

Wetprocess, CMP, diffusion and handling products.

# Fab brochure



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**Robot Refurbishment**

High performance bearings require stringent procedures and quality control.



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Process Boats &  
Storage Boxes  
The most valuable  
product in the  
semiconductor and  
electronics industry.



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Collars  
and Discs

discs offer the same  
advantages at the  
source end of the furnace.

## Diffusion Furnace Collars and Discs

It's no secret that more and more companies are turning to Hiltex collars and discs. And it's hardly surprising either, when you consider Hiltex's reputation for meeting the very toughest quality standards.

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# Semitool & Immersion Heaters

The Immersion Fluid Heaters are used to heat fluid baths to a constant temperature and for other liquid heating applications in the semiconductor, pharmaceutical, and biomedical industries that require the direct application of clean heat evenly and efficiently.

These immersion heaters providing for a maximum of process work area and reducing the amount of chemicals consumed. These heaters feature all-PFA wetted surfaces, and are designed for use in tanks made of PVDF, PFA, or quartz. Rugged and durable, they're designed to stand up to aggressive process chemistries, as well as deionized water



## Specifications:

- Dim.: 13-3/4" (L) x 9" (W) x 7/8" (H)
- Platinum Tipped Safety Ground Wire
- 15' Lead Wire
- Type J Shielded Over-Temp. T/C
- Bottom Perforated Floor Grid

## Making your SAT work longer and serve you better!

Replaces Semitool® obsolete PCB electronics and 302 controller with modern Siemens touch panel and PLC technology. Gives you a new developed PLC driven software platform that is fully configurable and can also integrate your existing EPD system. Replacement of the existing hardware (tubing, valves, electro-pneumatic valves etc.) is part of the refurb kit.

Supported by our experienced equipment engineers, SPS-Europe offers full refurbishment of your existing Semitool® SAT, SST, SRD or Sirius tool.

- Complete refurbishment of your Semitool®
- PLC and software upgrade
- Optional pump exchange Levitronix / Trebor 62
- Motor and servo control upgrade
- Replacement of CRT & LCD monitors to 15" touch panels
- SECS II/GEM or HSMS Interface

Replacement of the Semitool® drain block and valve manifold with a high-quality compact manifold block. Eliminates a single source supplier for spare valves.



# Bellow pumps & Fittings

## SUPER-300 Pillar Fittings™

Are rated as the most reliable fittings in the world, and are especially used for high-temperature, high-purity applications, featuring unparalleled safety by minimizing leakage. Enhanced from the original "Super Type" Fitting, the Super300 style fitting uses radial force as opposed to axial force to achieve high-sealing performance. The P-Series Super 300 Type Pillar Fittings consist of a body, sleeve, union nut and gauge ring. The added "gauge ring" not only secures the union nut more firmly to the fitting body, but also produces an audible "click" once the union nut has reached maximum tightening capacities. This eliminates insufficient or over-tightening. This seal mechanism made it possible to reduce the tightening torque to approx.  $\frac{1}{3}$  -  $\frac{1}{2}$  of other fittings in the market.

The maximum working temperature is 200°C, and the tube holding strength is over the burst pressure of tube.

NIPPON PILLAR produces the whole range from molding, processing, assembling and cleaning, consistently in the clean room at its own factory (authorized by ISO9001, ISO14001).

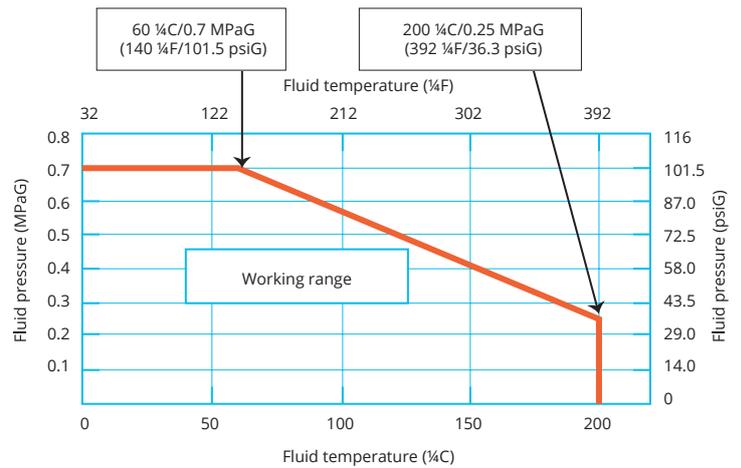
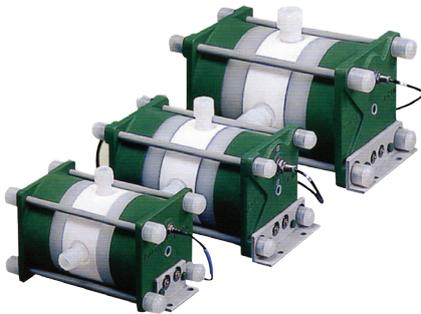
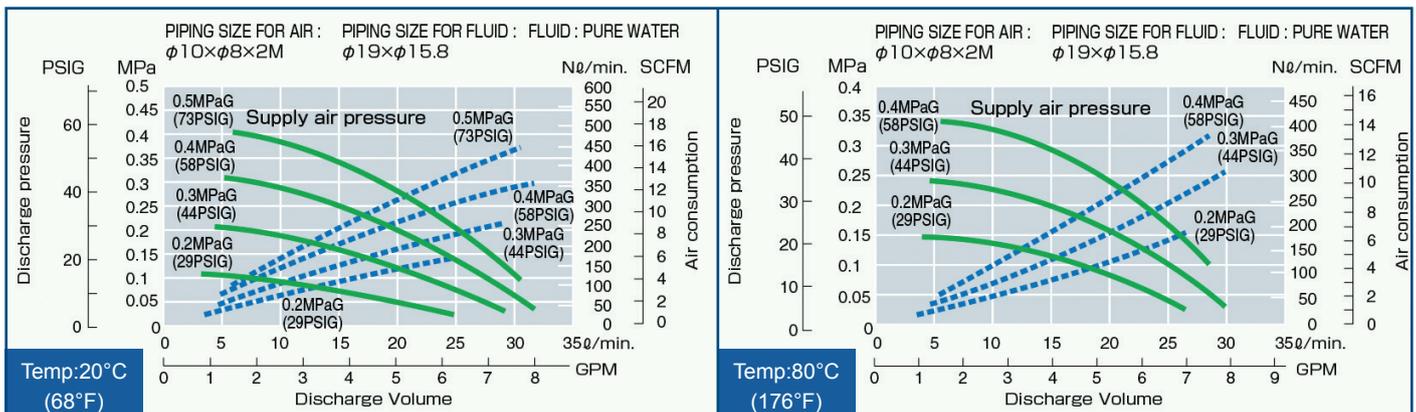


