

Technical Patent

Content	Patent Technology	Registration No.
Patent	Clean environmental Correspondence Structure of Clean Cartesian Robot	Patent No. 365015
	Class Chip Position Arrangement Device	Patent No. 419002
	Cartesian Robot with two End-Effectors	Patent No. 410882
	DNA/Protein Array Humidification Control Device	Patent No. 419003
	Robot Standard Link	Patent No. 503851
	Robot Module with accessible interface device	Patent No. 464555
	Robot Link Structure	Patent No. 464554
	Slide Gripper used for Gene Reader	Patent No. 459766
	Sliding Automatic Transfer Device & Sliding Transfer Method	Patent No. 446352
	Device of Robot Hand	Patent No. 536034
	Protective device for Robot Hand	Patent No. 536033

Certificate

CONTENT	ITEM	ISSUED BY
CE	WAFER TRANSFER ROBOT	TUV
	EFEM	TUV
	CCD ALIGNER	TUV
	FOUP OPENER	TUV
ISO9001	Quality Management System	SYSTEM KOREA



Company Group



Incell Bio Co., Ltd launches and develops total laboratory automation system which process 300 tests per hour, micro-organism stainer for TB, Gram, and etc stains and so on.

WEBPAGE : <http://incellbio.co.kr>



Maxx Digm, Inc. is a manufacturer of advanced dental milling machine and expert in robotics, and representative of their sales and service in North America.

WEB PAGE : <http://www.maxxdigm.com>



Celltrio, Inc. provides robotics-based solutions for the life sciences industry with unique, IP-protected solutions in biobanking, cell culturing automation, and more.



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Business Area



Contents

- Company Profile 2
- SEMICONDUCTOR APPLICATION**
 - Standard WTR(Wafer Transfer Robot) 4
 - Flip Robot 4
 - Telescopic Robot 5
 - SCARA Robot 5
 - Cartesian Unit Robot 6
 - Cartesian Z axis Robot 6
 - Wet Robot 7
 - Variable Pitch WTR 7
 - Foup Handling Robot 8
 - Foup Transfer Unit 8
 - Cylindrical Type Robot 9
 - 18 inch Wafer Transfer Robot 9
 - Long SCARA robot 10
 - Reticle/Mask handling Robot 10
 - Pre-aligners 11
 - SMIF(Standard Mechanical Interface) 11
 - Foup Opener 12
 - Cassette Loader 12
 - EFEM (Equipment Front End Module) 13
- VACUUM APPLICATION**
 - Vacuum Robot 14
 - Load Lock Chamber 14
 - TM chamber 15
 - Cluster Tool 15
- LED/LCD/FPD APPLICATION**
 - Glass Transfer Robot(LTR) 16
 - Glass transfer Robot (Multi glass handling) 16
 - LED Wafer Transfer Robot 17
 - LED EFEM 17
- ADVANCED ROBOT**
 - SCARA(SCARA 600/miniSCARA series) 18
 - miniCRANE 18
 - Well Plate Transfer Robot 19
 - 6-Axis Crane Robot 19
 - miniDeskTop / Tabletop Stage 20
 - Educational Robot 20
 - Stage 21
 - Field Service 21
- BIO/MEDI-BIO APPLICATION**
 - Bio Lab Automation 22
 - MAXX DM series..... 23
 - MAXX DS series 23
- Patent & Certificate & Company Group 24

Standard WTR(Wafer Transfer Robot)



- Transfer 12" Wafer
- Clean room Application
- ODM or OEM Supply
- Single & Dual arm / Multi Blade Type
- Fast & Precise Motion Robot
- 0.1 micron meter CLASS 1 Cleanliness
- Various End-Effector : Vacuum Blade, Edge Gripper
- Linear Track, Mapping Sensor(Optional)
- Customization available when requested

SPECIFICATION

MODEL			SPECIFICATION			
			8"WTR Single	8"WTR Dual	12"WTR Single	12"WTR Dual
Performance	Motion Range	R1,R2 axis(Extension)	510 mm	510 mm	645 mm	645 mm
		T axis(Rotation)	330 deg	330 deg	330 deg	330 deg
		Z axis(Up/down)	200 mm	200 mm	300 mm	300 mm
		X axis(Traverse) Optional	○	○	○	○
	Max. Speed	R1,R2 axis(Extension)	247 deg/sec	247 deg/sec	247 deg/sec	247 deg/sec
		T axis(Rotation)	211 deg/sec	211 deg/sec	211 deg/sec	211 deg/sec
		Z axis(Up/down)	500 mm/sec	500 mm/sec	500 mm/sec	500 mm/sec
		X axis(Traverse) Optional	1000 mm/sec	1000 mm/sec	1000 mm/sec	1000 mm/sec
	Repeatability	R1,R2 axis(Extension)	±0.1 mm	±0.1 mm	±0.1 mm	±0.1 mm
		T axis(Rotation)	±0.02 deg	±0.02 deg	±0.02 deg	±0.02 deg
		Z axis(Up/down)	±0.1 mm	±0.1 mm	±0.1 mm	±0.1 mm
		X axis(Traverse) Optional	±0.1 mm	±0.1 mm	±0.1 mm	±0.1 mm
General	Wafer Size		8 inch		12 inch	
	Control Axis		3	4	3	4
	Arm Type		Single Arm	Dual Arm	Single Arm	Dual Arm
	Blade Thickness		≤ 2.5mm		≤ 3mm	
	Cleanliness		Class 1 @ 0.1μm			
	Load Capacity		1 kgf (Including Gripper)			
	Weight		32 kgf	32 kgf	35 kgf	35 kgf
	Cable Length (Robot - Controller)		3m (Standard)			
Utility	Power (Controller)		Single Phase AC208 ±10%, 50/60Hz			
	Air		More than 0.4~ 0.5MPa , Φ 4mm			
	Vacuum		Less than -50 kPa			
Environment	Operating Temp.		0~40 °			

Telescopic Robot



- Maximum 1,200 mm vertical stroke(Z-stroke) is achieved.
- Up to 3-step telescopic type application
- ODM or OEM Supply
- Dual arm / Multi Blade Type
- Fast & Precise Motion Robot
- 0.1 micron meter CLASS 1 Cleanliness
- Various End-Effector : Vacuum Blade, Edge Gripper
- Linear Track, Wafer mapping sensor(Optional)
- Customization available when requested

