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EPSON G-Series

The next generation SCARA Robots

Available with our Low Cost
Micro PowerDrive
RC180 Controller

The Power of Choice

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The Best Just Got Better

EPSON G-Series SCARA Robots

- **High Speed** – Improvements of up to 20% vs. our already fast E2 Series
- **Heavy Payloads** – Increased payload capacities up to 20%
- **Wide Variety** – 198 different G-Series models available from 250 - 1,000mm
- **Large Work Envelopes** – Expanded motion range up to 23%
- **Extended Z Axis** - Available for applications (like packaging) requiring longer strokes
- **High Precision** – Repeatabilities down to 15 microns
- **Washdown models** – IP65 and IP54 models available in most sizes and configurations
- **Cleanroom Models** – ISO 3 Clean & ESD models available in all sizes and configurations
- **Ease of Use** – Industry leading EPSON RC+ significantly reduces development time vs. competitive products
- **Low Cost** – G-Series robots run on the low cost EPSON Micro PowerDrive RC180
- **Fully Integrated Options** – Vision Guidance, .NET Connectivity, DeviceNet, EtherNet/IP, Profibus, Expansion I/O and more…

198 G-Series Models

Look no further for your next SCARA robot as EPSON Robots give you more Power of Choice than ever before. With 198 models available in sizes from 250 – 1,000mm in reach and payloads of up to 20kg, chances are that EPSON has the model and configuration you need for your next application.

EPSON G-Series robots feature **Max-R**, a **new high rigidity arm design** that achieves **ultra-high speed**, **ultra-high precision** and **low vibration**. This puts EPSON G-Series robots in the top of their class. With speeds and payload improvements of up to 20% vs. our already fast E2 Series SCARA models, **THE BEST JUST GOT BETTER!**

EPSON G-Series SCARA robots are ideally suited for the Medical, Automotive, Electronics, Consumer, Food, Lab Automation, Semiconductor, Plastics, Appliance and Aerospace industries. They can be used for a wide variety of applications ranging from pace maker assembly to DNA testing or from chain saw to hard drive assembly. There are tens of thousands of different applications that our robots can handle. Let us help you with yours.

EPSON G-Series Configurations

	G3	G6	G10	G20
Payload (Max./Rated)	3/1kg	6/3kg	10/5kg	20/10kg
Reach (Axis 1 + Axis 2)				
250mm	●	–	–	–
300mm	●	–	–	–
350mm	●	–	–	–
450mm	–	●	–	–
550mm	–	●	–	–
650mm	–	●	●	–
850mm	–	–	●	●
1,000mm	–	–	–	●
Z-axis length *1				
150mm	●	–	–	–
180mm	–	●	●	●
330mm	–	●	–	–
420mm	–	–	●	●
Configurations				
Standard	●	●	●	●
Wall mount	●	●	●	●
Ceiling mount	●	●	●	●
Cleanroom/ESD	●	●	●	●
IP54	–	●	●	●
IP65	–	●	●	●

*1 The usable Z-axis length is shortened by 30 mm for cleanroom and IP54 / IP65 machines.

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Mounting Configurations

All EPSON G-Series robots are available in wall, ceiling or table top mounting configurations to help maximize available workspace. While table top models are the most commonly used, EPSON Robot users love the ceiling and wall mount configurations to run conveyors underneath. With such a wide range of product and mounting configurations, chances are that EPSON has the right robot for your next application.

Protected Models – IP54 and IP65

EPSON G-Series Protected Models are available for those applications that require an extra level of dust or water resistance. Our G-Series **washdown** and **dustproof robots** are perfect for applications such as food handling, industrial applications, etc. A large selection of G-Series models are available in either IP54 or IP65 configurations.

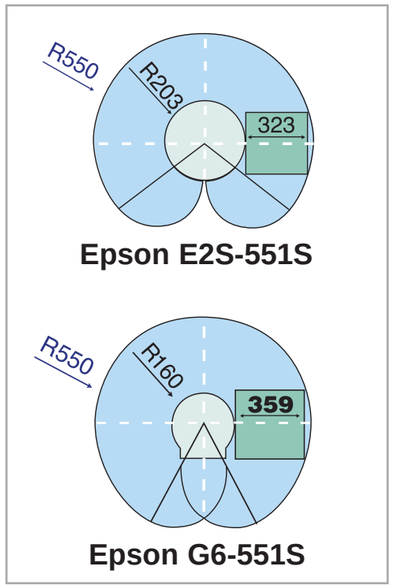
IP54 (Dust) - Dust shall not ingress in a quantity to interfere with satisfactory operation of the robot

IP54 (Water) - Water splashing against the enclosure from any direction shall have no harmful effect

IP65 (Dust) - No ingress of dust

IP65 (Water) - Water projected by a nozzle against enclosure from any direction shall have no harmful effects

G6 Design Increases Working Range



Comparison of the working ranges

While it may seem impossible, our G6 550mm robots can handle many applications with large working range requirements that other robots need 600mm of reach to handle. With up to a 23% larger working range vs. previous and competitive models, **EPSON G-Series robots lead the industry in footprint to workspace ratios**. Just look at the advantages of the G-Series:

- Smaller workcells help save valuable factory space
- Increased range of motion (G-Series reaches far behind itself)
- Larger working quadrangle allows use of larger pallets (see figure at left)

ISO 3 Clean & ESD

Cleanroom G-Series models include additional features such as special Z-Axis bellows, special covers, cover seals, etc. to reduce particulates emitted by the robot to enable use in cleanroom environments. EPSON ISO 3 Clean & ESD robots are widely used in the Hard Drive and Semiconductor industries due to their reliability, outstanding performance and ease of use while also maintaining high cleanroom and ESD compliance. Some of the additional key features for EPSON Cleanroom/ESD models are shown below:

- All EPSON G-Series models and sizes are available in ISO 3 Clean configurations
- All EPSON cleanroom robots are also ESD compliant.*1 This makes them ideal for ESD sensitive applications where electro-static discharge can create defective parts such as the hard drive industry.
- Internal vacuum lines are included to draw air from the base and arm cover interiors

*1 EPSON Robots was the first major assembly robot vendor to introduce ESD compliant robots which are now widely used in the hard drive and electronics industries.