Fig. 2 Specifications of P Series Super 300 Type Pillar Fitting



## Bellow Pumps Performance Curves for PE-20MA(N)

HQ Performance — Air Consumption .....



## Bellow pumps

Highly reliable bellows pumps for applications where durability matters. Our PE-series bellows pumps have been specially developed for high-purity liquids in various temperatures and pressure applications. Why change a winning team?

The proprietary PTFE bellows of our PE-series pumps provide excellent durability and 1:1 pump replacement, as originally supplied with your system.

# In-Line Heaters

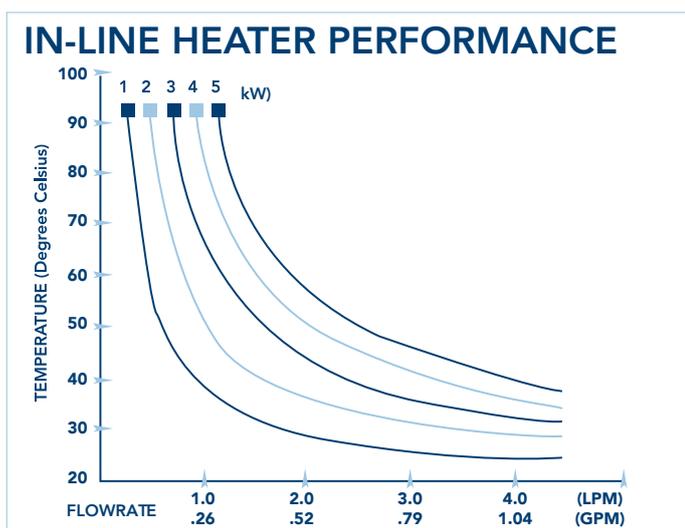
eSPro® series of Ultra-Pure In-Line Heaters are designed for use in industrial fluid heating applications such as semiconductor, solar cell wafer manufacturing, and other applications which require the most exacting standards of purity. Constructed of the highest-quality fluoropolymer materials, these heaters are custom designed and built for use with deionized water, acids, and other diverse process chemistries.

## Benefits

- Heated chemicals at the point of use
- High efficiency and purity
- High reliability and low maintenance
- Compact size for ease of installation
- No nitrogen purge required

## Maximum Heating Efficiency

eSPro® heating technology provides the most efficient thermal response of any ultra-pure fluoropolymer heater on the market. At the core of eSPro® heaters is our low mass, specialized heating coil with all PFA wetted surfaces. This patented heating element allows for a rapid response to process demands. Because of the low mass of the eSPro® heating element, In-Line Heaters are able to reach temperature set points in the shortest possible amount of time with a more even heat distribution.



## Reliability

eSPro® heaters have proven to be highly reliable and have many years of field-tested operation. All components of our In-Line Heaters are semiconductor

grade, selected to provide the highest purity mandated by the sensitive processes which they support.

## Features

- All-fluoropolymer wetted surfaces
- Microprocessor-based temperature controller available with Power-To-Flow® Plus for single-pass applications
- Heater sizes ranging from 1 to 12 kilowatts
- Most voltages available

## Designed and Built to Meet Tough Needs

The eSPro® In-Line Heaters are ideal for recirculation and point of use applications where maximum purity and compatibility are required. For ultra-pure applications that utilize deionized water or for applications where aggressive chemistries may be used, such as acids, solvents, and etchants, we offer heaters that are compatible to the process. All of these heaters are available with a variety of connection options and interfacing options to integrate with the customer's tooling and requirements. These series of heaters are available with a variety of control and safety devices that can be used to provide a complete heating solution for the customer.

