



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

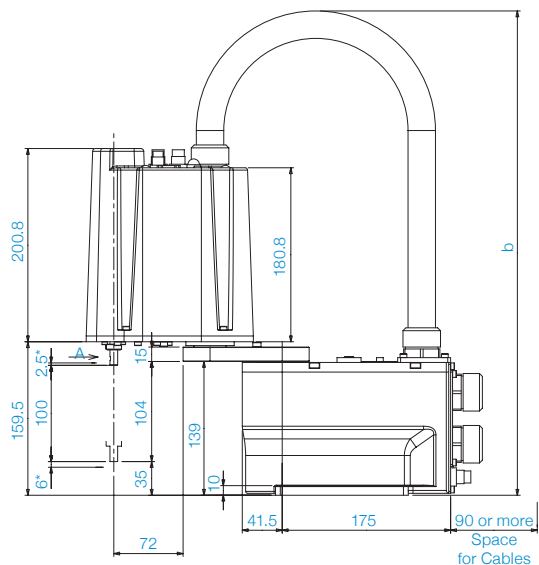
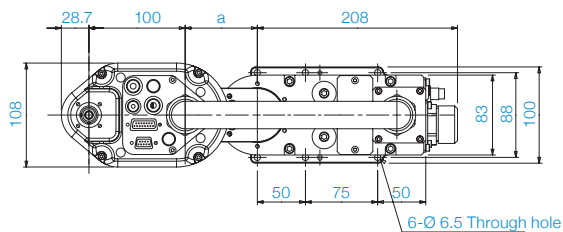
		4-Axis		3-Axis	
		G1-171	G1-221	G1-171xZ	G1-221xZ
Mounting type		Tabletop		Tabletop	
Arm length	Arm #1, #2	175 mm	225 mm	175 mm	225 mm
Max. operating speed	Joints #1, #2	2630 mm/s	3000 mm/s	2630 mm/s	3000 mm/s
	Joint #3	1200 mm/s		1200 mm/s	
	Joint #4	3000 deg/s		-	
Weight (cables not included)		8 kg		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	±140 deg	±152 deg	±135 deg	±135 deg
	(Cleanroom model)	(±140 deg)	(±149 deg)	(±123 deg)	(±132 deg)
	Joint #3 Std	100 mm		100 mm	
	Joint #3 Clean	80 mm		80 mm	
Payload	Joint #4	±360 deg		-	
	Rated	0.5 kg		0.5 kg	
	Maximum	1 kg		1.5 kg	
Standard cycle time¹		0.29 sec	0.30 sec	0.29 sec	0.30 sec
Joint #4 allowable moment of inertia²	Rated	0.0003 kg•m ²		-	
	Maximum	0.004 kg•m ²		-	
Motor power consumption	Joint #1	All joints: 50 W			
	Joint #2				
	Joint #3				
	Joint #4				
Joint #3 downward force		50 N			
Electric lines		24Pin (D-Sub 9+D-sub 15)			
Pneumatic lines		Ø4mm×1, Ø6mm×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.

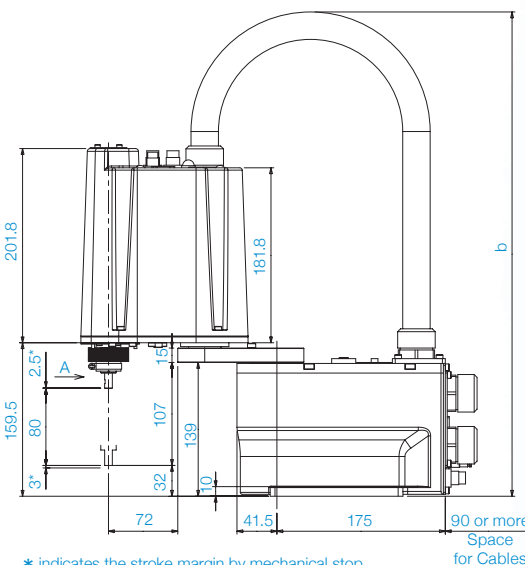
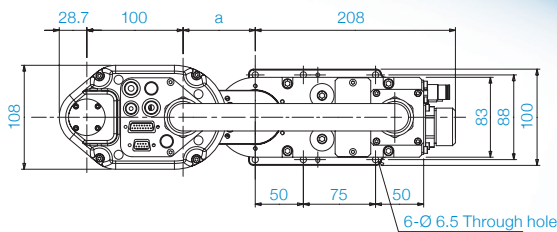
³ Complies with ISO Class 3 (ISO14644-1) and older Class 10 (less than 10 0.1µm particles per 28,317cm³:1ft) cleanroom standards.

Standard-model

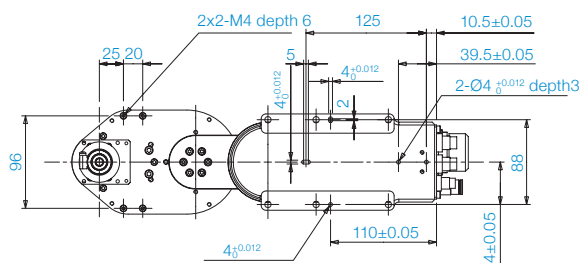


* indicates the stroke margin by mechanical stop.

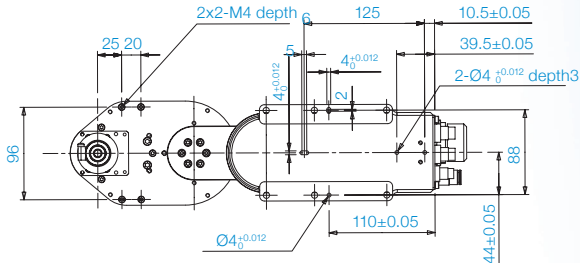
Cleanroom-model



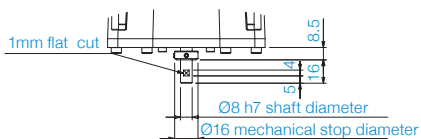
* indicates the stroke margin by mechanical stop.



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

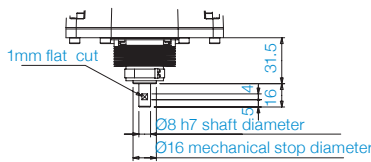


Reference through hole (View from the bottom of the base)



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

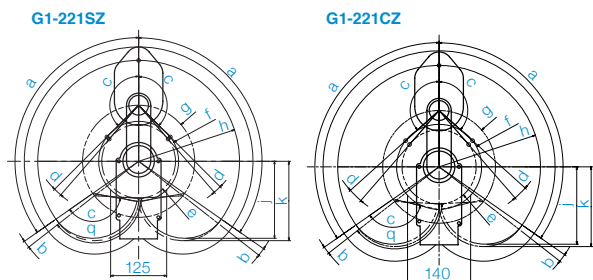
	G1_171S	G1_221S
a	75	125
b	Max. 515	Max. 545



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)



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