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EPSON G6 SCARA Robots

G6 SCARA Robots

- **Arm lengths from 450 to 650 mm**
- **High Rigidity Arm = Ultra High Speed**
- **Best in Class Motion Range**
- **Increased Payloads by 20%**
- **Tabletop, Ceiling and Wall Mount models**
- **IP54 and IP65 Washdown / Dustproof models**
- **ISO 3 Clean & ESD compliant models**
- **Fully integrated Options including: Vision Guidance, .Net Connectivity, EtherNet/IP, DeviceNet, Profibus, Expansion I/O and more**
- **Extended Z-Axis option for applications requiring longer strokes**

Compact, High Speed and Powerful

EPSON G6 robots are part of our new G-Series line-up of next generation SCARA Robots. They are perfect for applications requiring **high speed and high precision** such as mechanical and electrical assembly, pick and place, kitting, dispensing and many others. Unique to the G6 is our new **Max-E design** which provides the maximum work envelope possible with an extremely compact footprint. Imagine doing jobs with a 550mm arm that previously required 600mm of reach. It's now possible with the EPSON G6 with Max-E.

G6

All G6 robots are available in table top, ceiling or wall mount configurations. Each of the G6 robots are available in Clean/ESD, IP65 or IP54 configurations for cleanroom, static sensitive assembly processes, and food or material handling applications where washdown capabilities are required.

With **best in class working range**, EPSON G6 robots are the compact footprint champion. But don't forget that EPSON G6 robots have ultra fast cycles, high repeatabilities and of course our famous EPSON **reliability that is 2nd to none**. In addition, our Micro PowerDrive RC180 controller and EPSON RC+ development environment add the power, high servo performance and **industry leading ease of use** that make EPSON G6 SCARA robots the best choice for your next automation project.

G6 Specifications

		G6-45x	G6-55x	G6-65x
Arm Length (mm)	**Horiz. (J1 + J2)**	200 + 250 = 450	300 + 250 = 550	400 + 250 = 650
Payload (kg)	**Max. / Rated**		6 / 3	
Repeatability	**J1 + J2**		+/-0.015 mm	
	J3		+/-0.010 mm	
	J4		+/-0.005 deg	
Cycle Time w/ 2kg (sec)		0.351	0.365	0.389
Max. Operating Speed	**J1 + J2**	6,440 mm/sec	7,170 mm/sec	7,900 mm/sec
	J3 (180 / 330)		1,100 / 2,350 mm/sec	
	J4		2400 deg/sec	
Motor Wattage (W)			400 / 400 / 200 / 100	
Insertion Force			150N (15.3 kgf)	
U inertia	**Max. / Rated**		0.12 / 0.01 kg•m2	
User Lines	**Electric**		24 lines (15pin, 9pin)	
	Air		Ø6 x 2, Ø4 x 2	
Z Axis Diameter (mm)			Ø20	
Mounting Hole Footprint (mm)			150 x 150 (4-M8)	
Weight (kg)	**Floor Mount**	27		28
	Ceiling Mount	27		28
	Wall Mount	29		29.5
Environmental	**Temperature**		5 - 40 deg C	
	Humidity		10 - 80% (non condensing)	
Optional Arm Configurations	**Mounting Type**		Tabletop, Ceiling, Wall	
	Clean & ESD		ISO 3 Clean & ESD	
	IP Rating		IP54, IP65	
Available Controllers			Micro PowerDrive RC180	
			PC Based Controller RC620+	

Extended Z-Axis

G6 robots come with either 180mm or 330mm Z axis stroke lengths (150mm or 300mm for Cleanroom/ESD and IP54/IP65 washdown models).

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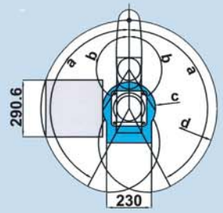
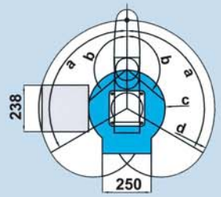
G6 Work Envelope Dimensions

Table Top mounting	Ceiling mounting	Wall mounting

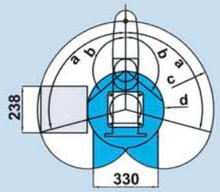
G6-45*S



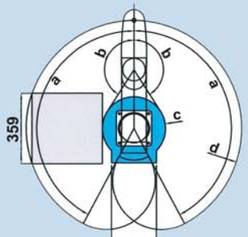
G6-45*SR



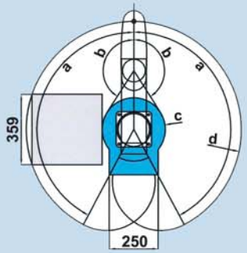
G6-45*SW



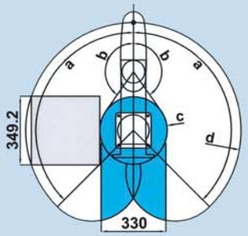
G6-55*S



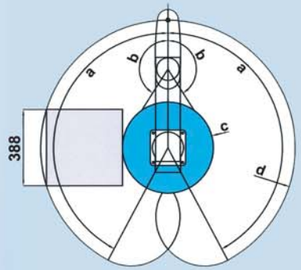
G6-55*SR



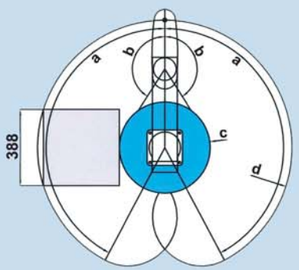
G6-55*SW



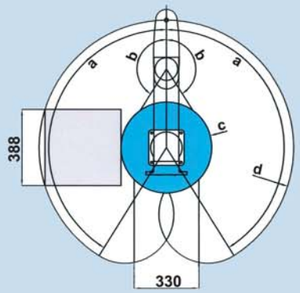
G6-65*S



G6-65*SR



G6-65*SW



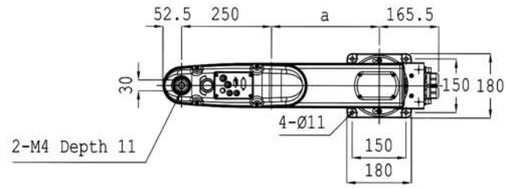
Installation Dimension	Table-Top mounting			Ceiling mounting			Wall mounting		
Model	G6-45**	G6-55**	G6-65**	G6-45**R	G6-55**R	G6-65**R	G6-45**W	G6-55**W	G6-65**W
a-Motion range of Joint #1 (deg)	+/-152			+/-120	+/-152		+/-105	+/-135	+/-148
b-Motion range of Joint #2 (deg)	+/-147.5			+/-130	+/-147.5		+/-130	+/-147.5	
c-Inner working radius (mm)	134.8	161.2	232	195.5	161.2	232	195.5	161.2	232
d-Reach (mm)	450	550	650	450	550	650	450	550	650
Largest working quadrangle (mm)	290.6[2]	359[2]	388[2]	238[2]	359[2]	388[2]	238[2]	349.2[2]	388[2]

Maximum motion range varies for cleanroom, protected models and Z position. Contact Epson for detailed information.