## Compact

Our compact heaters have a minimal footprint for ease of integration. eSPro® In-Line Heaters typically are 10" to 30" tall and range from 6" to 12" wide depending on the power requirements, model, and options.

## Easy Installation/Easy Retrofit

eSPro® In-Line Heaters are available with a variety of mounting options and connection options, and can be built to customer specifications. eSPro® heaters can be ordered to fit a variety of existing configurations and systems. Consult the factory for any questions regarding connection options.

## PVDF & PFA or All PFA Wetted Surface

For applications requiring heated DI water, heaters with PVDF and PFA provide an effective heating solution. For applications utilizing aggressive process chemistries and temperatures over 140°C, all PFA wetted surfaces offer the highest level of purity and durability.



# In-Line Heaters

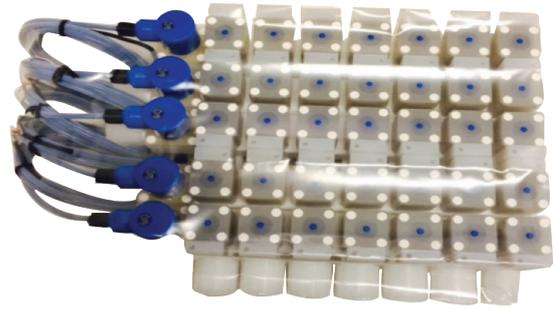
	Model Type	Fluoro-plastics as wetted	Generic overall dimensions
	SP-PH1 SP-PH5 SP-PH6 SP-PH7	PVDF Housing PFA Jacketed Heating Element	SP-PH1 – 5.8”L x 5.8”W x *VH SP-PH5 – 3.56”L x 3.56”W x *VH SP-PH6 – 3.0”L x 3.0”W x *VH SP-PH7 – 6.3”L x 6.3”W x *VH
	SP-PH2 SP-PH3	PVDF Housing PFA Jacketed Heating Element	SP-PH2 – 11.10”L x 7.0”W x 20.0”H SP-PH3 – 11.10”L x 7.0”W x 30.0”H
	SP-PHK SP-PHP	PVDF Housing PFA Jacketed Heating Element	SP-PHK – 4.31”L x 4.31”W x *VH SP-PHP – 6.25”L x 6.25”W x 14.5”H
	SP-PHL SP-PHM SP-PHN	PVDF Housing PFA Jacketed Heating Element	SP-PHL – 6.3”L x 6.75”W x 13.56”H SP-PHM – 6.3”L x 6.75”W x 20.5”H SP-PHN – 6.3”L x 6.75”W x 30.19”H
	SP-PHR	PFA Housing PFA Jacketed Heating Element	SP-PHR – 24”L x 3.5”H x 6”W
	SP-PHX SP-PHY	TFM Housing PFA Jacketed Heating Element	SP-PHX – 11.0”L x 6.75”W x 20.5”H SP-PHY – 12.82”L x 6.75”W x 28.5”H

\*VH = Variable Height

# Manifolds & Valves

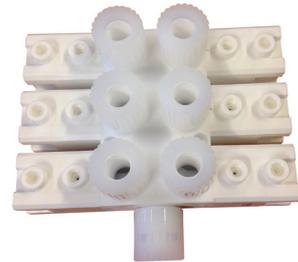
## Matrix Manifold

SPS-Europe develops and delivers special custom-designed Manifolds. The Matrix Manifold's specific design drastically improves your process quality, -flow and tool layout, making it far easier to maintain. This manifold is custom-designed for the Semitool® Raider Platform.



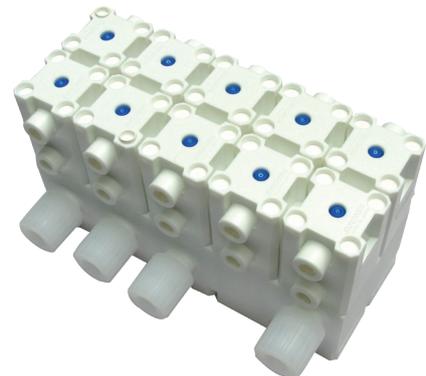
## Drain Manifold

SPS-Europe has developed a Drain Manifold with an optimized flow, and low-to-zero dead volume spaces. This improved, compact model with highest quality Valves is used in Semitool® Spray Tools (SAT, SST, Sirius) improving lifetime and process quality next to a lower maintenance cycle.



## Delivery Manifold

Another example of a custom-design manifold, improving process quality in a Semitool® (SAT & SST). Here the chemical- and cleaning path are divided to avoid chemical contamination in the process chamber during the drying process. Both fluid paths are secured by cross-plumbed valves at the top of the manifold.



- Withstanding pressure 750kPa
- Fluid temperature 15 up to 120 °C
- Wetted parts PTFE
- Tube size 3/4"

*Note: For solvent applications manifolds are made out of black PTFE material to ensure ESD conductivity*

## Chemical Resistant Valves

Chemical Resistant (CR) Valves offer chemical and corrosion control through a complete fluoroplastic design and construction. All wetted surfaces are manufactured from virgin PTFE. Pneumatic Actuator, Base and Bands are constructed from PVC (standard). The polymer components selected for our CR Valve line are specifically suited for use with ultrapure water, deionized water, solvents, chemicals and liquid flowing biomatter. Our PTFE Bellows-style valve stem and PTFE valve seat help ensure the valve self-flushes a wide variety of flowing media. Special custom configurations are available on request. These include: manifold valve assemblies with multiple ports and high ambient temperature pneumatic actuators.