SPECIFICATION

MODEL			SPECIFICATION			
			Tele Single (2-Step)	Tele Dual (2-Step)	Tele Single (3-Step)	Tele Dual (3-Step)
Motion Range		R1,R2 axis(Extension)	651 mm	651 mm	651 mm	651 mm
		T axis(Rotation)	330 deg	330 deg	330 deg	330 deg
		Z axis(Up/down)	1,050 mm	1,050 mm	1,200 mm	1,200 mm
		X axis(Traverse) Optional	○	○	○	○
Performance Max. Speed		R1,R2 axis(Extension)	360 deg/sec	360 deg/sec	360 deg/sec	360 deg/sec
		T axis(Rotation)	256 deg/sec	256 deg/sec	196 deg/sec	196 deg/sec
		Z axis(Up/down)	600+600 mm/sec	400+400+400 mm/sec		
		X axis(Traverse) Optional	1000 mm/sec	1000 mm/sec	1000 mm/sec	1000 mm/sec
Repeatability		R1,R2 axis(Extension)	±0.1 mm	±0.1 mm	±0.1 mm	±0.1 mm
		T axis(Rotation)	±0.02 deg	±0.02 deg	±0.02 deg	±0.02 deg
		Z axis(Up/down)	±0.1 mm	±0.1 mm	±0.1 mm	±0.1 mm
		X axis(Traverse) Optional	±0.1 mm	±0.1 mm	±0.1 mm	±0.1 mm
General	Wafer Size		8~12 inch			
	Control Axis		4	5	5	6
	Arm Type		Single Arm	Dual Arm	Single Arm	Dual Arm
	Blade Thickness		≤ 3mm			
	Cleanliness		Class 1 @ 0.1μm			
	Load Capacity		1 kgf (Including Gripper)			
	Weight		80 kgf	80 kgf	110 kgf	110 kgf
	Cable Length (Robot - Controller)		3m (Standard)	3m (Standard)	3m (Standard)	3m (Standard)
Utility	Power (Controller)		Single Phase AC220V ±10%, 10A			
	Air		More than 0.4~ 0.5MPa , Ø 4mm			
	Vacuum		Less than -50 kPa			
Environment	Operating Temp.		0~40 °			

Flip Robot



- Single or Dual arm Robot
- Handling 8~12" wafers
- 180°Arm flipping function : Single or Dual flip.
- Options : mapping function, Smart motion, Linear Track (Linear motor type, belt type, ball screw type, Rack pinion type)

SPECIFICATION

MODEL			SPECIFICATION	
			12" S-Flip	12" D-Flip
Motion Range		R1,R2 axis (Extension)	600 mm	600 mm
		T axis(Rotation)	330 deg	330 deg
		Z axis(Up/down)	300 mm	300 mm
		X axis(Traverse) Optional	○	○
Performance Max.. Speed		R1,R2 axis (Extension)	300 deg/sec	300 deg/sec
		T axis(Rotation)	211 deg/sec	211 deg/sec
		Z axis(Up/down)	500 mm/sec	500 mm/sec
		X axis(Traverse) Optional	1000 mm/sec	1000 mm/sec
Repeatability		R1,R2 axis (Extension)	±0.1 mm	±0.1 mm
		T axis(Rotation)	±0.02 deg	±0.02 deg
		Z axis(Up/down)	±0.1 mm	±0.1 mm
		X axis(Traverse) Optional	±0.1 mm	±0.1 mm
General	Wafer Size		8~12"	
	Control Axis		4	5
	Arm Type		Single Arm	Dual Arm
	Blade Thickness		≤ 3mm	≤ 3mm
	Cleanliness		Class 10	
	Load Capacity		1 kgf (Including Gripper)	
	Weight		35 kgf	
	Cable Length (Robot - Controller)		3m (Standard)	
Utility	Power (Controller)		Single Phase AC208 ±10%, 50/60Hz	
	Air		More than 0.4~ 0.5MPa , Ø 4mm	
	Vacuum		Less than -50 kPa	
Environment	Operating Temp.		0~40 °	

SCARA Robot



- Transfer 12inch Wafer
- Single Arm with 1 or 2 Blade
- Wide range without traverse axis(track)
- Fast & Precise Motion Robot
- Port Application : 2 port base (3 Port possible if the arm is modified)
- Customization available when requested.

SPECIFICATION

MODEL			SPECIFICATION	
			Scara Single	Scara Dual
Motion Range		X axis	±798 mm	±798 mm
		Θ axis	330 deg	330 deg
		Roll 1,2	360 deg	360 deg
		Z axis	300 mm	300 mm
Performance Max. Speed		X axis	360 deg/sec	360 deg/sec
		Θ axis	226 deg/sec	226 deg/sec
		Roll 1,2	500 deg/sec	500 deg/sec
		Z axis	750 mm/sec	750 mm/sec
Repeatability		X axis	±0.1 mm	±0.1 mm
		Θ axis	±0.1 deg	±0.1 deg
		Roll 1,2	±0.1 deg	±0.1 deg
		Z axis	±0.1 mm	±0.1 mm
General	Wafer Size		12" wafers	
	Control Axis		4	5
	Arm Type		Single Arm	Dual Arm
	Blade Thickness		≤ 3mm	
	Cleanliness		Class 1 @ 0.1μm	
	Load Capacity		1 kgf (Including Gripper)	
	Weight		45 kgf	45 kgf
	Cable Length (Robot - Controller)		3m (Standard)	
Utility	Power (Controller)		AC220/230V ±10% 1Phase, 50/60 Hz, 6A, 1.2Kva	
	Air		0.25 ~ 0.5MPa, Ø4mm	
	Vacuum		-66.7 kPa, Ø6mm	
Environment	Operating Temp.		0~40 °	

SEMICONDUCTOR APPLICATION

Cartesian Unit Robot



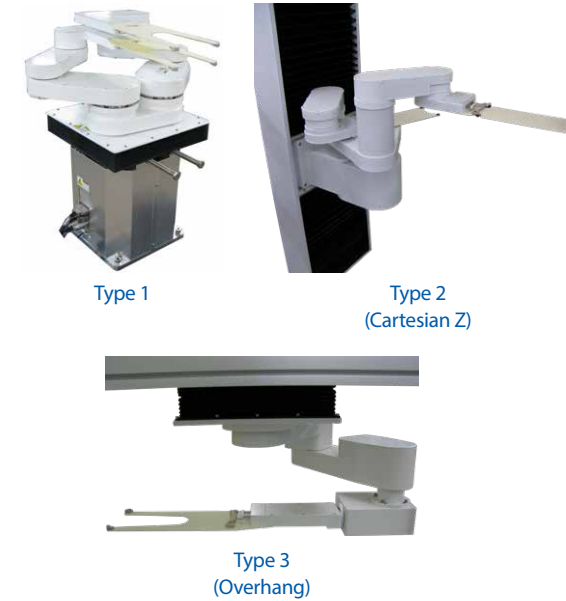
- Cartesian coordinates structure for all axes
- High speed and precise wafer handling
- Short tack time and increase of throughput
- Available to use in lower passline

