Shanghai head office

Shanghai Fortrend Technology Co.,Ltd

Tel: 021-34786180

Official website : cn.fortrend.com
Sale E-mail : sales@fortrend.com.cn

Address: No. 555 Wanfang Road, Minhang District, Shanghai P.R. China





eChat public account

Official website

Zhejiang subsidiary

Zhejiang Fortrend Technology Co.,Ltd

Tel: 17521176476

Sale E-mail: sales@fortrend.com.cn

Address: No. 139, Chuangxin Road, Xindai Town, Pinghu City, Zhejiang Province, P.R. China

Wuxi subsidiary

Wuxi Fortrend Intelligent Technology Co.,Ltd

Tel:13480952530

E-mail:liuhp775@fortrend.com.cn

Address: 100 Meiyu Road, Meicun Street, Xinwu District, Wuxi City

Wuxi Fortrend Precision Equipment Co.,Ltd

Tel: 13530760646

Sale e-mail: zhengqbfcd307@fortrend.com.cn

Address: 100 Meiyu Road, Meicun Street, Xinwu District, Wuxi City

USA subsidiary

Fortrend Engineering Corporation

Tel:(1)408-734-9311

Sale e-mail: sales@fortrend.com

Address: 2220 O' Toole Avenue, San Jose USA, CA95131

Distributors

UK

Sistem Technology

Address: Grafton Suite, Caswell Science & Technology Park, Towcester, Northants, NN12 8EQ, UK

Tel: (44) 1327 317621

South Korea

SD Solution

Address: #509,Biz-tower,63-12,Dongtancheomdansaneop 1-ro,Hwaseong-si,Gyeonggi-do,Republic of korea

Tel: (81) 42-468-4164



上海大族富创得科技股份有限公司 SHANGHAI FORTREND TECHNOLOGY CO.,LTD

^{*}The product pictures shown in this volume are rendered or taken. The technical parameters and pictures may be different from the actual products due to improvement and upgrade, etc., for reference only. Please confirm with your account manager for details.



CATALOGUE

About Fortrend	C
Patents Awarded	 C
200MM SMIF SOLUTIONS	 C
Background Information	 C
Fortrend SMIF Advantages	 C
PLUS 150 & 500 SMIF ARMS	05
PLUS 150/500 S-X	 (
PLUS 150/500 R-X	(
PLUS 150/500 SD-X	 (
PLUS 150/500 SX-X	1
PLUS 500 SX-B	 1
PLUS 150/500CX-X	 1
PLUS 150/500 TX-X	 1
PLUS 150/500 UX-X	 1
PLUS 500 SDH-X	:
PLUS 500 SH-X	 1
PLUS 500 RH-X	:
PLUS 500LM	 :
PLUS 150/500F	 19
POM 150 DL & POM 200 DL	2
PLS 200	 2
PLM 200W	2
PLM LOAD PORT	2
PLM 200UL	25
PLM-150/200W-OHT (Standard)	2
PLM-150/200W-OHT(widened type)	 2
SMIF OHT LoadPort Manual Station	:
SMIF Tool Communication Scenario	3
SMIF Load port Solutions Images	31





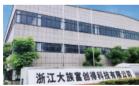
200MM SMIF SOLUTIONS



ABOUT FORTREND

Founded in 1979 in Silicon Valley, USA, Fortrend has always been the top leader in batchwafer transfer technologies, Standard Mechanical Interface (SMIF) technologies, ultra-cleanautomation solutions, and wafer surface curing processes for the semiconductor and PVindustries. Fortrend SMIF products have become the crucial automation connections betweenprocess equipment and the factory delivery system and between different processing equipment. Fortrend's standard 200mm and 300mm front end automation modules are readily integrated into processing tools reliably and cost effectively. Fortrend's 3DIC thermal curingtools set the industrial standards for wafer surface curing processes. Fortrend offers not onlystandard automation and thermal curing modules, but also custom solutions allowing us tomeet custom challenges and difficult configuration requirements quickly with a minimum of expenses. Contact Fortrend and experience our engineering excellence first hand.









Enterprise Introduction

ABOUT FORTREND

- Original inventor of 200mm SMIF pod loader and micro-environment technology
- Serving 200mm SMIF automation market since 1985 and the dominant solution provider for 200mm SMIF retrofit market today
- Complete complementary products: RFID lot tracking hardware systems, material logistic management software, clean room subtract handling robots, automated 200mm and 300mm wafer and reticle carrier openers
- Over 30 USA and International patents

Complete reticle handling automation solutions

Enterprise Introduction

GRANTED PATENTS



200mm SMIF Solutions

BACKGROUND INFORMATION

SMIF (Standard Mechanical Inter Face) technology is a material isolation technologypioneered by HP to provide ISO class-2 wafer cassette transfer environment in a sub-class(ISO class-6 or better) IC manufacturing FAB. SEMI research data have proven that SMIFtechnology provides 100x, 30x, and 10x better cleanliness wafer protections compared toopen cassette transfers in ISO class -5, 1SO class -4, ISO class -3, facilities, respectively. Inaddition, SMIF technology also enabled active material logistic controls to improve productionmanagements and profitability. Consequently, over 200 200mm SMIF manufacturing facilitieshave been constructed since early 1990's.

200mm SMIF Solutions

FORTREND SMIF ADVANTAGES

- Fortrend introduced the first 200mm SMIF loader/Unloader (PLUS-500) and built the first 200mm SMIF manufacturing facility at HP-Corvallis facility in 1995
- Ons 7USAand internationalSMF patents
- Only SMIF provider offers total solution retrofit programs Flexible software and hardware configurations
- Compatible Cl integration to competitors
- Readily applicable to all existing tools
- Patented Technologies (granted)
- ♦ Integrated active ULPA Fan Filter Unit (FFU) for best environmental isolation
- Flexible configurations, two body designs and 6 robots to meet all custom applications
- Positive gripper design for easy cassette handling
- Tilt and rotate cassettes
- ♦ Slide cassettes to left or right of center line to mee open cassette narrow pitch tools
- Smallest footprint
- Compatible with OHT and AGV loading
- Optional SEMI E84 Communication card for OEM tools that cannot handle E84 handshakes
- ♦ SEMIE19.4.S2,S8,CE, UKCA Certified



ADAPTIVE LOAD PORTS PLUS 150 & 500 SMIF ARMS

Features

- Into OEM open cassette tools Nine Robot arm designs, two body sizes to meet the challenges of loading cassette
- Less than 60-second load or unload cycle times maximizes production
- Smal footprint saves valuable FAB floor-space
- Adjustable loading height provides ergonomic efficiency
- Built-in mini-environment and clean airflow system maintain Class 1 cleanliness



C EASY TO INTEGRATE

The fully automatic Fortrend Plus 500 transfers 200mm cassettes from SMIF pods onto process stages in 60 seconds or less. The system can also be used to load cassettes into process tools in anon-SMIF environment. With a total footprint not much larger than a SMIF pod, the Plus 500 SMIF arm is easy to integrate with OHT or AGV systems and into small areas.