G6 Dimensional Drawings for Installation

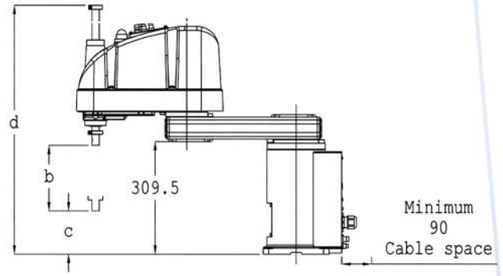
Standard Top

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



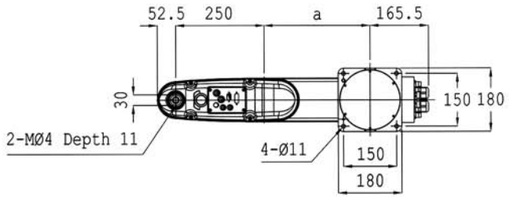
Standard Side

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



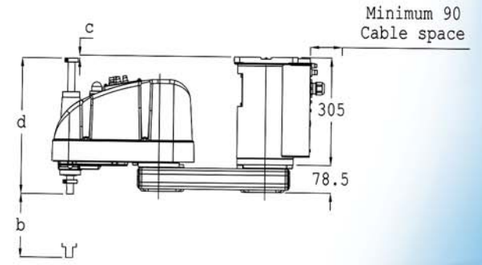
Standard Ceiling Top

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



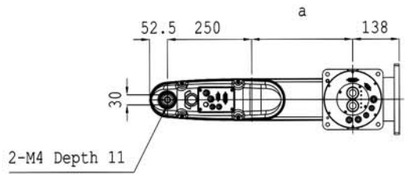
Standard Ceiling Side

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



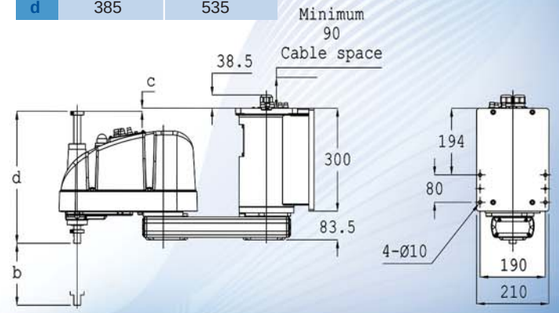
Standard Wall Top

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



Standard Wall Side

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



G10 SCARA Robots

- **Arm lengths from 650 to 850 mm**
- **High Rigidity Arm = Ultra High Speed**
- **Increased Payload by 100% to 10 kg**
- **Reduced Residual Vibration for faster accel/decel rates**
- **Tabletop, Ceiling and Wall Mount models**
- **IP54 and IP65 Washdown/Dustproof models**
- **ISO 3 Clean & ESD compliant models**
- **Fully integrated Options including: Vision Guidance, .Net Connectivity, EtherNet/IP, DeviceNet, Profibus, Expansion I/O and more**
- **Extended Z-Axis available for applications requiring longer strokes**

As with all our G-Series SCARA robots, G10 robots are available in table top, ceiling or wall mount configurations to help maximize available workspace. G10 robots are also available in Class 10 cleanroom configurations and as with all EPSON cleanroom SCARA robots are ESD compliant. This is critical for those sensitive applications where electro-static discharge can create defective parts. The protected robot models (IP54 and IP65) are suitable for applications where the robot is required to operate under adverse conditions with dust or oily mist. Washdown configured models are designed to operate in wet conditions from light mist of moisture exposure to jets of fluids spraying from any direction.

G10 Specifications

		G10-65x	G10-85x
Arm Length (mm)	**Horiz. (J1 + J2)**	250 + 400 = 650	450 + 400 = 850
Payload (kg)	**Max. / Rated**	10 / 5	
Repeatability	**J1 + J2**	+/-0.025 mm	
	J3	+/-0.010 mm	
	J4	+/-0.005 deg	
Cycle Time w/ 2kg (sec)		0.342	0.369
Max. Operating Speed	**J1 + J2**	8,800 mm/sec	11,000 mm/sec
	J3 (180 / 420)	1,100 / 2,350 mm/sec	
	J4	2400 deg/sec	
Motor Wattage (W)		750 / 600 / 400 / 150	
Insertion Force		250N (25.5 kgf)	
U inertia	**Max. / Rated**	0.25 / 0.02 kg•m2	
User Lines	**Electric**	24 lines (15pin, 9pin)	
	Air	Ø6 x 2, Ø4 x 2	
Z Axis Diameter (mm)		Ø25	
Mounting Hole Footprint (mm)		200 x 200 (4-M12)	
Weight (kg)	**Floor Mount**	46	48
	Ceiling Mount	46	48
	Wall Mount	51	53
Environmental	**Temperature**	5 - 40 deg C	
	Humidity	10 - 80% (non condensing)	
Optional Arm Configurations	**Mounting Type**	Tabletop, Ceiling, Wall	
	Clean & ESD	ISO 3 Clean & ESD	
	IP Rating	IP54, IP65	
Available Controllers		Micro PowerDrive RC180	
		PC Based Controller RC620+	

High Rigidity = Ultra High Speed + Heavy Payload

EPSON G10 robots are perfect for many different applications requiring **high speed AND high payloads**. G10 robots feature our **Max-R design** which gives a whole new meaning to **high rigidity**. G10 robots with Max-R are ultra high speed even with higher payloads. The rigid arm design combined with powerful EPSON controls make G10 robots ideal for handling applications such as heavy parts assembly, machine tending, material handling, packaging, dispensing and more…. All which require **high payloads and ultra high speed**. G10 robots can maximize part throughput for even the most demanding cycle time requirements. This means more parts per hour and higher profits.