SPECIFICATION

CONTENTS		SPECIFICATION
Motion Range	R1,R2 axis(Extension)	680 mm
	T axis(Rotation)	330deg
	Z axis(Up/down)	1550 mm
	X axis(Traverse) Optional	O
Max. Speed	R1,R2 axis(Extension)	247 deg/sec
	T axis(Rotation)	235 deg/sec
	Z axis(Up/down)	555 mm/sec
	X axis(Traverse)	1500 mm/sec
Repeatability	R1,R2 axis(Extension)	±0.05 mm
	T axis(Rotation)	±0.01 deg
	Z axis(Up/down)	±0.05mm
	X axis(Traverse)	±0.02mm

SEMICONDUCTOR APPLICATION

Wet Robot



- Designed to use in wet/humid condition
- Use of bellows and Teflon coated body with cover
- Highly sealed mechanical structure

SPECIFICATION

CONTENTS		SPECIFICATION	
		TYPE 1	TYPE 2 (Cartesian Z)
Motion Range	R1,R2 axis(Extension)	645 mm	680 mm
	T axis(Rotation)	330deg	330deg
	Z axis(Up/down)	300 mm	1255 mm
	X axis(Traverse) Optional	O	O
Max. Speed	R1,R2 axis(Extension)	247 deg/sec	275 deg/sec
	T axis(Rotation)	211 deg/sec	188 deg/sec
	Z axis(Up/down)	500 mm/sec	500 mm/sec
	X axis(Traverse)	1000 mm/sec	1000 mm/sec
Repeatability	R1,R2 axis(Extension)	±0.1 mm	±0.1 mm
	T axis(Rotation)	±0.05 deg	±0.05 deg
	Z axis(Up/down)	±0.1 mm	±0.1 mm
	X axis(Traverse)	±0.1 mm	±0.1 mm

Cartesian Z axis Robot



- Combination of Cartesian Z axis & link structure (Gantry or Non Gantry type of Z axis)
- High speed and precise wafer handling
- Short tack time and increase of throughput
- Available to use in lower passline

SPECIFICATION

CONTENTS		SPECIFICATION	
		Gantry type	Non-Gantry type
Motion Range	R1,R2 axis(Extension)	680 mm	560 mm
	T axis(Rotation)	330deg	210deg
	Z axis(Up/down)	1550 mm	1100 mm
	X axis(Traverse) Optional	O	O
Max. Speed	R1,R2 axis(Extension)	247 deg/sec	247 deg/sec
	T axis(Rotation)	211 deg/sec	211deg/sec
	Z axis(Up/down)	500 mm/sec	500 mm/sec
	X axis(Traverse)	1000 mm/sec	1000 mm/sec
Repeatability	R1,R2 axis(Extension)	±0.05 mm	±0.1 mm
	T axis(Rotation)	±0.01 deg	±0.1 deg
	Z axis(Up/down)	±0.05mm	±0.1 mm
	X axis(Traverse)	±0.02mm	±0.1 mm

Variable Pitch WTR



- 6~25mm pitch variation (Accessible to different pitch of cassettes)
- Easy Maintenance
- Multi-chuck wafer transfer(5 wafer/time)
- Single wafer transfer(1+4 Blade type)
- Wafer mapping(Optional)
- High reliability
- Customization for customer's needs

SPECIFICATION

MODEL		SPECIFICATION
Work Space	X axis	450 mm
	T axis	236 deg
	Z axis	1050 mm
	V axis	6 mm ~ 25mm
	W axis	120 deg
Max Speed	X axis	500 mm/sec
	T axis	200 deg/sec
	Z axis	500 mm/sec
	V axis	15 mm/sec
	W axis	90 deg/sec
Repeatability Accuracy	X axis	±0.1mm
End-Effector		4 + 1 Blade
End-Effector Grip type		Pocket Type

Foup Handling Robot



- 12 inch Foup handling
- Mounted to AGV (Automated Guided Vehicle)
- 25 kg of payload maximum
- Wide motion range with Scara arm structure

SPECIFICATION

MODEL			SPECIFICATION
Performance	Motion Range	R axis (Arm)	900 (615 + 285) mm
		T axis (rotation)	360 deg
		Z axis(Up/down)	250 mm
	Max. Speed	R axis (Arm)	118 deg/sec (Wrist) 151 deg/sec (Elbow)
		T axis (rotation)	188 deg/sec
		Z axis(Up/down)	500 mm/sec
General	Repeatability		±0.10 mm
	Handling Object		300mm 25 Slot FOUP, Ring Frame Cassette
	Control Axis		5
	Arm Type		SCARA
	Cleanliness		Class 10
	Load Capacity		15 kgf
Utility	Weight		About 70 Kgf
	Cable Length (Robot - Controller)		3m (Standard)
	Power (Controller)		DC12 or 24V (using 1Kw DC-AC converter)
		Communication	Ethernet

Cylindrical Type Robot



- Arm link structure with Cylindrical type of long Z axis for LED wafer Transfer
- Fast & precise motion and low cost
- Small footprint
- easy operation & maintenance
- Wide operation range

SPECIFICATION

MODEL			SPECIFICATION	
			SINGLE ARM	DUAL ARM
Performance	Motion Range	R1,R2 axis(Extension)	530 mm	530 mm
		T axis(Rotation)	330 deg	330 deg
		Z axis(Up/down)	600 mm	600 mm
	Max.Speed	R1,R2 axis(Extension)	288 deg/sec	288 deg/sec
		T axis(Rotation)	733 mm/sec	733 mm/sec
		Z axis(Up/down)	500 mm/sec	500 mm/sec
	Repeatability	R1,R2 axis(Extension)	±0.1 mm	±0.1 mm
		T axis(Rotation)	±0.02 deg	±0.02 deg
		Z axis(Up/down)	±0.1 mm	±0.1 mm
General	Wafer Size		2~8"	
	Control Axis		3	4
	Arm Type		Single Arm	Dual Arm
	Blade Thickness		≤ 3mm	
	Cleanliness		Class 1 @ 0.1µm	
	Load Capacity		0.7 kgf (Including Gripper)	
	Cable Length (Robot - Controller)		3m (Standard)	
Utility	Power (Controller)		Single Phase AC220V ±10%, 10A,	
	Air		More than 0.4~ 0.5MPa , Φ 4mm	
	Vacuum		Less than -50 kPa	
Environment	Operating Temp.		0~40 °	