# Flow Control

## Reflexion® LK upgrade kit, including installation:

Ideal for bubble or foaming chemistries either on the polisher or cleaner side of the tool.

Closed-loop flow controllers designed for use in a wide variety of high-purity liquids including DI water, harsh chemicals and CMP polishing slurries. Capable of controlling flow rates from 5 mL/min to 1250 mL/min at  $\pm 3\%$  accuracy of the 'set point' with a fast 3 second response time. Each controller module contains four primary components: Flow Meter, Flow Meter Electronics, Control Valve, and Control Valve Electronics. In operation, the user inputs a flow rate, 'set point', either manually or remotely via an analog signal. The flow meter's electronics continuously compares this set point value with the actual measured fluid flow rate and provides a continuous signal to modulate the control valve to maintain the desired fluid flow rate. Custom-designed and user-selectable PID firmware in the electronics insures the fastest response time and accuracy. Single display for the flowmeter and control valve.

Also suitable for 200 & 300 mm EBARA CMP Tools

### Features for the liquid flow controller:

- Less than 3 seconds response time  
(typically 2 seconds with most applications)
- Capable of controlling a wide range of flow with turndown as high as 100:1 controls flow rate within  $\pm 1\%$  of set point
- Broad application range with 2 types of control valves
- Excellent for fluid blending and/or dispense applications
- Compatible with UHP liquid chemicals, DI water and CMP slurries (slurry module with Pt cured Silicone tubing)
- Longevity with minimal upkeep  
(Pinch tube replacement every 3 years or longer on slurry module)
- Slim package customized for easy installation on CMP tools (includes shut-off valve)



*Mirra® and Reflexion® are registered trademarks of Applied Materials.*

# CMP Flow control

Slurry flow controller retrofit kits for most CMP tools including Mirra®, SpeedFam IPEC, Strasbaugh etc.

Complete retrofit kit, consisting of a High-Performance closed-loop flow controller, designed for use in wide variety of high-purity liquids including CMP polishing slurries. The kit contains all necessary parts.

## Features for the liquid Flow Controller:

- High accuracy - controls flowrate to within  $\pm 1\%$  of setpoint; ideal for fluid blending and/or dispense applications.
- Fast response 3 seconds (typically < 2 seconds for most applications).
- Broad application range with 2 types of control valves.
- Wide range of flow control capability; 5 mL/min - 12000 mL/min (turndown can be as high as 100:1).
- All PTFE/PFA wetted part construction-insures compatibility with CMP slurries (slurry module with Pt cured Silicone tubing).
- Low maintenance - modules featuring ultrasonic flowmeters with NO moving parts provide the ultimate in "uptime" (slurry module with pinch tube replacement cycle of 3 years or longer).



*Mirra® and Reflexion® are registered trademarks of Applied Materials.*



# CMP Pad Conditioners

Our CMP Pad Conditioners have been tested and proven in production by major semiconductor manufactures in USA, Europe, Taiwan and Korea. We have the capability to meet the needs of each customer by providing customized disks.

Our CMP disks are available in various production quantities, shapes and sizes for all CMP production platforms.

- Applied Materials Mirra and Mirra - Mesa
- EBARA EPO-113, 222, 333
- Strasbaugh DS-SP, 6ED
- Speedfam / IPEC

## CMP Processes:

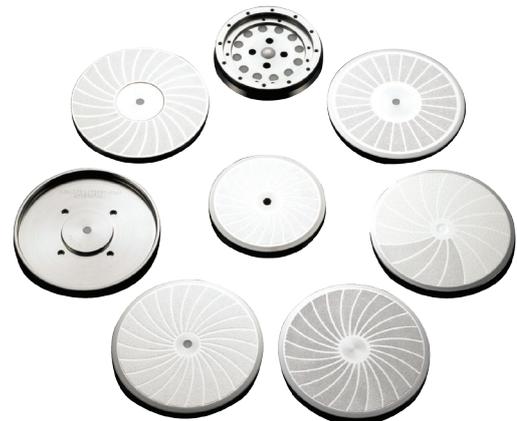
- Oxide CMP : BPSG, TEOS, SC
- Metal CMP : W, CU
- STI, PGI etc.

## Features:

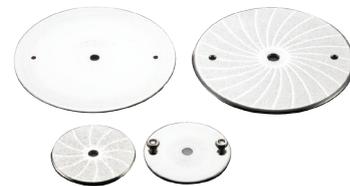
- Excellent Diamond Retention
- Longer Disk Life
- Increased Pad Life
- Significant Lowering of Micro Scratch

Saesol CMP pad conditioners are recommended by Dow Chemicals

*Mirra® and Reflexion® are registered trademarks of Applied Materials.*



AMAT Machine



Strasbaugh/Lam/Doosan Machine



EBARA Machine

# Retaining Rings Applied Mirra



SPM manufactures a wide variety of consumable components for CMP wafer processing equipment. All CMP products are packaged in an onsite clean room with appropriate marking, labeling and packaging.