Extended Z-Axis

G10 robots come with either 180mm or 420mm Z axis stroke lengths (150mm or 390mm for Cleanroom/ESD and IP54/IP65 washdown models).

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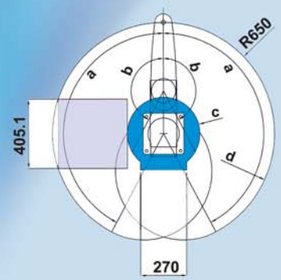
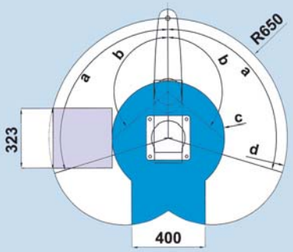
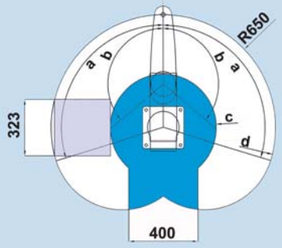
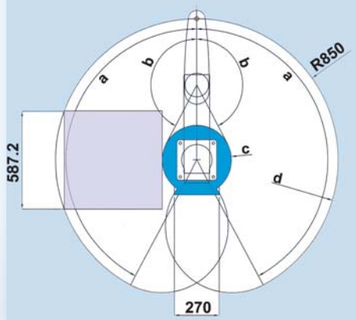
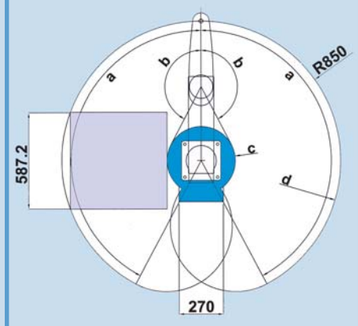
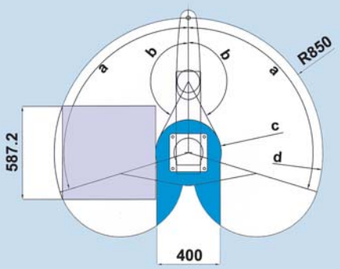
G10 Work Envelope Dimensions

Table Top mounting	Ceiling mounting	Wall mounting
G10-65⋆S	G10-65⋆SR	G10-65⋆SW
		
G10-85⋆S	G10-85⋆SR	G10-85⋆SW
		

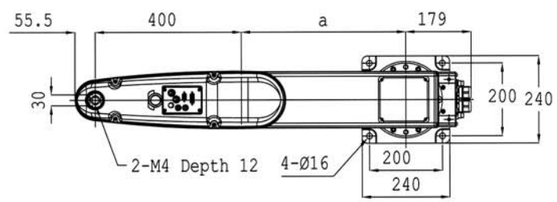
Installation Dimension	Table-Top mounting		Ceiling mounting		Wall mounting	
Model	G10-65**	G10-85**	G10-65**R	G10-85**R	G10-65**W	G10-85**W
a - Motion range of Joint #1 (deg)	+/-152		+/-107	+/-152	+/-107	
b - Motion range of Joint #2 (deg)	+/-152.5		+/-130	+/-152.5	+/-130	+/-152.5
c - Inner working radius (mm)	212.4	207.8	306.5	207.8	306.5	207.8
d - Reach (mm)	650	850	650	850	650	850
Largest working quadrangle (mm)	405.1[2]	587.2[2]	323[2]	587.2[2]	323[2]	587.2[2]

Maximum motion range varies for cleanroom, protected models and Z position. Contact Epson for detailed information

