	288.5
d	515	774

Motion Range (Wall Mounting)

G10/20-85xxW



Model		Wall Mounting			
		G10-65xxW	G10/20-85x		G20-A0xxW
			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

LS3 LS-Series SCARA Robots

Fast, Compact and Low Cost

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

Specifications

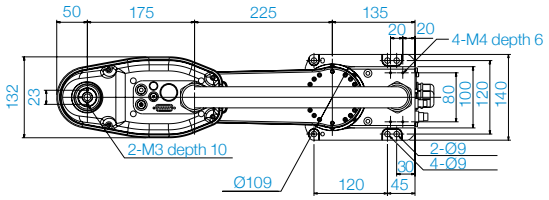
		LS3-401
Mounting type		Tabletop
Arm length	Arm #1, #2	400 mm
Max. operating speed	Joints #1, #2	6000 mm/s
	Joint #3	1100 mm/s
	Joint #4	2600 deg/s
Weight (cables not included)		14 kg
Repeatability	Joints #1, #2	±0.01 mm
	Joint #3	±0.01 mm
	Joint #4	±0.01 deg
Max. motion range	Joint #1	±132 deg
	Joint #2	±141 deg
	Joint #3 Std	150 mm
	Joint #3 Clean	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 downward 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, ANSI/RIA15.06-2012

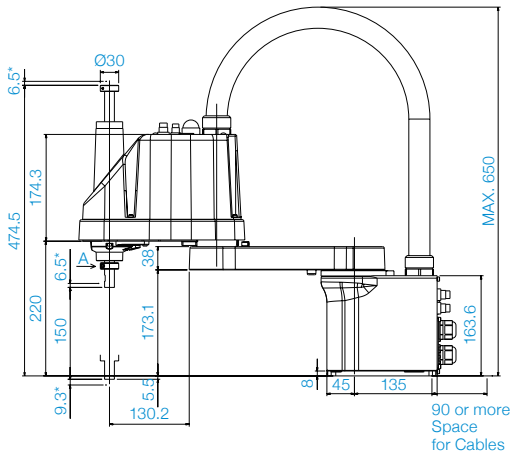
1 Cycle time based on round-trip arch motion (300mm horizontal, 25mm vertical) with 1kg payload (path coordinates optimized for maximum speed).
2 When payload center of gravity is aligned with Joint #4 ; if not aligned with Joint #4, set parameters using INERTIA command.
3 Complies with ISO Class 4 cleanroom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

Outer Dimensions (Tabletop Mounting)

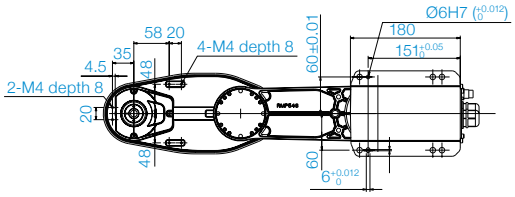
[Units: mm]

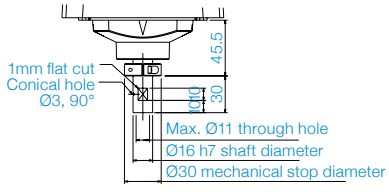
Standard-model





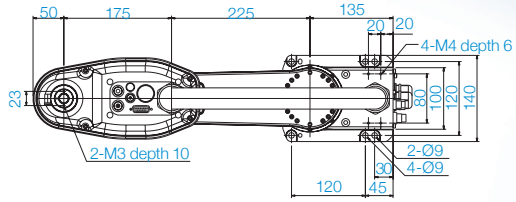
∗ indicates the stroke margin by mechanical stop.

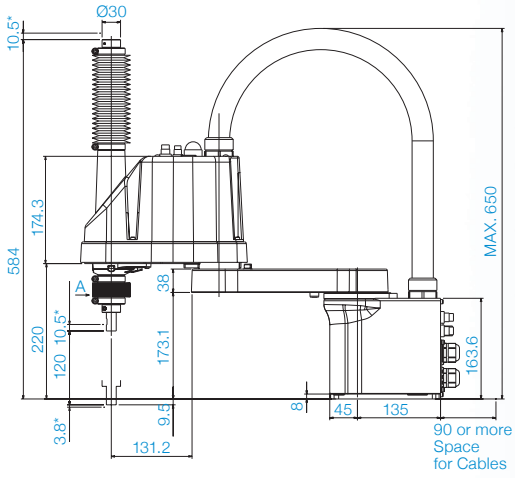




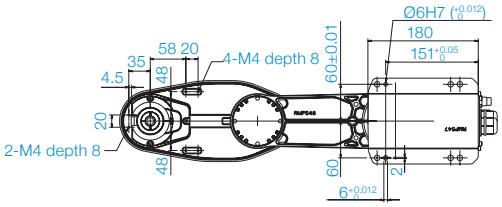
Detail of "A"

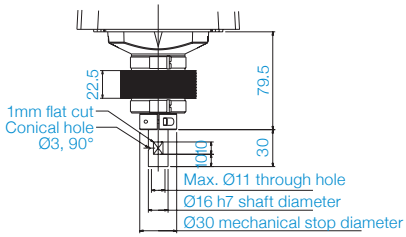
Cleanroom-model





∗ indicates the stroke margin by mechanical stop.

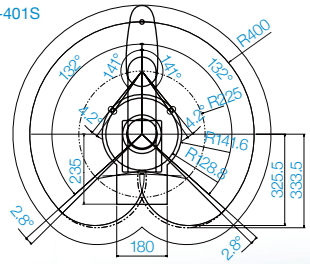




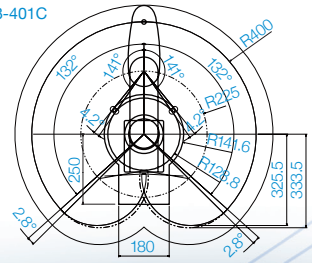
Detail of "A"

Motion Range (Tabletop Mounting)

LS3-401S



LS3-401C



LS6

LS-Series SCARA Robots

Low Cost and High Performance

- Arm Lengths Range from 500-700 mm
- Industry Leading Ease of Use
- Fast Cycle Throughput

Specifications

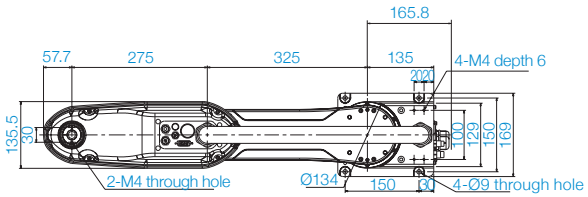
		LS6-502	LS6-602	LS6-702
Mounting type			**Tabletop**	
Arm length	**Arm #1, #2**	500 mm	600 mm	700 mm
Max. operating speed	**Joints #1, #2**	6150 mm/s	6800 mm/s	7450 mm/s
	Joint #3	1100 mm/s		
	Joint #4	2000°/s		
Weight(cables not included)		17 kg	17 kg	18 kg
Repeatability	**Joints #1, #2**	±0.02 mm		
	Joint #3	±0.01 mm		
	Joint #4	±0.01°		
Max. motion range	**Joint #1**	±132°		
	Joint #2	±150°		
	Joint #3 (Cleanroom model)	200 mm (170 mm)		
	Joint #4	±360°		
Payload	**Rated**	2 kg		
	Maximum	6 kg		
Standard cycle time[1]		0.38 sec	0.39 sec	0.42 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 downward force		100 N		
Home		Home-return-less		
Installed wire for customer use		15Pin D-Sub		
Installed pneumatic tube for customer use		Φ4mm×1, Φ6mm×2		
Installation environment		Standard / Cleanroom[3]		
Applicable controller		RC90		
Safety standard		CE, ANSI/RIA15.06-2012		

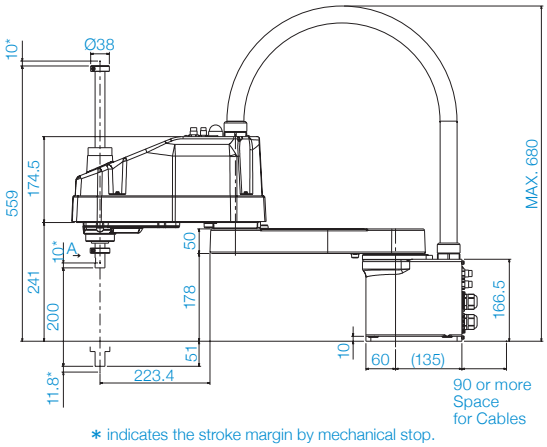
1 Cycle time based on round-trip arch motion (300mm horizontal, 25mm vertical) with 1kg payload (path coordinates optimized for maximum speed).
2 When payload center of gravity is aligned with Joint #4 ; if not aligned with Joint #4, set parameters using INERTIA command.
3 Complies with ISO Class 4 cleanroom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

Outer Dimensions (Tabletop Mounting)

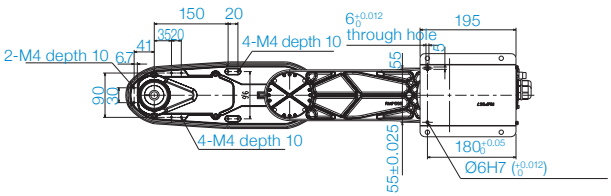
[Units: mm]

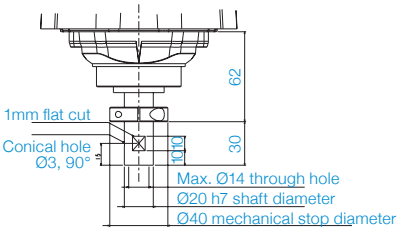
Standard-model





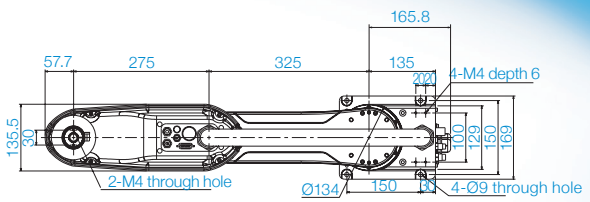
∗ indicates the stroke margin by mechanical stop.

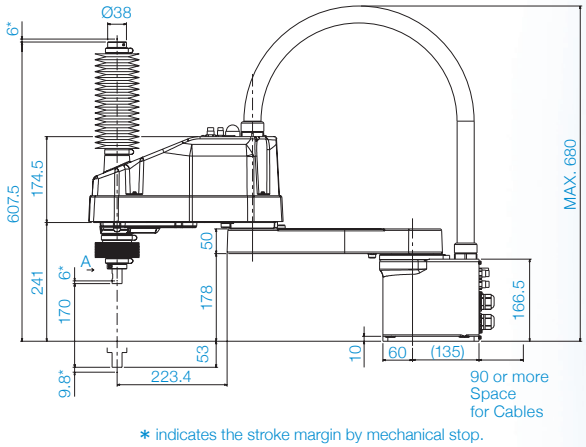




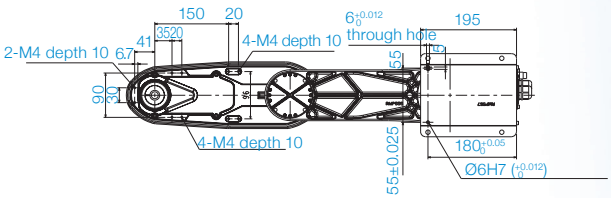
Detail of "A"

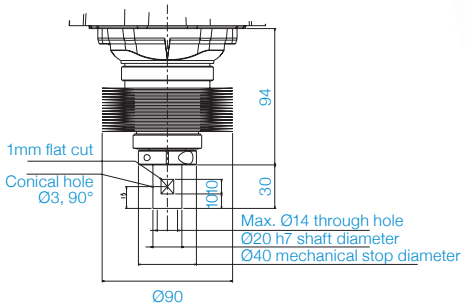
Cleanroom-model





∗ indicates the stroke margin by mechanical stop.

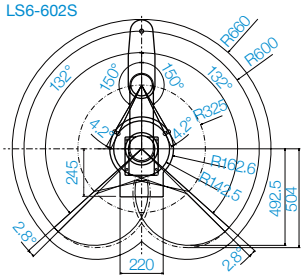




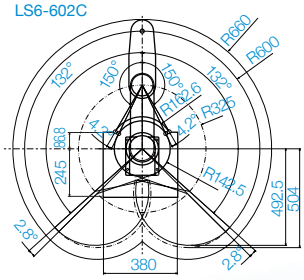
Detail of "A"

Motion Range (Tabletop Mounting)

LS6-602S



LS6-602C



Model	Standard			Cleanroom		
	LS6-502S	LS6-602S	LS6-702S	LS6-50 2C	LS6-60 2C	LS6-70 2C
a Length of Arm #1 +Arm #2 (mm)	5006	00	700	5006	00	700
b Length of Arm #1 (mm)	225	325	425	225	325	425
c Length of Arm #2 (mm)	275			275		
d Motion range of Joint #1 (°)	132			132		
e Motion range of Joint #2 (°)	150			150		
f Motion range	138.11	62.6	232.o	138.11	62.6	232.0
g Motion range at the rear	425.64	92.5	559.4	425.64	93.5	559.4
h Joint #1 angle to hit mechanical stop (°)	2.8			2.8		
i Joint #2 angle to hit mechanical stop (°)	4.2			4.2		
j Mechanical stop area	121.81	42.5	214.0	121.81	42.5	214.0
k Mechanical stop area at the rear	433.55	04.0	574.5	433.55	04.0	574.5
m Motion range	240	220	20	300	380	500

LS20

LS-Series SCARA Robots

High Performance and Payloads at a Low Cost

- Fast Cycle Throughput
- Long Reach 800 mm and 1000 mm Arm Lengths
- ISO 4 Clean Models Available

Specifications

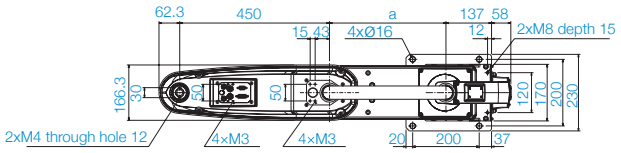
		LS20-804	LS20-A04
Mounting type		Tabletop	
Arm length	Arm #1, #2	800 mm	1000 mm
Max. operating speed	Joints #1, #2	9940 mm/s	11250 mm/s
	Joint #3	2020 mm/s	
	Joint #4	1400°/s	
Weight(cables not included)		47 kg	50 kg
Repeatability	Joints #1, #2	±0.025 mm	
	Joint #3	±0.01 mm	
	Joint #4	±0.01°	
Max. motion range	Joint #1	±132°	
	Joint #2	±152 °	
	Joint #3 (Cleanroom model)	420 mm (390 mm)	
	Joint #4	±360°	
Payload	Rated	10 kg	
	Maximum	20 kg	
Standard cycle time[1]		0.38 sec	0.42 sec
Joint #4 allowable moment of inertia[2]	Rated	0.05kg • m2	
	Maximum	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 downward force		250 N	
Home		Home-return-less	
Installed wire for customer use		15Pin: D-Sub, 9Pin: D-Sub	
Installed pneumatic tube for customer use		Φ4mm×2, Φ6mm×2	
Installation environment		Standard /Cleanroom[3]	
Applicable controller		RC90	
Safety standard		CE, ANSI/RIA15.06-2012	

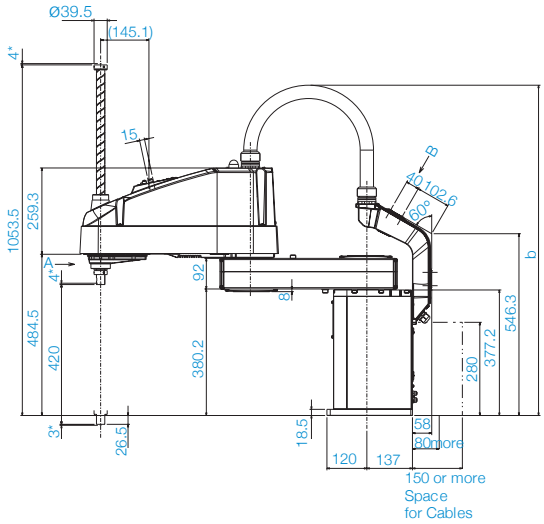
1 Cycle time based on round-trip arch motion (300mm horizontal, 25mm vertical) with 1kg payload (path coordinates optimized for maximum speed).
2 When payload center of gravity is aligned with Joint #4 ; if not aligned with Joint #4, set parameters using INERTIA command.
3 Complies with ISO Class 4 cleanroom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

Outer Dimensions (Tabletop Mounting)

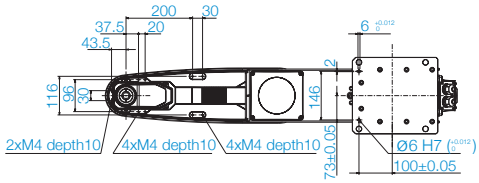
[Units: mm]

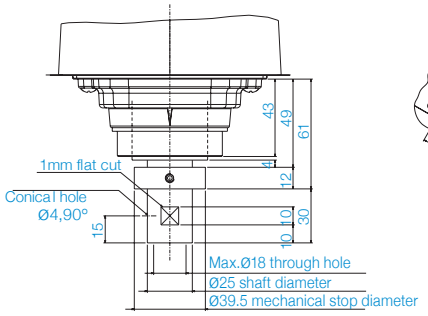
Standard-model



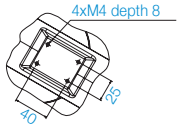


*indicates the stroke margin by mechanical stop.