A programmable robotic arm with end-effector that tilts wafers into the vertical position accommodates a wide variety of process tools

C SAFE AND RELIABLE

A patented, built-in mini-environment and airflow control systemhelp protect wafers from contamination, while the robot istransferring pod between SMIF pods and tool stages. With many fail-safe features including pod present sensor, waferprotrusion sensor, cassette overload sensors, constant toque dcstepper motors (with encoder feedbacks) for accurate and reliablemotion controls, the Plus 500 SMIF arms the best choice for bothOEMs and system integrators

SIMPLE TO MAINTAIN

All Plus 500 models feature a variety of tool interface options: diamond-pin interface plate withquick-release latches and stand-alone floor mount enabling reconnection to and from virtuallyany process tool within 15 minutes or less. Considering that during ramp-up a pod loader maybe disconnected and reconnected as often as twice a day to adjust the process tooling, thisfeature significantly reduces downtime and simplifies preventive maintenance

ADAPTIVE LOAD PORTS PLUS 150 & 500 SMIF ARMS

C OUTSTANDING SUPPORT

Installation, on-site training, worldwide supports and variety choices of economical long-termaintenance contracts are available from Fortrend. Established in 1979, Fortrend's expertise in robotics, mechanics and software provide theoptimum solution for semiconductor manufacturers who are driven to improve vield, increase throughput and reduce costs.

	SMIF FUNTION								
MODEL	Body Height	With Robot	Tilt (90degree)	Rotation (180degree)	Woving left (80mm)	Woving Right (80mm)	Heavy -load arm	E84 Controller (option)	
PLUS-150/500S	1840mm	✓	✓					✓	
PLUS-150/500R	1840mm	✓		✓				✓	
PLUS-150/500SD	1840mm	✓						✓	
PLUS-150/500SX	1840mm	✓	✓		✓	✓		✓	
PLUS-150/500SX-B	1709mm	✓	✓		✓	✓		✓	
PLUS-150/500CX	1520mm	✓	✓		✓	✓		✓	
PLUS-150/500TX	1840mm	✓						✓	
PLUS-150/500UX	1210mm	✓						✓	
PLUS-150/500SDH	1210mm	✓					✓	✓	
PLUS-150/500SH	1210mm	✓	✓				✓	✓	
PLUS-150/500RH	1210mm	✓		✓			✓	✓	
PLUS-150/500F	1770mm	✓		✓				✓	
PLUS-150/500LM	1530mm							✓	
PLM-150/200	815mm							✓	



PLUS 150/500 S-X Standard Features

- Straight arm Movement
- C Put the POD box level or vertical to the toolbage
- Wafer mapping function
- Progressive sensor of wafer chips
- Cassette Present Sensor
- SMIF pod in place Sensors
- Info Pad Plugs
- Left or Right I/O panel
- Tool Mount
- Dust cover



(F)

	SPE	CIFIC	CATIONS	3						
MODEL	PLUS 500S-L PLUS 150S-L									PLUS 500S-R-OHT PLUS 150S-R-OHT
I/0 Panel	Left		Right	Left		Right				
E84 COMM Board	No		No	Yes		Yes				
Dimensions	34.8cm(W)x49.8cm(D)x1	84 cm(H)								
Wheel Height	6 to 15.3 cm tool depend	ent								
Cycle time (load)	<60 sec.(S Model without tilt and leave pod open after load)									
Cycle time (Unload)	<60sec.(S Model without	<60sec.(S Model without tilt with pod left open after load)								
Arm Extension	390mm		Arm Z Travel		135mr	135mm				
Power	100 to 240 VAC @ 50/60	HZ	Weight		93 Kg	(not including SMIFpod)				
Power-on reset time	<20 Secs		SMIF Arm Pa	ayload	3.2 Kg	l				
Arm Extent axis precision	+0.1 mm		Arm Elevator	axis precision	+0.1 m	nm				
Gripper axis precision	±0.5 mm		Tilt axis prec	ision	+0.15	degree				
Control	Manual (Front Panel): Re	emote (Fro	m OEM Tool or C	IM): Pendant						
Communication interface	RS232(Serial)-Fortrend H	HEX or AS	CII or SECS Para	IIeI I/0						
Lot ID Reader Options		IR(Smart) Tag-8200 or 8400 series; RFID Read/write Module - Fortrend or Hermos or Other RFID; Intellion Lot Track system								



- Straight arm Movement with cassette able to rotate up to 359°
- Put the POD box level or vertical to the toolbage
- Wafer mapping function
- Progressive sensor of wafer chips
- SMIF pod in place Sensor
- C Info Pad Plugs
- Left or Right I/O panel
- Tool Mount
- Dust cover



	S	PECI	FICATIO	NS				
MODEL	PLUS 500R-L PLUS 150R-L		IS 500R-R IS 150R-R			PLUS 500R-R-OHT PLUS 150R-R-OHT		
I/0 Panel	Left	Right		Left		Right		
E84 COMM Board	No	No		Yes		Yes		
Dimensions	34.8cm(W)x49.8cm(D)x1	34.8cm(W)x49.8cm(D)x184cm(H)						
Wheel Height	6 to 15.3 cm tool depend	6 to 15.3 cm tool dependent						
Cycle time (load)	<60 sec.(S Model without tilt and leave pod open after load)							
Cycle time (Unload)	<60 sec.(S Model without	<60 sec.(S Model without tilt and leave pod open after load)						
Arm Extension	305mm		Arm Z Travel		135mm			
Power	100 to 240 VAC @ 50/60	HZ	Weight	93 Kg		(not including SMIFpod)		
Power-on reset time	<20 Secs		SMIF Arm Pay	yload	3.2 Kg			
Arm Extent axis precision	+0.1 mm		Arm Elevator	axis precision	+0.1 m	m		
Gripper axis precision	±0.5 mm		Wrist axis pre	cision	+0.15	degree		
Control	Manual (Front Panel): Re	emote (Fro	m OEM Tool or C	IM): Pendant				
Communication interface	RS232(Serial)-Fortrend H	HEX or AS(CII or SECS Para	llel I/0				
Lot ID Reader Options	IR(Smart) Tag-8200 or 84 RFID Read/write Module			ner RFID; Intellion	Lot Track	system		