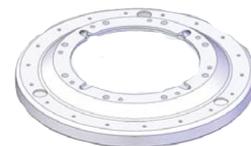
There are several critical areas of concern on any wafer retaining ring used for polish. One area in particular is the bottom surface of the ring that touches the polishing pad. It is critical for this area to be very flat.

SPM guarantees consistent flatness to +/-0.0002 of an inch. This guarantee helps prevent premature loss of product due to spitting of wafers. SPM was the key contributing manufacturer in qualifying PPS Techtron® as a replacement material over Delrin® in CMP retaining rings.

Our retaining rings manufactured from PPS Techtron® are yielding on the average four to five times the number of wafer passes resulting in a lower cost per wafer. With our material and manufacturing expertise we are constantly redesigning and re-qualifying newer, more resilient materials improving product life and reducing downtime.

## Refurbishment parts:

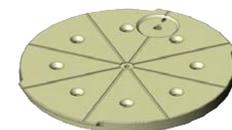
**Part number:** SPM-CMP-002320  
**AMAT Reference:** 0020-48871  
**Description:** OUTER CLAMP, AMAT, 300mm



**Part number:** SPM-CMP-002881  
**AMAT Reference:** 0020-79088  
**Description:** CARRIER PLATE, TITAN I



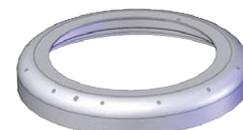
**Part number:** SPM-CMP-002883  
**AMAT Reference:** 0020-79093  
**Description:** GIMBAL FLEXURE, PPS, TITAN I, OXIDE



**Part number:** SPM-CMP-002885  
**AMAT Reference:** 0020-79086  
**Description:** MANIFOLD FLANGE, PET, TITAN I



**Part number:** SPM-CMP-002540  
**AMAT Reference:** 0020-79085  
**Description:** CLAMP, OUTER, TITAN I, PET



**Part number:** SPM-CMP-002882  
**AMAT Reference:** -  
**Description:** WPS CLAMP RING, TITAN I



**Part number:** SPM-CMP-002886  
**AMAT Reference:** 0020-79087  
**Description:** INNER CLAMP RING, MANIFOLD FLANGE, TITAN I



**Part number:** SPM-PPT-002893  
**AMAT Reference:** -  
**Description:** UPPER CLAMP, PERF PLATE, TITAN I, WAFER ABSENT



# Robot Refurbishment



High performance bearings require stringent procedures and quality control. Fala takes pride in superior workmanship and industry-leading after sales support.

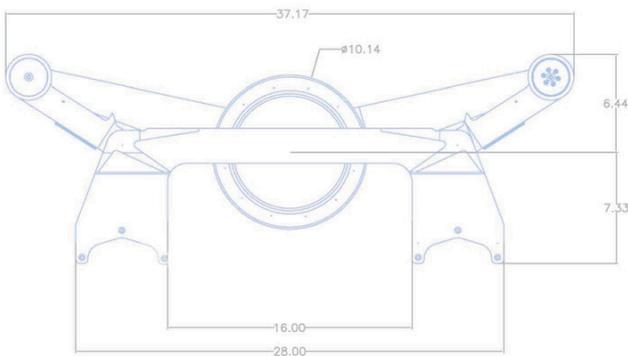
Quality begins with high grade raw materials coupled with strict incoming inspection. We use high stiffness stainless steel for pivots, high stiffness Cr - steel for all races and finely toleranced ceramic balls as load bearing elements. All bearings are tested for internal cross-section and rotational performance under mechanical load. Shields are precision-cut from high - grade non-magnetic stainless steel stock.

## Benifits:

- Increase bearing life
- Less tool downtime
- Lower particulate
- Increase yield
- Improve robot handling

## Upgrade OEM tools

- Robot Arms
- Bearings
- Housings
- Spindles
- Services



Endura™, Centura™, Producer™, Gigafill™, Ultima™, Opus™, HPTM, HP+™, VHPTM, VHP+™, XPTM and XP+™ are trademarks or federally registered trademarks of Applied Materials. SEZ™, Esanti™, DV-Prime™ and Da Vinci™ are trademarks or federally registered trademarks of LAM Research. Sparetech.com Inc. is not associated, affiliated, endorsed or approved by these companies.

# Wafer Sorters

Get the most compact Two-Cassette Sorter. The CTS series is designed for automatic sorting based on wafer ID's. The system consists of two automatic tilting load-ports , wafermap-sensors, optical wafer notch/flat-aligner and a linear-robot. With this system it is possible to split, merge, sort, compress wafer-lots or create individual wafer-mix as desired.