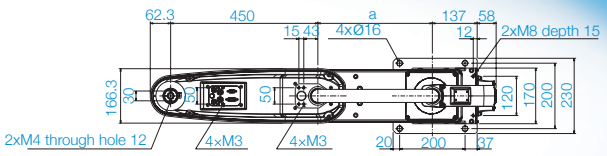


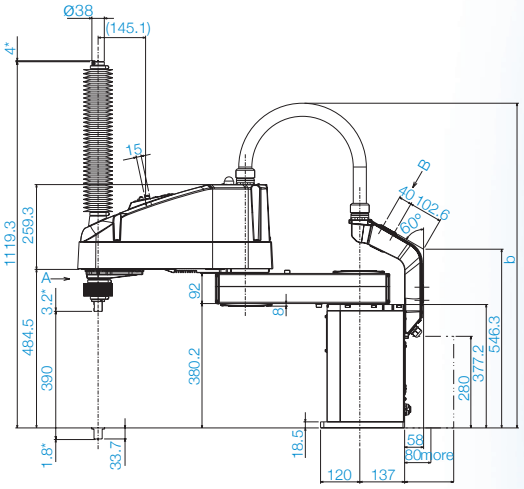
Detail of "A"



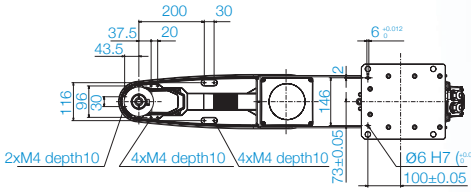
Detail of "B"

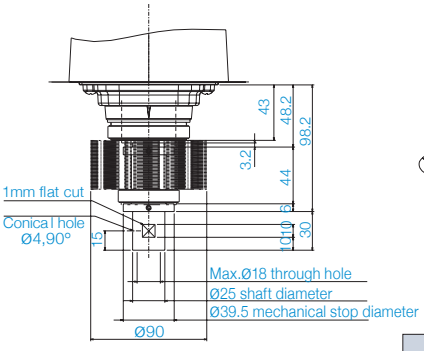
Cleanroom-model



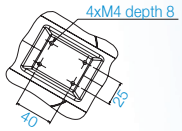


*indicates the stroke margin by mechanical stop.





Detail of "A"

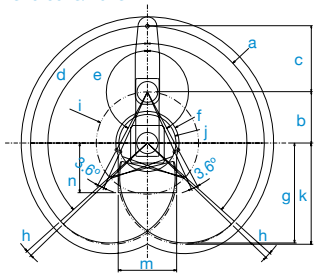


Detail of "B"

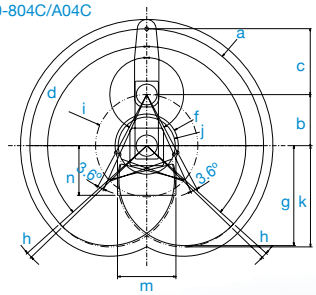
	LS20-804*C	LS20-A04*C
a	350	550
b	1000	1100

Motion Range (Tabletop Mounting)

LS20-804S/A04S



LS20-804C/A04C



Model	Standard		Cleanroom	
	LS20-A04S	LS20-804S	LS20-A04C	LS20-804C
a Length of Arm #1 +Arm #2 (mm)	1000	800	1000	800
b Length of Arm #1 (mm)	550	350	550	350
c Length of Arm #2 (mm)	450		450	
d Motion range of Joint #1 (j)	132		132	
e Motion range of Joint #2 (j)	152		152	
f Motion range	260.7	216.5	260.7	216.5
g Motion range at the rear	818	684.2	818	684.2
h Joint #1 angle to hit mechanical stop (j)	2		2	
i Joint #2 angle to hit mechanical stop (j)	3.6		3.6	
j Mechanical stop area	232.8	195.3	232.8	195.3
k Mechanical stop area at the rear	832.1	693.1	832.1	693.1
m Motion range	290	400	330	400
n Motion range	265	340	265	340

T-Series All-in-One SCARA Robots

Powerful, Low-cost Automation
The Ultimate Slide Alternative

- Efficient Operation
- Easy to Install
- Built-in Controller
- Small and Lightweight
- Arm Length 400 mm
- No Battery Required for Encoder
- Comes Standard with 110 V and 220 V Power
- Easily Accessible Inputs and Outputs

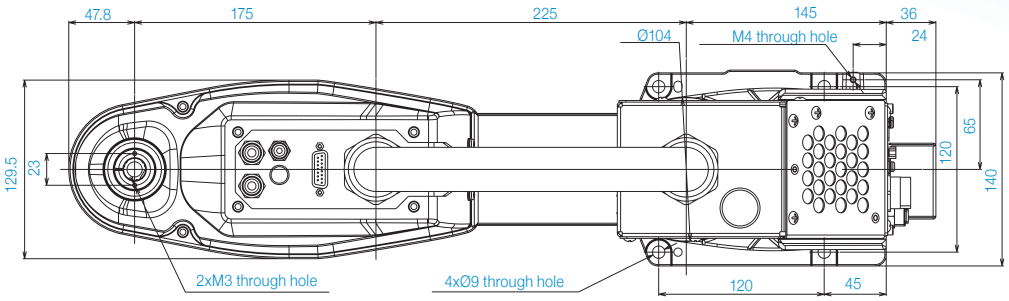
Specifications

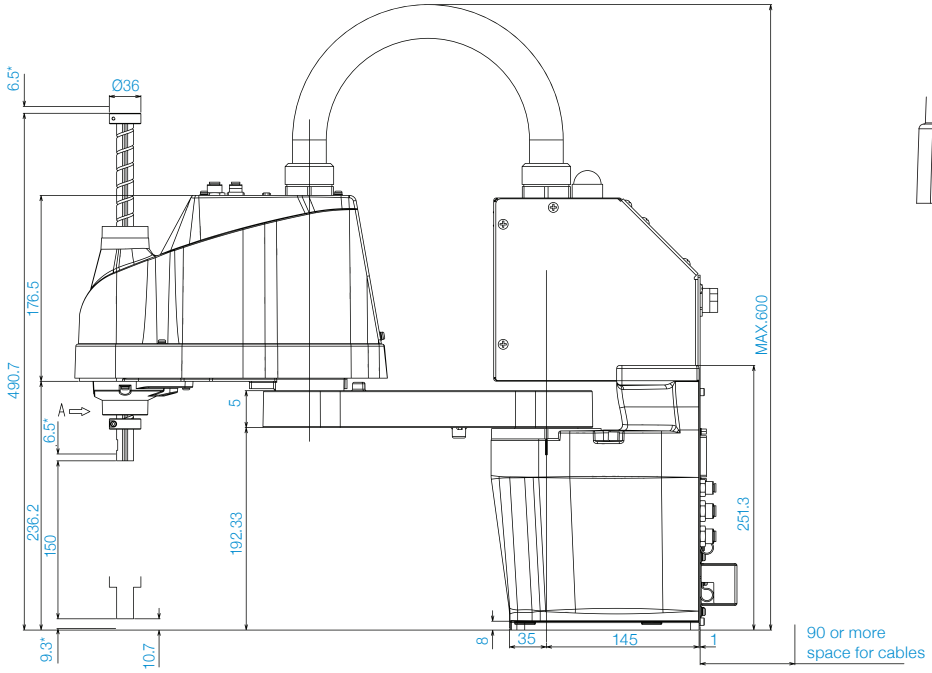
		T3-401
Mounting type		**Tabletop**
Arm length	**Joints #1, #2**	400 mm
Payload	**Rated**	1 kg
	Maximum	3 kg
Repeatability	**Joints #1, #2**	±0.02 mm
	Joint #3	±0.02 mm
	Joint #4	±0.02 deg
Standard cycle time[1]		0.54 sec
Max. motion range	**Joint #1**	±132 deg
	Joint #2	±141 deg
	Joint #3	150 mm
	Joint #4	±360 deg
Weight (cables not included)		16 kg: 35lb
Joint #4 allowable moment of inertia	**Rated**	0.003 kg•m2
	Maximum	0.01 kg•m2
Joint #3 downward force		83 N
User electric lines	**Hand I/O**	IN6/OUT4 (D-Sub 15Pin)
	User I/O	IN18/OUT12
User pneumatic lines		Φ6mm×2, Φ4mm×1
Safety standards		CE, ANSI/RIA15.06-2012, UL 1740

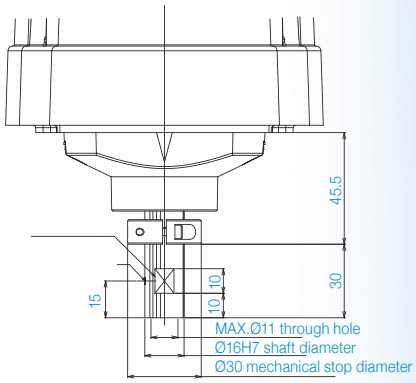
1 Cycle time based on round-trip arch motion (300mm horizontal, 25mm vertical) with 1kg payload (path coordinates optimized for maximum speed).

Outer Dimensions

[Units: mm]

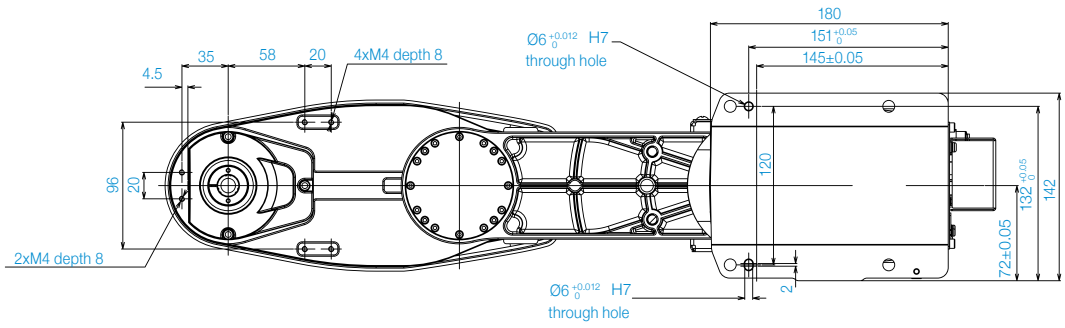




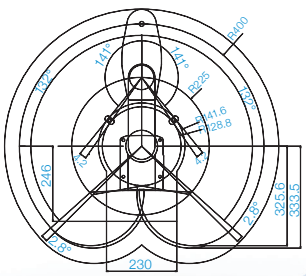


Detail of A

* indicates the stroke margin by mechanical stop.



Motion Range (Tabletop Mounting)



RS3

RS-Series SCARA Robots

High Performance SCARA Plus

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

Specifications

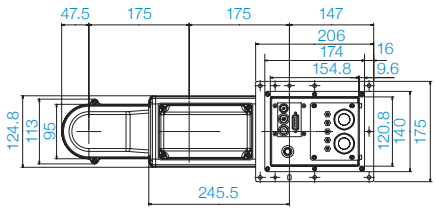
		RS3-351
Mounting type		Ceiling
Arm length	Arm #1, #2	350 mm
Max. operating speed	Joints #1, #2	6237 mm/s
	Joint #3	1100 mm/s
	Joint #4	2600 deg/s
Weight (cables not included)		17 kg
Repeatability	Joints #1, #2	±0.01 mm
	Joint #3	±0.01 mm
	Joint #4	±0.01 deg
Max. motion range	Joint #1	±225 deg
	Joint #2	±225 deg
	Joint #3 Std Joint #3 Clean	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 downward force		150 N
Electric lines		15Pin (D-Sub)
Pneumatic lines		Φ4mm×1, Φ6mm×2
Installation environment		Standard/Cleanroom[3] & ESD
Available controllers		RC180, RC620+, RC700A
Safety standards		CE, ANSI/RIA15.06-2012, UL 1740

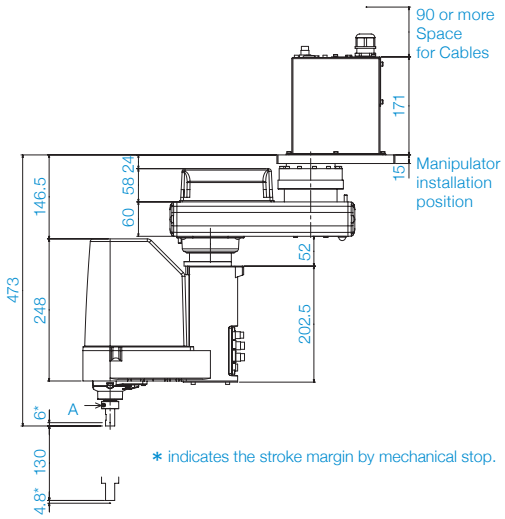
1 Cycle time based on round-trip arch motion (300mm horizontal, 25mm vertical) with 1kg payload (path coordinates optimized for maximum speed).
2 When payload center of gravity is aligned with Joint #4 ; if not aligned with Joint #4, set parameters using INERTIA command.
3 Complies with ISO Class 3 (ISO14644-1) and older Class 10 (less than 100.1 µm particles per 28,317cm^3:1cft) cleanroom standards.

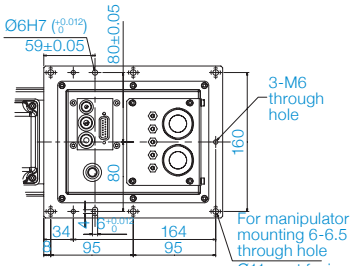
Outer Dimensions (Ceiling Mounting)

[Units: mm]

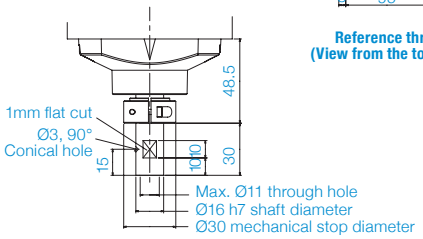
Standard-model





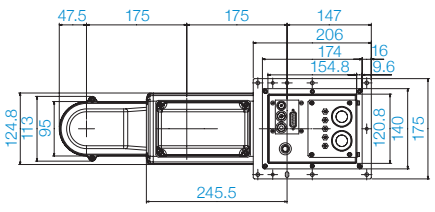


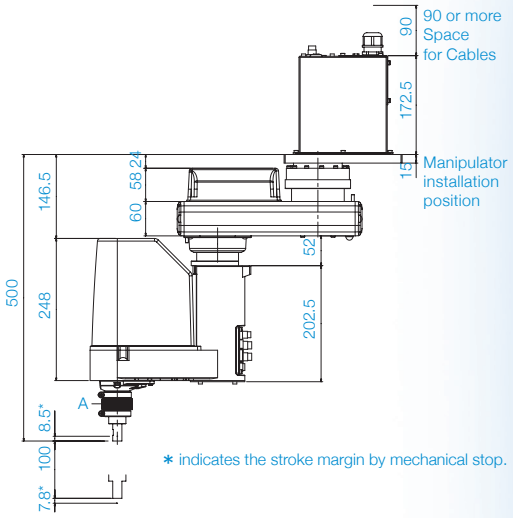
Reference through hole (View from the top of the base)

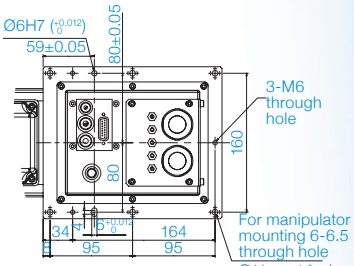


Detail of "A" (Calibration point position of Joints #3 and #4)

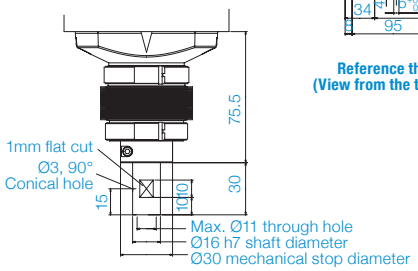
Cleanroom-model





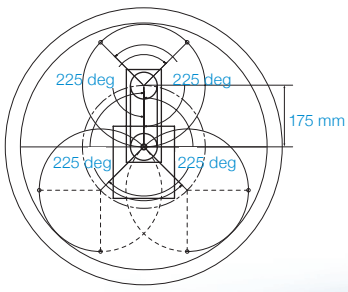


Reference through hole (View from the top of the base)



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 Workspace Design

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

Specifications

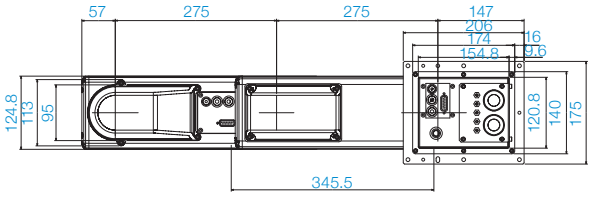
		RS4-551
Mounting type		Ceiling
Arm length	Arm #1, #2	550 mm
Max. operating speed	Joints #1, #2	7400 mm/s
	Joint #3	1100 mm/s
	Joint #4	2600 mm/s
Weight (cables not included)		19 kg
Repeatability	Joints #1, #2	±0.015 mm
	Joint #3	±0.01 mm
	Joint #4	±0.01 deg
Max. motion range	Joint #1	±225 deg
	Joint #2	±225 deg
	Joint #3 Std Joint #3 Clean	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 downward force		150 N
Electric lines		15Pin (D-Sub)
Pneumatic lines		Φ4mm×1, Φ6mm×2
Installation environment		Standard/Cleanroom[3] & ESD
Available controllers		RC180, RC620+, RC700A
Safety standards		CE, ANSI/RIA15.06-2012, UL 1740

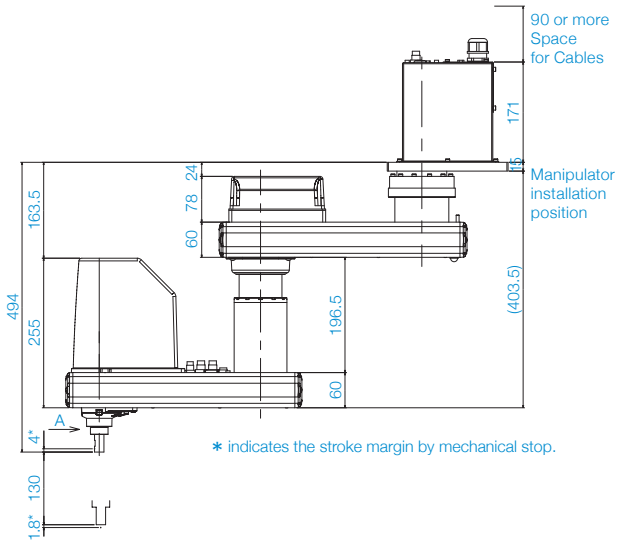
1 Cycle time based on round-trip arch motion (300mm horizontal, 25mm vertical) with 1kg payload (path coordinates optimized for maximum speed).
2 When payload center of gravity is aligned with Joint #4 ; if not aligned with Joint #4, set parameters using INERTIA command.
3 Complies with ISO Class 3 (ISO14644-1) and older Class 10 (less than 100.1 µm particles per 28,317cm³:1cft) cleanroom standards.

