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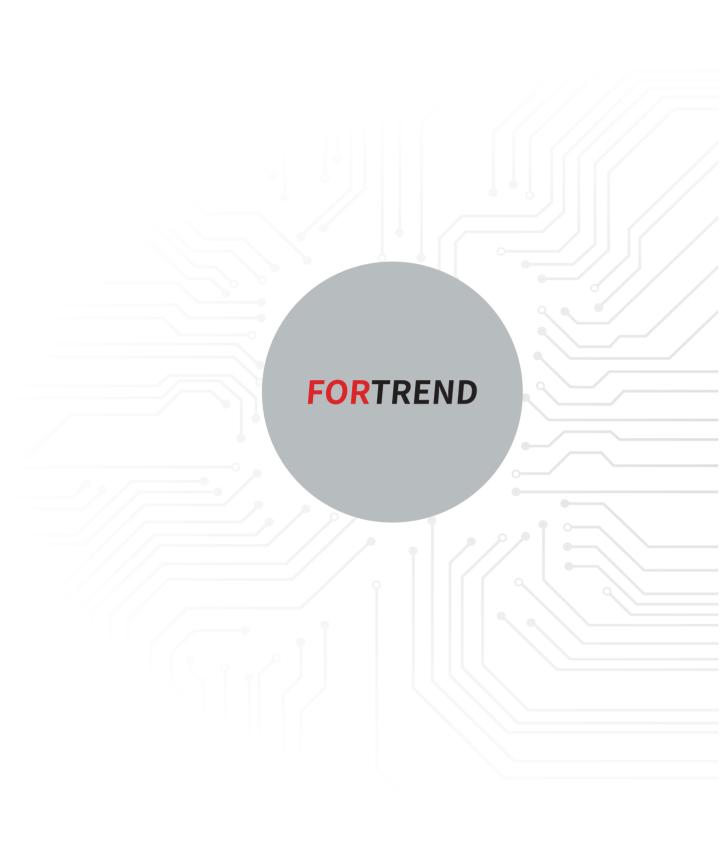
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CATALOGUE



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

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ABOUT FORTREND

Enterprise Introduction 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 PV industries. Fortrend SMIF products have become the crucial automation connections between process 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 curing tools set the industrial standards for wafer surface curing processes. Fortrend offers not only standard automation and thermal curing modules, but also custom solutions allowing us to meet 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 Interface) technology is a material isolation technology pioneered 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 SMIF technology provides 100x, 30x, and 10x better cleanliness wafer protections compared to open cassette transfers in ISO class-5, ISO class-4, ISO class-3 facilities, respectively. In addition, SMIF technology also enabled active material logistic controls to improve production management and profitability. Consequently, over 200 200mm SMIF manufacturing facilities have been constructed since the early 1990s.

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

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

EASY TO INTEGRATE

The fully automatic Fortrend Plus 500 transfers 200mm cassettes from SMIF pods onto process stages in 60 seconds or less. Thesystem 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 Plus500 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

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

OUTSTANDING SUPPORT

Installation, on-site training, worldwide supports and variety choices of economical long-termmaintenance 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	~	\checkmark					\checkmark
PLUS-150/500R	1840mm	~		\checkmark				\checkmark
PLUS-150/500SD	1840mm	\checkmark						\checkmark
PLUS-150/500SX	1840mm	\checkmark	\checkmark		\checkmark	\checkmark		\checkmark
PLUS-150/500SX-B	1709mm	\checkmark	\checkmark		\checkmark	\checkmark		\checkmark
PLUS-150/500CX	1520mm	\checkmark	\checkmark		\checkmark	\checkmark		\checkmark
PLUS-150/500TX	1840mm	\checkmark						\checkmark
PLUS-150/500UX	1210mm	\checkmark						\checkmark
PLUS-150/500SDH	1210mm	\checkmark					\checkmark	\checkmark
PLUS-150/500SH	1210mm	\checkmark	\checkmark				\checkmark	\checkmark
PLUS-150/500RH	1210mm	\checkmark		\checkmark			\checkmark	\checkmark
PLUS-150/500F	1770mm	\checkmark		\checkmark				\checkmark
PLUS-150/500LM	1530mm							\checkmark
PLM-150/200	815mm							\checkmark