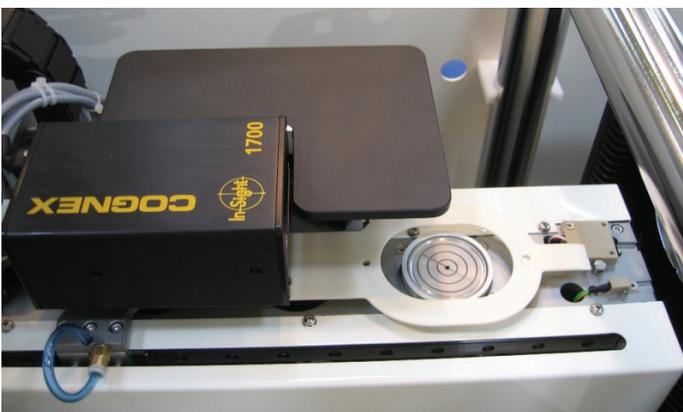
## CTS2015 Compact Two Cassette Sorter with (optional) OCR & Barcode reading

- Two cassette port system configured for 150 & 200 mm wafers, thickness from 350 um - 750 um
- Exposed parts sealed hard anodized
- Ceramic fork for wafer pick and place to minimize wafer contamination
- Front access for cassette loading
- Soft turn-mechanism to turn cassettes from vertical to horizontal position
- Optical Cassette mapping for wafer presence/absence
- Cross slotted wafer detection
- Computer: Industrial Panel-PC, 500MHz, 512MB Ram, 8 GB CF, 12.1" TFT-Flatpanel, 12.1 " Touchpanel, Keypoint, Mouse-Touch pad, RS232-port, Parallel-port, USB-port
- Operating System: TB-Ploner graphical user interface, WinXP-Embedded, (VisualC).
- Standart Functions: Sort Random, Xfer, Compress to Top by Slot, Compress to Bottom by Slot, Invert by Slot, Individual Sort-Function to program custom recipes.

*Optional available with Wafer Flip Function: Flip (invert) Wafer capability  
Optional Wafer-Alignment using non-contact LED/ CCD edge detector*



Also available as 4-cassette sorters



# Wafer Sorters

The WMS-Series is designed to read the WaferID's of a Waferlot. With this system all 25 wafers or individual wafers can be read for wafer tracking. The system is equipped with a wafer notch/flat-aligner, a wafer presence/absence sensor, two linear-axis and waferID Reader. The Mapdata can be sent over the GEM-Interface or via ASCII-File to the host.

On request the WMS is able to read also the front and the backside of a wafer. Models available for 100, 125, 150 and 200 mm wafers.

## Specifications WMS150 mm

- Vertical Single Wafer Handling
- Compact Footprint
- Min/max Wafer thickness 380 $\mu$  - 700 $\mu$
- No vacuum required
- Mechanical Wafer Alignment
- Insight 1720 Barcode/OCR Reading
- Suitable for operation with Thin Wafers



## Automatic Single Wafer Mover

Our AWM-Automatic Wafer Mover™ provides a table top platform for safe, worry-free, single wafer handling between two industry standard cassettes. Operators load the cassettes on to the stage and then can select a one-button-touch preset recipe run program, or they can direct the tool to map the wafers and then transfer wafers "manually" between cassettes.

The unique mapping end-effector detects and then safely moves a wafer from cassette to cassette. Standard AWM safety features include - wafer presence sensors, wafer protrusion sensors, cassette in place sensors, cross slot detection, double stack detection, emergency EMO switch, light tower and mapping logic software.

For 200mm MEMS customers, TSV customers and Taiko or double sided wafer handling applications where a normal Wafer Mover end effector cannot make contact with the backside of the wafer, we can now offer you integration of a 200mm mapping edge grip end-effector. This special end effector makes contact with the edge exclusion area of the wafer and grips the wafer during movement.



# End Effectors

## Vacuum grippers

Special 10 mm edge handling end effectors for handling both 6", 8" and 12" wafers.

### Key features

- Saving in weight up to 50%
- Less particles regeneration
- Low cost
- High rigidity and flatness
- No scratch formation while handling silicon wafer
- Extreme resistance capability

## Advanced carbon processing technologies

With our proven production of second-source ceramic arms, including complete media arms for semiconductor production, in carbon we offer great stability and mass reduction of up to 50%. Let us convince you to let us build your handling units!

### Advantages

- Mass reduction up to 50%
- Less particle generation
- Stable/robust
- Great rigidity and surface flatness
- Low initial costs
- No scratches at silicium-wafer-handling
- Extreme durability

Just send us your existing gripper, we'll measure it with the help of our TESA Visio and will design a carbon gripper adapted to your application. We can build infinite versions of vacuum grippers, or pads for you. Our specialists in advanced technology of carbon processing can even laminate carbon plates, adapted to your application.

Be assured of our proven capability of high accuracy machining of carbon and surface precision by our specialists.



# Metal Cassettes

## Aluminum metal cassette

A popular all metal cassette replacement for plastic cassettes. The 150 mm or 200 mm all aluminum solid side wall metal cassette is designed for use in place of standard process plastic cassettes where temperature or dimensional stability of the plastic cassette is in question. SEMI standard MCF cassette features include robotic flanges, aluminum wafer support combs and vented screws. Construction is T6061 aluminum with stainless steel screws.

