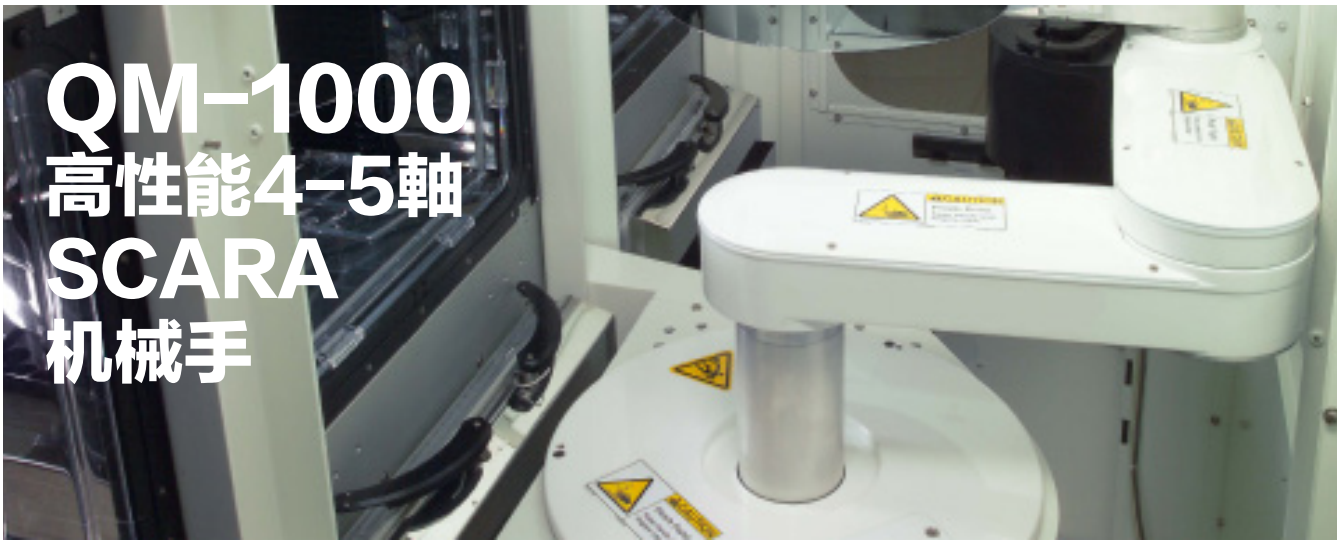
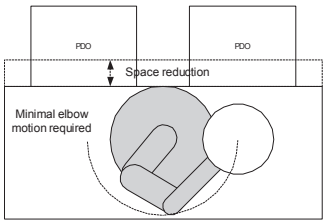
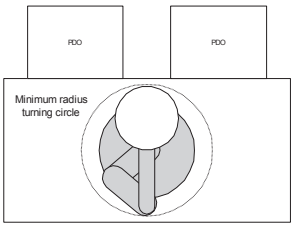


QM-1000 高性能4-5軸 SCARA 机械手

QM-1000 平面关节机械手(Selectively Compliant Articulated Robot Arm, SCARA) 系列产品已问世近廿年，除了通过CE、ISO 洁净度 Class 1认证外，其性能及稳定性亦经过多家世界级半导体厂验证。



EFEM with SCARA Robot



EFEM with traditional R-theta Robot

QM-1000 可旋转+/- 320度，无死角设计有效利用空间，最大伸展距离达505mm BOLT 标准，可达3个FOUP，最佳弹道路径 (Motion Trajectory Optimization) 设计大幅提高运送速度，双轴机械手之最大产达每小时480片。

带电源的绝对值编码器，掉电不失位置，具专利之优良内部结构，平均故障间隔时间43,000小时, 无消耗品亦毋需年修 (Preventative Maintenance)，具最佳之拥有成本 (Cost of Ownership) 。

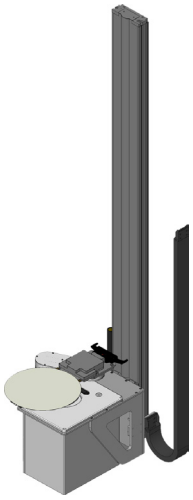
简易白话英文操作界面 (Plain English Applicaiton Program Interface）及API 模拟器 (Emulator), 可快速Drop-in 取代其它机械手；亦具有易于集成的机械手模拟软件(Simulator) 以加快研发及原型机制造进度；单点自动示教 (Single Point Complete Auto Teach), 可节省集成及上线时间。

Quartet 亦提供智能型非接触性末端控制器、晶圆对位器及EFEM（Equipment Front End Module)，适用於易脆、超薄及超厚之晶圆。

上: 双轴SCARA机械手 / 下: 第5翻转轴加涡旋式薄晶圆抓手

	QM-1000 Single Wrist	QM-1000 with Flipper	QM-1000 Dual Wrist	QM-1000 ZLR Z-less
General:				
Payload @ Wrist	2.2kg / 5lb	0.6kg/1.5lb	0.2kg/ 0.5lb x2	2.2kg/ 5 lb
Robot Weight	35kg / 76lb	36kg / 79lb	37kg / 82lb	18kg/ 40lb
Vacuum	85 kPa / 25 in of Hg			
Wafer Swap Time	6 seconds	6 seconds	3 seconds	6 seconds
Cleanliness	ISO Class 1			
Position Encoding	Absolute positioning			
Motors	AC Servo			
Cassette Mapping	Reflected or Through Beam laser beam			
Shoulder Joint	± 320°			
Elbow Joint	± 320°			
Wrist Joint 1	± 320°			
Wrist Joint 2	N/A		± 170°	N/A
Repeatability:				
X-Y	± 50µm (0.002 in)			
Z-Axis	± 50µm (0.002 in)			
Speed:				
Z-axis full stop to full stop	328 mm (12.9 in) in 1.5 sec			Customizable
Z-axis maximum speed	285 mm/s (11 in/sec)			Customizable
Joint Angular Speed in X-Y Plane	180°/sec			
Max Joint Velocity	320°/sec 7.3" arm 10.7" arm and dual wrist			300°/sec
Reliability:				
MTBF (hours/ cycles)	43,000 hours, 17,000,000 cycles			
MTTR	Less than 2 hours			

QM-1000 SCARA with 5th-axis absolute encoded flipper and edge gripper



QM-1000 With external track

Motion Controller

CPU	1 GHz Celeron
Standard I/O	8 input, 8 output + dedicated I/O
Communication	Ethernet or RS-232 Serial
Dimensions	W 380mm x D 280mm x H 153mm
Power Requirements	90 - 122 VAC, 47 - 63 Hz, 8 Amps max 188 – 240 VAC, 47 – 63 Hz, 4 Amps max
Compliance	CE, SEMI S2

Z Axis Option

Z Travel/ Base Height	0 / 326 mm (12.85 in) 234 mm (9.22 in)/ 562 mm (22.13 in) 328 mm (12.91 in)/ 651 mm (25.63 in) 438 mm (17.24 in)/ 761 mm (29.98 in)

Arm Option

Arm Length/ Max Reach	187 mm (7.39 in)/ 372mm(14.65 in) 274 mm (10.79 in)/ 543mm (21.40 in)

我们具有多款智能型非接触性末端控制器、晶圆对位器及成机EFEM，欢迎洽询。

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