FORTREND

	PLUS 150/500 S-X Standard Features
C	Straight arm Movement
c	Put the POD box level or vertical to the toolbage
c	Wafer mapping function
C	Progressive sensor of wafer chips
C	Cassette Present Sensor
C	SMIF pod in place Sensors
c	Info Pad Plugs
C	Left or Right I/O panel
C	Tool Mount
c	Dust cover

(F)

SPE	CIFICATIO	ONS

MODEL	PLUS 500S-L PLUS 150S-L	PLUS 500S-R PLUS 150S-R			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	184 cm(H)			
Wheel Height	6 to 15.3 cm tool depend	lent			
Cycle time (load)	<60 sec.(S Model without tilt and leave pod open after load)				
Cycle time (Unload)	<60sec.(S Model without tilt with pod left open after load)				
Arm Extension	390mm	Arm Z Trave	Arm Z Travel 135m		ı
Power	100 to 240 VAC @ 50/60	HZ Weight	Weight 93 H		(not including SMIFpod)
Power-on reset time	<20 Secs	SMIF Arm P	ayload	3.2 Kg	
Arm Extent axis precision	+0.1 mm Arm Elevator axis precision +0.1 mm				m
Gripper axis precision	±0.5 mm Tilt axis precision +0.15 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				



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



C	Dust cover	

SPECIF

	PLUS 500R-L	PLUS 500R-R	PLUS 500R-L-0	лит	PLUS 500R-R-OHT		
MODEL							
	PLUS 150R-L	PLUS 150R-R	PLUS 150R-L-OHT		PLUS 150R-R-OHT		
I/0 Panel	Left	Right	Left		Right		
E84 COMM Board	No	No	No Yes		Yes		
Dimensions	34.8cm(W)x49.8cm(D)x1	84cm(H)		1			
Wheel Height	6 to 15.3 cm tool depend	ent					
Cycle time (load)	<60 sec.(S Model withou	<60 sec.(S Model without tilt and leave pod open after load)					
Cycle time (Unload)	<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 Payload 3.2 Kg						
Arm Extent axis precision	+0.1 mm	+0.1 mm Arm Elevator axis precision +0.1 mm					
Gripper axis precision	±0.5 mm Wrist axis precision +0.15 degree						
Control	Manual (Front Panel): Re	emote (From OEM Tool or C	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						







C Dust cover

SPECIFICATIONS PLUS 500SD-R PLUS 500SD-L-OHT PLUS 500SD-L PLUS 500SD-R-OHT MODEL PLUS 150SD-L PLUS 150SD-R PLUS 150SD-L-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)x184cm(H) Wheel Height 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 leave pod open after load) Arm Extension 440mm 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 Payload 3.2 Kg Arm Extent +0.1 mm Arm Elevator axis precision +0.1 mm axis precision ±0.5 mm Gripper axis precision Control Manual (Front Panel): Remote (From OEM Tool or CIM): Pendant Communication RS232(Serial)-Fortrend HEX or ASCII or SECS Parallel I/0 interface IR(Smart) Tag-8200 or 8400 series; RFID Read/write Module - Fortrend or Hermos or Other RFID; Intellion Lot Track system Lot ID Reader Options



SPECIF

MODEL	PLUS 500SL-L PLUS 150SL-L	PLUS 500SR-R PLUS 150SR-R			PLUS 500SR-R-OH PLUS 150SR-R-OH		
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	<80ec.(S Model without tilt and leave pod open after load)					
Cycle time (Unload)	<80 sec.(S Model without tilt and leave pod open after load)						
Arm Extension	390mm	Arm Z Travel		135mm	Transit	80mm	
Power	100 to 240 VAC @ 50/60 HZ Weight 93 Kg (not including SMIFpod)				g SMIFpod)		
Power-on reset time	<20 Secs	SMIF Arm Pa	yload	3.2 Kg			
Arm Extent axis precision	+0.1 mm	+0.1 mm Arm Elevator axis precision +0.1 mm					
Gripper axis precision	±0.5 mm	±0.5 mm Tilt axis precision +0.15 degree					
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 8400 series; RFID Read/write Module - Fortrend or Hermos or Other RFID; Intellion Lot Track system					