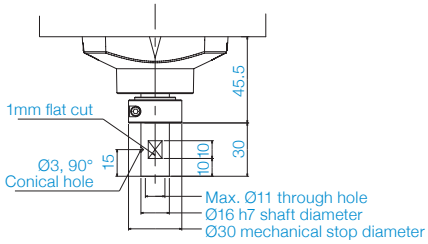
Outer Dimensions (Ceiling Mounting)

[Units: mm]

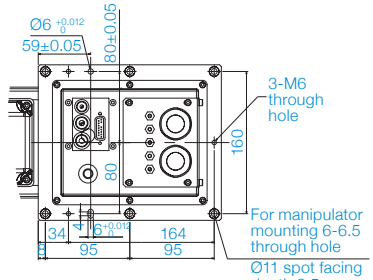
Standard-model





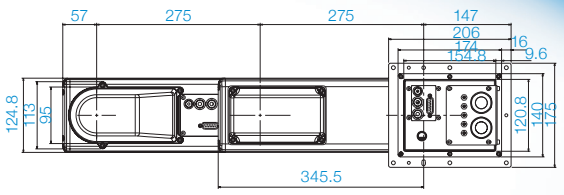


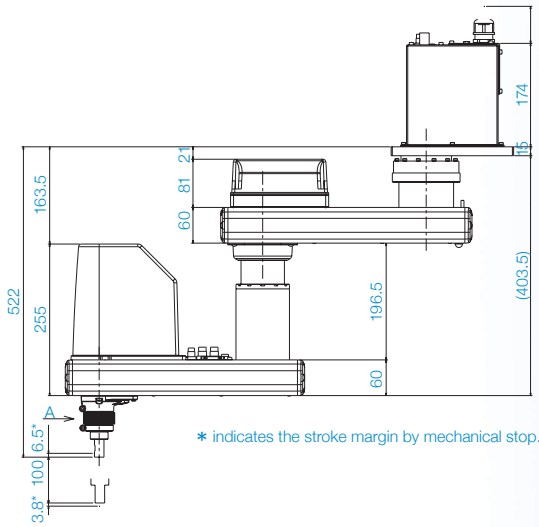
Detail of "A"
(Calibration point position of Joints #3 and #4)

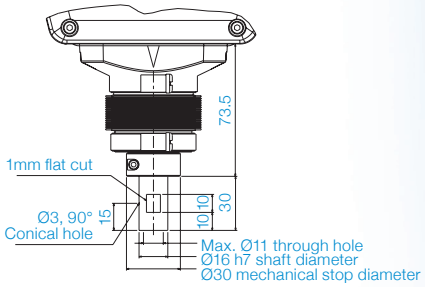


Reference through hole
(View from the top of the base)

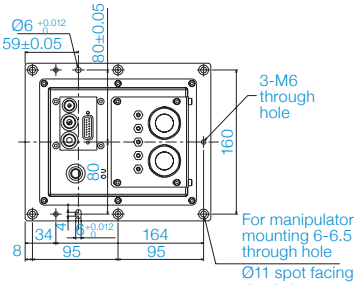
Cleanroom-model





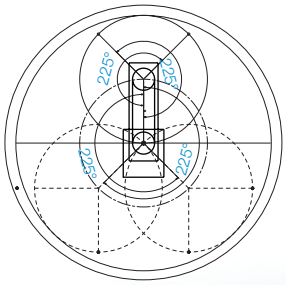


Detail of "A"
(Calibration point position of Joints #3 and #4)



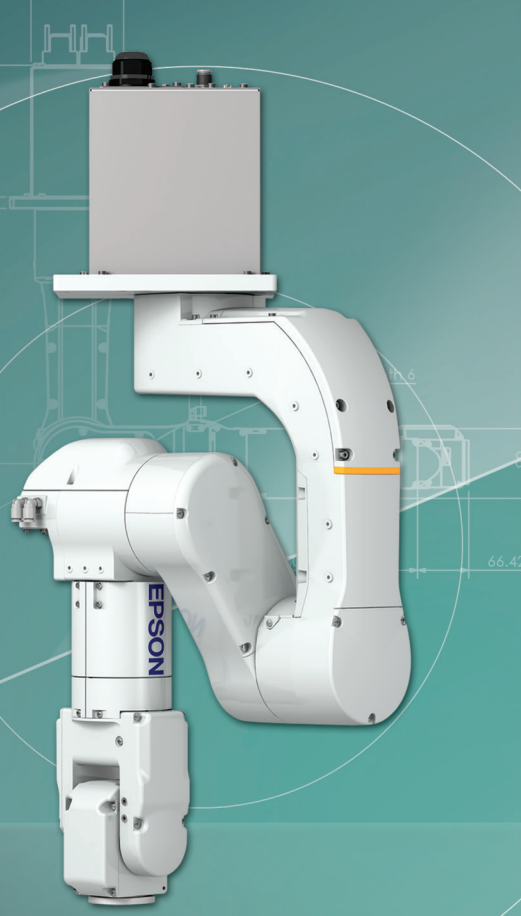
Reference through hole
(View from the top of the base)

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

Flexion N2 6-Axis Robots



Space-Saving 6-Axis Robot with Revolutionary Design

- New Compact Folding Arm Technology – World's First*
- Maximizes Motion Efficiency for Faster Cycle Times*
- Reduces Required Workspace Area by up to 40% Versus Standard 6-Axis Robots*
- Unique Tight Space Motion Capability Keeps Arm Extremities Out of the Way*
- 450 mm Reach and 2.5 kg Maximum Payload

*Features Exclusive to Epson's N-Series Technology

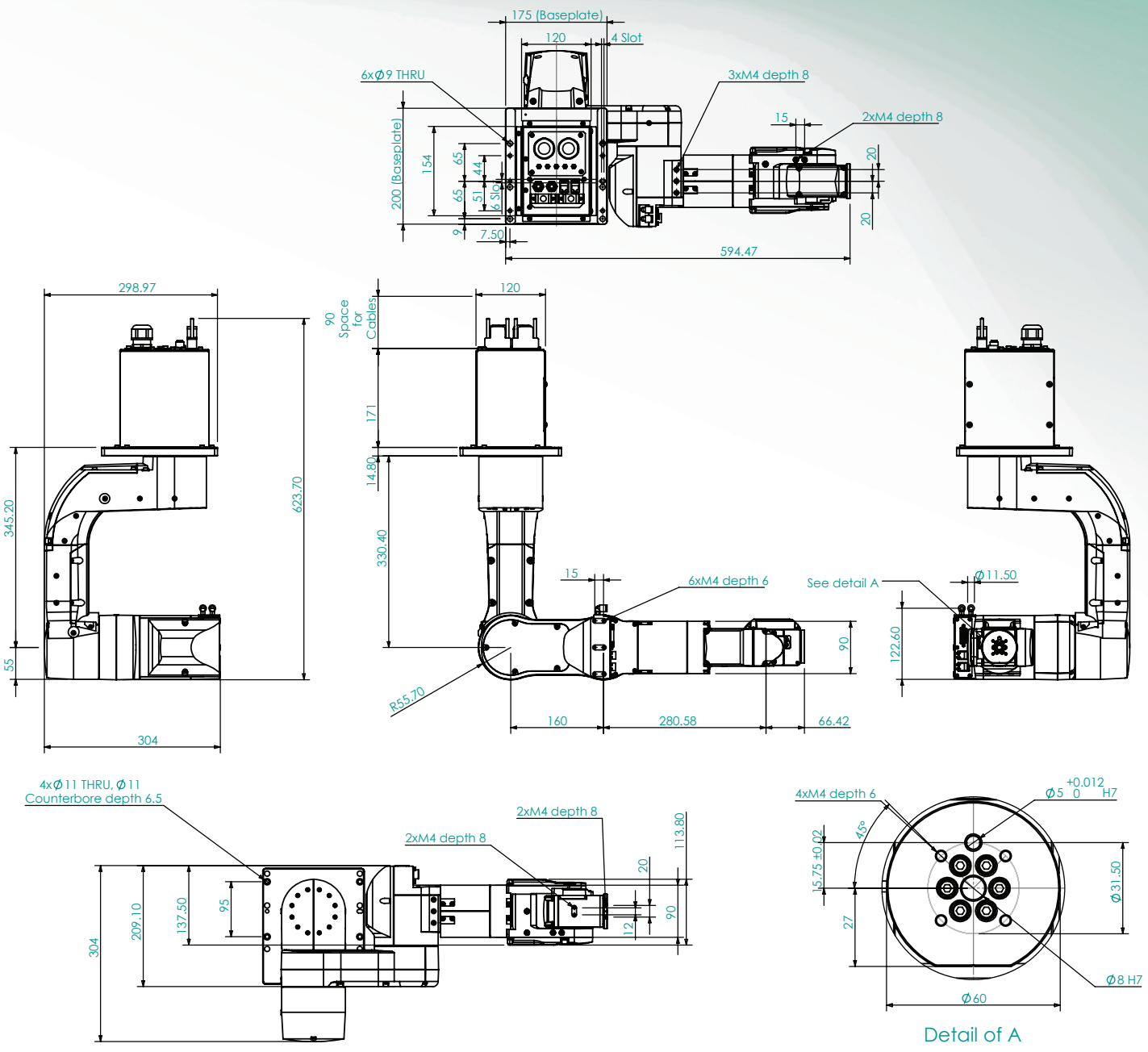
Specifications

		N2-A450	
Mounting type		Tabletop[1]	Ceiling
Degree of freedom		6	
Max. motion range	**P point: through the center of J4/J5/J6**	450mm	
Wrist flange surface		532.2mm	
Max. operating speed	**Joint #1**	297 °/s	
	Joint #2	297 °/s	
	Joint #3	356°/s	
	Joint #4	356°/s	
	Joint #5	360°/s	
	Joint #6	360°/s	
Weight (cable not included)		19 kg	
Repeatability	**Joint #1-#6**	±0.02mm	
Max. motion range	**Joint #1**	±180°	
	Joint #2	±180°	
	Joint #3	±180°	
	Joint #4	±195°	
	Joint #5	±130	
	Joint #6	±360°	
Payload[2]	**Rated**	1 kg	
	Maximum	2.5 kg	
Allowable moment of inertia[3]	**Joint #4**	0.2 kg•m2	
	Joint #5	0.2 kg•m2	
	Joint #6	0.08 kg•m2	
Motor power consumption	**Joint #1**	100W	
	Joint #2	100W	
	Joint #3	100W	
	Joint #4	30W	
	Joint #5	30W	
	Joint #6	15W	
Installed wire for customer use		15 wires (D-sub) 8 pin (RJ45) Cat 5e or equivalent (2 cables)	
Installed pneumatic tube for customer use		Φ6 mm pneumatic tubes (2 tubes), Allowable pressure: 0.59 Mpa (6 kgf/cm2) (89 psi)	
Installation environment		Standard	
Available controllers		RC700A	
Safety standards		CE, ANSI/RIA15.06-2012	

1 Manipulators are set to "Ceiling mounting" at shipment. To use the manipulators as "Table Top mounting", you need to change the model settings.
2 Do not exceed the maximum payload.
3 If the center of gravity is at the center of each arm. If the center of gravity is not at the center of each arm, set the eccentric quantity using INERTIA command.

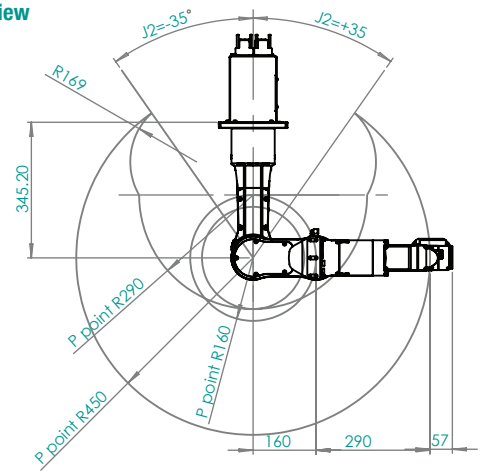
Outer Dimensions

[Units: mm]

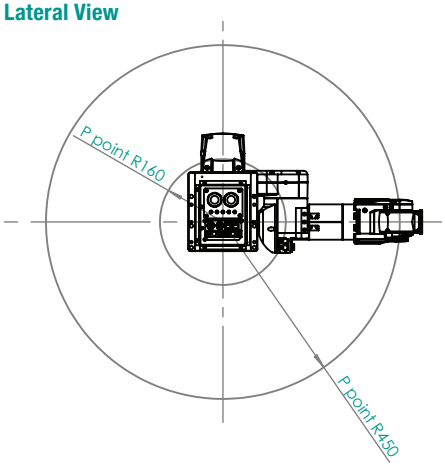


Motion Range

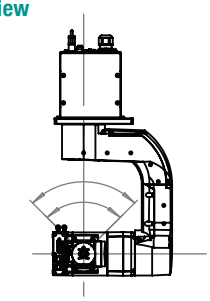
Top View



Lateral View



Front View



J4:-195° J4:+195°
J6:-360° J6:+360°

6-Axis Robots

Compact Yet Powerful with High Repeatability and Fast Speed

- Payloads up to 3 kg
- Compact Wrist Fits in Tight Spaces
- Long, Slim Arm for Greater Reach
- Compact Elbow for Optimum Workcell Layout

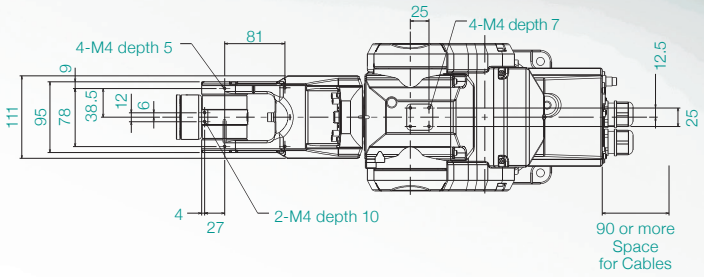
Specifications

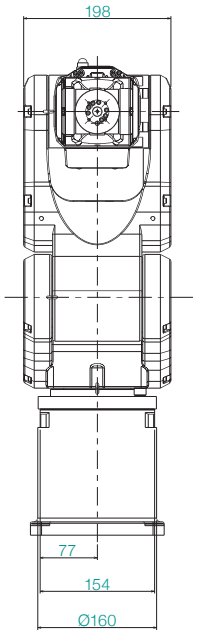
		C3-A601 (C3)			
Mounting type		**Tabletop**	**Ceiling**	**Skewed**	**Wall**
Degrees of freedom		6			
Max. Motion Range	**P point: through the center of J4/J5/J6**	600 mm			
Wrist flange surface		665 mm			
Max. operating speed	**Joint #1**	450°/s			
	Joint #2	450°/s			
	Joint #3	514°/s			
	Joint #4	553°/s			
	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	**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[2] & ESD			
Available controllers		RC180, RC620+			
Safety standards		CE, ANSI/RIA15.06-2012			

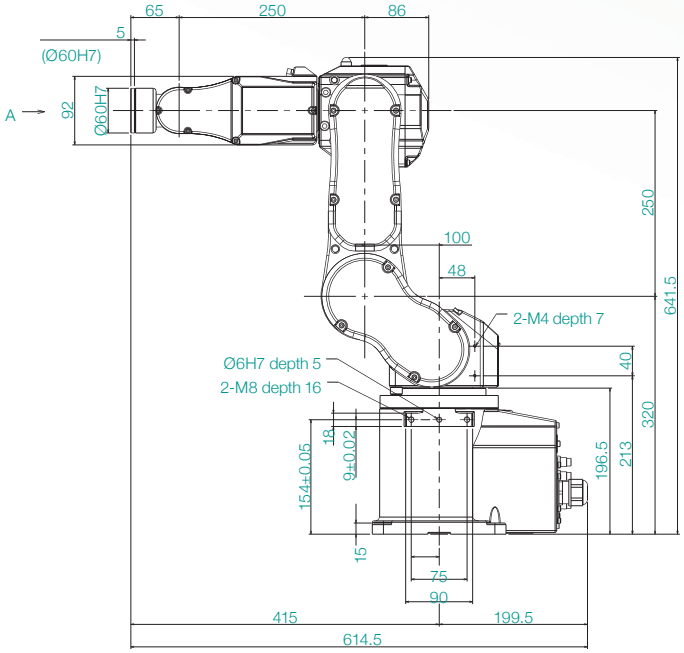
1 Cycle time based on round-trip arch motion (300mm horizontal, 25mm vertical) with 1kg payload (path coordinates optimized for maximum speed).
2 Complies with ISO Class 3 (ISO14644-1) and older Class 10 (less than 100.1 µm particles per 28,317cm^3:1cft) cleanroom standards.