Foup Transfer Unit



- Transfer FOUP containing 25 of 300mm wafers to stocker
- Smooth and precise mechanism
- 10 kg of load capacity
- Vertical traverse axis allows to transfer the Foup from low and high position

SPECIFICATION

MODEL		SPECIFICATION
Operation range	Z axis(Up/Down)	2163mm
	Y axis(Travers)	505mm(2 FOUP)
	X axis(In/Out)	+354~-396mm
Transfer Speed	Z axis(Up/Down)	300 mm/sec
	Y axis(Travers)	500 mm/sec
	X axis(In/Out)	90 deg/sec
Repeatability	Z axis(Up/Down)	±0.20
	Y axis(Travers)	±0.10mm
	X axis(In/Out)	±0.20mm
Load Capacity		10kg(300mm 25slot FOUP)
Cleanliness		Clean Class10

18 inch Wafer Transfer Robot



- Clean Robot handling 18 inch wafer
- 2 step of Z axis
- Advanced motion control system
- High rigidity & lower vibration

SPECIFICATION

MODEL			SPECIFICATION	
			SINGLE ARM	DUAL ARM
Performance	Motion Range	R1,R2 axis(Extension)	885 mm	885 mm
		T axis(Rotation)	330 deg	330 deg
		Z axis(Up/down)	600 mm	600 mm
	Max.Speed	R1,R2 axis(Extension)	360 deg/sec	360 deg/sec
		T axis(Rotation)	211 mm/sec	211 mm/sec
		Z axis(Up/down)	500 mm/sec	500 mm/sec
	Repeatability	R1,R2 axis(Extension)	±0.1 mm	±0.1 mm
		T axis(Rotation)	±0.02 deg	±0.02 deg
		Z axis(Up/down)	±0.1 mm	±0.1 mm
General	Wafer Size		8~18"	
	Control Axis		4	5
	Arm Type		Single Arm	Dual Arm
	Blade Thickness		≤ 3mm	
	Cleanliness		Class 1 @ 0.1µm	
	Load Capacity		1 kgf (Including Gripper)	
Utility	Cable Length (Robot - Controller)		3m (Standard)	
	Power (Controller)		Single Phase AC208 ±10%, 50/60Hz	
	Air		More than 0.4~ 0.5MPa , Φ 4mm	
	Vacuum		Less than -50 kPa	
Environment	Operating Temp.		0~40 °	

SEMICONDUCTOR APPLICATION

Long SCARA robot



- Extended motion range without traverse axis.
- Save the space and simplify the system configuration (One robot for multiple stages)
- Use the SCARA link with Cartesian Z axis
- Achieve the high speed of wafer transferring upto 417 wafers per an hour (WPH).

SPECIFICATION

CONTENTS		SPECIFICATION
Motion Range	R axis(Extension)	680 mm
	T axis(Rotation)	170mm (Roll1 : 165mm, Roll2 : 275mm)
	Z axis(Up/down)	130 mm
Max. Speed	R axis(Extension)	600 deg/sec (Wrist) 450 deg/sec (Elbow)
	T axis(Rotation)	286 deg/sec
	Z axis(Up/down)	500 mm/sec
Repeatability	R axis(Extension)	±0.1 mm
	T axis(Rotation)	±0.05 deg
	Z axis(Up/down)	±0.1 mm
Load capacity		2 kg (including gripper)

SEMICONDUCTOR APPLICATION

Pre-aligners



CCD ALIGNER (XYR TYPE)



CCD ALIGNER (XZR TYPE)

- Controller integrated compact Design.
- High Accuracy and reliable repeatability
- Compatible with 200mm/300mm wafer without any mechanical change (Edge grip type is only for 300mm)

SPECIFICATION

MODEL		SPECIFICATION	
		CCD (XYR TYPE)	CCD (XZR TYPE)
General	Axes	3	3
	Handling Wafer	8~12 inch	2~8 inch
	Body dimension	W	320 mm
		D	230 mm
		H	210 mm
	Weight	About 10 kg	About 10 kg
	Accuracy	Center Offset(mm)	±5 mm
		Centering(mm)	±0.1 mm
		Rotation(Deg.)	±0.1 deg.
	Alignment Time	≤4 sec	≤6 sec
Utility	Power	24V DC±10%, 5A	
	Vacuum	Less than -80 kPa	
	Communication	RS232C	

SPECIFICATION

Specification		SPECIFICATION	
		CCD (Warpage)	Edge Grip Type
General	Axes	3	3
	Handling Wafer	8~12 inch (for warpage wafer)	12 inch
	Body dimension	W	290 mm
		D	250 mm
		H	237 mm
	Weight	About 12 Kg	About 15 kg
	Accuracy	Center Offset(mm)	±5 mm
		Centering(mm)	±0.1 mm
		Rotation(Deg.)	±0.1 deg.
	Alignment Time	≤7 sec	≤9 sec
Utility	Power	24V DC ±10, 5A	24V DC±10%, 4A Max
	Vacuum	Less than -80kPa	
	Communication	RS232C	

Reticle/Mask handling Robot



- Handle the 150x150 reticle/mask.
- Use the specially designed gripper for handling
- Reticle or mask flipping is available

SPECIFICATION

CONTENTS		SPECIFICATION
Motion Range	R axis(Extension)	645 mm
	T axis(Rotation)	330 deg
	Z axis(Up/down)	200 mm
	X axis(Traverse) Optional	O
Max. Speed	R axis(Extension)	72 deg/sec
	T axis(Rotation)	106 deg/sec
	Z axis(Up/down)	250 mm/sec
	X axis(Traverse)	750 mm/sec
Repeatability	R axis(Extension)	±0.1 mm
	T axis(Rotation)	±0.02 deg
	Z axis(Up/down)	±0.1 mm
	X axis(Traverse)	±0.1 mm
Load capacity		3 kg (including gripper)

SMIF(Standard Mechanical Interface)



SPECIFICATION

MODEL	SPECIFICATION
Wafer Size	200mm
Cassette Pickup Position	909mm
Load Height of SMIF Pod	900mm
Max. Reach of Load Arm	410mm
Height	1820mm
Width	410mm
Depth	495mm
Weight(without Pod, Cassette, Wafer)	77.27kg
Power	2 Amp/230VAC(+10, -5%), 50~60Hz, Single Phase
Communication	Serial RS-232C(SECS I/SECS II) Parallel Input/Output

- Ergonomically designed I/O easily integrates SMIF
 - Pod cassette loading and unloading into a wide variety of 150 ~ 200 mm wafer processing and metrology tools
- Designed to be adaptive for equipment manufacturer applications for vacuum load-lock tools
- SMIF-LP provides capability for a wide variety of wafer fab tools and leads the industry in reduced cycle time and footprint