ICATIONS

PLUS 500 SX-I	B
Standard Features	

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



SPECIFICATIONS

MODEL	PLUS 500SL-B	PL	US 500SR-B PLUS 500SL-B-OHT		PLUS 500SR-B-OHT	
I/0 Panel	Back		Back Back		ck	Back
E84 COMM Board	No		No	Yes		Yes
Dimensions	34.8cm(W)x49.8cm(D)x1	70.9cm(H	without Wheels)			
Cycle time (load)	<80 sec.(SL Model witho	out tilt and	leave pod open af	ter load)		
Cycle time (Unload)	<80 sec.(SL Model witho	<80 sec.(SL Model without tilt with pod left open after load)				
Arm Extension	305mm	305mm Arm Z Travel			135mm	
Power	100 to 240 VAC @ 50/60	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	+0.1 mm Arm Elevator axis precision +0.1 mm				
Gripper axis precision	±0.5 mm Tilt axis precision +0.15 degree				ee	
Control	Manual (Front Panel): Remote (From OEM Tool or CIM): 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; Inte	llion Lot Tracl	k system



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

	S	PEC	FICATIO	NS				
MODEL	PLUS 500CL-L PLUS 150CL-L		S 500CR-R S 150CR-R		JS 500CL-L-OHT JS 150CL-L-OHT		PLUS 500CF PLUS 150CF	
I/0 Panel	Left		Right		Left		Right	
E84 COMM Board	No		No		Yes		Yes	
Dimensions	34.8cm(W)x49.8cm(D)x1	152cm(H)						
Wheel Height	6 to 15.3 cm tool depend	lent						
Cycle time (load)	<80 sec.(S Model without	it tilt and le	eave pod open afte	er load)				
Cycle time (Unload)	<80 sec.(S Model without	it tilt and le	eave pod open afte	er load)				
Arm Extension	390mm		Arm Z Travel		40mm		Transit	80mm
Power	100 to 240 VAC @ 50/60 HZ		Weight		93 Kg (not includi	ng SN	/IF 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 precisi	on	+0.15 degree			
Control	Manual (Front Panel): R	emote (Fro	om OEM Tool or C	IM): Pe	ndant			
Communication interface	RS232(Serial)-Fortrend	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 RFI	D;			





PLUS 150/500 TX-X Standard Features	(
Straight arm Movement with cassette able to rotate up to 359°	2
C Put the POD box level or vertical	to the toolbage
C Wafer mapping function	
C Progressive sensor of wafer chip	os
C SMIF pod in place Sensor	
Info Pad Plugs	
C Left or Right I/O panel	
C Tool Mount	
C Dust cover	

P

	SF	PECIF	ICATIO	١S		
MODEL	PLUS 500TL-L PLUS 150TL-L		S 500TR-R S 150TR-R	PLUS 500TL-L PLUS 150TL-L		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	184cm(H)				
Wheel Height	6 to 15.3 cm tool depend	lent				
Cycle time (load)	<60 sec.(The pod remain	ns open aft	er loading)			
Cycle time (Unload)	<60 sec.(The pod remain	ns open aft	er loading)			
Arm Extension	390mm		Arm Z Travel		135mm	
Power	100 to 240 VAC @ 50/60) HZ	Weight		93 Kg (r	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	n
Gripper axis precision	±0.5 mm		Wrist axis prec	ision	+0.15 d	egree
Control	Manual (Front Panel): Re	emote (Fro	m OEM Tool or C	IM): Pendant		
Communication interface	RS232(Serial)-Fortrend	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 Track	csystem