PLUS 150/500 SD-X Standard Features

- Straight arm Movement
- C Put the POD box level or vertical to the toolbage
- Wafer mapping function
- Progressive sensor of wafer chips
- SMIF pod in place Sensors
- C Info Pad Plugs
- Left or Right I/O panel
- Tool Mount
- Dust cover





	SF	PECIF	ICATION	NS		
MODEL	PLUS 500SD-L PLUS 150SD-L	PLUS 500SD-R PLUS 500SD-L-0 PLUS 150SR-R PLUS 150SD-L-0				PLUS 500SD-R-OHT PLUS 150SD-R-OHT
I/0 Panel	Left		Right	Left		Right
E84 COMM Board	No		No	Yes		Yes
Dimensions	34.8cm(W)x49.8cm(D)x1	84cm(H)				
Wheel Height	6 to 15.3 cm tool depend	6 to 15.3 cm tool dependent				
Cycle time (load)	<60 sec.(SD Model and leave pod open after load)					
Cycle time (Unload)	<60 sec.(SD Model and I	<60 sec.(SD Model and leave pod open after load)				
Arm Extension	440mm		Arm Z Travel		135mr	n
Power	100 to 240 VAC @ 50/60) HZ	Weight		93 Kg	(not including SMIFpod)
Power-on reset time	<20 Secs		SMIF Arm Pay	rload	3.2 Kg	
Arm Extent axis precision	+0.1 mm		Arm Elevator a	axis precision	+0.1 m	nm
Gripper axis precision	±0.5 mm					
Control	Manual (Front Panel): Re	emote (Fro	om OEM Tool or C	IM): Pendant		
Communication interface	RS232(Serial)-Fortrend I	HEX or AS	CII or SECS Para	llel I/0		
Lot ID Reader Options	IR(Smart) Tag-8200 or 8 RFID Read/write Module			ner RFID; Intellior	n Lot Tracl	k system



- Straight arm Movement
- Put the POD box level or vertical to the toolbage
- Slide the POD box to the right side of the center or right to 80mm
- Wafer mapping function
- Wafer protrusion sensor
- SMIF pod in place Sensors
- C Info Pad Plugs
- Left or Right I/O panel
- C Tool Mount
- Dust cover



	SF	PECIF	FICATION	IS			
MODEL	PLUS 500SL-L PLUS 150SL-L	PLUS 500SR-R PLUS 150SR-R		PLUS 500SL-L-OHT PLUS 150SL-L-OHT		PLUS 500SR-R-OHT PLUS 150SR-R-OHT	
I/0 Panel	Left	Right			Left	Right	
E84 COMM Board	No	No			Yes	Yes	
Dimensions	34.8cm(W)x49.8cm(D)x1	34.8cm(W)x49.8cm(D)x184cm(H)					
Cycle time (load)	<80ec.(S Model without	tilt and lea	ve pod open after	load)			
Cycle time (Unload)	<80 sec.(S Model withou	it tilt and le	eave pod open afte	r load)			
Arm Extension	390mm		Arm Z Travel	135mm		Transit	80mm
Power	100 to 240 VAC @ 50/60 HZ		Weight		93 Kg (not includin	g SMIFpod)	
Power-on reset time	<20 Secs		SMIF Arm Paylo	oad	3.2 Kg		
Arm Extent axis precision	+0.1 mm		Arm Elevator axis precision		+0.1 mm		
Gripper axis precision	±0.5 mm		Tilt axis precision	on	+0.15 degree		
Control	Manual (Front Panel): Re	emote (Fro	om OEM Tool or Cl	M): Pe	ndant	<u>'</u>	
Communication interface	RS232(Serial)-Fortrend	RS232(Serial)-Fortrend HEX or ASCII or SECS Parallel I/0					
Lot ID Reader Options	IR(Smart) Tag-8200 or 8 RFID Read/write Module			er RFI	D; Intellion Lot Trac	k system	





- Straight arm Movement
- Loads cassette to tool stage either wafer Horizontally or vertically
- C Wafer Mapper
- Wafer protrusion sensor
- Cassette Present Sensor
- SMIF pod in place Sensors
- SMIF pod Present Sensor
- C Info Pad Plugs
- Left or Right I/O panel
- Tool Mount
- Dust cover





	SPECIFICATIONS							
MODEL	PLUS 500SL-B	PLUS 500SR-B PLUS 500S		SL-B-OHT	PLUS 500SR-B-OHT			
I/0 Panel	Back		Back	Ва	ıck	Back		
E84 COMM Board	No		No	Y	es	Yes		
Dimensions	34.8cm(W)x49.8cm(D)x1	170.9cm(H	without Wheels)					
Cycle time (load)	<80 sec.(SL Model without	<80 sec.(SL Model without tilt and leave pod open after load)						
Cycle time (Unload)	<80 sec.(SL Model without	<80 sec.(SL Model without tilt with pod left open after load)						
Arm Extension	305mm		Arm Z Travel	135mm				
Power	100 to 240 VAC @ 50/60) HZ	Weight		93 Kg (not	including SMIFpod)		
Power-on reset time	<20 Secs		SMIF Arm Payl	oad 3.2 Kg				
Arm Extent axis precision	+0.1 mm		Arm Elevator a	xis precision	+0.1 mm			
Gripper axis precision	±0.5 mm		Tilt axis precisi	on	+0.15 degr	ee		
Control	Manual (Front Panel): Remote (From OEM Tool or CIM): Pendant							
Communication interface	RS232(Serial)-Fortrend I	RS232(Serial)-Fortrend HEX or ASCII or SECS Parallel I/0						
Lot ID Reader Options	IR(Smart) Tag-8200 or 8 RFID Read/write Module			ner RFID; Inte	llion Lot Track	k system		



- Straight arm Movement
- Compact body
- C Put the POD box level or vertical to the toolbage
- Slide the POD box to the right side of the center or right to 80mm
- Wafer mapping function
- Wafer protrusion sensor
- SMIF pod in place Sensors
- C Info Pad Plugs
- Left or Right I/O panel
- Tool Mount
- Dust cover