Foup Opener



12" FOUP (STANDARD)



8" CASSETTE ADAPTOR



18" FOUP



12" FOUP WITH N2 PURGE



FOR FOUP CLEANING TOOL

- RS-232 communication interface
- Foup Present, placement & protrusion sensors are included
- Mapping function is included
- BEOL/FEOL lock out pin
- Module design for quick service swap-outs
- Designed for 12" SEMI compliant FOUP, 18" FOUP, MAC FOUP for 12" ring frame wafer individually

12" FOUP opener (only)

- Compatible with all SEMI compliant 12" FOUPs
- CE, S2 and SEMI compliant
- FOUP pinch point protection
- 8" cassette is compatible with optional adaptor
- Option: adaptor for 8" cassette, RFID, etc

Cassette Loader



8" CASSETTE & 12" RING FRAME CASSETTE



12" RING FRAME CASSETTE



MAC FOUP

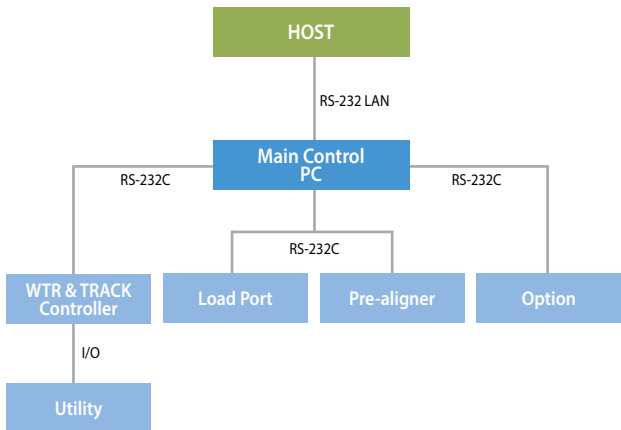


12" FOUP & 12" RING FRAME CASSETTE

- Designed for cassette for 8 or 12" ring frame wafer
- Cassette loading & docking are available
- Ring frame alignment function
- Cassette presence sensor is included
- Manual or automatic lift-up cover
- Option: RFID, Multi-cassette handling, etc.

EFEM (Equipment Front End Module)

- Integrating a pre-aligner with a clean robot results in a small footprint and allows space to be used with great efficiency
- Clean robot with an end-effector on a rotary axis operates without a traverse axis contributing to a high throughput
- Clean robot's air-flow simulation optimizes and ensures high level of cleanliness



CONFIGURATION

- Loadport(Mapping)
- Single or Dual Arm Robot
- Linear Track for Robot Traveling
- Encloser structure
 - Fan Filter Unit
 - Area Sensor
- System Software
- System Electrics
- Option
 - Wafer Aligner
 - Ionization System
 - PIO Sensor
 - RFID Reader/ Writer
 - Edge Grip Blades
 - Teaching Pendant

SPECIFICATION

MODEL	RE-2P	RE-3P	RE-4P
Loadport	2 Ports	3 Ports	4 Ports
Size	1355x760x2,000mm	1,860x678x2,000mm	2,365x678x2,000mm
Weight	250kg	350kg	450kg
Height	2,000mm ~ 2,800mm		
Width	1,650mm ~ 1,854mm(at 3 PODs)		
Depth	678mm		
Weight	Less than 480kg		
Carrier	300mm FOUP (SEMI E14.7 – 1101 Compliance)		
Cleanliness	Class@0.1µm(PEFE)		
Laminar Flow Recovery Time	Less than 1 minute		
Repeatability	Less than 0.1mm@3sigma		
Alignment Accuracy /Time	±0.05Degree/6sec		
Electric Supply	220V±10%(60Hz, 1Φ)3wires + ground, no neutral		
Acoustic Noise	Less than 65dB		
Communication	Ether-Net(HSMS)		
MTBF/MTTR	More than 20,000hrs / Less than 2hrs		
User Interface	GUI - Touch Screen(optional)		



RE-2P



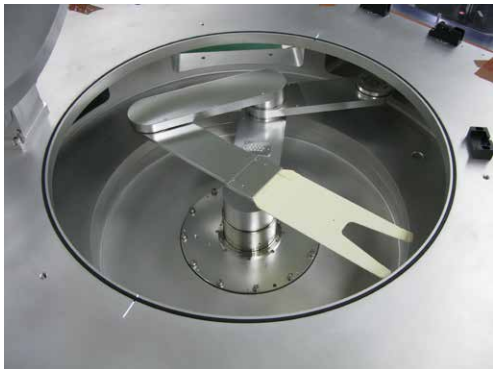
RE-3P



RE-4P

VACUUM APPLICATION

Vacuum Robot



- Minimizing the rotation diameter and maximizing the extension.
- Magnetic fluid sealing
- Servo motor for all axes
- Used for 1E-6Pa of vacuum environment.

SPECIFICATION

MODEL			SPECIFICATION	
			Branch Structure	Boomerang Structure
Performance	Motion Range	R1,R2 axis (Extension)	1100 mm	800 mm
		T axis(Rotation)	±185 deg at origin position	±185 deg at origin position
		Z axis(Up/down)	0~+104 mm	0~+104 mm
	Max. Speed	R1,R2 axis (Extension)	120 deg/sec	240 deg/sec
		T axis(Rotation)	120 deg/sec	240 deg/sec
		Z axis(Up/down)	42 mm/sec	42 mm/sec
	Repeatability	R1,R2 axis (Extension)	±0.1 mm	±0.1 mm
		Z axis(Up/down)	±0.05 mm	±0.05 mm
General	Wafer Size		12" wafer	12" wafer
	Control Axis		4	4
	Arm Type		Dual Arm	Dual Arm
	Blade Thinkness		≤ 3mm	≤ 3mm
	Load Capacity		1.5 kg	1.5 kg
	Cable Length (Robot - Controller)		3m (Standard)	3m (Standard)
Utility	Power (Controller)		Single Phase AC208V ±10%, 5A	Single Phase AC208V ±10%, 5A
	Communication		RS232C	RS232C
Environment	Operating Pressure		Atmospheric pressure~10 ⁻⁶ Pa	Atmospheric pressure~10 ⁻⁶ Pa

Load Lock Chamber



- 2 or 1 shelf pass-through chamber (loading/Unloading)
- 4 of view point
- Auto door open structure
- Included wafer slide out detection sensor
- Control the vacuum when transferring the wafer, which is in/out from vacuum chamber and Atmospheric equipment(EFEM)