	SF	PECIF	ICATIO	NS		
MODEL	PLUS 500UL-L PLUS 150UL-L		S 500UR-R S 150UR-R	PLUS 500UL- PLUS 150UL-		PLUS 500UR-R-OHT PLUS 150UR-R-OHT
I/0 Panel	Left		Right	Left		Right
E84 COMM Board	No		No	Yes		Yes
Dimensions	59.2cm(W)x42cm(D)x121	cm(H)				
Wheel Height	6 to 15.3 cm tool depende	ent				
Cycle time (load)	<80 sec.(S Model without	tilt and lea	ave pod open afte	r load)		
Cycle time (Unload)	<80 sec.(S Model without	tilt and lea	ave pod open afte	r load)		
Arm Extension	390mm		Arm Z Travel		40mm	
Power	100 to 240 VAC @ 50/60 HZ		Weight		93 Kg (r	not including SMIFpod)
Power-on reset time	<20 Secs		SMIF Arm Pay	oad	3.2 Kg	
Arm Extent axis precision	+0.1 mm		Arm Elevator axis precision		+0.1 mr	n
Gripper axis precision	±0.5 mm		Tilt axis precisi	on	+0.15 d	egree
Control	Manual (Front Panel): Re	mote (Fror	m OEM Tool or Cl	M): Pendant	-	
Communication interface	RS232(Serial)-Fortrend H	IEX or ASC	CII or SECS Paral	lel I/0		
Lot ID Reader Options	IR(Smart) Tag-8200 or 84 RFID Read/write Module			er RFID; Intellior	Lot Track	system



FORTREND



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



SPECIFICATIONS

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	170.9cm(H without Wheels)		
Wheel Height	6 to 15.3 cm tool depend	lent		
Cycle time (load)	<60 sec.(SDH Model and	d leave pod open after load)		
Cycle time (Unload)	<60 sec.(SDH Model and	d pod left open after load)		
Arm Extension	390mm	Arm Z Travel	131mm	
Power	100 to 240 VAC @ 50/60 HZ	Weight	93 Kg (not including SMIFpod)
Power-on reset time	<20 Secs	SMIF Arm Pay	load 7.5 Kg	
Arm Extent axis precision	+0.1 mm	Arm Elevator axis precision	+0.1 m	m
Gripper axis precision	±0.5 mm			
Control	Manual (Front Panel): Re	emote (From OEM Tool or C	IM): Pendant	
Communication interface	RS232(Serial)-Fortrend	HEX or ASCII or SECS Para	llel I/0	
Lot ID Reader Options		400 series; Intellion Lot Tra - Fortrend or Hermos or Otl		



- C Wafer protrusion sensor
- Cassette Present Sensor
- C SMIF pod in place Sensors
- C SMIF pod Present Sensor
- C Info Pad Plugs
- C Left or Right I/O panel
- C Tool Mount
- C Dust cover

MODEL	PLUS 500SH-L	PLUS 500SH-R	PLUS 500SH-L-O	HT 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	70.9cm(H without Wheels)	·	·
Wheel Height	6 to 15.3 cm tool depend	ent		
Cycle time (load)	<60 sec.(S Model without	t tilt and leave pod open afte	er load)	
Cycle time (Unload)	<60 sec.(S Model without	t tilt with pod left open after	load)	
Arm Extension	390mm	Arm Z Travel	1:	35mm
Power	100 to 240 VAC @ 50/60	HZ Weight	9:	3 Kg (not including SMIFpod)
Power-on reset time	<20 Secs	SMIF Arm Pay	load 7	.5 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 degree
Control	Manual (Front Panel): Re	mote (From OEM Tool or C	M): Pendant	
Communication interface	RS232(Serial)-Fortrend H	EX or ASCII or SECS Para	llel I/0	
Lot ID Reader Options	IR(Smart) Tag-8200 or 84 RFID Read/write Module	400 series; - Fortrend or Hermos or Oth	er RFID; Intellion Lot	Track system





SPECIFICATIONS



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



SPECIFICATIONS

MODEL	PLUS 500RH-L	PLUS 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)x1	170.9cm(H without Wheels)		
Wheel Height	6 to 15.3 cm tool depend	lent		
Cycle time (load)	<60 sec.(R Model leave	pod open after load)		
Cycle time (Unload)	<60 sec.(R Model pod le	ft open after load)		
Arm Extension	305mm	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 7.5 Kg	
Arm Extent axis precision	+0.1 mm	Arm Elevator a	axis precision +0.1 m	ım
Gripper axis precision	±0.5 mm	Wrist axis pred	tision ±0.15	degree
Control	Manual (Front Panel): Re	emote (From OEM Tool or C	IM): Pendant	
Communication interface	RS232(Serial)-Fortrend	HEX or ASCII or SECS Para	llel I/0	
Lot ID Reader Options	IR(Smart) Tag-8200 or 8 RFID Read/write Module	400 series; - Fortrend or Hermos or Otl	ner RFID; Intellion Lot Trac	k system



Product Introduction

- Features
- C ISO Class 2 or better cleanliness with active self-clean air flow design
- C All electrical system with field programmable application software
- C Wafer Mapping Sensor (Present, Cross Slot)
- C 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
- C Mounts directly into a process Tool usinga 300mm Bolts interface to SEMI
- E63 to convert open station to a SMIF compatible station.
- C SEMI E84 hand-off forOHT pod delivery

Specifications C

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-RS232



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 thecassette.