	S	PECIFICATION	NS				
MODEL	PLUS 500CL-L PLUS 150CL-L	PLUS 500CR-R PLUS 150CR-R	PLUS 500CL-L-OH PLUS 150CL-L-OH				
I/0 Panel	Left	Right	Left	Right			
E84 COMM Board	No	No	Yes	Yes			
Dimensions	34.8cm(W)x49.8cm(D)x	152cm(H)		<u> </u>			
Wheel Height	6 to 15.3 cm tool depend	lent					
Cycle time (load)	<80 sec.(S Model withou	<80 sec.(S Model without tilt and leave pod open after load)					
Cycle time (Unload)	<80 sec.(S Model withou	it tilt and leave pod open aft	er load)				
Arm Extension	390mm	Arm Z Travel	40mm	Transit 80mm			
Power	100 to 240 VAC @ 50/60 HZ	Weight	93 Kg (not inc	cluding SMIF pod)			
Power-on reset time	<20 Secs	SMIF Arm Pay	load 3.2 Kg				
Arm Extent axis precision	+0.1 mm	Arm Elevator axis precision	+0.1 mm				
Gripper axis precision	±0.5 mm	Tilt axis precis	ion +0.15 degree				
Control	Manual (Front Panel): R	emote (From OEM Tool or C	CIM): Pendant				
Communication interface	RS232(Serial)-Fortrend	HEX or ASCII or SECS Para	allel I/0				
Lot ID Reader Options	IR(Smart) Tag-8200 or 8 RFID Read/write Module	400 series; - Fortrend or Hermos or Ot	her RFID;				



PLUS 150/500 TX-X Standard Features

- Straight arm Movement with cassette able to rotate up to 359°
- C Put the POD box level or vertical to the toolbage
- Wafer mapping function
- Progressive sensor of wafer chips
- SMIF pod in place Sensor
- Info Pad Plugs
- Left or Right I/O panel
- Tool Mount
- Dust cover



	SF	PECIF	ICATIO	NS			
MODEL	PLUS 500TL-L PLUS 150TL-L	PLUS 500TR-R PLUS 150TR-R		PLUS 500TR- PLUS 150TR-		PLUS 500TR-R-OHT PLUS 150TR-R-OHT	
I/0 Panel	Left		Right	Left		Right	
E84 COMM Board	No		No	Yes		Yes	
Dimensions	34.8cm(W)x49.8cm(D)x1	84cm(H)					
Wheel Height	6 to 15.3 cm tool depend	lent					
Cycle time (load)	<60 sec.(The pod remain	<60 sec.(The pod remains open after loading)					
Cycle time (Unload)	<60 sec.(The pod remain	ns open aft	ter loading)				
Arm Extension	390mm		Arm Z Travel	Arm Z Travel		135mm	
Power	100 to 240 VAC @ 50/60) HZ	Weight		93 Kg (not including SMIFpod)		
Power-on reset time	<20 Secs		SMIF Arm Pay	load	3.2 Kg		
Arm Extent axis precision	+0.1 mm		Arm Elevator a	xis precision	+0.1 mr	m	
Gripper axis precision	±0.5 mm		Wrist axis pred	ision	+0.15 d	egree	
Control	Manual (Front Panel): Re	emote (Fro	om OEM Tool or C	IM): Pendant			
Communication interface	RS232(Serial)-Fortrend	RS232(Serial)-Fortrend HEX or ASCII or SECS Parallel I/0					
Lot ID Reader Options	IR(Smart) Tag-8200 or 8 RFID Read/write Module			ner RFID; Intellio	n Lot Track	k system	



- Straight arm Movement
- Ultra Low Body for 70cm cassette stage heights
- Wafer protrusion sensor
- Wafer protrusion sensor
- SMIF pod in place Sensors
- C Info Pad Plugs
- Left or Rear I/O panel
- Tool Mount
- Dust cover





	SF	PECIFICATION	NS				
MODEL	PLUS 500UL-L PLUS 150UL-L	PLUS 500UR-R PLUS 150UR-R	PLUS 500UL-L-OHT PLUS 150UL-L-OHT	PLUS 500UR-R-OHT PLUS 150UR-R-OHT			
I/0 Panel	Left	Back	Left	Right			
E84 COMM Board	No	No	Yes	Yes			
Dimensions	59.2cm(W)x42cm(D)x121	59.2cm(W)x42cm(D)x121cm(H)					
Wheel Height	6 to 15.3 cm tool depende	6 to 15.3 cm tool dependent					
Cycle time (load)	<80 sec.(S Model without tilt and leave pod open after load)						
Cycle time (Unload)	<80 sec.(S Model without	<80 sec.(S Model without tilt and leave pod open after load)					
Arm Extension	390mm	Arm Z Travel	40mm	40mm			
Power	100 to 240 VAC @ 50/60 HZ	Weight	93 Kg (not including SMIFpod)			
Power-on reset time	<20 Secs	SMIF Arm Pay	load 3.2 Kg				
Arm Extent axis precision	+0.1 mm	Arm Elevator axis precision	+0.1 m	m			
Gripper axis precision	±0.5 mm	Tilt axis precis	ion +0.15 d	legree			
Control	Manual (Front Panel): Re	mote (From OEM Tool or C	IM): Pendant				
Communication interface	RS232(Serial)-Fortrend F	IEX or ASCII or SECS Para	llel I/0				
Lot ID Reader Options	IR(Smart) Tag-8200 or 84 RFID Read/write Module		ner RFID;Intellion Lot Track	c system			



PLUS 500 SDH-X Standard Features

- Straight arm Movement
- C Loads cassette to tool stage wafer Horizontally
- Wafer Mapper
- Lifts up to 7.5Kg
- Wafer protrusion sensor
- Cassette Present Sensor
- SMIF pod in place Sensors
- © SMIF pod Present Sensor
- C Info Pad Plugs
- C Left or Right I/O panel
- Tool Mount
- Dust cover