VACUUM APPLICATION

TM chamber



- 7 Side for 6PMs, 1 Load Locks integrated
- Vacuum Robot integrated
- Wafer detection sensor, Wafer slide out detection sensor, wafer presence sensor are installed
- 6 of view point

Cluster Tool



SPECIFICATION

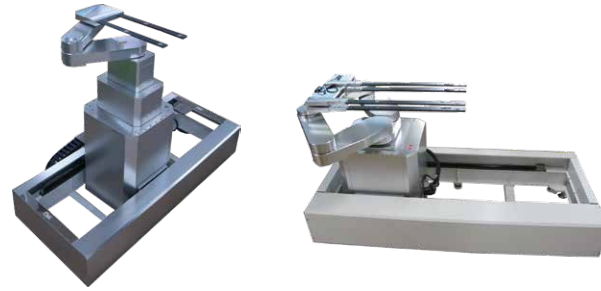
MODEL		SPECIFICATION
General Info.	Wafer Size	300 mm
	Configuration	EFEM, Load Lock, TM Chamber
	Dimension	1,180(W)×1,190(D)×1,190(H)
	Valve	Vacuum Slot Valve
	LIP	Manual Gear Type
	Passline	1,100 mm
Utility	Vacuum	1x10E ⁻² ~ 5x10E ⁻²
	Vent	Nitrogen
	PCW	Norminal 40Psi
	CDA	5kg/cm ²

- Up to 7 sides for 5PMs TM Chamber for 300mm Wafer
- 2 slots of L/L chamber
- Includes Load lock options : 2 wafer pass-through
- 2 wafer with cooling and pre-heat
- 26-wafer batch or 13-wafer batch with cooling
- Dual Arm Vacuum Robot
- Vacuum Pumping system
- SEMI compliance

LED/LCD/FPD APPLICATION

Glass Transfer Robot(LTR)

- Specialized robot for transferring LCD/FPD glass
- Currently developed for 2 to 4 generation of LCD/FPD glass
- Transfer the LCD/FPD glass with Parallel End-effector with vacuum chuck
- Single/Dual Arm available.
- Options : Traverse axis , Step availability (1 to 3 steps), glass presence sensor



SPECIFICATION

MODEL			SPECIFICATION		
			LTR SINGLE (2 STEP)	LTR SINGLE (2 STEP)	LTR DUAL (2 STEP)
Performance	Motion Range	R1,R2 axis(Extension)	1250 mm	1300 mm	1300 mm
		T axis(Rotation)	330 deg	320 deg	320 deg
		Z axis(Up/down)	700 (350+350) mm	620 mm	620 mm
		X axis(Traverse) Optional	○	○	○
	Max. Speed	R1,R2 axis(Extension)	1200 mm/sec	1200 mm/sec	1200 mm/sec
		T axis(Rotation)	200 deg/sec	200 deg/sec	200 deg/sec
		Z axis(Up/down)	600 mm/sec	600 mm/sec	600 mm/sec
		X axis(Traverse)	500 mm/sec	500 mm/sec	500 mm/sec
	Repeatability		±0.2 or deg		
	Carrying Object		500x400x1t Quartz + Glass		
General	Control Axis		4	5	6
	Load Capacity		1.5 kg	3.5 kg	3.5 kg
	Power (Controller)		Single Phase AC220V ±10%, 15A		
Utility	Vacuum		-50 kPa or more	-73 kPa or more	

Glass transfer Robot (Multi glass handling)

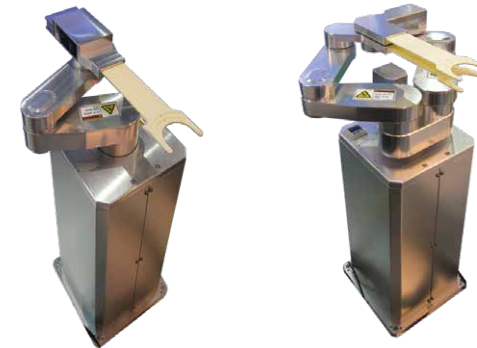


SPECIFICATION

MODEL		SPECIFICATION	
		LTR (8 Glass multi)	LTR (18 Glass multi)
Motion Range	R1,R2 axis(Extension)	959 mm	968 mm
	T axis(Rotation)	330deg	-
	Z axis(Up/down)	700 mm	700 mm
	X axis(Traverse) Optional	○	○
Max. Speed	R1,R2 axis(Extension)	500 mm/sec	500 mm/sec
	T axis(Rotation)	90 deg/sec	-
	Z axis(Up/down)	250 mm/sec	250 mm/sec
	X axis(Traverse)	1000 mm/sec	1000 mm/sec
Repeatability		±0.2 or deg	
Carrying Object		500x400x1t Quartz + Glass	
Control Axis		4	5
Load Capacity		1.5 kg	3.5 kg
Power (Controller)		Single Phase AC220V ±10%, 15A	
Vacuum		-50 kPa or more	-73 kPa or more

LED/LCD/FPD APPLICATION

LED Wafer Transfer Robot



Single Arm

Dual Arm

- Specialized Robot for LED wafer handling
- Compact size & Light weight Design
- Handling 2~6 inch of sapphire wafer for LED process
- Different size of wafer compatible without any mechanical conversion
- Minimized rotation diameter allows downsizing the whole equipment & maximizing the space-effectiveness
- Customization available when requested

SPECIFICATION

MODEL		SPECIFICATION	
		SINGLE ARM	DUAL ARM
Motion Range	R axis(Extension)	470mm	470mm
	Θ axis(Rotation)	330deg	330deg
	Z axis(Up/Down)	200mm	200mm
Maximum Speed	R axis	640mm/sec	
	Θ axis	180deg/sec	
	Z axis	240mm/sec	
Repeatable Accuracy	R axis	±0.1mm	
	Θ axis	±0.1deg	
	Z axis	±0.1mm	
Min. Diameter of Rotation		460mm	430mm
Noise Generation		≤ 70db	
Cleanliness		Class 1@0.1μm	
Robot Body Material		Anodized Alumimun (8±2 μm)	
Blade Material		Ceramic ≤2mm	
Power(Controller)		Single Phase AC 220V±10%, 10A	
Air Supply		More than 0.4~0.5MPa, Ø4mm	
Vacuum Supply		Less than -50kPa	
Weight		Approx. 18 kgf	
Payload		0.7kgf (Including Gripper)	
End-Effector Grip Type		Vacuum	
Wafer Mapping(Optional)		Laser Sensor	