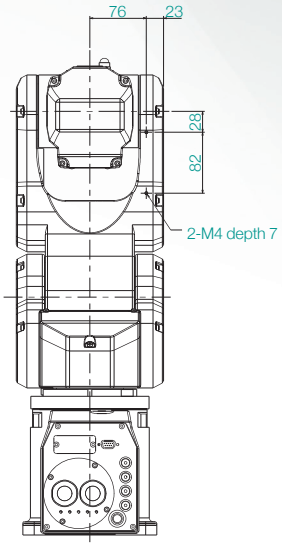
Outer Dimensions

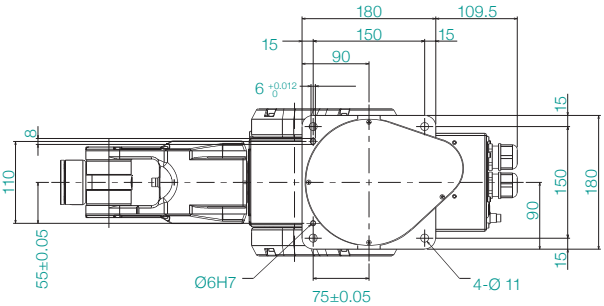
[Units: mm]





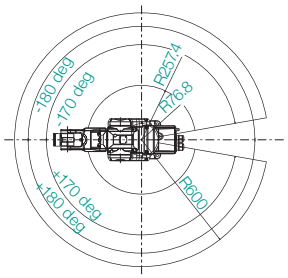




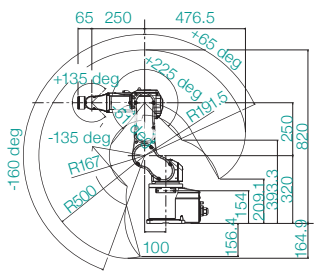


Motion Range

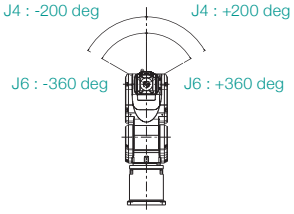
Top View



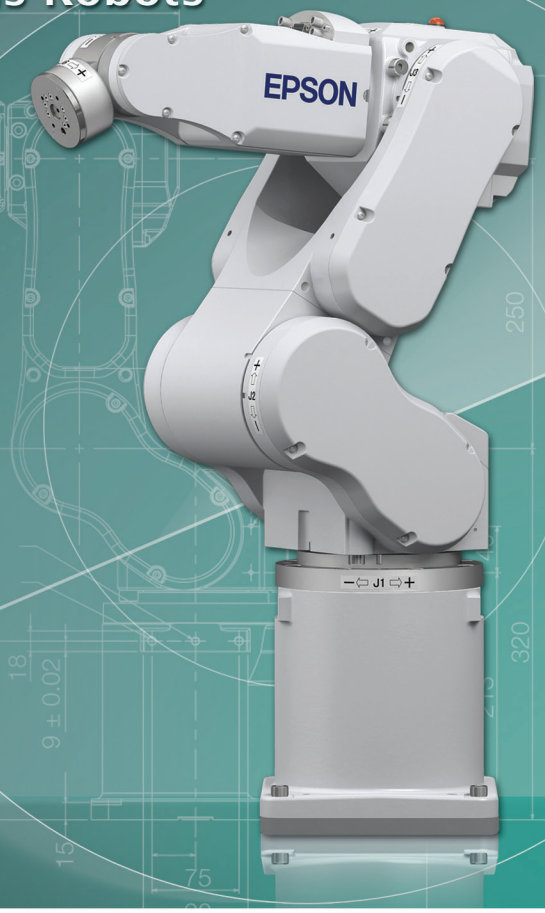
Lateral View



Front View



C4/C4L 6-Axis Robots



High Speed and Exceptional Flexibility

- Arm Lengths from 665-965 mm
- High Speed and Repeatability for Maximum Productivity
- 4 kg Maximum Payload
- Best in Class Motion Range
- Compact Design for Maximum Flexibility

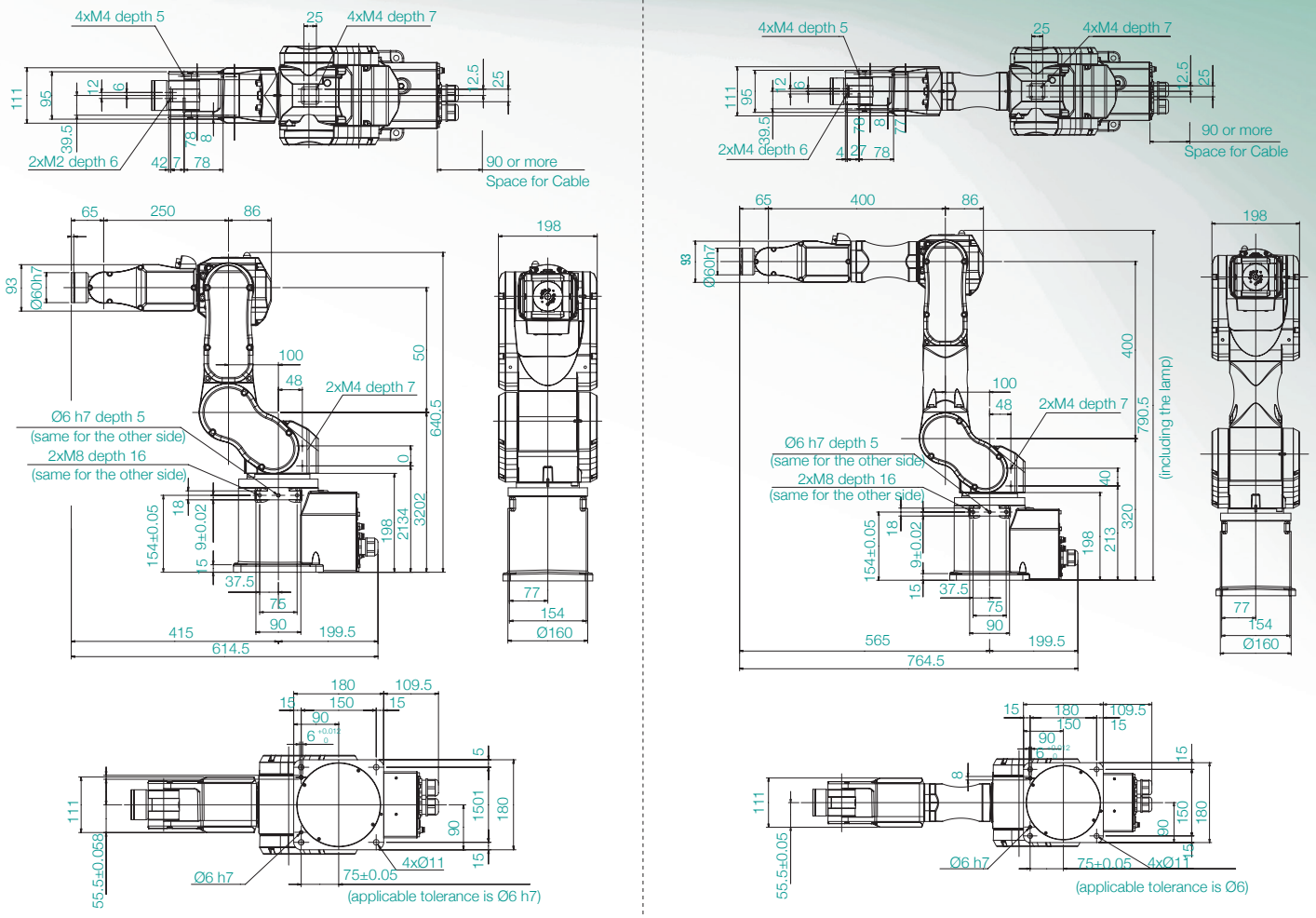
Specifications

		C4-A601 (C4)		C4-A901 (C4L)	
Mounting type		**Tabletop**	**Ceiling**	**Tabletop**	**Ceiling**
Degree of feedom		6			
Max. motion range	**P point: through the center of J4/J5/J6**	600 mm		900 mm	
Wrist flange surface		665 mm		965 mm	
Max. operating speed	**Joint #1**	450°/s		275°/s	
	Joint #2	450°/s		275°/s	
	Joint #3	514°/s		289°/s	
	Joint #4	555°/s			
	Joint #5	555°/s			
	Joint #6	720°/s			
Weight (cables not included)		27 kg		29 kg	
Repeatability	**Joint #1-#6**	±0.02 mm		±0.03 mm	
Max. motion range	**Joint #1**	±170°			
	Joint #2	-160°~+65°			
	Joint #3	-51°~+225°			
	Joint #4	±200°			
	Joint #5	±135°			
	Joint #6	±360°			
Payload	**Rated**	1 kg			
	Maximum	4 kg(5 kg with arm downward positioning)			
Standard cycle time[1]		0.37 sec		0.47 sec	
Allowable moment of inertia	**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[2] & ESD			
Available controllers		RC700A			
Safety standard		CE, ANSI/RIA15.06-2012, UL 1740			

1 Cycle time based on round-trip arch motion (300mm horizontal, 25mm vertical) with 1kg payload (path coordinates optimized for maximum speed).
2 Complies with ISO Class 3 (ISO14644-1) and older Class 10 (less than 10 0.1µm particles per 28,317cm3:1cft) cleanroom standards.

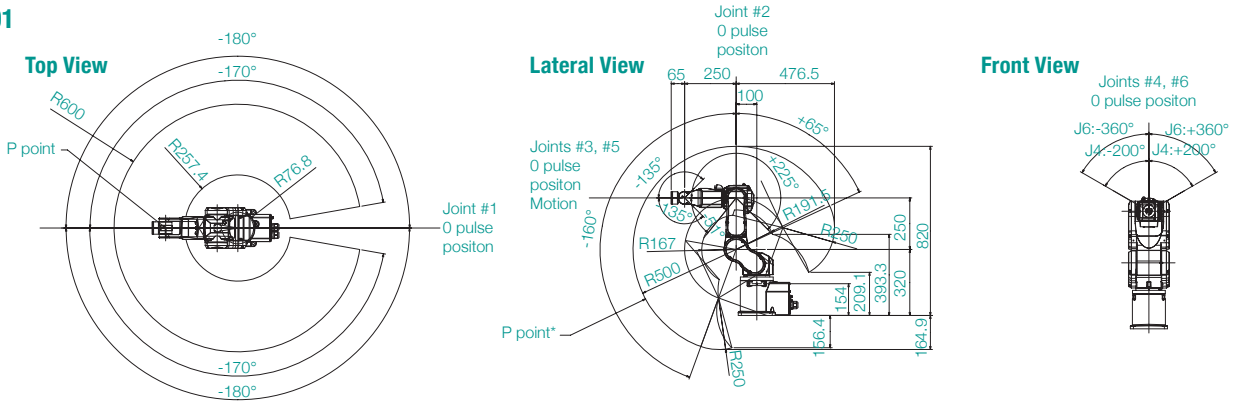
Outer Dimensions

[Units: mm]

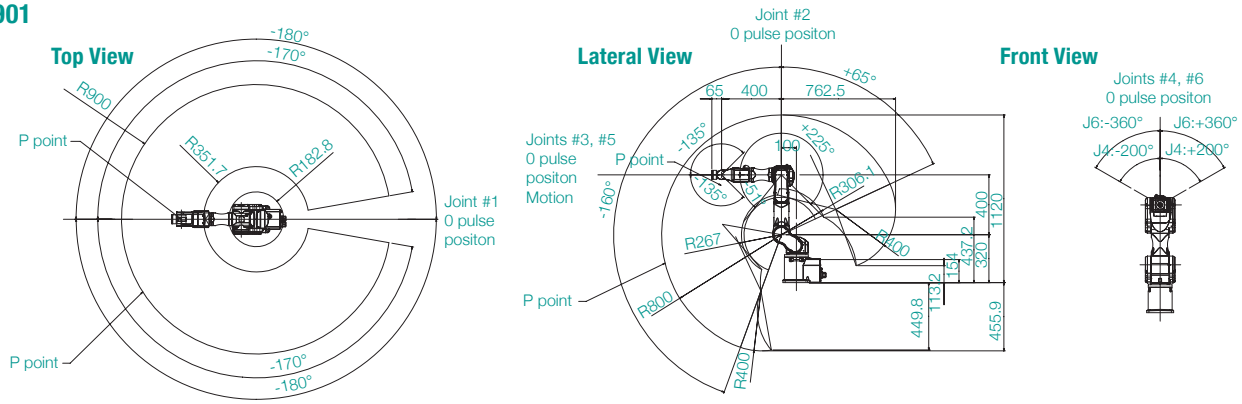


Motion Range

C4-A601



C4-A901



C8/C8L/C8XL

6-Axis Robots

Compact Yet Powerful with High Repeatability and Fast Speed

- Payloads up to 8 kg
- Compact Wrist Fits in Tight Spaces
- Long, Slim Arm for Greater Reach
- Compact Elbow for Optimum Workcell Layout

*1 Same for the other side

Specifications

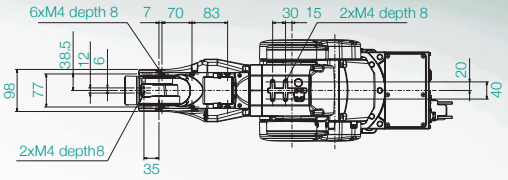
Model name / Model number		C8 C8-A701	C8L C8-A901	C8XL C8-A1401
Mounting type		Tabletop		
Degree of feedom		6		
Max. Motion Range	P point: through the center of J4/J5/J6	711 mm	901 mm	1400 mm
Wrist flange surface		791 mm	981 mm	1480 mm
Max. operating speed	Joint #1	331°/s	294°/s	200°/s
	Joint #2	332°/s	300°/s	167°/s
	Joint #3	450°/s	360°/s	200°/s
	Joint #4	450°/s		
	Joint #5	450°/s		
	Joint #6	720°/s		
Weight(cables not included)		49 kg (IP:53 kg)	52 kg (IP:56 kg)	62 kg (IP:66 kg)
Repeatability	Joint #1-#6	±0.02 mm	±0.03 mm	±0.05 mm
Max. Motion Range	Joint #1	±240°		
	Joint #2	-158°~+65°		-135°~+55°
	Joint #3	-61°~+202°		
	Joint #4	±200°		
	Joint #5	±135°		
	Joint #6	±360°		
Payload	Rated	3 kg		
	Maximum	8 kg		
Standard cycle time[1]	1 kg	0.31 sec	0.35 sec	0.53 sec
	5 kg	0.39 sec	0.43 sec	0.62 sec
	8 kg	0.48 sec	0.50 sec	0.72 sec
Allowable moment of inertia[2]	Joint #4	0.47 kg • m2		
	Joint #5	0.47 kg • m2		
	Joint #6	0.15 kg • m2		
Motor power consumption	Joint #1	1000 W		
	Joint #2	750 W		
	Joint #3	400 W		
	Joint #4	100 W		
	Joint #5	100 W		
	Joint #6	100 W		
Home		Home-return-less		
Installed wire for customer use		15pin(D-sub), 8pin(RJ45), 6pin(for force sensor)		
Installed pneumatic tube for customer use		Φ6mm x 2		
Installation environment		Standard (IP40)/ Cleanroom[2] & ESD/ IP67		
Applicable Controller		RC700A		
Safety standard		CE, ANSI/RIA15.06-2012, UL 1740		

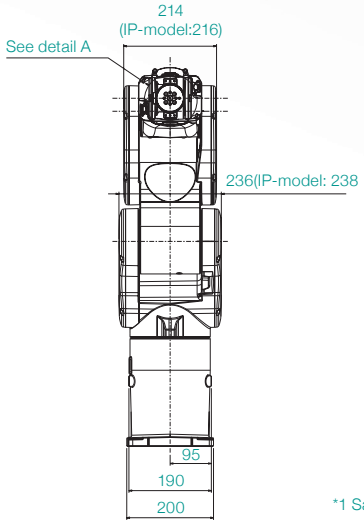
1 Cycle time based on round-trip arch motion (300 mm horizontal, 25 mm vertical) with each payload setting (path coordinates optimized for maximum speed).
2 C8 and C8L comply with ISO Class 3 (ISO14644-1) cleanroom standards, and C8XL complies with ISO Class 4 (ISO14644-1) cleanroom standards.