	SF	PECIFICATI	01	IS			
MODEL	PLUS 500SDH-L	PLUS 500SDH-R		PLUS 500SDH-L-OHT		PLUS 500SDH-R-OHT	
I/0 Panel	Left	Right		Left		Right	
E84 COMM Board	No	No		Yes		Yes	
Dimensions	34.8cm(W)x49.8cm(D)x1	70.9cm(H without Whe	els)				
Wheel Height	6 to 15.3 cm tool depend	ent					
Cycle time (load)	<60 sec.(SDH Model and	<60 sec.(SDH Model and leave pod open after load)					
Cycle time (Unload)	<60 sec.(SDH Model and	l pod left open after loa	ıd)				
Arm Extension	390mm	Arm Z Tra	vel		131mm		
Power	100 to 240 VAC @ 50/60 HZ	Weight			93 Kg (not including SMIFpod		
Power-on reset time	<20 Secs	SMIF Arm	Payl	oad	7.5 Kg		
Arm Extent axis precision	+0.1 mm	Arm Eleva axis precis			+0.1 mn	n	
Gripper axis precision	±0.5 mm						
Control	Manual (Front Panel): Re	emote (From OEM Tool	or C	IM): Pendant			
Communication interface	RS232(Serial)-Fortrend I	RS232(Serial)-Fortrend HEX or ASCII or SECS Parallel I/0					
Lot ID Reader Options		IR(Smart) Tag-8200 or 8400 series; Intellion Lot Track system RFID Read/write Module - Fortrend or Hermos or Other RFID;					



- Straight arm Movement
- Loads cassette to tool stage wafer Horizontally
- Wafer Mapper
- C Lifts up to 7.5Kg
- Wafer protrusion sensor
- Cassette Present Sensor
- SMIF pod in place Sensors
- SMIF pod Present Sensor
- Info Pad Plugs
- Left or Right I/O panel
- Tool Mount
- Dust cover





	S	PECII	FICATIO	NS			
MODEL	PLUS 500SH-L	PLU	PLUS 500SH-R		L-OHT	PLUS 500SH-R-OHT	
I/0 Panel	Left		Right	Left		Right	
E84 COMM Board	No		No	Yes		Yes	
Dimensions	34.8cm(W)x49.8cm(D)x1	34.8cm(W)x49.8cm(D)x170.9cm(H without Wheels)					
Wheel Height	6 to 15.3 cm tool depend	6 to 15.3 cm tool dependent					
Cycle time (load)	<60 sec.(S Model without tilt and leave pod open after load)						
Cycle time (Unload)	<60 sec.(S Model without tilt with pod left open after load)						
Arm Extension	390mm		Arm Z Travel	135mm			
Power	100 to 240 VAC @ 50/60	HZ	Weight	93 Kg (not including SMIFpod)	
Power-on reset time	<20 Secs		SMIF Arm Payl	load	7.5 Kg		
Arm Extent axis precision	+0.1 mm		Arm Elevator a	xis precision	+0.1 mn	n	
Gripper axis precision	±0.5 mm		Tilt axis precisi	on	+0.15 de	egree	
Control	Manual (Front Panel): Re	mote (Fron	n OEM Tool or Cl	M): Pendant			
Communication interface	RS232(Serial)-Fortrend H	RS232(Serial)-Fortrend HEX or ASCII or SECS Parallel I/0					
Lot ID Reader Options		IR(Smart) Tag-8200 or 8400 series; RFID Read/write Module - Fortrend or Hermos or Other RFID; Intellion Lot Track system					



PLUS 500 RH-X Standard Features

- Straight arm Movement with cassette able to rotate up to 359°
- for angled cassette stages
- C Loads cassette to tool stage wafer Horizontally
- Wafer Mapper
- Wafer protrusion sensor
- Cassette Present Sensor
- SMIF pod in place Sensors
- SMIF pod Present Sensor
- Info Pad Plugs
- Left or Right I/O panel
- Tool Mount
- Dust cover





SPECIFICATIONS							
MODEL	PLUS 500RH-L	PLUS	S 500RH-R	PLUS 500RH-	L-OHT	PLUS 500RH-R-OHT	
I/0 Panel	Left	Right		Left		Right	
E84 COMM Board	No	No		Yes		Yes	
Dimensions	34.8cm(W)x49.8cm(D)x170.9cm(H without Wheels)						
Wheel Height	6 to 15.3 cm tool dependent						
Cycle time (load)	<60 sec.(R Model leave pod open after load)						
Cycle time (Unload)	<60 sec.(R Model pod left open after load)						
Arm Extension	305mm Arm Z Travel 135mm						
Power	100 to 240 VAC @ 50/60 HZ		Weight 93		93 Kg (Kg (not including SMIFpod)	
Power-on reset time	<20 Secs		SMIF Arm Pay	IIF Arm Payload 7.5 K		g	
Arm Extent axis precision	+0.1 mm		Arm Elevator axis precision +0.1 r		+0.1 mi	nm	
Gripper axis precision	±0.5 mm		Wrist axis precision ±0.		±0.15 d	.15 degree	
Control	Manual (Front Panel): Remote (From OEM Tool or CIM): Pendant						
Communication interface	RS232(Serial)-Fortrend HEX or ASCII or SECS Parallel I/0						
Lot ID Reader Options	IR(Smart) Tag-8200 or 8400 series; RFID Read/write Module - Fortrend or Hermos or Other RFID; Intellion Lot Track system						

PLUS 500LM

Product Introduction

The PLUS 500LM is an integrated 200mm Wafer SMIF Pod Opener that allows the OEM toolto use a robot to remove the cassette into the processing tool or remove the wafers from the cassette.

Features

- ISO Class 2 or better cleanliness with active self-clean air flow design
- All electrical system with field programmable application software
- Wafer Mapping Sensor (Present, Cross Slot)
- Lifts the Pod shell leaving the Wafer Cassette in a sealed mini-environment
 - ♦ Wafers can be removed by OEM Robot
 - ◆ Cassette can be removed by OEM Robot
- Mounts directly into a process Tool using 300mm Bolts interface to SEMI E63 to convert open station to a SMIF compatible station.
- SEMI E84 hand-off forOHT pod delivery

- Four programmable Interlock signals
- Wafer Cassette Present Sensor
- SEMI E19.4, S2 and S8 standards and CE certified
- Wafer Protrusion Sensor
- Pod Present Sensor
- RFID reader/writer or IR read/writer



Specifications

Wafer size	200mm
Dimension	460W x 506D x 1530H mm
Elevator Stroke	240 mm
Load capacity	5.4kg
Pod interface	SEMI E19.4
Power requirement	24 VDC (110V/240V Optional)
Weight	23kg without Pod
Open Pod	< 12 seconds
Close Pod	< 10 seconds
MCBF	50,000 cycles
MTTR	< 1 hour
Communication	Serial or TCPIP Ethernet or EIA-RS232C (SECS I/II)



PLUS 500LM



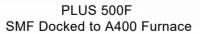
PLUS 150/500 F

Product Introduction

The PLUS 500F is designed to load 200mm Wafer cassettes to multi-level cassette stages or high-level cassette stages from SMIF pods with the cassette rotated 180° after being picked-up from the cassette. The PLuS 500F is the approved SMIF pod loader by ASM for the A400-Classic and A400 DUO systems.