G10 Dimensional Drawings for Installation

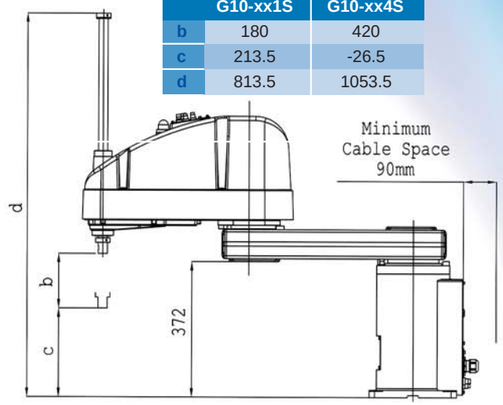
Standard Top

	G10-65xS	G10-85xS
a	250	450



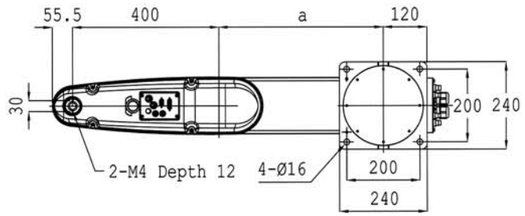
Standard Side

	G10-xx1S	G10-xx4S
b	180	420
c	213.5	-26.5
d	813.5	1053.5



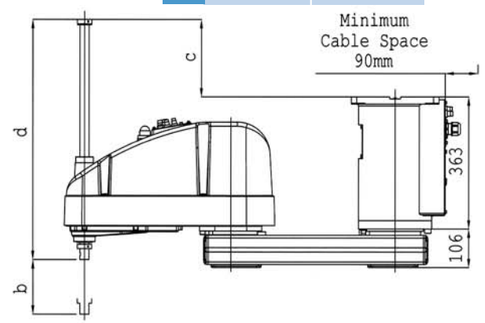
Standard Ceiling Top

	G10-65xSR	G10-85xSR
a	250	450



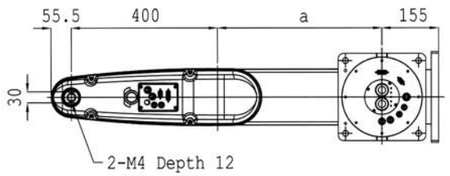
Standard Ceiling Side

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



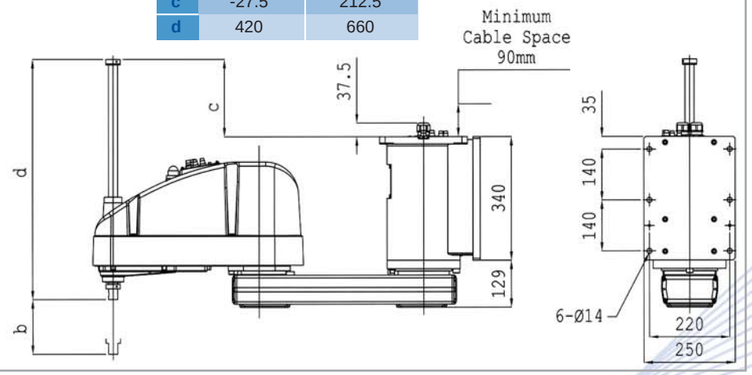
Standard Wall Top

	G10-65xSW	G10-85xSW
a	250	450



Standard Wall Side

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



G20 SCARA Robots

- **Arm lengths from 850 to 1000 mm**
- **High Rigidity Arm = Ultra High Speed**
- **20 kg Payload**
- **Monocoque design provides for higher rigidity over longer lengths**
- **Tabletop, Ceiling and Wall Mount models**
- **IP54 and IP65 Washdown / Dustproof models**
- **ISO 3 Clean & ESD compliant models**
- **Fully integrated Options including: Vision Guidance, .Net Connectivity, EtherNet/IP, DeviceNet, Profibus, Expansion I/O and more**
- **Extended Z-Axis available for applications requiring longer strokes**

G20 robots are perfect for load/unload applications such as for machine tools because of the long reach arm, high payload and extended Z axis. With a very high U-Axis moment of inertia capability, heavy payloads can be moved quickly and reliably with no end of arm shake as found with competitive models. All G20 robots are available in table top, ceiling or wall mount configurations. Each of the G20 robots are available in Clean/ESD, IP65 or IP54 configurations for cleanroom, static sensitive assembly processes, and food or material handling applications where washdown or dustproof capabilities are required.

G20 Specifications

		G20-85x	G20-A0x
Arm Length (mm)	**Horiz. (J1 + J2)**	450 + 400 = 850	600 + 400 = 1000
Payload (kg)	**Max. / Rated**	20 / 10	
Repeatability	**J1 + J2**	+/-0.025 mm	
	J3	+/-0.010 mm	
	J4	+/-0.005 deg	
Cycle Time w/ 2kg (sec)		0.369	0.417
Max. Operating Speed	**J1 + J2**	11,000 mm/sec	11,500 mm/sec
	J3 (180 / 420)	1,100 / 2,350 mm/sec	
	J4	1700 deg/sec	
Motor Wattage (W)		750 / 600 / 400 / 150	
Insertion Force		250N (25.5 kgf)	
U inertia	**Max. / Rated**	0.45 / 0.05 kg•m2	
User Lines	**Electric**	24 lines (15pin, 9pin)	
	Air	Ø6 x 2, Ø4 x 2	
Z Axis Diameter (mm)		Ø25	
Mounting Hole Footprint (mm)		200 x 200 (4-M12)	
Weight (kg)	**Floor Mount**	48	50
	Ceiling Mount	48	50
	Wall Mount	53	55
Environmental	**Temperature**	5 - 40 deg C	
	Humidity	10 - 80% (non condensing)	
Optional Arm Configurations	**Mounting Type**	Tabletop, Ceiling, Wall	
	Clean & ESD	ISO 3 Clean & ESD	
	IP Rating	IP54, IP65	
Available Controllers		Micro PowerDrive RC180	
		PC Based Controller RC620+	

Long Reach and Heavy Payload

G20 robots are ideal for applications involving transportation of heavy loads in large work areas, such as packaging, automotive, electrical, food, pharmaceutical, and medical as well as other industries - All which require **heavy payloads, long reach and first class performance**. G20 robots along with all G-Series robots, feature our **Max-R high rigidity arm design** which results in high speed performance AND heavy payloads along with higher duty cycles. G20 robots come with our Micro PowerDrive RC180 Controller with its' powerful servo system to maximize arm performance and industry leading ease of use. With up to 20 kg payload capacity and 850 or 1000mm arm reach, the G20 is the perfect robot for your larger jobs.

Extended Z-Axis

G20 robots come with either 180mm or 420mm Z axis stroke lengths (150mm or 390mm for Cleanroom/ESD and IP54/IP65 washdown models).

420mm Z axis →

180mm Z axis →

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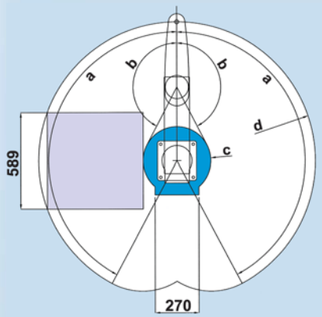
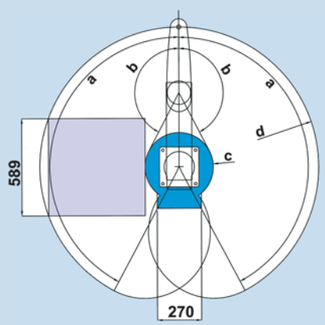
G20 Work Envelope Dimensions

Table Top mounting	Ceiling mounting	Wall mounting

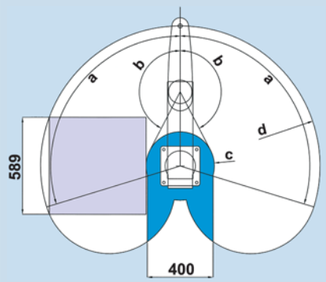
G20-85*S



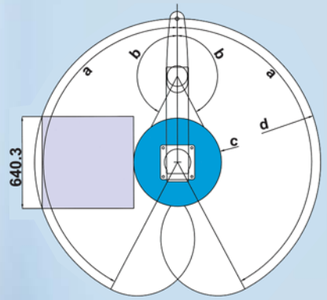
G20-85*SR



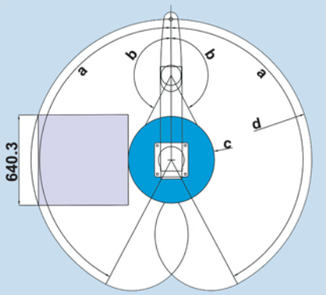
G20-85*SW



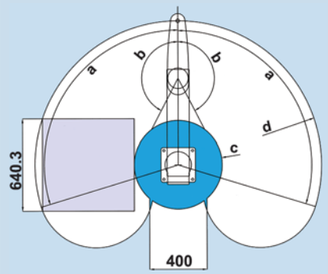
G20-A0*S



G20-A0*SR



G20-A0*SW



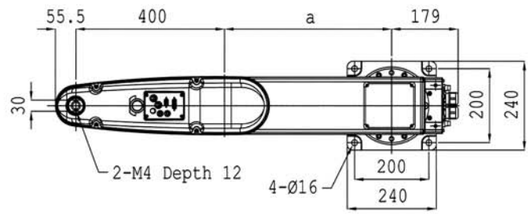
Installation Dimension	Table-Top mounting		Ceiling mounting		Wall mounting	
Model	G20-85**	G20-A0**	G20-85**R	G20-A0**R	G20-85 **W	G20-A0**W
a - Motion range of Joint #1 (deg)	+/-152				+/-107	
b - Motion range of Joint #2 (deg)	+/-152.5					
c - Inner working radius (mm)	207.8	307	207.8	307	207.8	307
d - Reach (mm)	850	1000	850	1000	850	1000
Largest working quadrangle (mm)	589[2]	640.3[2]	589[2]	640.3[2]	589[2]	640.3[2]