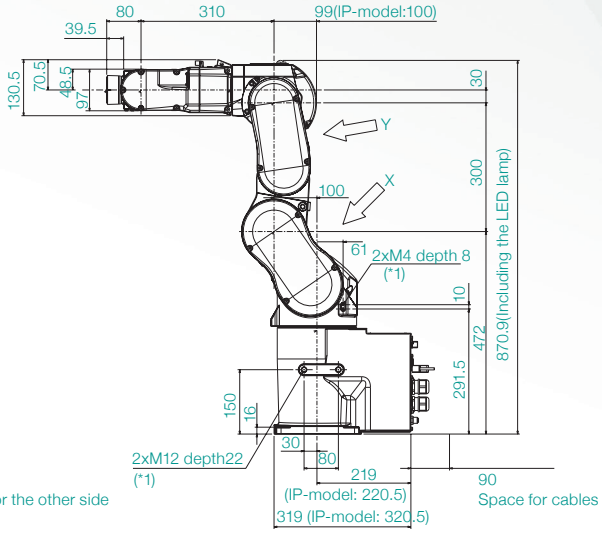
Outer Dimensions

[Units: mm]

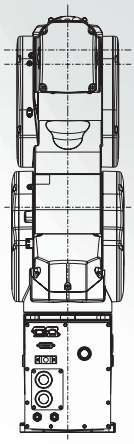
A701 Standard-model

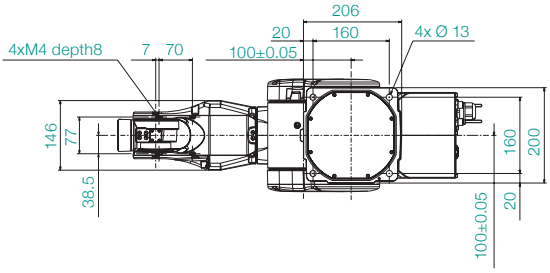




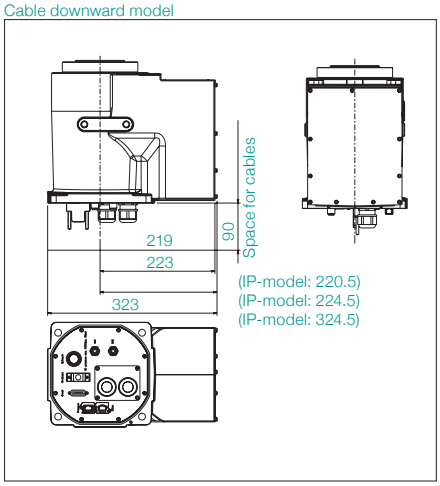


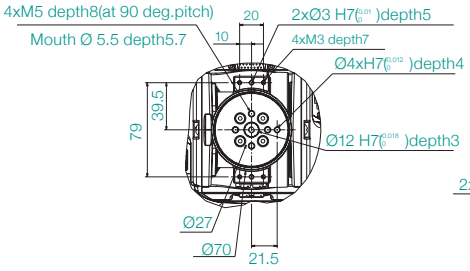
*1 Same for the other side



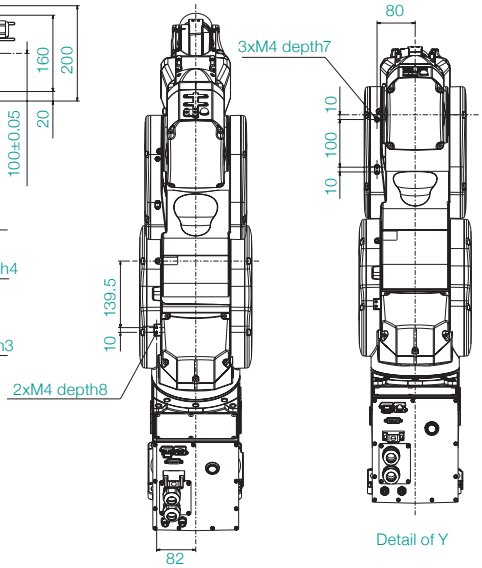


Cable downward model





Detail of A



Detail of Y

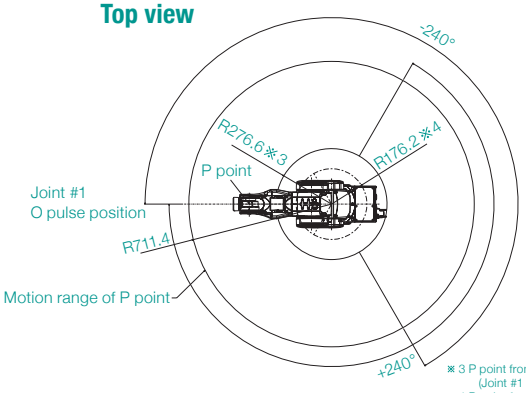
Detail of X

Motion Range

[Unit: mm]

A701 Standard-model

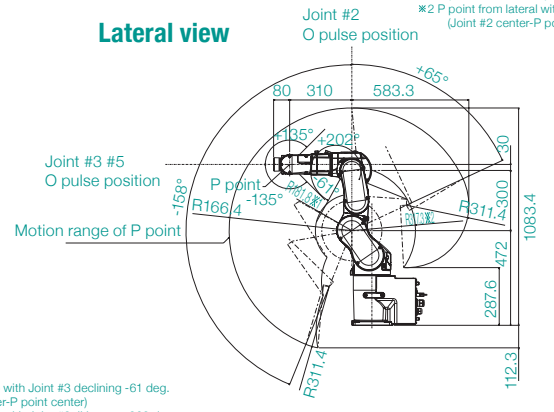
Top view



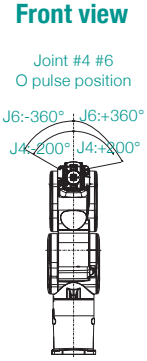
※3 P point from top with Joint #3 declining -61 deg.
(Joint #1 center-P point center)
※4 P point from top with Joint #3 tilting up +202 deg.
(Joint #1 center-P point center)

Lateral view

※1 P point from lateral with Joint #3 declining -61 deg.
(Joint #2 center-P point center)
※2 P point from lateral with Joint #3 tilting up +202 deg.
(Joint #2 center-P point center)



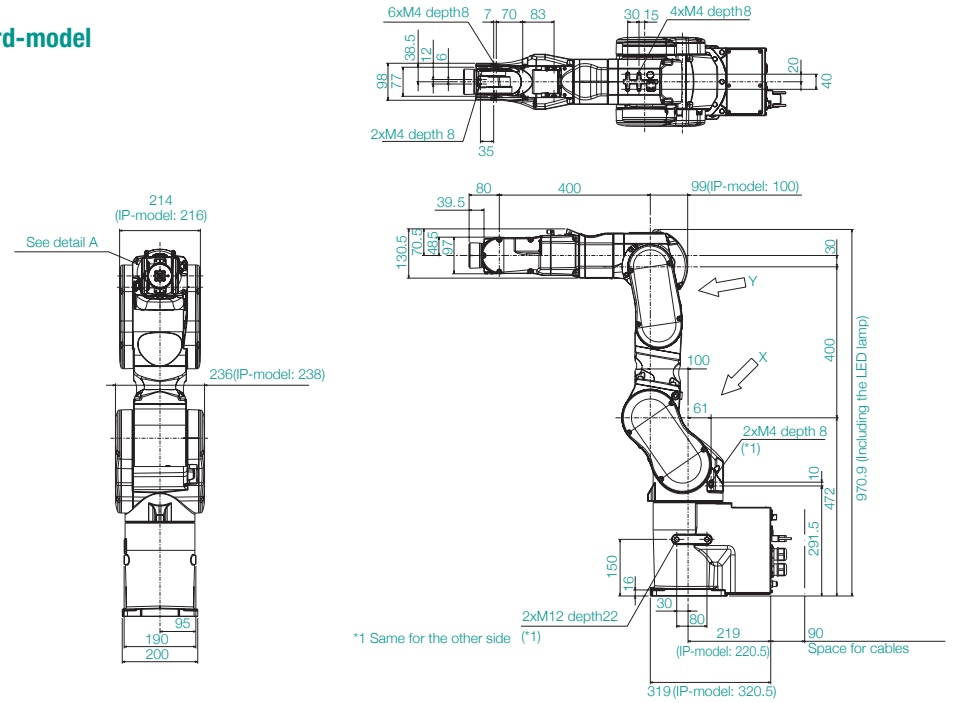
Front view



Outer Dimensions

[Units: mm]

A901 Standard-model

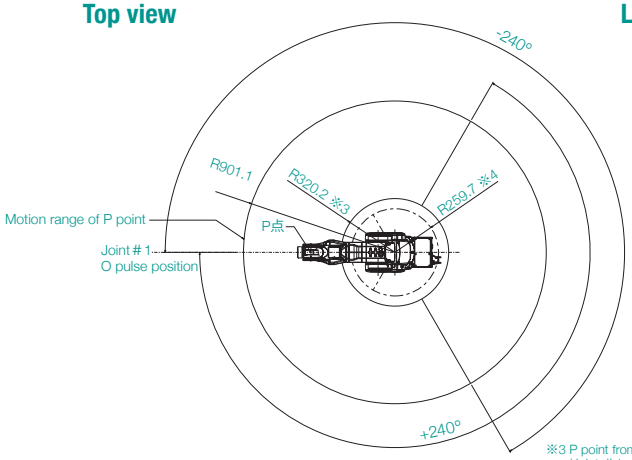


Motion Range

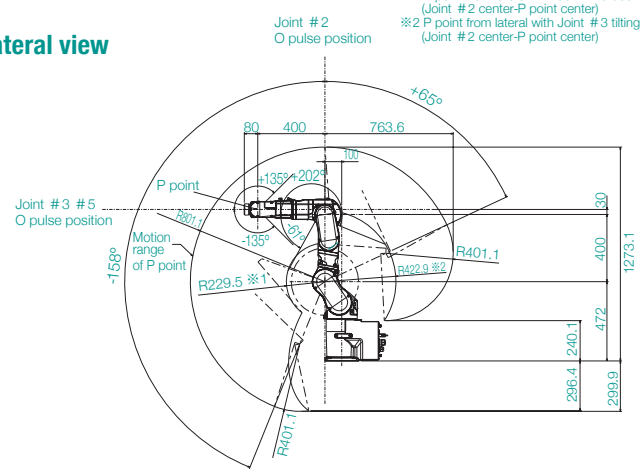
[Units: mm]

A701 Standard-model

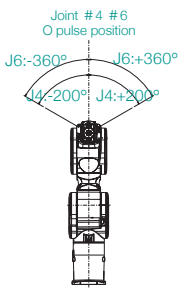
Top view



Lateral view



Front view

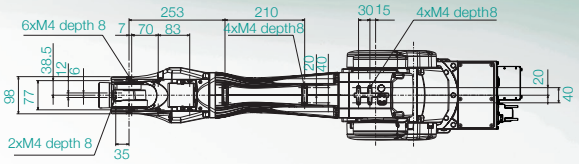


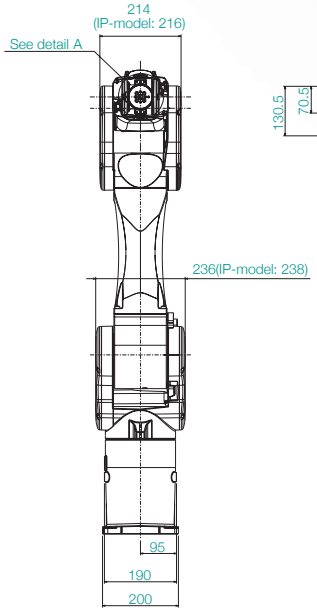
※3 P point from top with Joint # 3 declining -61 deg.
(Joint # 1 center-P point center)
※4 P point from top with Joint # 3 tilting up +202 deg.
(Joint # 1 center-P point center)

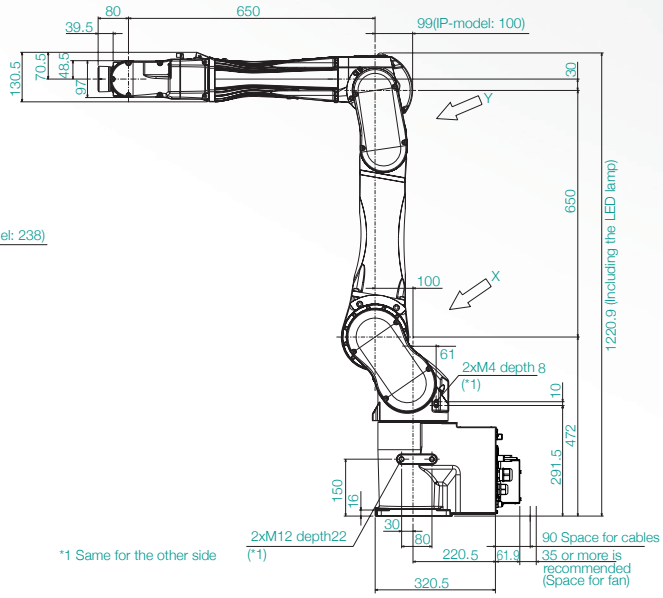
Outer Dimensions

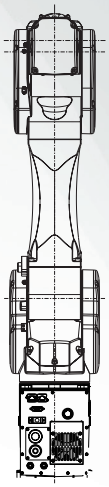
[Units: mm]

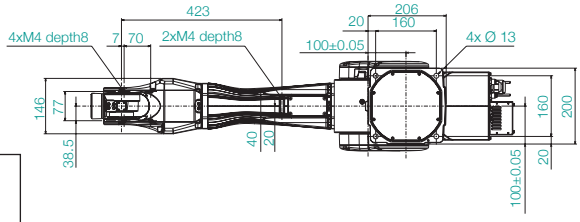
A1401 Standard-model

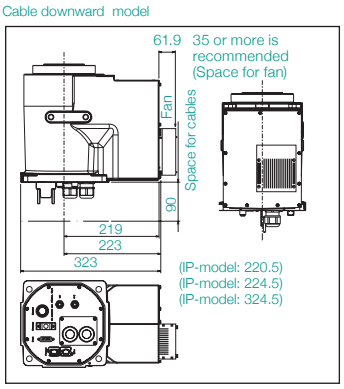


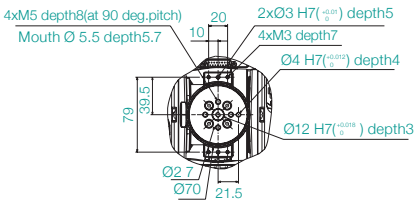


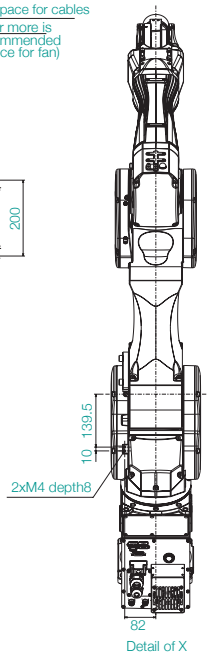


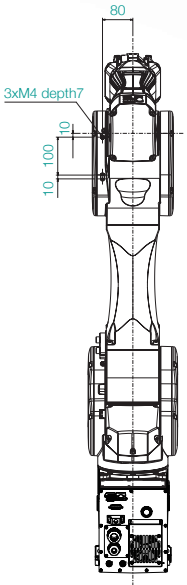








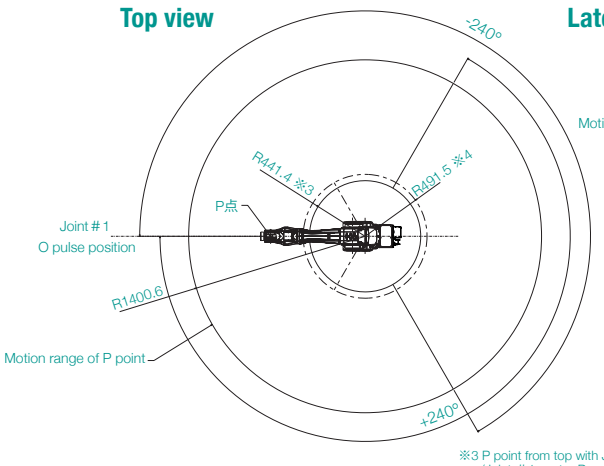


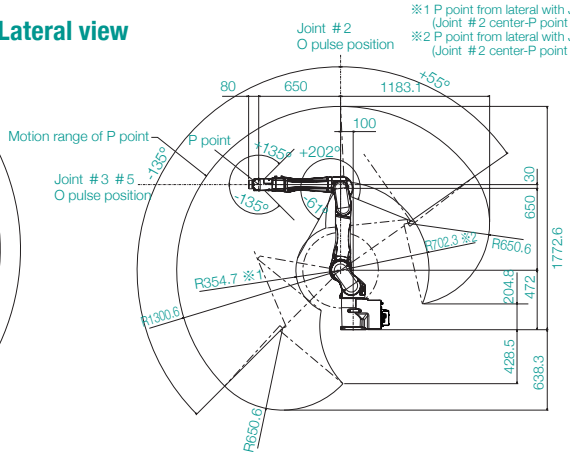


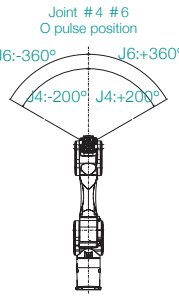
Motion Range

[Units: mm]

A1401 Standard-model







※3 P point from top with Joint #3 declining -61 deg.
(Joint #1 center-P point center)
※4 P point from top with Joint #3 tilting up +202 deg.
(Joint #1 center-P point center)

S5/S5L

6-Axis Robots

High Speed and Long Reach

- High Rigidity Arm = Ultra High Speed
- Smooth Motion and Low Vibration
- Robust SlimLine Design for Increased Flexibility
- 5 kg Maximum Payload

Specifications

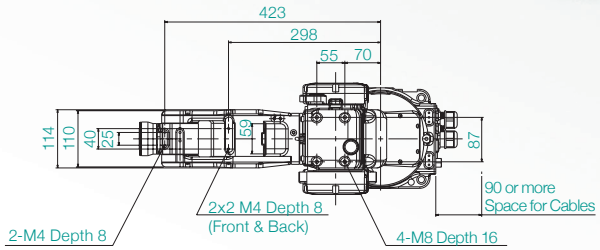
		S5-A701 (S5)			S5-A901 (S5L)		
Mounting type		**Tabletop**	**Ceiling**	**Wall**	**Tabletop**	**Ceiling**	**Wall**
Degrees of freedom		6					
Max. motion range	**P point: through the center of J4/J5/J6**	706 mm			895 mm		
Wrist flange surface		786 mm			975 mm		
Max. operating speed	**Joint #1**	376°/s			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	**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[2] & ESD/Protection[3]					
Available controllers		RC180, RC620+					
Safety standards		CE, ANSI/RIA15.06-2012					

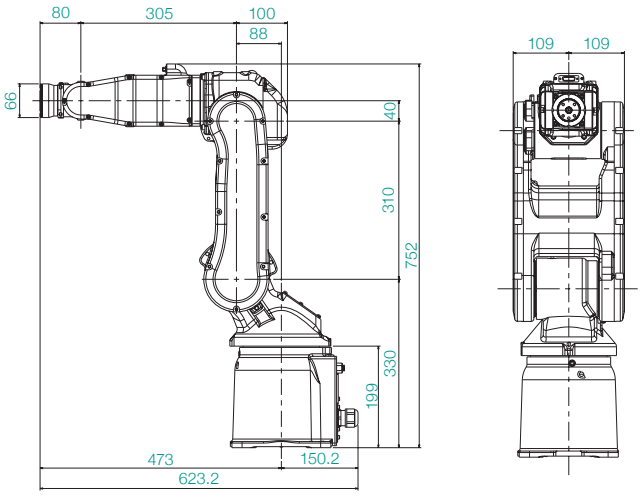
1 Cycle time based on round-trip arch motion (300mm horizontal, 25mm vertical) with 1kg payload (path coordinates optimized for maximum speed).
2 Complies with ISO Class 4 (ISO14644-1) and older Class 10 (less than 100.1 µm particles per 28,317cm^3:1cft) cleanroom standards.
3 Protected type complies with IP65.