### MCF

High temperature all aluminum cassette – plastic replacement



### 2851

Industry standard aluminum cassette with PTFE Teflon stops



### MC1

Industry standard solid end wall version of 2851 style cassette



### SQ22766

High temperature all aluminum process cassette

### BAKE CASSETTES

All aluminum welded cassette for long bake-out cycling



### SSC

All welded stainless steel cassette for high temperature



## Stainless steel cassette

For high temperature wafer bake applications or specialty applications, including megasonic and cleaning processes. All welded 316SST electro-polished construction. Outside dimensions are similar to SEMI standard plastic process carriers. Transfer and automation compatible. Light Weight: standard SST 200 mm cassette ~ 2.5 lbs. Temperature: maximum recommended continuous operating temperature without causing distortion is 550°C. Corrosion Resistance: 316SST offers better resistance than 302 and 304 SST; resists many industrial chemicals and solvents including:

sodium and calcium brines, hypo chlorite solutions, phosphoric acid, sulfite liquors, and sulfurous acids. Standard cassettes are designed for 50, 75, 100, 125, 150, 200, and 300mm wafer configurations. Standard cassettes are designed for 75, 100, 125, 150 and 200 mm, 25-slot wafer configurations. Non standard 10, 12, 13, 26 and 28-slot cassettes, as well as carriers for square substrates and other non-standard diameters and wafer thicknesses are available upon request. Please contact our SPS Europe for more information.

# Vacuum Handling



We supply an extraordinary number of different types of vacuum tips for many different sizes, shapes, weights and materials of wafers, substrates, dies and packages and applications/equipment, as well as for a complete range of temperature and chemical environments. We recommend carbon filled PEEK (PolyEtherEther Ketone) tips for most applications, especially where ESD protection is a must.

Our T69-series anti-static PEEK all-purpose press-fit vacuum tips are suitable for standard wafer handling up to 140 °C - 160 °C. The T791, T792 and T794 are special versions for thin wafer handling with thin vacuum pockets.

We will design and fabricate vacuum tips to your specifications for your special requirements.



*Extended range available - contact us for full details.*

## Freedom wands

Heavy-duty, self-contained portable freedom wand™ vacuum system. Sturdy custom tabletop production unit is designed for portable 300 mm wafer handling. Compatible with all our vacuum tips up to 300 mm. Unit is designed to provide 22" - 24" Hg vacuum for over 2 hours of continuous operation. SGI - Safe Grip Indicator light illuminates at 16" Hg to show operator it is safe to lift the substrate. Two rechargeable and interchangeable NiMH battery packs and charger station are included. Smart charger LED illuminates 20 minutes before discharge, allowing for battery change out. Tool is ESD safe and comes with grounding cord. Class 1 cleanroom compatible. 300 mm vacuum tip T3PKA1 included.



**FWA3AS2** - Portable self contained 300 mm vacuum wand with SGI - SAFE GRIP INDICATOR light.



**FWTTA1** - 300 mm auto shutoff table top portable freedom wand™. Includes a 300 mm shutoff holder and NO3T3PKAS1 vacuum wand assembly.



# Wafer Packing Bags



The moisture barrier material has a moisture transmission rate which is sufficiently small to permit storage of semiconductor wafers within the volume for an extended period of time without damaging the wafers by moisture attack.

## Our barrier bag features

- Combines moisture barrier and EPE material in one
- Creates UV-free, shock absorption, safe environment
- Optionally folded to your size and standards



## Increase shelf life of your wafer storage?

It is recommended that they are stored at temperature between 18 °C and 24 °C, relative humidity of less than 30%, and in clean, dry, inert atmosphere (e.g. Nitrogen), and in a vacuum sealed bag.

## Block bottom moisture barrier bags

Our bags can be custom-folded. The flat bottom reduces the risk of product being trapped in creases and folds, that may happen with gusseted bags.

## Why do you need the bags?

Our bags combine moisture barrier, EPE material and Aluminum Foil in one. Manufactured in house to any size and specification you need.



# Diffusion Heating Elements 1300°C

## Are you looking for 1:1 diffusion heater element retrofit?

For more than 40 years Thermcraft supplies high quality semiconductor replacement diffusion heater elements to the semiconductor industry, using knowledge gained from all facets of thermal engineering. We offer custom designed diffusion heating elements and 'plug and heat' solutions for most existing horizontal or vertical diffusion furnace heaters. As 1:1 heater element retrofit or for new applications. Diffusion Duracraft™ series heating elements are heavy gauge APM wire type elements, similar to most standard diffusion heater elements for operating temperatures up to 1300°C (2460°F). Rapid delivery and off-the-shelf pricing make these elements the cost-effective solution for your semiconductor heating needs. We offer diffusion furnaces elements, refurbishing and heater element accessories including standard and custom sized vestibule blocks are available as well as diffusion furnace collars and discs

## Why rebuilding a diffusion heater element pays off

Rebuilding of a failed heater element can offer great cost-savings when compared to a completely new heating element. Each rebuilt diffusion heating element is carefully reverse engineered. Diffusion heater element components are the same as used by the OEM. We use highest quality Kanthal APM heater wire, interlocking spacers for constant coil spacing and stability. Your refurbished heating elements will be an exact replacement with the dimensional, electrical, and operating characteristics of the original OEM.



## 40 years of installed base of heater elements in Europe

Examples of diffusion furnace heater elements in use since many years by a large installed base of European Semiconductor fabs: OEM Part# TEL Tokyo Electron: VMU-40-007, VMU-40-103, VMM-40-101, VMM-40-102, VMM-40-005, VMU-28-017, VMU-32-001, VOS-40-017, VMU-54-001, VOS-56-003 Hitachi Kokusai: F-330C-88V-4Z, F-330C-93V-4Z, D4EX04882, D4EX03531, D4EX02648 Axcelis: ST-200 SVG: 602783-02, 602783-03 Various Other OEM Models: UL-260-08H-MK3(W), HDS-610A5-C, F-210V-87, FC-200, FC200L.