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



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	_
	-
	_
2C (SECS I/II)	



PLUS 500LM

PLUS 150/500 F



Product Introduction C

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

- C Small footprint saves valuable FAB floor space
- C 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 C
- C All electrical system with field programmable application software
- C Pod Present Sensor
- C Wafer Protrusion Sensor
- C Wafer Mapper
- C SEMI E19.4, S2 and S8 standards and CE certified Teach Pendant
- C Teaching machine
- C Optional Universal Floor Mount.
- C Optional RFID reader/writer
- C Optional IR reader/writer
- C Used for ASMA400Classic and DUO system
- C 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



PLUS 500F SMF Docked to A400 Furnace

POD/Wafer Size	200 mm
Overall, Height	710mm W
Robot arm payload	8 KG
Weight	185 KG(De
Rated voltage	AC 220V
Rated power	2200W
The main material	Aluminum
Noise level	< 75 dBA
Communication	EIA-RS232 Parallel I/C
Communication protocol	ASCII、 TC
Optional options	iD read/wri
Cleanliness	ISO Class
Pod Interface	SEMIE19.4
Throughput	70 sec load
Working Temperature	0 ~ 40°C
Working Humidity	5% ~ 90%



x 660mm D x 1770mm H

Depends on configuration)

alloy, stainless steel (SUS 304)

32C, SECS I/II O,SEMI E23-96, IEEE-TTL

CP/P、ASCII、TCP/P

rite device with RFID module or IR Link

2

4

ad & 90sec unload

POM 150 DL & POM 200 DL

Product Introduction

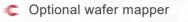
The POM 150 and POM 200 are Table Top Stand-alone 200 mm SMIF pod opener. Opens theSMIF pod to allow the cassette or wafers to be manually loaded or unloaded. Ideal for usewith tools within a SMIF fab that reauire the cassettes to be oaded by manual operations if the OEM tool cannot be automated with 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.

Features and Benefits

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

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



C ISO Class 1 cleanliness

C Easy installation

and operations

Interlock signals

C Four programmable

1



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

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

Specifications

SMIF Pod SEMI E19.4 Weight 6.5 Kg Load Capacity 12 Kg Size 340mm W x 430mm D x 119mm H
Load Capacity 12 Kg
Size 340mm W x 430mm D x 119mm H
MTBF 50,000 Cycles
MTTR Less than 1 hour
Power 100-240 VAC 1 amp Max 50/60 H
Communication Serial
Options SECS I/II
SMIF Pod ID RFID
Options IR (Smart Tag)- 8200 or 8400 ser





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ries 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 thepod 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
- C All electrical system with field programmable application software
- C Substrate protrusion sensors protect reticles/wafers during operation
- C Four programmable Interlock signals C OHT/AGV Ready
- C Static dissipative transparent panels C SEMI S2,S8, CE Certified
- C Wafer/Reticle protrusion sensor

- C Support SEMI compliant 200mm wafer and reticle SMIF pods
- C Easy installation to all existing tools
- C Optional SEMI E63 Bolt -MInterface Mount



Specifications

Weight	23 Kg		
Size	431.2mm W x 421.2mm D x 770.2mm H		
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		
Options	Serial-Fortrend HEX Serial-Versaport ASCII Serial-SECS I/II		