Outer Dimensions

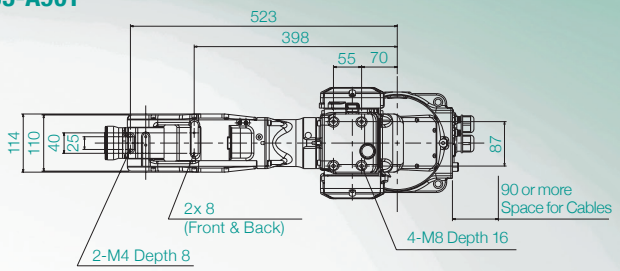
[Units: mm]

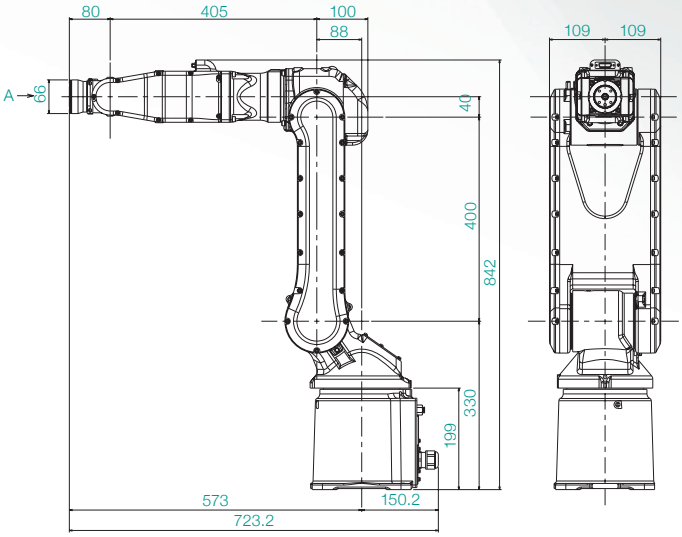
S5-A701





S5-A901

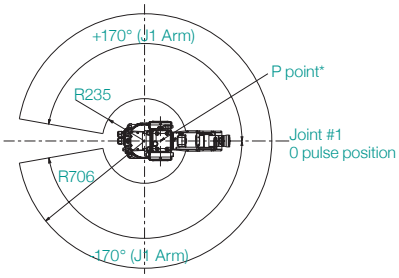




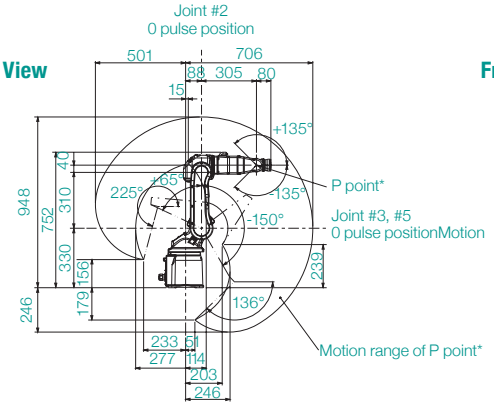
Motion Range

S5-A701

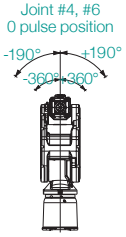
Top View



Lateral View

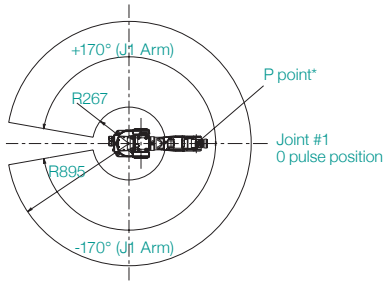


Front View

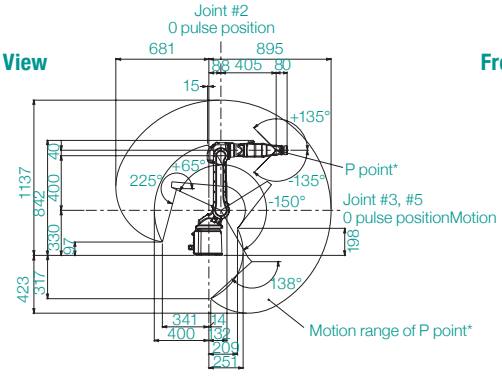


S5-A901

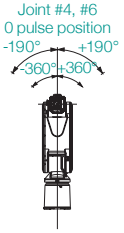
Top View



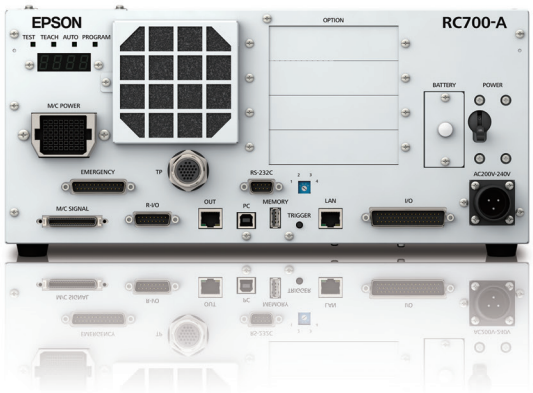
Lateral View



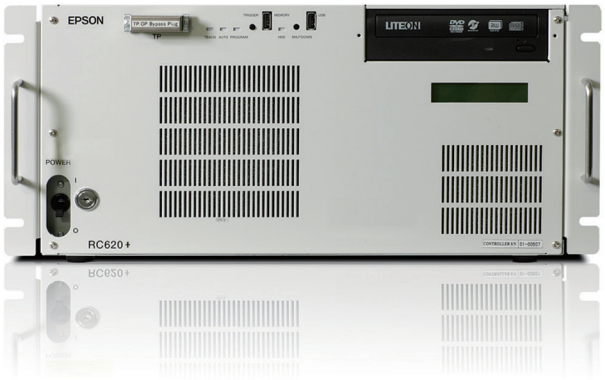
Front View



RC700A/RC620+/RC180/RC90



RC700A



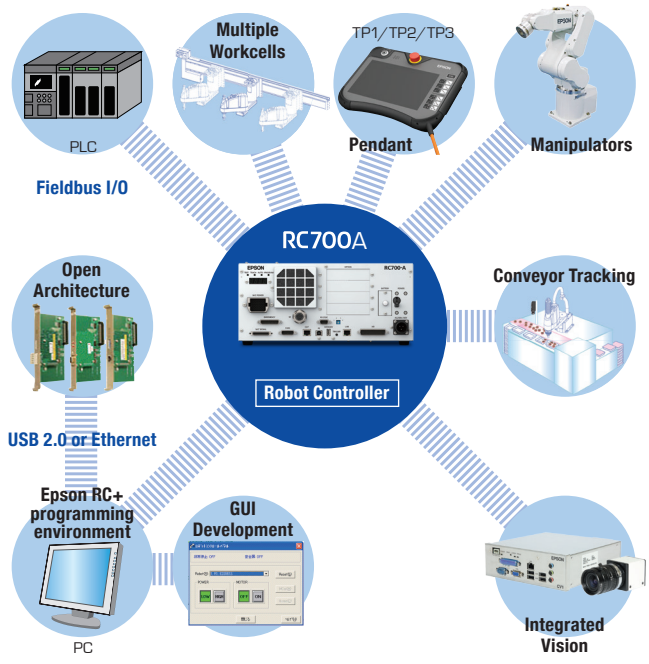
RC620+

RC700A

High Performance Workcell Controller

- Industry Leading Ease of Use (Epson RC+ 7.0)
- Windows Based Open Architecture Design
- Works with User Selected PC
- Fully Integrated Options Including: Vision Guidance, .Net Connectivity, EtherNet/IP, DeviceNet, Profibus, Expansion I/O, Conveyor Tracking, Force Sensing, and more

System Capabilities



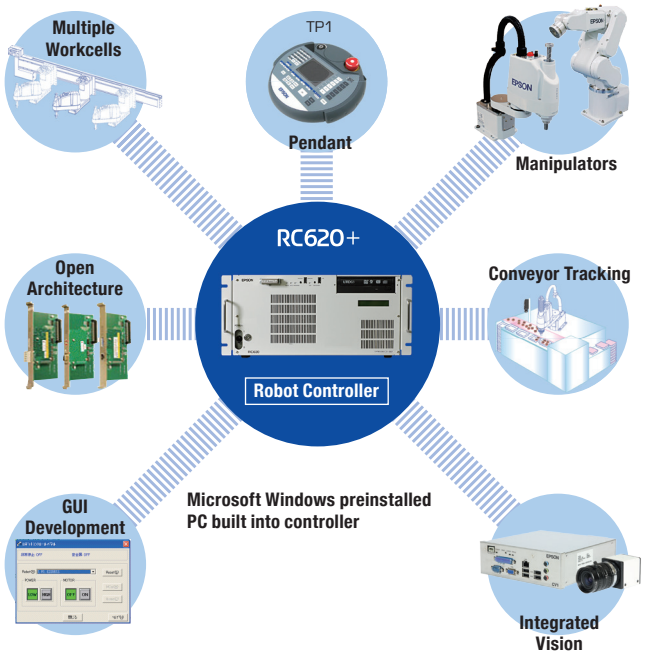
■RC700A Software/Manipulator Support

Software		Epson RC+ 5.0	—
		Epson RC+ 6.0	—
		Epson RC+ 7.0	•
Manipulators	SCARA Robots	G Series	•
		LS Series	—
		RS Series	•
	6-Axis Robots	N2	•
		C8/C8L/C8XL	•
		C4/C4L	•
		C3	—
		S5/S5L	—

RC620+

PC-Based Controller

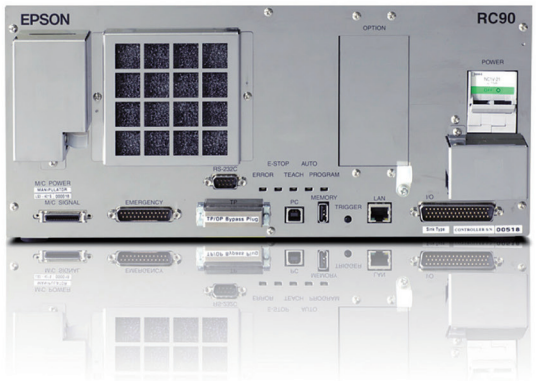
- Industry Leading Ease of Use (Epson RC+ 6.0)
- PC-based Open Architecture Design
- Industry Leading Ease of Use with Epson RC+ Software Fully Integrated Options including: Vision Guidance, .Net Connectivity, EtherNet/IP, DeviceNet, Profibus,
- Expansion I/O, Conveyor Tracking, Force Sensing and more Works with RC+ 6.0



■RC620+ Software/Manipulator Support

Software		Epson RC+ 5.0	—
		Epson RC+ 6.0	•
		Epson RC+ 7.0	—
Manipulators	SCARA Robots	G Series	•
		LS Series	—
		RS Series	•
	6-Axis Robots	N2	—
		C8/C8L/C8XL	—
		C4/C4L	—
		C3	•
		S5	•

RC180

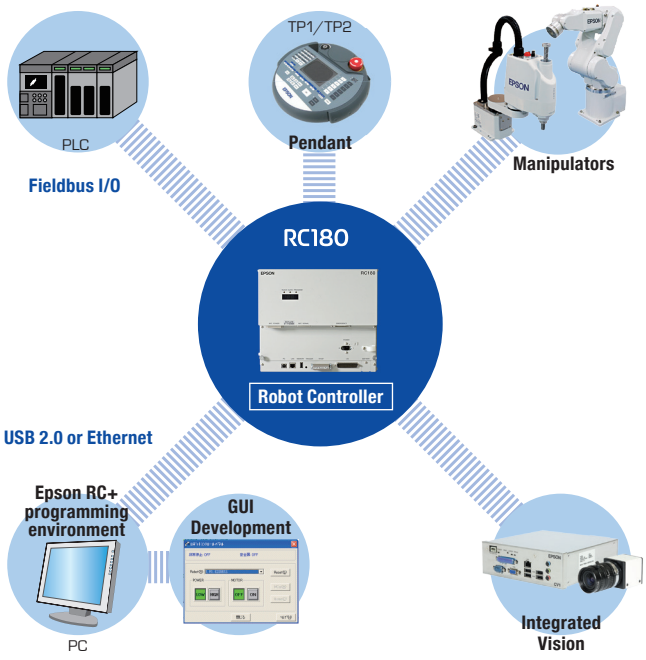


RC90

RC180

Compact Controller

- Easy Setup Via USB
- Fits Easily inside Most Control Panel Boxes (SCARA controller: approx. 10l volume; 6-Axis controller approx. 13l volume)
- Use as Stand Alone, PLC Slave or with PC
- Works with RC+ 5.0



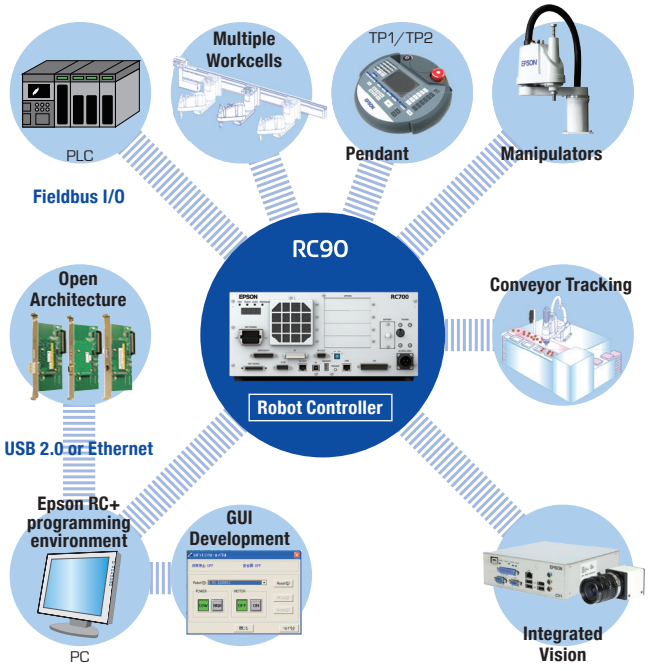
■RC180 Software/Manipulator Support

Software		Epson RC+ 5.0	•
		Epson RC+ 6.0	—
		Epson RC+ 7.0	—
Manipulators	SCARA Robots	G Series	•
		LS Series	—
		RS Series	•
	6-Axis Robots	N2	—
		C8/C8L/C8XL	—
		C4/C4L	—
		C3	•
		S5	•

RC90

Low-cost and High Performance Controller

- Industry Leading Ease of Use (Epson RC+ 7.0)
- Easy Setup Via USB
- Use as Stand Alone, PLC Slave or with PC
- Wide Variety of Integrated Options
- Works with RC+ 5.0 or RC+ 7.0

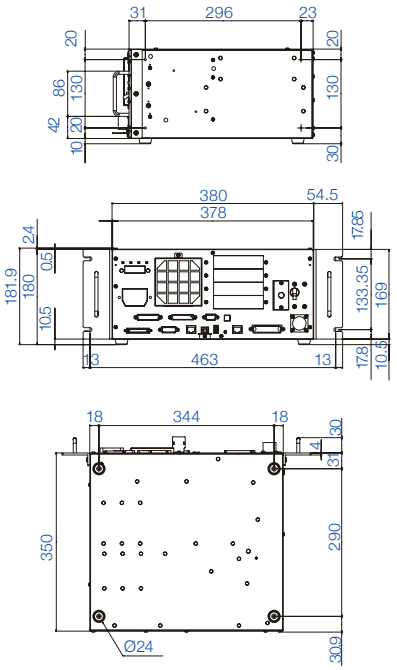


■RC90 Software/Manipulator Support

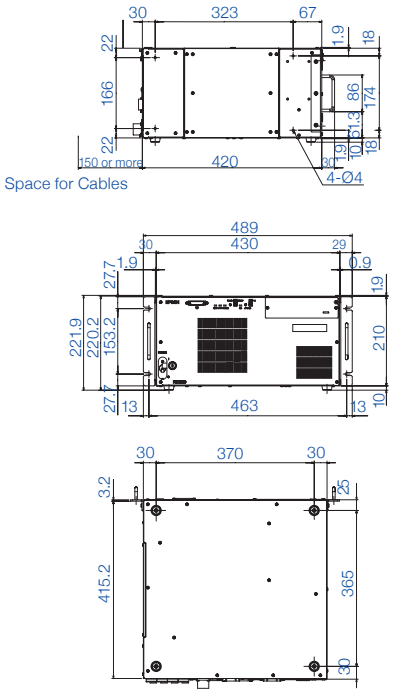
Software		Epson RC+ 5.0	•
		Epson RC+ 6.0	—
		Epson RC+ 7.0	•
Manipulators	SCARA Robots	G Series	—
		LS Series	•
		RS Series	—
	6-Axis Robots	N2	—
		C8/C8L/C8XL	—
		C4/C4L	—
		C3	—
		S5	—

Outer Dimensions

RC700A



RC620+

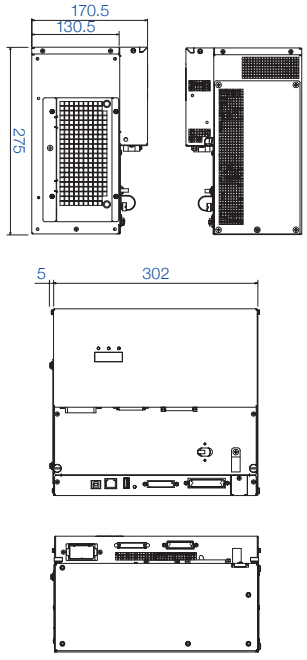


Model		RC700A		RC620+ (UL specification: RC620-UL)	
Robot manipulator control	Programming language and Robot control software	Epson RC+ 7.0 (a multi-tasking robot OS)		Epson RC+ 6.0 (a multi-tasking robot OS)	
	Joint Control	Up to six (6) joints Simultaneous control Software AC servo control		Up to eight (8) 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.)			
	Acceleration/ deceleration control	PTP motion: Programmable in the range of 1 to 100%; Automatic CP motion: Programmable (Actual value to be manually entered.)			
	Number of Manipulators	4 units		Max. 16 units (up to 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: 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.)	
External input/output signals (standard)	Standard I/O	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 assigned Assignment change allowed
	Standard I/O Drive Unit	Input: 24 Output: 16	per Drive Unit	Input: 24 Output: 16	per Drive Unit
Communication interface (standard)	Ethernet	1 channel		2 channels	
	RS-232C	1 port		1 port	
Option Boards (Special slot)	I/O	Input: 24 per board Output: 16 per board	Maximum of 4 boards allowed	Input: 32 per board Output: 32 per board	Maximum of 4 boards allowed
	RS-232C	2 channels/board	Maximum of 2 boards allowed	4 channels/board	Maximum of 2 boards allowed
	Fieldbus I/O Slave	1 channel/board PROFINET PROFIBUS-DP DeviceNet CC-Link EtherNet/IP	Maximum of 1 board allowed	1 channel/board PROFINET PROFIBUS-DP DeviceNet CC-Link EtherNet/IP	Maximum of 1 board allowed
	Pulse Generator	4 Axes per Board	Maximum of 4 boards allowed	4 Axes per Board	Maximum of 4 boards allowed
Option Boards (PCI or PCIe slots)	Frame Grabber	—		Standard Frame Grabber Advanced Frame Grabber	Maximum of 2 boards allowed
	Fieldbus I/O master	1ch per board PROFIBUS-DP DeviceNet EtherNet/IP	Maximum of 1 board allowed	1ch per board PROFIBUS-DP DeviceNet EtherNet/IP	Maximum 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			
Power Source		AC 200 V to AC 240 V Single phase 50/60 Hz			
Weight[1]		11 kg		4 axes spec : 22.5 kg 6 axes spec : 24.5 kg 8 axes spec : 22.5 kg	

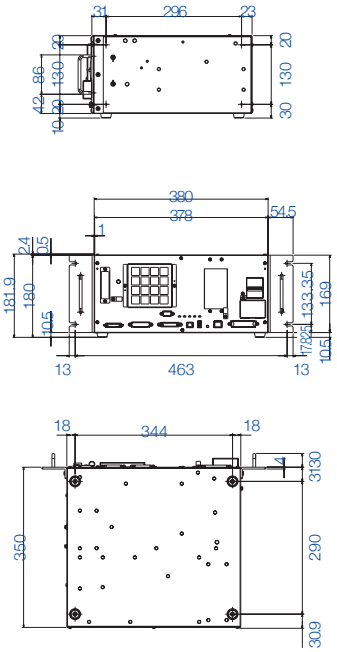
1 Weight is inscribed on controller. Exercise caution when lifting; check weight and get additional manpower if needed. Keep fingers and toes clear when moving or repositioning.