LED EFEM

FEATURES

- LED wafer handling Clean Robot & Aligner integrated system
- Loading the cassette for 2~6 inch LED wafer
- Cassette Loader: 2 to 4 cassettes expandable
- Cleanliness: ISO class 3
- Customization available when requested

SPECIFICATION

MODEL		SPECIFICATION		
		RE-2C	RE-3C	RE-4C
Cassette Loader		2 Cassette	3 Cassette	4 Cassette
Frame Size		1600x730x2000	1800x730x2000	2100x730x2000
Carrier		2~6 inch (20~150mm) LED cassette		
Repeatability		Less than 0.1mm		
Cleanliness		ISO class 3		
Alignment Accuracy/Time		0.5 Degree/6sec		
Electric Supply		220V 10% (60Hz, 1), 3 Wires + Ground, No Neutral		
Acoustic Noise		Less than 65dB		
User Interface		GUI-touch screen (optional)		
MTBF		≥ 20,000 hours		
MTTR		>2 hours		

SCARA(SCARA 600/miniSCARA series)



- Compact Size & Light Weight Design
- Wide Motion Range & Shift
- Newly designed AC/DC Servo Driver and Harmonic gear reducer
- Using Dynax controller
- 3 dimensional palletizing / 2 dimensional dispensing function
- Serial linked I/O module, 16 DI/16 DO (Max.256)
- Easy to attach Vacuum tool on Hand
- Various application for industrial, educational and research
- SCARA Series : Clean Environment
- Clean class 100 : Atmosphere air flow suction
- Various customizing available

SPECIFICATION

MODEL	SPECIFICATION		
	MINI SCARA 200	MINI SCARA300/300C	SCARA600
Arm Length	200mm(100+100)	300mm(150+150)	600mm(350+250)
Z-axis Stroke	50mm	80mm	200mm
Repeatability	X,Y axis	±0.050mm	±0.030mm
	Z axis	±0.050mm	±0.030mm
	R axis	±0.06deg	±0.05deg
Max. Speed	X axis	300deg/sec	240deg/sec
	Y axis	300deg/sec	480deg/sec
	Z axis	50mm/sec	200mm/sec
	R axis	1,200deg/sec	900deg/sec
Motors	X axis	DC Servo Motor	AC Servo Motor
	Y axis	DC Servo Motor	AC Servo Motor
	Z axis	Micro Stepping Motor	Micro Stepping Motor
	R axis	Micro Stepping Motor	Micro Stepping Motor
Reducer	X axis	Harmonic Drive 1/50	Harmonic Drive 1/100
	Y axis	Harmonic Drive 1/50	Harmonic Drive 1/50
	Z axis	Lead Screw Lead 4.0mm	Lead Screw Lead 13.5mm
	R axis	Timing Belt 1/4	Timing Belt 1/5
Payload	Max. 0.8kg	Max. 1.5kg	Max. 3.0kg
User Wiring	4 Wires	6 Wires	4 Wires
User Tubing	Ø 4x2	Ø 4x2	Ø 6x2
Weight	Approx. 3.8kg	Approx. 5.5kg	Approx. 30kg

miniCRANE



- Compact Size & Light Weight Design
- Controller integrated design
- Wide motion range(465mm), 1kg of payload
- Use Of The Integrated Cable & Air Tube Which Enables Easy Modification of End-Of-Arm Tools (Option : Electro-motion Gripper)
- Easy Installation & Programming
- OEM/ODM Manufacturing Available
- Long Lasting Durability & Minimized Backlash by Using Integrated harmonic Gear Reducers

SPECIFICATION

MODEL	SPECIFICATION
DOF	5 DOF
Arm Length	250mm + 200mm + 65mm
Max Radial Reach	515mm
Motor Drive	R,A,B axis (AC Servo Motor) C,U axis (DC Servo Motor)
Position Detection	Incremental Encoder
Max. Load Capacity	1.0kg
Repeatability	At Point P ±0.1mm
Motion Range	R axis -150deg ~ +150deg
	A axis -60deg ~ +120deg
	B axis -60deg ~ +120deg
	C axis -100deg ~ +100deg
	U axis -160deg ~ +160deg
Gear Ratio	R axis 100 : 1
	A axis 200 : 1
	B axis 120 : 1
	C axis 213.3 : 1
Max. Speed	U axis 100 : 1
	R axis 180deg/sec
	A axis 90deg/sec
	B axis 180deg/sec
	C axis 90deg/sec
Wiring	Power(24V), I/O, 3.2mm Pneumatic Barb Fitting(2 ea)
Weight	Approx. 7.2kg

Well Plate Transfer Robot



- Transfer Well Plate in Bio Lab
- Compact design & small footprint
- Easy to load the well plate with Hand gripper
- Reliable and precise motion
- Easy and user-friendly operation
- Customization available when requested

SPECIFICATION

MODEL		SPECIFICATION
Performance	Motion Range	G axis 10 mm
		R axis 270 mm
		T axis 330 deg
		Z axis 300 mm
	Max. Speed	G axis ≤5 mm/sec
		R axis ≤270 mm/sec
		T axis ≤±320 deg/sec
		Z axis ≤80 mm/sec
	Repeatability	G,R,Z axis ±0.1 mm
		T axis ±0.02 deg
General	Carrying Object (Well Plate)	5.03 inch (127.8) x 3.366 inch (85.5)
	Control Axis	4
	Grip Method	Hand Grip
	Max. Load Capacity	1.0 kgf (Including Gripper)
	Controller	AC servo motor
	Weight	Approx. 10.5 kgf

6-Axis Crane Robot



- 6-Axis vertical articulated robot
- Max. 3kg of payload
- Pneumatic Gripper on End-of-hand (Optional)
- Customized grip type is available.
- Easy operation and reliable motion