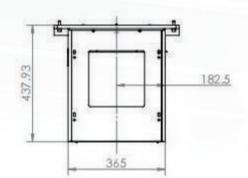


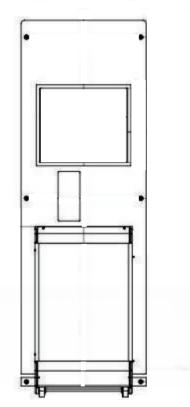
2x PLM 200W on Bolts interface mounts



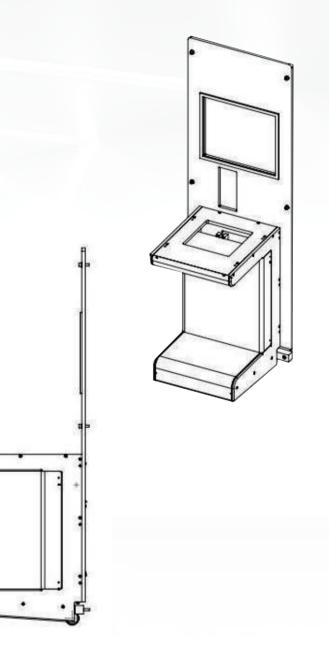
Product specification

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 detectionalgorithm detect the presence of the SIMIF pod and faulty SMIF pods prevent mistaken pod operationsassures optimal performance of the tools.

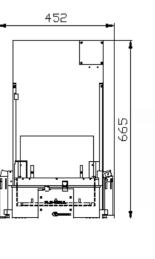
Features

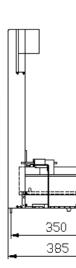
- C Small footprint low height ideal for upgrading Open stage tooling to SMIF compatible tooling.
- C SO Class 2 or better cleanliness with active self-clean airflow design.
- C Lifts the Pod shell leaving the Wafer cassette ih a sealedmini-environment
- C Pod base moves forward to present wafefs closer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



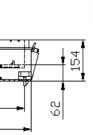
Wafer size	200 mm (8 inch)
Dimension	351W x 414D x 524H mm
Elevator Stroke	240 mm
Load capacity	5.4kg
Pod Types	SEMI 200mm Cassette
Pod interface	SEMI E19.4 with pod guide exceptions
Power requirement	110V/220V 3A/1.4A 50/60Hz
Weight	18kg without Pod
Open Pod	< 12 seconds
Close Pod	< 10 seconds
MCBF	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

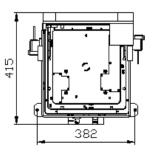
C Layout Drawing













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

- C The standard PLM-200W-OHT device is fully in line with SEMI standards and has high-throughability and compatibility
- C 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
- C A variety of customized components that are available to meet different working conditions on the scene, such as whether to connect the cars.



Specifications

Pod/WAFER size	150/200 mm(SMIF)
Size	491mm W x 364mm D x 815mm H
Weight	35 Kg(Depends on configuration)
Rated voltage	DC 24V
Rated power	60W
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



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

- C The standard PLM-200W-OHT device is fully in line with SEMI standards and has high-throughability and compatibility
- C 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
- C 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
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 equip





S 304)
ipped with an RFID module or Irlink

SMIF OHT Load Port Manual Station

Product Introduction C

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

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



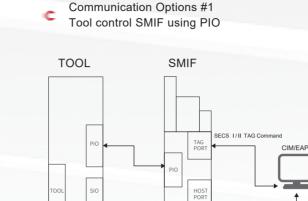
Smart Load Port Station

Specifications

Pod size	200mm SMIF Pod	-
Number of Ports	2	1.1.2.
Dimension	864mm W x 457mm D x1586mm H	2
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	

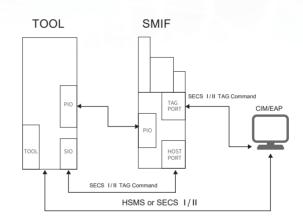




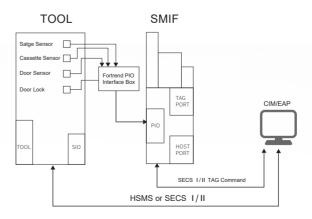


Communication Options #3 C Tool control SMIF using ASCII or SECSB

HSMS or SECS I/II



Communication Options #5 C CIM control SMIF using SECS

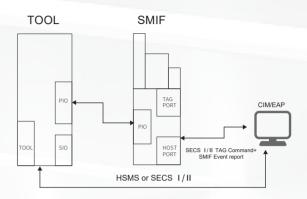




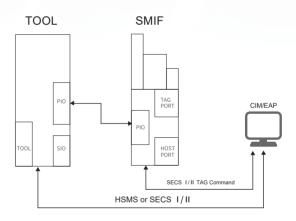
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C