Outer Dimensions

RC180



RC90



Model		RC180 (UL specification: RC180-UL)		RC90	
Robot manipulator control	Programming language and Robot control software	Epson RC+ 5.0 (a multi-tasking robot OS)		Epson RC+ 5.0 (a multi-tasking robot OS) Ver. 5.4.1 or later is recommended Epson RC+ 7.0 (a multi-tasking robot OS)	
	Joint Control	Up to six (6) joints simultaneous control Software AC servo control		Up to four (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.)			
	Acceleration/ deceleration control	PTP motion: Programmable in the range of 1 to 100%; Automatic CP motion: Programmable (Actual value to be manually entered.)			
	Number of Manipulators	1 unit (up to 6 axes)		1 unit (up to 4 axes)	
Positioning control		PTP (Point-To-Point) CP (Continuous Path)			
Memory capacity		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: 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.)	
External input/output signals (standard)	Standard I/O	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 assigned Assignment change allowed
	Standard I/O Drive Unit	—			
Communication interface (standard)	Ethernet	1 channel		1 channel	
	RS-232C	—		1 port	
Option Boards (Special slot)	I/O	Input: 32 per board Output: 32 per board	Maximum of 4 boards allowed	Input: 24 per board Output: 16 per board	Maximum of 2 boards allowed
	RS-232C	4 channel/board	Maximum of 2 boards allowed	2 channel/board	Maximum of 2 boards allowed
	Fieldbus I/O Slave	1 channel/board PROFINET PROFIBUS-DP DeviceNet CC-Link EtherNet/IP	Maximum of 1 board allowed	1 channel/board PROFINET PROFIBUS-DP DeviceNet CC-Link EtherNet/IP	Maximum of 1 board allowed
	Pulse Generator	—		4 Axes per Board	Maximum of 2 boards allowed
Option Boards (PCI or PCIe slots)	Frame Grabber	—			
	Fieldbus I/O master	—		1ch per board PROFIBUS-DP DeviceNet EtherNet/IP	Maximum 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			
Power Source		AC 200 V to AC 240 V Single phase 50/60 Hz			
Weight[1]		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.

Vision Guide

Compatible controllers: RC700A | RC620+ | RC180 | RC90 | T3

Vision Guide – Powerfully Simple Robot Guidance

- Built to make vision guided robot applications easy, while driving high precision and performance
- Drag & Drop user interface for building robust vision solutions quickly
- Powerful set of intelligent vision objects simplify vision application development
- Single development environment for both robot and vision (no communications setup between robot and vision system)
- Only 3 SPEL+ Language commands (VRUN, VGET, VSET) for working with vision sequences
- Full set of Wizard based calibration tools for fixed and mobile camera calibration
- Step Wizard to help new users easily select the vision tool(s) they need
- Fast vision processing times with support for up to 10 MP GigE cameras
- Color cameras and color vision tools supported
- Code reader supports a wide variety of standard bar and 2D code formats

Specifications

Available Vision Solutions
CV2-S (Standard Vision Processing)
CV2-H (High Speed Vision Processing)
PV1 (Customer supplied PC)

Cameras Supported
GigE Std Resolution: 640x480 (0.3MP)
GigE Med Resolution: 1600x1200 (2MP)
GigE High Resolution: 2560x1920(5MP)
GigE Ultra High Resolution: 3664 x 2748(10MP)
GigE Color Camera: 2560x1920(5MP)

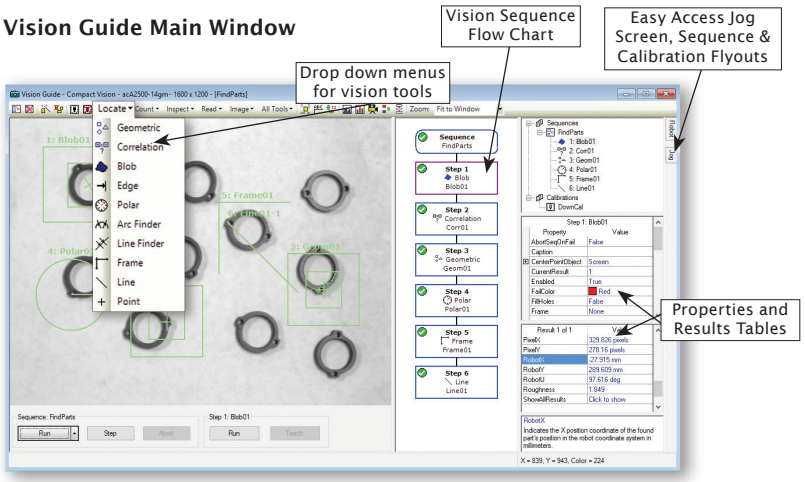
USB 2 Std Resolution: 640x480 (0.3MP)
USB 2 Med Resolution: 1280x1024 (1.3MP)
USB 2 High Resolution: 2560x1920 (5MP)
USB 2 Med Resolution Color: 1280x1024 (2MP)
USB 2 High Resolution Color: 2560x1920 (5MP)

Robot to Camera Calibrations
Mobile Camera (mounted on robot)
Fixed Upward
Fixed Downward

Max Number of Cameras
GigE: (4) per CV2
USB: (2) per CV2

Controllers Supported:
CV2: RC700A, RC90
CV1: RC180, RC620
PV1: RC700A, RC620, RC180, RC90
*See Epson for CV1 and PV1 Vision details

Vision Guide Main Window



Vision Tools

Vision Find Tools
-Geometric Search
-Polar Search
-Normalized Correlation
-Blob Analysis
-Edge Finder
-Line Finder
-Arc Finder

Vision Inspection Tools
-Line Inspector
-Arc Inspector
-Defect Finder
-Color Match

Vision Construction Tools
-Frames
-Lines
-Points

Other Vision Tools
-Code Reader (bar and 2D)
-OCR
-Histogram
-Statistics
-Image Operation Tools

RC+ 7.0 API

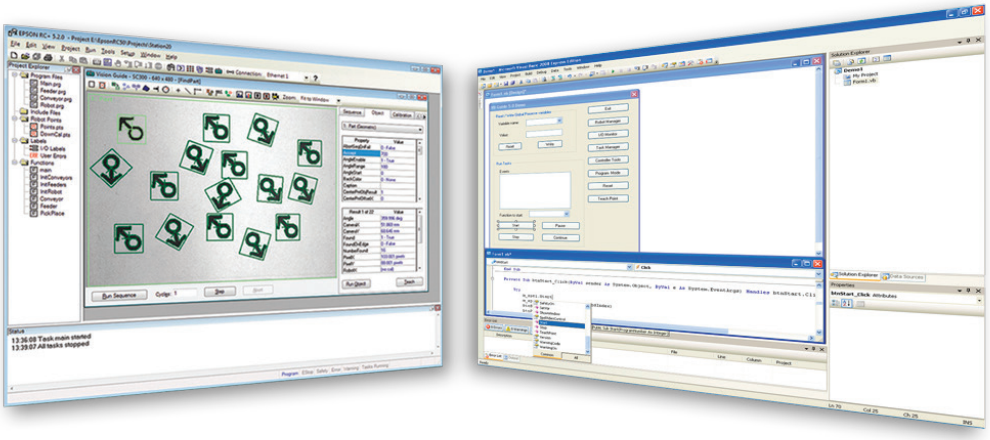
Compatible controllers
RC700A RC90 T3

VB Guide

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
- Vision Guide Integration for easy image display on user GUI's
- 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
  - Simulator
  - Force Monitor

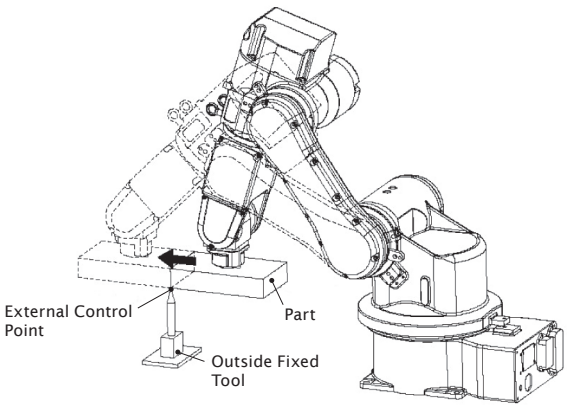


ECP

Compatible controllers
RC700A RC620+ RC180 RC90 T3

External Control Point Operation for Precise Positioning Without Complex Calculations

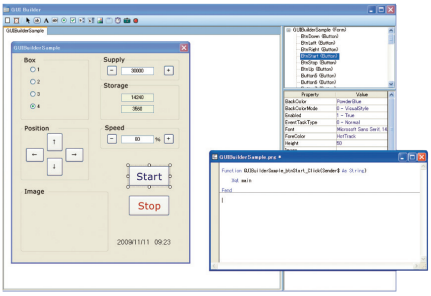
- For processes requiring the workpiece to be moved against a fixed tool, external control points can be used to ensure precise positioning
- Up to 15 external control points can be set



GUI Builder

Compatible controllers

RC700A | RC620+ | RC180 | RC90 | T3



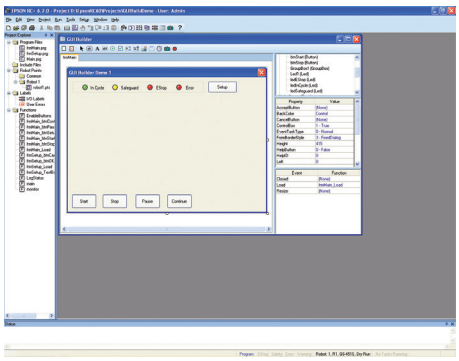
- Easily create a Graphic User Interface for Operators
- Fully integrated within Epson RC+ Development Environment
- Create GUI's without Visual Studio or other 3rd party software tools
- Create and debug GUI forms from your Epson RC+ Project
- Form and Control Events are Executed as SPEL+ Tasks
- Works with RC700A, RC620+, RC180, and RC90 Controllers

■ Steps to use GUI Builder

GUI Builder provides the tools for the easy creation of graphical user interfaces from within the popular Epson RC+ Development Environment. It is a popular option for users that need a simple GUI and do not want to deal with the complexity of a 3rd party product such as Visual Studio. Even users that have never before created a GUI can easily make one with GUI Builder. By integrating the GUI Builder toolset inside of the Epson RC+ Development Environment, users can work from one development environment, which helps reduce overall development time. For users that want to create more complex GUI's, it is suggested to use Epson VB Guide or RC+ 7.0 API along with Microsoft Visual Studio or another platform which supports .Net library usage.

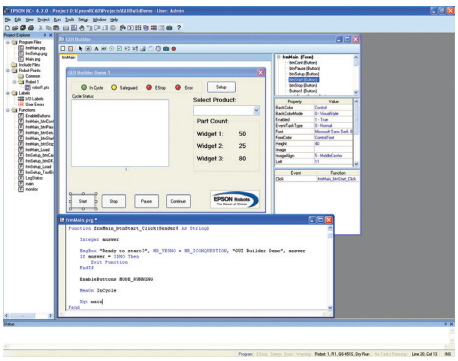
STEP 1

Create a new form and click the Button control from the GUI Builder Toolbar and drag it to the form.



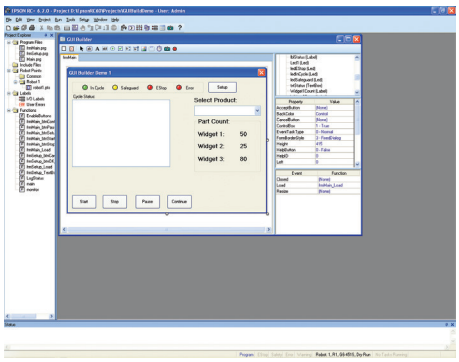
STEP 2

Double click the button and the code editor will appear. Add the SPEL+ code you want to execute when the button is clicked from your application.



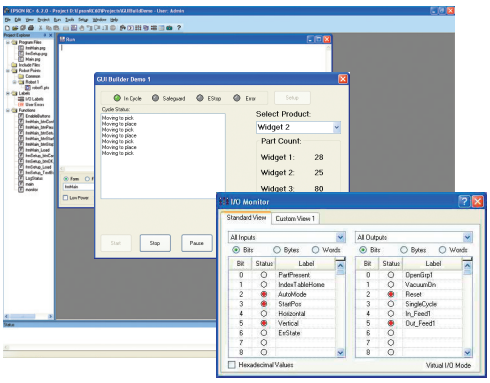
STEP 3

Add more graphics components on your form and associated SPEL+ code as required for your application.



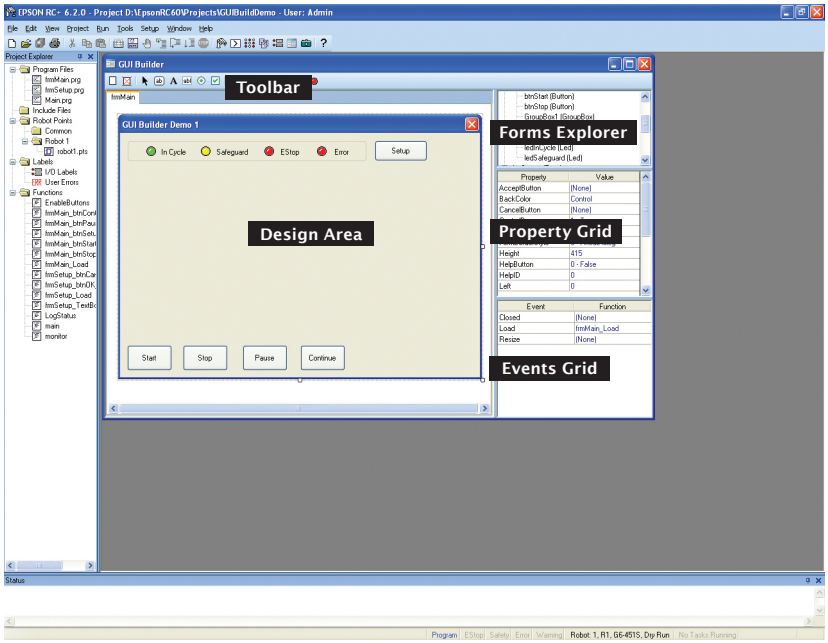
STEP 4

Run the application from the Epson RC+ Run Window or set to have the GUI come up automatically. You can also bring up RC+ dialogs like the I/O monitor shown here.



Parts of the GUI Builder Window

GUI Builder has 5 main areas of use when creating and modifying user GUI's. These include: Toolbar Buttons, Design Area, Forms Explorer, Property Grid and Events Grid. (See graphic below)



■ **GUI Builder Area Definitions**

Design Area

This is where forms are displayed at design time. Each opened form is displayed on its own tab. You can easily switch between forms by clicking on the tab or double clicking the form in the forms explorer.

Toolbar Buttons

Contains the various controls to be put on a GUI Builder Form. Many of the common controls are supported such as button, label, textbox, radio button, checkbox, etc. However, there are also some Epson unique controls to help reduce development time for items routinely needed for robot systems. Some of these unique controls include the video box control (to display Vision Guide Image display window) and the LED control (to interface with Epson Robot I/O).

Forms Explorer

A tree that contains each form for the current project and its associated controls. When a new form or control is created, it is added to the tree. Double clicking on a form opens the form in its own tab in the design area.

Property Grid

Used to display and edit form and control properties. When you select a form or control, the associated properties are displayed in the grid. You can edit the values for properties thus changing the characteristics of the specific control.

Events Grid

Used to display and change the events for the associated form or control. Each event has a user function (written in SPEL+ code) that is called when the event occurs. This gives the user complete flexibility to program what happens when specific events occur.