- Small footprint saves valuable FAB floor space
- ISO Class 2 or better cleanliness with active self-clean air flow design
- Lifts the Pod shell leaving the Wafer Cassette in a sealed mini-environment
- All electrical system with field programmable application software
- Pod Present Sensor
- Wafer Protrusion Sensor
- Wafer Mapper
- SEMI E19.4, S2 and S8 standards and CE certified Teach Pendant
- Teaching machine
- C Optional Universal Floor Mount.
- Optional RFID reader/writer
- Optional IR reader/writer
- The SMIF option approved by ASM
- Cassette can be loaded into the A4003 level platform by a robotic arm
- Can directly replace the existing A400 SMIF
- Can be mounted directly onto existing ASMSMIF brackets







POD/Wafer Size	200 mm
Overall, Height	710mm W x 660mm D x 1770mm H
Robot arm payload	8 KG
Weight	185 KG(Depends on configuration)
Rated voltage	AC 220V
Rated power	2200W
The main material	Aluminum alloy, stainless steel (SUS 304)
Noise level	< 75 dBA
Communication	EIA-RS232C,SECS I/II Parallel I/O,SEMI E23-96, IEEE-TTL
Communication protocol	ASCII、TCP/P、ASCII、TCP/P
Optional options	iD read/write device with RFID module or IR Link
Cleanliness	ISO Class 2
Pod Interface	SEMIE19.4
Throughput	70 sec load & 90sec unload
Working Temperature	0 ~ 40°C
Working Humidity	5% ~ 90%



POM 150 DL & POM 200 DL

Product Introduction

The POM 150 and POM 200 are Table Top Stand-alone 200 mm SMIF pod opener. Opens the SMIF pod to allow the cassette or wafers to be manually loaded or unloaded. Ideal for usewith tools within a SMIF fab that reauire the cassettes to be oaded by manual operations ifthe OEM tool cannot be automated with SMIF load ports. The SMIF pod is placed on the loadport by the operator. A press of the run button wil unlock the pod door and lift the pod lid clearto allow the cassette to be remove or the wafers to be removed.

Easy installation

and operations

Four programmable

Interlock signals

Features and Benefits

- Support SEMI E19.4 compliant 200mm wafer andreticle SMIF pods
- All electrical system with field programmable application software
- Pod Clamp prevents shell from being removed for carrier logistic integrity
- Optional SMIF pod ID readers -RFID, IR (Smart) tag available.
- Optional SECS communication board available to connect to the FAB MES system
- Wafer protrusion sensors protect reticles/wafers duringpod closing operation

Optional wafer mapper ISO Class 1 cleanliness

Specifications

SMIF Pod	SEMI E19.4
Weight	23 Kg
Load Capacity	12 Kg
Size	370mm W x 467mm D x 700mm H
MTBF	50,000 cycles
MTTR	Less than 1 hour
Power	100 -240 VAC 1 amp Max 50/60 Hz
Communication	TSerial,Optional SECS I/II
SMIF Pod ID	RFID
Options	IR (Smart Tag)-8200 or 8400 series Hermos RFID

PLS 200

Product Introduction

The PLS 200 is a Table Top Stand-alone 200 mm SMIF pod opener. Opens the SMIF pod toallow the SMIF pod lid to be removed by the operator to access the cassette or wafers formanually loading or unloading. Ideal for use with tools within a SMIF fab that require thecassettes to be loaded by manual operations if the OEM tool cannot be automated with SMIFload ports.

Features

- Ultra small footprint saves valuable FAB floor space
- Support SEMIE19.4 compliant 200mm wafer and reticle SMIF pods
- All electrical system
- ISO Class 1 cleanliness
- Optional IR or RF ID read/write
- LED Statue Indicator





Specifications

SEMI E19.4
6.5 Kg
12 Kg
340mm W x 430mm D x 119mm H
50,000 Cycles
Less than 1 hour
100-240 VAC 1 amp Max 50/60 HZ
Serial
SECS I/II
RFID
IR (Smart Tag)- 8200 or 8400 series Hermos RFID ntellion Reader



Integrated SMIF Load ports PLM 200W SMIF Pod Opener

Product Introduction

Fortrend PLM-200W is a simple, reliable pod opener designed to open 200mm SMIF pods by lifting the pod lid. Wafers remain in a sealed micro-environment where they can be accessed by a process tool'srobot. Active airflow keeps the sealed micro-environment in better than ISO class-1 cleanlinessDesigned for quick installation and removal the PLM interfaces easily with most semiconductor toolsAn integrated wafer protrusion sensor and provisions for tool interlock signals further prevent the poccover from closing on protruding wafers. Active pod present sensor and pod base/cover stictiondetection algorithm detect the presence of the SMIF pod and faulty SMIF pods prevent mistaken podoperations assures optimal performance of the tools. Optional E84 COMM Board for E84 Handshake isOEM tool does not have the capabilities.

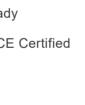
Features and Benefits

- Class 1 cleanliness withactive self-clean airflow design
- All electrical system with field programmable application software
- Substrate protrusion sensors protect reticles/wafers during operation
- Four programmable Interlock signals CHT/AGV Ready
- Wafer/Reticle protrusion sensor

Specifications

Options

- Support SEMI compliant 200mm wafer and reticle SMIF pods
- Easy installation to all existing
- C Optional SEMI E63 Bolt -MInterface Mount
- Static dissipative transparent panels
 © SEMI S2,S8, CE Certified



Weight 23 Kg 431.2mm W x 421.2mm D x 770.2mm H Size Cycle Time <10 Seconds to Open or Close SMIF Pod MTBF 50,000 cycles MTTR Less than 1 hour Power 24VDC 1amp or 100-240 VAC 50/60Hz 1amp. Communication TCPIP- Fortrend HEX Serial-Fortrend HEX Serial-Fortrend HEX

