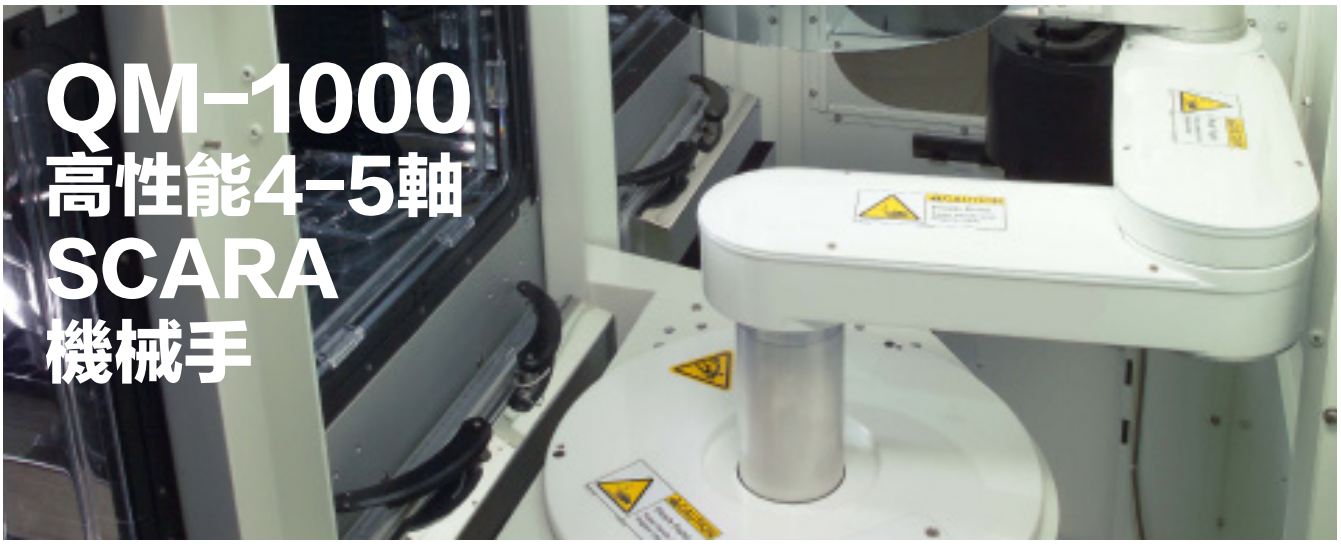
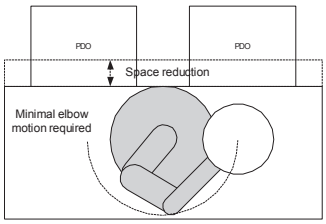
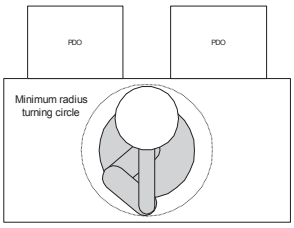


QM-1000 高性能4-5軸 SCARA 機械手

QM-1000平面關節機械手（Selectively Compliant Articulated Robot Arm，SCARA）系列產品已問世近廿年，除了通過CE、ISO潔淨度Class 1認證外，其效能及穩定性亦經過多家世界級電晶體廠驗證。



EFEM with SCARA Robot



EFEM with traditional R-theta Robot

QM-1000可旋轉+/- 320度，無死角設計有效利用空間，最大伸展距離達505mm BOLT標準，可達3個FOUP，最佳彈道路徑（Motion Trajectory Optimization）設計大幅提高運送速度，雙軸機械手之最大產述每小時480片。

帶電源的絕對值編碼器，掉電不失位置，具專利之優良內部結構，平均故障間隔時間43000小時，無消耗品亦毋需年修（Preventative Maintenance），具最佳之擁有成本（Cost of Ownership）。

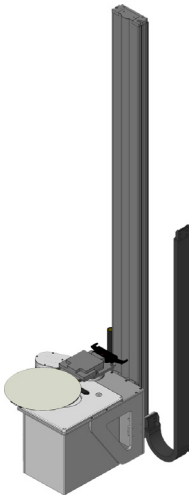
簡易白話英文操作介面（Plain English Applicaiton Program Interface）及API模擬器（Emulator），可快速Drop-in取代其它機械手；亦具有易於集成的機械手類比軟體（Simulator）以加快研發及原型機製造進度；單點自動示教（Single Point Complete Auto Teach），可節省集成及上線時間。

Quartet亦提供智慧型非接觸性末端控制器、晶圓對位器及EFEM（Equipment Front End Module），適用於易脆、超薄及超厚之晶圓。

上: 雙軸SCARA機械手 / 下: 第5翻轉軸加渦旋式薄晶圓抓手

	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)

我們具有多款智慧型非接觸性末端控制器、晶圓對位器及成機EFEM，歡迎洽詢。

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