Maximum motion range varies for cleanroom, protected models and Z position. Contact Epson for detailed information

G20 Dimensional Drawings for Installation

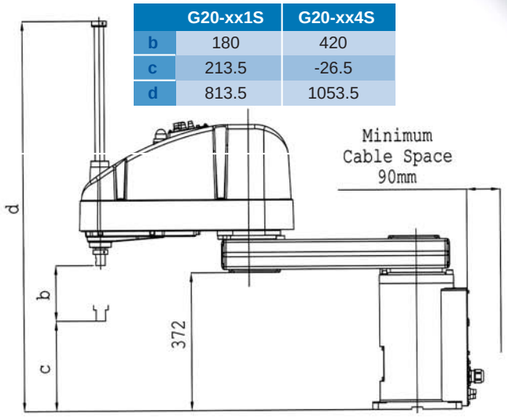
Standard Top

	G20-85xS	G20-A0xS
a	450	600



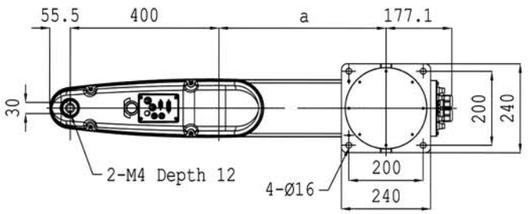
Standard Side

	G20-xx1S	G20-xx4S
b	180	420
c	213.5	-26.5
d	813.5	1053.5



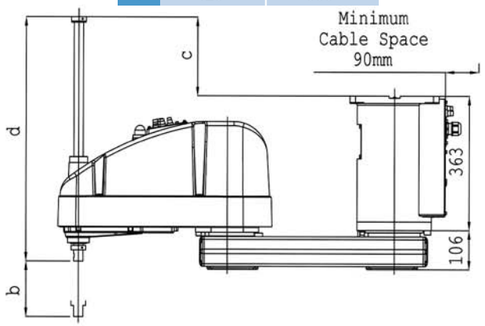
Standard Ceiling Top

	G20-85xSR	G20-A0xSR
a	450	600



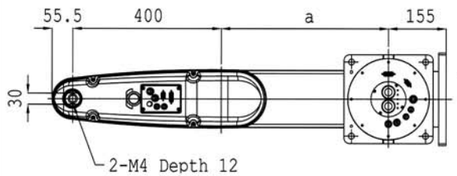
Standard Ceiling Side

	G20-xx1SR	G20-xx4SR
b	180	420
c	-27.5	212.5
d	420	660



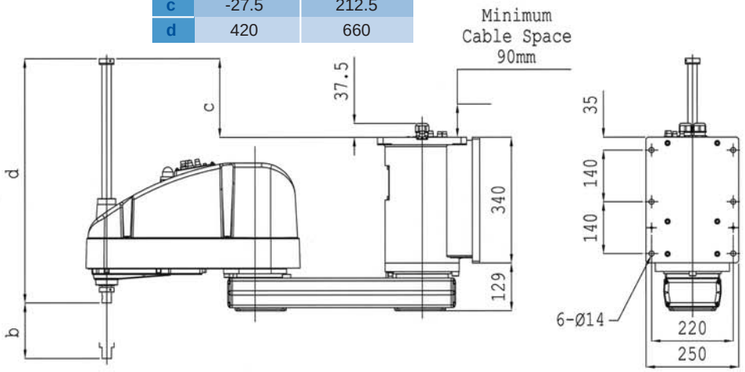
Standard Wall Top

	G20-85xSW	G20-A0xSW
a	450	600



Standard Wall Side

	G20-xx1SW	G20-xx4SW
b	180	420
c	-27.5	212.5
d	420	660



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EPSON Robot Controller RC180

EPSON Micro PowerDrive RC180 Controller

The EPSON Micro PowerDrive RC180 controller is a low cost, high performance robot controller that provides the ultimate experience in ease of use, compact size, and reliability at an incredible low cost. With core performance features superior to many other robot vendors high end controllers, the EPSON Micro PowerDrive RC180 creates a whole new class of robot controllers for customers seeking the best mix of low cost, high performance and small footprint. Some of the major features include:

- **Low Cost AND High Performance**
- **Industry Leading Ease of Use with EPSON RC+ Software**
- **Fast Robot Cycle and Program Execution Times**
- **Compact Size - small footprint**
- **Use as standalone, PLC Slave or with PC**
- **PowerDrive Servo System Ensures Maximum Robot Performance**
- **Automatic recognition of expansion boards and motor drives - No need to configure settings when adding options or switching drivers**
- **High installation flexibility - Can be installed in a control panel and be vertical, horizontal, or wall mounted**
- **Fully integrated options including: Vision Guide, Microsoft .NET support, DeviceNet, EtherNet/IP, Profibus, Expansion I/O and more**