Serial-Versaport ASCII Serial-SECS I/II

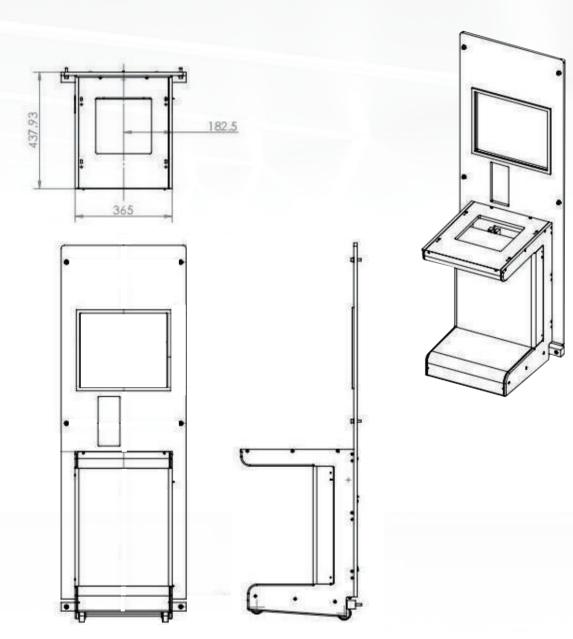


2x PLM 200W on Bolts interface mounts

PLM LOAD PORT

Product specification

PLM LOAD PORT is the installation bracket of the PLM series machine. Its design meets the SMEI standard. The bracket and machine split modular design subsequent demolition and maintenance upgrade is simple and convenient.





PLM 200UL

Product Introduction

Fortrend PLM-200UL is an Uitra Low Pod 200mm SMIF Opener designed to be integrated into OEVtools front end to make the tool SMIF compatible. The SMIF pods are manually loaded to the load portThe PLM 200UL will automatically unlock the SMIF pod and lift the pod lid clear of the cassette. The cassette can be programmed to move towards the OEM robot to reduce the distance to the wafersActive airflow keeps the sealed micro-environment in better than ISO class-2 cleanliness. An integratedwafer protrusion sensor and provisions for tool interlock sianals further prevent the pod cover from closina on protrudina wafers,Active pod present sensor and pod baselcover stiction detectional gorithm detect the presence of the SIMIF pod and faulty SMIF pods prevent mistaken pod operations assures optimal performance of the tools.

Features

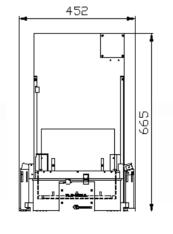
- Small footprint low height ideal for upgrading Open stage tooling to SMIF compatible tooling.
- SO Class 2 or better cleanliness with active self-clean airflow design.
- Lifts the Pod shell leaving the Wafer cassette ih a sealedmini-environment
- Pod base moves forward to present wafefs closer to aidrobot pick up and drop off.
- All electrical system with field programmable application software
- Four programmable Interlock signals
- Pod present and wafer protrusion sensors
- SEMI S2 and S8 standards and CE certified
- Mounts directly into a process Tool or to a manual load port adaptor to convert open station to a SMIF compatible station.
- Optional Wafer Mapper Sensor

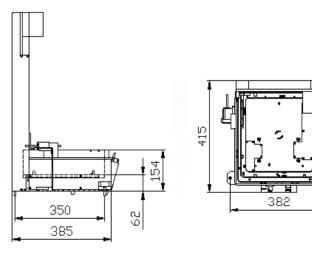


PLM 200UL Specifications

Wafer size	200 mm (8 inch)
Dimension	351W x 414D x 524H mm
Elevator Stroke	240 mm
Load capacity	5.4kg
Pod Types	SEMI 200mm Cassette
Pod interface	SEMI E19.4 with pod guide exceptions
Power requirement	110V/220V 3A/1.4A 50/60Hz
Weight	18kg without Pod
Open Pod	< 12 seconds
Close Pod	< 10 seconds
MCBF	50,000 cycles
MTTR	< 1 hour
Pod PIP sensor	1 set
Wafer Protrusion sensor	1 set
Cassette Present sensor	1 set
Communication	Parallel and/or Serial
Communication (Optional)	EIA-RS232C(SECS I)
ID device (Optional)	RF ID module or IR Link
Operation	Local operation or Host comm

C Layout Drawing







C

PLM-150W-OHT & PLM-200W-OHT (Standard)

Product Introduction

PLM is a relatively mature box. It is equipped with a sensor compatible with 6 -inch and 8 -inch wafer box to detect it. It can accurately detect the round state of the POD box. PLM can be connected with a variety of devices, and the rich feature options provide more solutions for the client's production line upgrade.

Features and Benefits

- The standard PLM-200W-OHT device is fully in line with SEMI standards and has high-throughability and compatibility
- The original factory is equipped with a MAPPING system, compatible with 150/200mm wafers, can detect problems such as stacks, oblique films, and eliminate risk of collision
- A variety of customized components that are available to meet different working conditions on the scene, such as whether to connect the cars.



Specifications

50/200 mm(SMIF)
91mm W x 364mm D x 815mm H
5 Kg(Depends on configuration)
C 24V
0W
luminum alloy, stainless steel (SUS 304)
60 dBA
erial EIA-RS232C,Parallel I/O
EX. SECSA
lass 1@0.lμm
60 2
he ID read and write device is equipped with an RFID module or Irlink



PLM-150W-OHT&PLM-200W-OHT(widened)

Product Introduction

PLM-200W-OHT is the latest machine of the Tianghe that is developing and upgraded. Compared with the original machine, there are more secure space for docking with Tiangham. Its transformation meets the safety needs of domestic and foreign cars.

Features and Benefits

- The standard PLM-200W-OHT device is fully in line with SEMI standards and has high-throughability and compatibility
- The original factory is equipped with a MAPPING system, compatible with 150/200mm wafers, can detect problems such as stacks, oblique films, and eliminate risk of collision
- A variety of customized components that can be used to deal with different working conditions on the scene, such as: Do you need to connect to the car



Specifications

Pod/WAFER size	150/200 mm(SMIF)	
Size	491mm W x 468mm D x 815mm H	
Weight	40 Kg(Depends on configuration)	
Rated voltage	DC 24V	
Rated power	120W	
The main material	Aluminum alloy, stainless steel (SUS 304)	
Noise level	< 60 dBA	
Communication	Serial EIA-RS232C , Parallel I/O	
Communication protocol	HEX. SECSA	
Cleanliness	Class 1@0.lµm	
Cleanliness	ISO 2	
Options	The ID read and write device is equipped with an RFID module or Irlink	

 \sim 28



SMIF OHT Load Port Manual Station

Product Introduction

The 200mm OHT load port station is designed to integrate with the FAB OHT system to allowSMIF pods to be loaded and removed from the OHT system. This standalone system islocated below the OHT track system for SMIF pods to be dropped off or picked up. Fullyintegrated with a E84 handshake and SECS I/II communication to the FAB MES system.