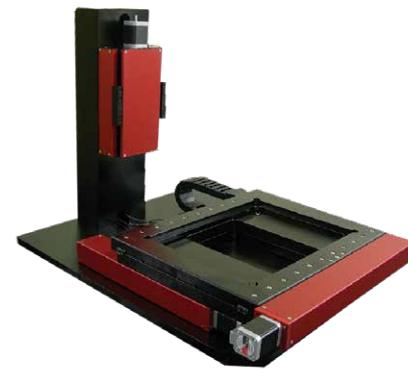
SPECIFICATION

MODEL		SPECIFICATION
Motion Range	1 axis	Rotation range ±140 deg
	2 axis	Arm length 450mm
		Rotation range -60 ~ 120 deg
	3 axis	Arm length 400mm
		Rotation range 0 ~ 130 deg
	4 axis	Rotation range ±135 deg
Max. Speed	5 axis	Arm length 100mm
		Rotation range ±120 deg
	6 axis	Rotation range ±165deg
	1 axis	120 deg/s
	2 axis	90 deg/s
Motors	3 axis	90 deg/s
	4 axis	90 deg/s
	5 axis	90 deg/s
	6 axis	120 deg/s
	1 axis	AC Servo motor (200W) (ABS)
	2 axis	AC Servo motor (with brake) (400W) (ABS)
Motors	3 axis	AC Servo motor (with brake) (400W) (ABS)
	4 axis	AC Servo motor (with brake) (100 W) (ABS)
	5 axis	AC Servo motor (with brake) (50 W) (ABS)
	6 axis	AC Servo motor (50 W) (ABS)
Payload		Max 3 kg
Repeatability		± 0.1mm
User wiring		5 wires
Power (controller)		DC48V

miniDeskTop / Tabletop Stage



- Compact Size & Light Weight Design
- Precision ball screw applied
- Various range of models (3 ~ 5 axis)
- Optional motor for machine purpose
- Vision-Guidance function (optional)
- For precision part assembling, dispensing, screwing, and soldering
- Easy Installment
- Customization for customer's needs



- Application of linear scale (resolution 0.5um) : High precision movement control
- AC / DC Servo or Stepping motor either can be applied
- High-precision Ball Screw leads Backlash Zero
- Application of 485 communication link
- Integrated Cable : Simple Design
- Closed Loop Control : Drive level position feedback
- PCI type Stand Alone : 24V & 5V self-operation on exterior power
- Easy to set up tools for convenient operation environment
- Customization for user when required

Educational Robot



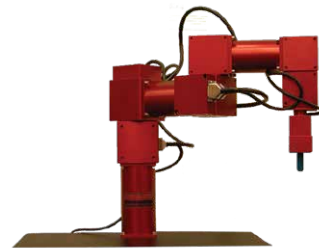
Intelligence Robot Platform

- Equipped with Control Unit, Manipulator, Vision Guide & Mobile base for Educating Students Task Performance & Mobility
- Expandable Software Contents to Target Unilateral Comprehension of the Intelligent Robot System



Robot Arm & Hand

- Light-weight Body
- Multi-jointed Structure
- Control Simulation
- Modular Concept Application
- Safety Design without Sharp Edges



Power Module

- Easy Assembly & Disassembly
- PC Direct Control
- Compact Size & Light Weight
- Modular Concept
- Expandable Interface
- Harmonic Drive : Precise & Smooth Motion
- Simple Design : Driver & Controller in 1 Unit
- Power Supply Safety (24V Input)
- Electricity Overload Prevention Circuit
- Vertical & Horizontal Multi Axis Combination
- Learning Robot Control by Inputting parameter (Educational Effect)

Stage



Alignment Stage

- FPD/LCD Flat Panel Inspection (Vision Guided)
- Scanning Probe microscope
- Precision System Position Setting
- Clean Environment Application
- Design Customization
- ODM/OEM Supply
- Repeatability : $\pm 5\mu\text{m}$
- Accuracy : $\pm 50\mu\text{m}$
- Clean Environment Application
- Scanning Probe Microscope

X-Y STAGE

- Designed for user convenient
- Small footprint
- X-Y flat stage used for research, inspection, metrology purpose etc.
- Installed the device onto the upper stage such as scanner or Position feedback from linear scale
- 2 step motors (5 phase) & cross roller linear guide allows the flat stage move in X-Y plane
- Highly precise and reliable in motion
- Customization available when requested

Field Service



Human Aid Robot

- Provided by ODM
- Mobile Based System
- Assist Disabled People for Self-Transfer (Between Bed, Wheel-chair & Bathroom)
- Easy to Control & Change Direction
- Modular Components
- Competitive Price by Minimizing Components



Bridge Inspection Robot

- Provided by ODM
- Inspection Range : 15m $\times$ 12m
- Max Height of Inspection Range : 6m
- Capturing Time : 40 min
- Positioning Accuracy : $\pm 0.05\text{m}$
- Size of Image (FOV) : 1.5m $\times$ 1.1m
- Transportation Equipment Preparing Time: 10 min
- Transportation Equipment Accuracy : $\pm 0.02\text{m}$

BIO/MEDI-BIO APPLICATION

Bio Lab Automation



Well-Chip Micro Arrayer

- Manufacture Well-Type Protein Chip
- Drug Screening & Testing
- User-Friendly Operation
- High Quality & Efficiency
- HTS System Application



Nano-Chip Bonder

- Chip Size : 2 (Tray) × 45 (Chip)
- Applicable for Various Chips
- Stepping Motor, AC Servo Motor
- Highly Efficient Dissolution
- Low Noise
- Precision Position Setting
- Precision Dispensing Using Syringe Pump
- PC Based Control, User-Friendly GUI



Automatic Cell Culturing System

- Fully Automated System
- Cultivates Bio-Material
- Temperature Control
- Clean Environment
- Reliable Mass Production

BIO/MEDI-BIO APPLICATION

MAXX DM series



DM200-5M



DM200-5A/5AW, DM110-5P

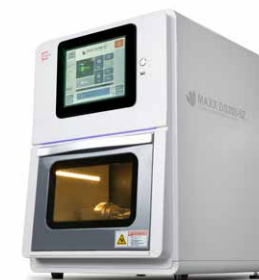
Premium 5-axis system to mill all materials

- Specialized in metal milling with rigidity of index
- Capable of milling long metal and implant bar bridge
- Multi-system to mill all CAD/CAM materials

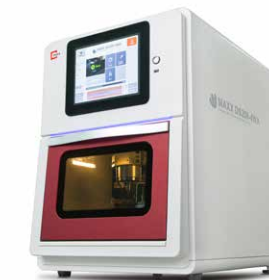
Professional 5-axis system to mill dental model and final prosthesis

- Capable of milling model with intra oral scanned data to check its fitness
- Unmanned overnight and weekend operation by auto loader robot
- High-production of orthodontic/implant/prosthetic digital model
- High-production of detailed and precise model with less cost

MAXX DS series



DS200-5Z



DS200-4WA



DS200-4WX

Premium 5-axis system to mill all materials

- Specialized in metal milling with rigidity of index
- Capable of milling long metal and implant bar bridge
- Multi-system to mill all CAD/CAM materials

Progressive 4-axis system with guaranteed durability

- Specialized in milling hard materials including pre-milled blank and metal
- Multi-purpose machine to mill soft and hard materials
- Precise and detailed milling with powerful and high-precision spindle

Premium 5-axis system to mill all materials

- Fast and precise milling of ceramic and composite ceramic
- Specialized system for prompt prosthesis materials
- Compatible with many different types of blocks