RC180 Controller

System Configuration

RC180 Controller Specifications

Hardware Specifications		
Mounting Options	Desktop, Wall, Rack, Floor, Ceiling	
CPU	32 bit Ultra Low Voltage Processor	
Robot Manipulator Control	Joint Control	Up to 6 joints simultaneous control (AC Servo)
	Motion Type	CP (Continuous Path) motion, PTP (Point to Point) motion
	Speed/ Accel/ Decel	Fully programmable
Memory	64 MB Flash, 64MB DRAM, 128K SRAM (for backup variables)	
Teaching Method	Remote, Direct, MDI (Manual Data Input)	
Digital I/O	Standard I/O	16 Inputs/ 8 Outputs (Optically Isolated)
	Remote I/O	8 Inputs/ 8 Outputs (may be configured as additional standard I/O)
Communication Interfaces	Ethernet	10/100Base-T Ethernet - High speed connection to 1 or more controllers via network
	USB 1.1 or 2.0	USB port 1 - Direct 1 to 1 high speed connection to 1 controller
		USB port 2 - for USB memory
Power Source	200-240 VAC Single Phase 50/60 Hz	
Environment	Temperature	5-40 deg C
	Humidity	20-80% (no condensation)
	Standards for Environment	RoHS
Safety Standards	CE Compliance, ANSI/RIA 15.06-1999, UL1740 (coming soon)	
Safety Features	Emergency stop switch, Safety door input, Low power mode, Dynamic brake, Encoder cable disconnection error detection, Motor overload detection, Irregular motor torque detection, Motor speed error detection, Positioning overflow, 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	
Dimensions	Base Unit (for SCARA robot)	302(w) x 170.5(d) x 275(h)
	Extension Unit drive (for Six-Axis robot)	75(w) x 130(d) x 275(h)
	Extension Option Unit	55(w) x 136(d) x 240(h)
Weight	For SCARA robot	9.0 kg*
	For Six-axis robot	10.5 kg*
	Option unit	1.0 kg*

Software Specifications		
Programming Language	SPEL+ Lite	
PC Requirements	Operating System	Windows XP or Windows Vista
	CPU Speed	850 MHz (or faster)
	Required HDD Space	500MB (minimum)
Multitasking	up to 16 simultaneous tasks	
Error Handling	Error History	Automatic error logging
	User Errors	User defined errors and messages
Languages	English, French, German, Japanese	
Source Code Editor	Color coded with auto syntax assist, code indent, and built-in EPSON SmartSense™ technology	
Debugger	Source level debugger with single step, breakpoints, watch variables, and built-in EPSON SmartSense™ technology	
SPEL+ Language	Powerful, easy to learn structured language with features such as: functions, parameter passing, variable types, long variable names, event traps, error handling and much more	
RC+ Development Environment (EPSON RC+ 5.0)	Project based development environment with advanced ease of use features such as: • Project Explorer for easy access to application files • Point file spreadsheets for editing points • Run Window for fast development • Point and click configuration wizards • Operator Window for easy production use • Integrated help system is always just a click away • Robot Manager for jogging, teaching points, and configuring robot parameters • I/O Monitor and I/O Label Editor allow easy setup and viewing of I/O status • Task Manager provides debugging/monitoring dialog for all actively running tasks	
PLC Connection	Easy to use controller as PLC slave through DeviceNet, Profibus, EtherNet/IP or Remote I/O connection	

Options (see next 2 pages for details)

- Expansion I/O (32 Inputs/ 32 Outputs) up to 4 boards
- RS232-C board (up to 8 ports available with 2 option boards)
- ECP Software Option (External Control Point motion)
- Operator Panel (OP1)
- Fieldbus boards (EtherNet/IP, DeviceNet, Profibus, CC-Link)
- VB Guide Lite (Microsoft .Net Communication Module)
- Teach Pendant (TP1)

* Weight of the Controller

Expansion I/O and Fieldbus boards inside an Option Unit

DeviceNet **EtherNet/IP** **Expansion I/O** **Profibus** **RS232C**

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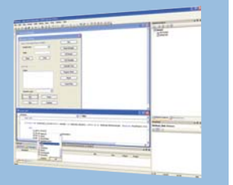
EPSON Micro Power Drive RC180 Options

Vision Guide 5.0

Vision Guide leads the industry in ease of use for integrated Robot/Vision systems. With a point and click interface, users are constantly amazed with how quickly they get their EPSON Robots running for vision guided robotic applications. With powerful tools such as Geometric Search, Normalized Correlation, Image Analysis, Polar Search, and of course Blob tools and much much more, Vision Guide is more than just another vision system. It is an integrated package designed from the ground up to solve vision guided robotic applications.

VB Guide 5.0 (.Net Tools)

EPSON VB Guide has led the robot industry for years in connectivity using Microsoft standards. Starting with DDE, OLE, Active X and now .NET connectivity, we are dedicated to providing solid tools for using Microsoft Visual Basic, .NET, C/C++ or other .NET based solutions to run EPSON Robots. EPSON VB Guide 5.0 provides the power to create sophisticated user interfaces or to connect to 3rd party software/hardware products to make the most out of your EPSON Robot system.



Teach Pendant TP1

The EPSON TP1 (Teach Pendant) allows for easy jogging of the robot and the teaching of points. It has features to allow the editing and saving of point data, program editing, I/O and task monitoring, easy calibration guidance, system history display and much more. It has a backlit liquid-crystal display and is a universal design that allows for left or right handed use. The TP1 is fully IP65 compliant and comes with all UL and RIA safety features such as E-Stop, 3 position deadman switch, single point of control, and slow speed control in Teach Mode to name a few.

Operator Panel OP1

The EPSON OP1 (Operating Panel) is commonly used as the primary point of control in place of a PLC or pushbutton panel. With an easy to read backlit touch screen panel, users can start, stop and pause programs, check task execution, view the I/O monitor screen, view system history or even run custom application screens which can be used to gather input from and display information to operators. For applications requiring a simple operator interface, the OP1 is the easy way to go.

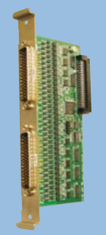
Option Unit

To keep the Micro PowerDrive RC180 Controller compact in size, adding options is done through an extension to the core chassis using option units. An option unit is a board carrier that houses and protects option boards and connects them to the controller. Up to 2 option units can be added to a controller with each unit housing up to 2 option boards for a 4 board maximum. The following option boards are supported:

- Expansion I/O, EtherNet/IP, DeviceNet, Profibus, CC-Link, RS-232C

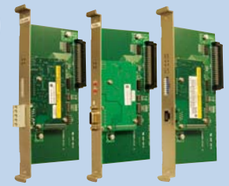
Expansion I/O Board

Each expansion I/O board provides 32 inputs and 32 outputs. The number of I/O that can be expanded per RC180 controller is a maximum of 4 boards (128 inputs and 128 outputs). When an expansion I/O board is mounted to the option unit, the EPSON RC+ controller software automatically identifies the expansion I/O board. Therefore, no software configuration is needed.