Features and Benefits

- © Dual SEMI E19.4 200mm SMIF Pod load Ports
- Pod Present and Lid Sensors
- Pod RFID Tag Read/Writer
- Manual OHT load/Unload switch
- C Load port Status indicator light strip
- OHT Compatible
- GUI for setting up and configuration of station Hand held tablet
- Meets SEMI E84 and E110 requirements
- SEMI S2,S8 and CE certified.



Smart Load Port Station

Specifications

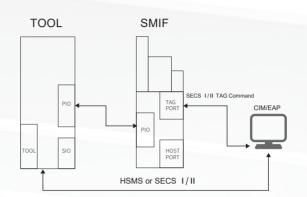
Pod size	200mm SMIF Pod
Number of Ports	2
Dimension	864mm W x 457mm D x1586mm H
Pod interface	SEMI E19.4
Power requirement	110V -240V 1A/1.4A 50/60Hz
SEMI E84	Parallel
Communication Host	EIA-RS232C(SECS I/II)Ethernet (Optional)
ID device	RF ID module IR (Smart) Tag reader optional
Operation	Host comm



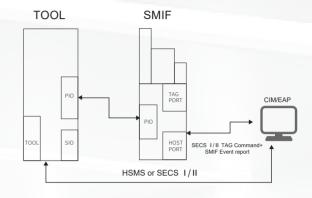


SMIF Tool Communication Scenario

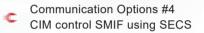
Communication Options #1
Tool control SMIF using PIO

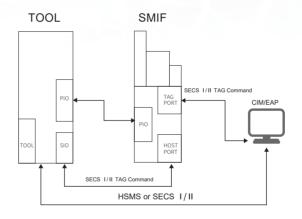


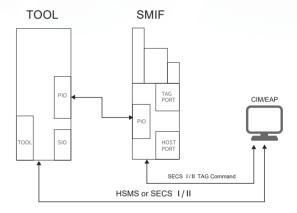
Communication Options #2
Tool control SMIF using PIO



Communication Options #3
Tool control SMIF using ASCII or SECSB

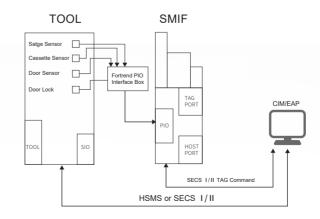


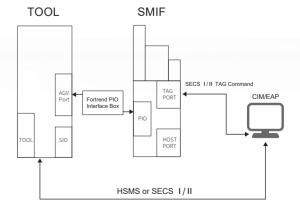




Communication Options #5
CIM control SMIF using SECS







 \sim 29 \sim 30





AMAT Endura Wide Body 2x PLUS 500S



AMAT Centura Wide Body 2x PUS 500S



AMAT Verity 2x PLUS 500Sx withMini-Environment



AMAT Centura Narrow Body 2x PLUS 500R

SMIF Load port Solutions Images



AMAT Endura Wide Body 2x PLUS 500S



AMAT Producer 2x PLUS 500R



Centrothermc.Activator 200 2x PLUS 500S



EBARA-FREX 200 4x PLUS 500S

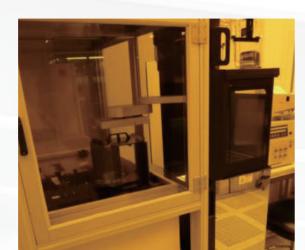




Screen Z12000 2x PLUS 500R



HitachiS-9200S 3x PLUS 500S



Nikon Opti Station PLUS 500R with Mini-Environment



Kokusai KE-DD-853 Furnace 2x PLUS 500CX

SMIF Load port Solutions Images



Lam Rainbow 4520 with 2x PLUS 500S with Mini-Environment



LAM-TCP-9408SE PIUS 500SL-&PLUS 500S-R



LAM TCP9608PTX 2x PIUS 500R



MattsOn ASPEN 2x PLUS 500Sx





Novellus-CONCEPTONE
2x PLUS 500S & Minienvironment



C NovelluS-PEPIRIDIA 2 PLUS 500S



Novellus-CONCEPT 2 2x
PLUS 500S and Mini-Environment



AMAT P5000 PLUS 500R

SMIF Load port Solutions Images



C Axcelis GSD 200E PLUS 500S



€ TEL UWO200Z 2x PLUS 500S



© Eaton NV-MC3 3x PLUS 500S



€ TEI Mark 8 Track 2x PUS 500S





C Ushio UV1250 PLUS 500S



© SPTS fxP Platform 2x PLUS 500R



Varian EHP220
2x PLUS 500S+ Mini-Environment



© SUSS MA200 Aligner 2x PLUS 500SD

SMIF Load port Solutions Images



€ TEL ACT 8 3x PLM 200UL



Akrion GAMA Wet Bench 2x PLUS 500S



TEL ACT 8 PLUS 500SL-L PLUS 500SR-R PLUS 500S-R



ONTO Imperia 2x PLUS 500S + Mini-Environment





ONTO Vertex 2x PLUS 500S + Mini-Environment



C Picosun Morpher 2x PLUS 500R





Mechatronics Wafer Sorter 4x PLM 200W on Boltnterface



MPI PLUS 500S



C ASM A400 DUO PLUS 500F



Rigaku TXRF 3760 PLUS 500S



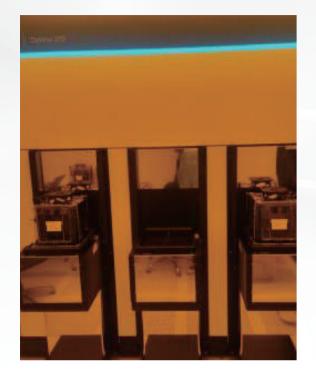
© Evatec Clusterline 200 2x PLUS 500R



MueTec Argos 200 3x PLM 200W on Bolt interface

ORPREND

SMIF Load port Solutions Images



MueTec DaVinci 200 3x PLM 200W on Boltnterface



© EVG 850 TB 4x PM 200W on BoltInterface



Micro Control 2x PLM 200W on Boltnterface



DISCO DFD6363
PLUS 500SDH(Heavy LiftArm)

SMIF Load port Solutions Images



RENA Wet Bench 4XPLM 500LM



C AIXTRON 2x PLUS 500R



Veeco Wafer Storm 2x PLM 200W on Bolt interface



CANON STEPPER 2x PLUS 500UX