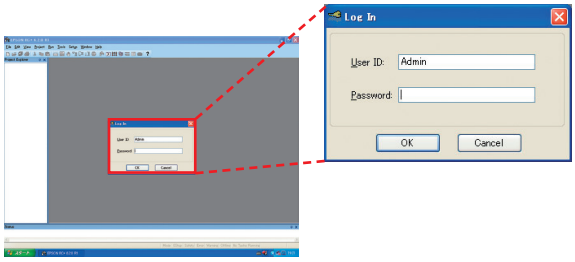
Security

Compatible controllers: RC700A | RC620+ | RC90 | T3

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

*Standard on RC700A and RC90 controllers



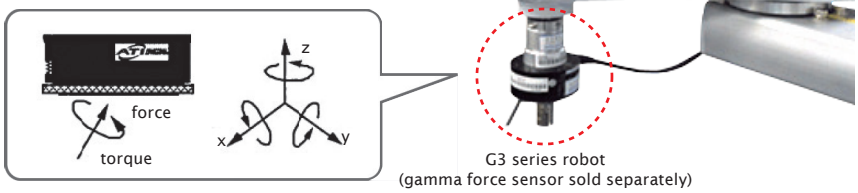
Force-Sensing

Compatible controllers: RC700A | RC620+ | 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: RC700A | RC620+ | RC90 | T3

Optical Character Recognition of Text on Parts and Labels

- For use with optional Vision Guide system
- 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

PG Motion System

Compatible controllers: RC700A | RC620+ | 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

*Drivers and motors for third party devices not included

Teach Pendant TP1

Compatible controllers: RC700A | 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
- Can step through programs even when safety door is open

Teach Pendant TP2

Compatible controllers: RC700A | RC180 | RC90 | T3

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

Teach Pendant TP3

Compatible controllers: RC700A | T3

A Teach Pendant and Operating Pendant in One

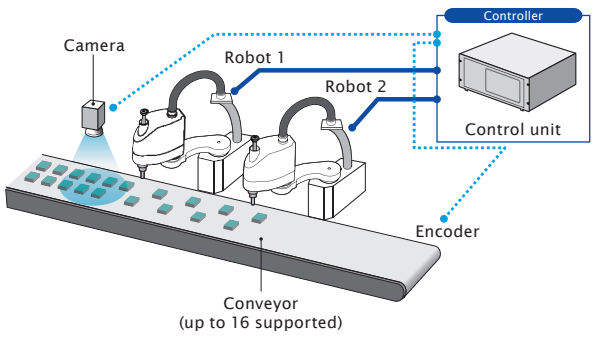
- 10” color touchscreen panel
- 1280 x 800 high definition screen resolution
- User-friendly GUI
- Ability to make robot parameter changes
- High speed test mode
- IP65-rated enclosure is sealed against oil and dust for reliable operation in adverse conditions
- Shock-resistant construction helps protect unit from impact damage
- Universal design ensures ease of use for both right-handed and left-handed operators

Conveyor Tracking

Compatible controllers: RC700A | RC620+ | RC90

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

- Supports vision or sensor based conveyor tracking
- 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+

The Convenience of a Built-In DVD Multi-Drive

- The RC620+ controller can be equipped with a DVD drive for easy program installation and data recording

Option Unit

Compatible controllers: RC180

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+

RAID Support for Enhanced Backup Data Integrity*

- RAID support for high-integrity data backup

*Factory default option

Memory Expansion

Compatible controllers: RC620+

Give Your Controller a Memory Boost

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

Fieldbus I/O (Master)

Compatible controllers: RC700A RC620+ RC90 T3

Bidirectional High-Speed Peripheral Connectivity

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

Emergency Stop Switch

Compatible controllers: RC700A RC620+ RC180 RC90 T3

Helps Prevent Injuries and Damage

- Immediately stops robot operation in emergency situations

Operator Panel OP1

Compatible controllers: RC180

Easy Connectivity and Touchscreen Control

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

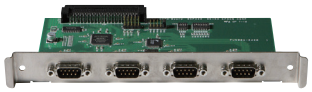
IP65 protection

RS-232C Cards

Compatible controllers: RC700A RC620+ RC180 RC90

Expanded Serial Port Connectivity

- 4-port (for RC180/ RC620+ controllers) and 2-port (for RC700A/ RC90 controllers) RS-232C cards to connect serial interface devices



I/O Expansion Cards

Compatible controllers: RC700A RC620+ RC180 RC90

Expanded Input/Output Flexibility

- 32-point I/O (for RC180/RC620+ controllers) and 24 inputs/16 outputs (for RC700A/RC90 controllers) expansion cards

Fieldbus I/O (Slave)

Compatible controllers: RC700A RC620+ RC180 RC90 T3

High-Speed Peripheral Connectivity

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

I/O Cable Kit

Compatible controllers: RC700A RC620+ RC180 RC90 T3

Cables and Connectors for Easy Connectivity with no Soldering Required

- A wide range of I/O cables and connectors are available

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: G1 | G3 | G6 | G10 | G20 | LS3 | LS6 | LS20 | T3 | RS3 | RS4

Enhances Handling/Processing Versatility and Simplifies End Effector Changes

Brake Release Units

Compatible robot manipulators: N2 | C3 | C4 | C8 | 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 | LS20 | RS3 | RS4 | N2 | C3 | C4 | C8 | 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 | LS20 | T3 | RS3 | RS4 | N2 | C3 | C4 | C8 | 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

RC700A DU Drive Unit

Compatible robot manipulators: G1 | G3 | G6 | G10 | G20 | RS3 | RS4 | N2 | C3 | C4 | C8 | S5

An External Drive Unit to Increase the Number of Robots that Can be Controlled with a Single RC700A Controller

Options Quick-Reference Table

Controller Options	RC700A	RC620+	RC180	RC90	T3
Teach Pendant (TP1)	●	●	●	●	—
Teach Pendant (TP2)	●	—	●	●	●
Teach Pendant (TP3)	●	—	—	—	●
Conveyor Tracking	●	●	—	●	—
PG Cards (Ext Axis Control)	●	●	—	●	—
DVD Drive	—	●	—	—	—
Option Unit	—	—	●	—	—
RAID Option	—	●	—	—	—
Memory Expansion	—	●	—	—	—
Operator Panel (OP1)	—	—	●	—	—
Emergency Stop Switch	●	●	●	●	●
RS-232C Cards	●	●	●	●	—
I/O Expansion Cards	●	●	●	●	—
Fieldbus I/O (Slave)	●	●	●	●	●
Fieldbus I/O (Master)	●	●	—	●	●
I/O Cable Kit	●	●	●	●	●

Software Options	RC700A	RC620+	RC180	RC90	T3
Vision Guide (5.0)	—	—	●	●	—
Vision Guide (6.0)	—	●	—	—	—
Vision Guide (7.0)	●	—	—	●	●
VB Guide 5.0	—	—	●	●	—
VB Guide 6.0	—	●	—	—	—
RC+API 7.0	●	—	—	●	●
ECP	●	●	●	●	●
GUI Builder 5.0	—	—	●	●	—
GUI Builder 6.0	—	●	—	—	—
GUI Builder 7.0	●	—	—	●	●
Security	● (Standard function)	●	—	● (Standard function)	● (Standard function)
Force Sensing	●	●	—	●	—
OCR	●	●	—	●	●

Robot Manipulator Options	G1	G3	G6	G10 /G20	LS3/LS6 /LS20	T3	RS3 /RS4	N2	C3	C4	C8	S5 /S5L
External Wiring Units	—	—	●	●	—	—	—	—	—	—	—	—
Tool Adapters	●	●	●	●	●	●	●	—	—	—	—	—
Brake Release Units	—	—	—	—	—	—	—	●	●	●	●	●
Power and Signal Cables	●	●	●	●	●	—	●	●	●	●	●	●
Camera Mounting Bracket	—	●	●	●	●	●	●	●	●	●	●	●
External Drive Units	●	●	●	●	—	—	●	●	●	—	—	●

Epson RC+ software makes it easy to develop control programs for setup, operation, and regular maintenance. With an easy-to-understand graphical user interface, you can achieve maximum productivity with minimum programming overhead.

SPEL+ Language Support

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

	Epson RC+5.0	Epson RC+6.0	Epson RC+7.0	command
Pallet	●	●	●	Pallet
Handling weight & inertia	●	●	●	Weight, Inertia
High-speed continuous path accuracy	●	●	●	CP
Multitasking	(16)	(32)	(32)	Xqt
Positioning Precision	●	●	●	Fine
Arch motion	●	●	●	Arch
Parallel processing	●	●	●	!...!
Remote control expansion I/O	●	—	●	AvoidSingularity
On-the-fly pickup	—	●	●	

Example Program

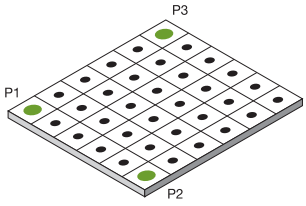
```
Function main
    Motor  On              *turn motor power on
    Power  High            *Power mode set high
    Speed  100             *Speed 100%
    Accel  100, 100        *Acceleration/Deceleration 100%

    If Sw(partok) = On Then    *Checking if good part
        Jump  goodparts        *move arm to goodpart pile
    Else
        Jump  badparts         *move arm to bad part pile
    EndIf

Fend
```

Easy Alignment with Palletized Parts

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



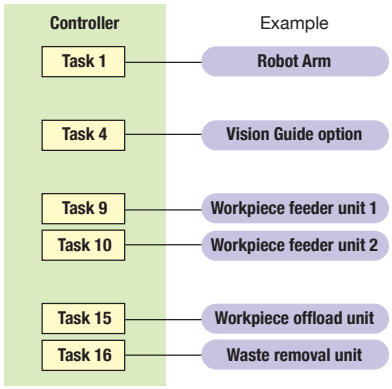
Simply set points P1, P2, and P3 — all other points ● are set automatically.

High Repeatability with Varying Payloads and End Effector Orientation

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

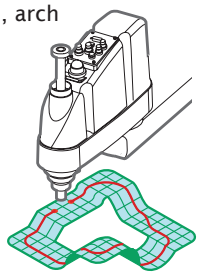
Multitasking Function

With Epson's programming language, even complex multitasking processes can be automated with ease. Up to 32 individual tasks can be seamlessly executed and controlled by a single program. Up to 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.



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 effector 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.



Positioning Completion Time Control for Maximum Efficiency

A time limit can be set for the completion of robot positioning to enable the next instruction to be executed even if the target point has not been reached. This allows you to maximize your yield by prioritizing takt (cycle) time over precision, or vice versa, according to the nature of the work to be done.

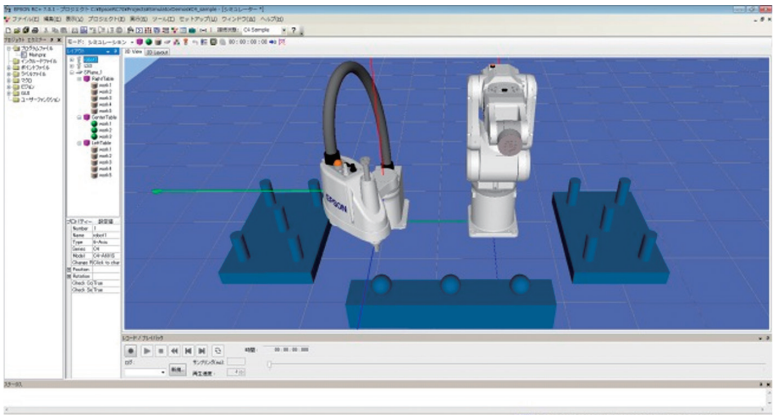
Simulator

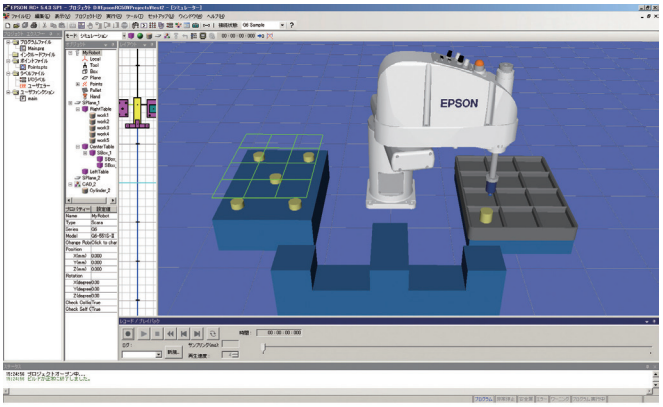
The Epson RC+ software simulator displays a 3D view of the workcell, enabling you to thoroughly test programs and operating clearances to optimize the workcell layout.

Layout Evaluation

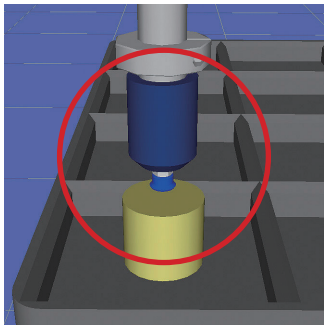
- 3D simulation of actual operation enables you to optimize the workcell layout and determine necessary clearances before rollout.
- Multi-robot simulations are also possible.*
- Pallet, hand, and other CAD based objects can be included in simulations.

* Multi-robot simulations are only supported with Epson RC+ 7.0





Pallet/hand display from CAD data.



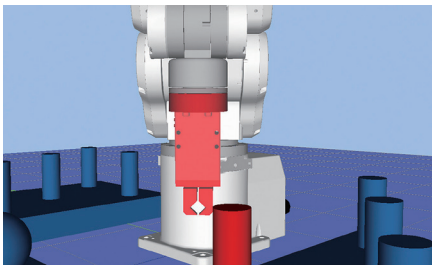
Enlarged view of hand.

Record & Playback Functions

- Recording & playback functions make it easy to include still images and movies in presentations.

Clearance Checking

- Choosing the right robot is easy because you can check all necessary workcell and peripheral equipment.



Productivity Forecasting

- Cycle times can be measured in advance and used to generate throughput and productivity forecasts before actual setup.

Debugging Function

- I/O data exchange with virtual peripheral devices can be monitored to assist in debugging.
- Debugged programs can be rolled out directly to existing workcell setups.

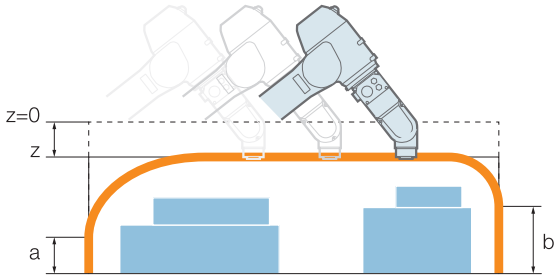
Machine Vision Simulation*

- Machine vision image processing input can also be used within simulations.

* Vision Guide simulation supported with Epson RC+ 7.0

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

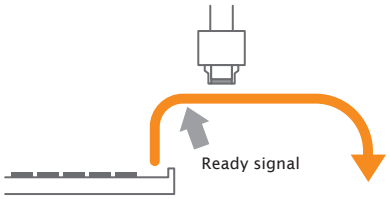
Epson SCARA and 6-axis robots all support JUMP command movements in three-dimensional space, and the arch described by the approaching and departing effector can be set to suit the work environment. Deceleration/acceleration of the approaching or departing head can be adjusted ensuring smooth, precise, 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)

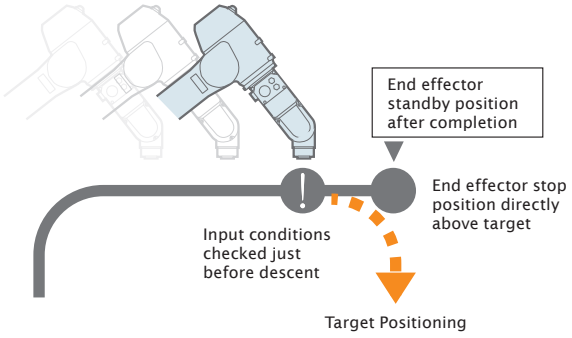
Parallel Processing for Higher Speed and Efficiency

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.



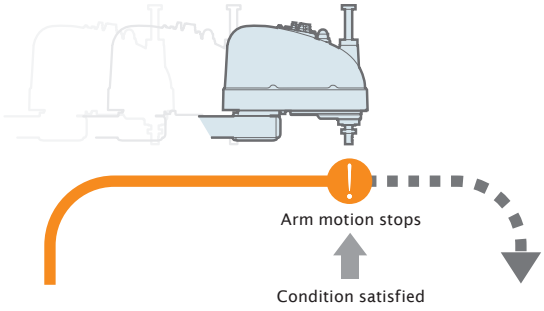
Conditional Stop (1)

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 speed. Acceleration and deceleration values 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 2500mm/s.

Teaching Methods

● **Remote Teaching**
Points are taught using the jog keys on the teaching pendant 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.

As precision automation specialists, the Epson Robots team has been building industry-leading robots for over 35 years – robots engineered for flexibility, ease of use, performance and reliability.

■ 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.

Industry Solutions

Epson Robots is a leading supplier to a wide variety of manufacturing industries including automotive, medical, electronics, consumer products, industrial and many more. Our customers range from large Fortune 100 companies to small manufacturing facilities.

- **Automotive:** Epson Robots are used to manufacture various automotive parts including brakes, clutch components, ignition systems, instrument panels, headlights, mirrors, locks and more.
- **Medical:** Popular with leading medical manufacturers, Epson Robots are used to create contact lenses, glasses, dental instruments, dental implants, hearing aids, pacemakers, blood test systems and much more.
- **Electronics:** Epson Robots are used in major electronic and semi-conductor facilities across the globe. Industry-specific applications include chip handling and placement, encoder assembly, board and laser diode testing, wire bonding and more.

Automation Applications

Epson Robots are extremely versatile and provide a wide range of automation possibilities:

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- Handling
- Packaging
- Kitting/Tray loading
- Machine tending
- Screw driving
- Dispensing
- Palletizing
- Lab analysis and testing
- Inspection and test
- Finishing
- Grinding

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