Fieldbus I/O (EtherNet/IP, DeviceNet, Profibus and CC-Link)

The Micro PowerDrive RC180 controller provides powerful fieldbus connectivity using the latest industrial standards. EtherNet/IP, DeviceNet, Profibus and CC-Line are all supported with single card solutions. Because of the open communication standards, users can easily build the fieldbus solution of their choice using off the shelf devices.



RS-232C – Communication Board

The RS-232C option provides a mechanism to communicate with external RS232 devices such as other controllers, scales, or many other devices. A maximum of 2 boards can be installed into an RC180 controller. With 4 ports per expansion board, a maximum of 8 RS-232C ports are available. When the RS-232C board is mounted in an option unit, the EPSON RC+ controller software automatically identifies the RS-232C board. Therefore, no software configuration is needed.

External Control Point (ECP) Motion

ECP is a powerful motion profile function that allows datums external to the robot's coordinate system to influence robot motion paths. For example…externally mounting a fixed process dispense unit and allowing the robot to hold a part and maintain path and velocity for the part relative to the fixed dispensing point.

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EPSON G-Series Specifications

Robot Model			G3-25x	G3-30x	G3-35x	G6-45x	G6-55x	G6-65x	G10-65x	G10-85x	G20-85x	G20-A0x
Arm Length (mm)		Horiz. (J1 + J2)	120 + 130 = 250	170 + 130 + 300	220 + 130 = 350	200 + 250 = 450	300 + 250 = 550	400 + 250 = 650	250 + 400 = 650	450 + 400 = 850	450 + 400 = 850	600 + 400 = 1000
Payload (kg)		Max. / Rated	3/1			6 / 3			10 / 5		20 / 10	
Repeatability	mm	J1 + J2	+/-0.008	+/-0.010		+/-0.015			+/-0.025		+/-0.025	
		J3	+/-0.010			+/-0.010			+/-0.010		+/-0.010	
	deg	J4	+/-0.005			+/-0.005			+/-0.005		+/-0.005	
Cycle Time w/ 2kg (sec)			0.41	0.43	0.41	0.351	0.365	0.389	0.342	0.369	0.369	0.417
Max. Operating Speed	mm/sec	J1 + J2	3,550	3,950	4,350	6,440	7,170	7,900	8,800	11,000	11,000	11,500
		J3 (Std / Ext)	1,100			1,100 / 2,350			1,100 / 2,350		1,100 / 2,350	
	deg/sec	J4	3000			2400			2400		1700	
Motor Wattage (W)			200 / 150 / 150 / 150			400 / 400 / 200 / 100			750 / 600 / 400 / 150		750 / 600 / 400 / 150	
Insertion Force			150N (15.3 kgf)			150N (15.3 kgf)			250N (25.5 kgf)		250N (25.5 kgf)	
U inertia	kg·m²	Max. / Rated	0.05 / 0.005			0.12 / 0.01			0.25 / 0.02		0.45 / 0.05	
Axis Motion Range	J1 (deg)	Floor Mount	+/-140			+/-152			+/-152		+/-152	
		Ceiling Mount	-	+/-115	+/-120	+/-120	+/-152		+/-107	+/-152	+/-152	
		Wall Mount	-	+/-115	+/-120	+/-105	+/-135	+/-148	+/-107	+/-107	+/-107	
	J2 (deg)	Floor Mount	+/-141*1	+/-142*1	+/-142	+/-141.5*1	+/-147.5*1		+/-152.5		+/-152.5	
		Ceiling Mount	-	+/-135	+/-142	+/-130	+/-147.5		+/-130	+/-152.5	+/-152.5	
		Wall Mount	-	+/-135	+/-142	+/-130	+/-147.5		+/-130	+/-152.5	+/-152.5	
	J3 (mm)	All	150*2 120*3			180/330*2 150/300*3			180/420*2 150/390*3		180/420*2 150/390*3	
	J4 (deg)	All	+/- 360			+/- 360			+/- 360		+/- 360	
User Lines		Electric	15 lines (15pin, 9pin)			24 lines (15pin, 9pin)			24 lines (15pin, 9pin)		24 lines (15pin, 9pin)	
		Air	Ø4 x 1, Ø6 x 2			Ø6 x 2, Ø4 x 2			Ø6 x 2, Ø4 x 2		Ø6 x 2, Ø4 x 2	
Z Axis Diameter (mm)			Ø16			Ø20			Ø25		Ø25	
Mounting Hole Footprint (mm)			120 x 120 (4-M8)			150 x 150 (4-M8)			200 x 200 (4-M12)		200 x 200 (4-M12)	
Weight (kg)		Floor Mount	14			27	28		46	48	48	50
		Ceiling Mount	-	14		27	28		46	48	48	50
		Wall Mount	-	14		29	29.5		51	53	53	55
Environmental		Temperature	5 - 40 deg C									
		Humidity	10 - 80% (non condensing)									
Optional Arm Configurations		Mounting Type	Tabletop	Tabletop, Ceiling, Wall								
		Clean & ESD	ISO 3 Clean & ESD									
		IP Rating	-	-	-	IP54, IP65						
Robot Cables (Meters)			3M (standard) / 5M (optional) / 10M (optional)									
Available Controllers			Micro PowerDrive RC180, PC Based Controller RC620+									

*1: Maximum motion range varies based on Z position
*2: Standard Z Axis configuration
*3: Clean/IP Z Axis configuration

Description of G-Series Model Codes

G6-553CR

G-Series
- G3 . . . . . G3 Series
- G6 . . . . . G6 Series
- G10 . . . . G10 Series
- G20 . . . . G20 Series

Arm Length
- 25 . . . 250mm (G3)
- 30 . . . 300mm (G3)
- 35 . . . 350mm (G3)
- 45 . . . 450mm (G6)
- 55 . . . 550mm (G6)
- 65 . . . 650mm (G6, G10)
- 85 . . . 850mm (G10, G20)
- A0 . . . 1,000mm (G20)

Z Axis Length
- 1 . . .Standard-model
- 3 . . .Long stroke (G6)
- 4 . . .Long stroke (G10, G20)

Environment
- S . . .Standard-model
- C . . .Cleanroom-model
- D . . .Protected-model (IP54)
- P . . .Protected-model (IP65)

Mount Type
- – (blank) Table Top mount
- R . . .Ceiling mount
- W . . .Wall mount

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