Communication Options #2 Tool control SMIF using PIO

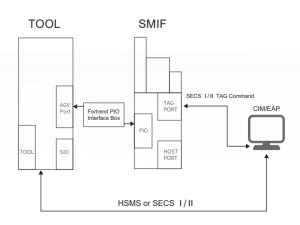


Communication Options #4 CIM control SMIF using SECS



C

Communication Options #6 Tool control SMIF using AGV Ports









AMAT Endura Wide Body 2x PLUS 500S C



AMAT Verity 2x PLUS 500Sx withMini-Environment C



AMAT Centura Wide
Body 2x PUS 500S



AMAT Centura Narrow C Body 2x PLUS 500R



AMAT Endura Wide Body 2x PLUS 500S C



C AMAT Producer 2x PLUS 500R







Centrothermc.Activator 200 2x PLUS 500S



C EBARA-FREX 200 4x PLUS 500S

SMIF Load port Solutions Images





C Screen Z12000 2x PLUS 500R



 Nikon Opti Station PLUS 500R with Mini-Environment



HitachiS-9200S
3x PLUS 500S



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



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



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





C LAM TCP9608PTX 2x PIUS 500R



C MattsOn ASPEN 2x PLUS 500Sx





SMIF Load port Solutions Images



Novellus-CONCEPTONE 2x PLUS 500S & Minienvironment C



C NovelluS-PEPIRIDIA 2 PLUS 500S



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



C AMAT P5000 PLUS 500R



C Axcelis GSD 200E PLUS 500S



C TEL UWO200Z 2x PLUS 500S





C Eaton NV-MC3 3x PLUS 500S





C TEI Mark 8 Track 2x PUS 500S







C Ushio UV1250 PLUS 500S



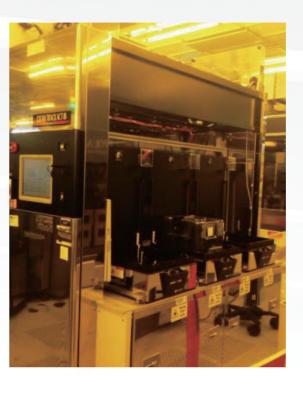
C SPTS fxP Platform 2x PLUS 500R



Varian EHP220
2x PLUS 500S+ Mini-Environment



C SUSS MA200 Aligner 2x PLUS 500SD



C TEL ACT 8 3x PLM 200UL



C Akrion GAMA Wet Bench 2x PLUS 500S











ONTO Imperia 2x PLUS 500S + Mini-Environment







ONTO Vertex 2x PLUS 500S
+ Mini-Environment



Mechatronics Wafer Sorter 4x PLM
200W on Boltnterface







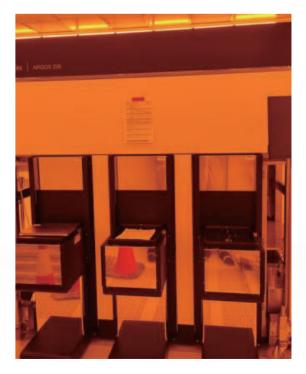
C ASM A400 DUO PLUS 500F









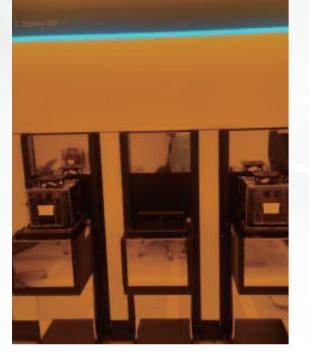




MueTec Argos 200 3x PLM 200W on Bolt interface







C MueTec DaVinci 200 3x PLM 200W on Boltnterface



C Micro Control 2x PLM 200W on Boltnterface



C EVG 850 TB 4x PM 200W on BoltInterface



C DISCO DFD6363 PLUS 500SDH(Heavy LiftArm)



C RENA Wet Bench 4XPLM 500LM



C AIXTRON 2x PLUS 500R





Veeco Wafer Storm 2x PLM
200W on Bolt interface