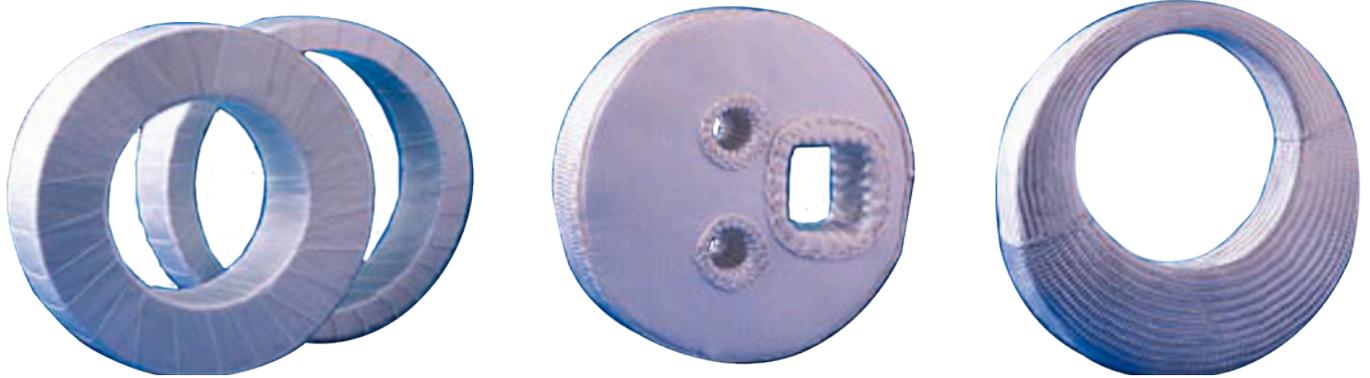


## Duracraft™ diffusion furnace elements

	Diffusion furnace elements for cost-effective high temperature operation.	Diffusion furnace elements for high temperature operation improved performance for temperature cycling.	Diffusion furnace elements for highest temperature operation and large temperature swings longest life.
<b>Models</b>	<b>DC-1300</b>	<b>DC-1300Plus</b>	<b>DCHT-500</b>
<b>Operating Temperature</b>	400°C - 1300°C	400°C - 1300°C	400°C - 1300°C
<b>Shell</b>	Stainless steel	Stainless steel	Stainless steel
<b>Insulation</b>	Vacuum formed, 97% Alumina	Vacuum formed, 97% Alumina	Vacuum formed, 97% Alumina
<b>Wire</b>	Heavy gauge FeCrAl	Heavy gauge FeCrAl	Heavy gauge powered metal FeCrAl
<b>Inner coating</b>	Zirconia oxide	Zirconia oxide	Zirconia oxide
<b>Spacers</b>	Standard	Self-locking	Self-locking
<b>Bore size</b>	Please specify	Please specify	Please specify
<b>Applications</b>	Vertical or horizontal, LPCVD and oxidation/diffusion processes, up to 1300°C, with typical lifetimes of 5 years at low to mid-temperature range.	Vertical or horizontal, LPCVD and oxidation/diffusion processes, up to 1300°C, with typical lifetimes of 5 years at low to mid-temperature range.	Vertical or horizontal, LPCVD and oxidation/diffusion processes, up to 1300°C, with typical lifetimes of 5 years at low to mid-temperature range.



# Diffusion Furnace Collars and Discs



Collars and discs are made of ceramic fiber insulation packed into braided silica, formed and sized to customer specifications. The collars provide clean and easy to handle insulation at the load end, while discs offer the same advantages at the source end of the furnace.

Our collars and discs are custom fabricated. With the combination of high temperature textiles and non-ceramic insulation these products can be used with diffusion furnace at process temperatures up to 1395°C (2543°F), with no loss of strength or flexibility.

## Collars - High temperature operation

Temperature stability plays an important part in manufacturing processes and is the key to good quality control. Hiltex collars and discs have excellent dimensional stability, even at temperatures up to 1300°C, and also exhibit good resistance to thermal shocks (CTE: 0.54 ppm/°C).

What's more, their effective insulation properties make it possible to realise energy saving in excess of 12%.

Collars can be produced in various forms such as open or eccentric.

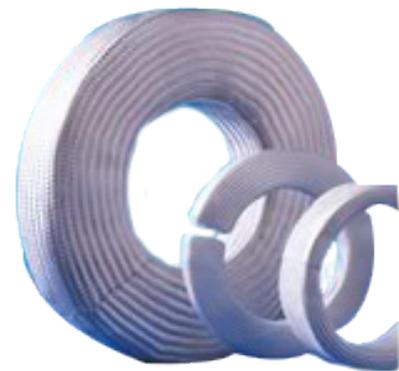
- ALF - 1395°C (2543°F)
- Quartz - 1050°C (1922°F)

## Discs - Ultra-pure products for perfect performance

It's no secret that more and more companies are turning to Hiltex collars and discs. And it's hardly surprising either, when you consider Hiltex's reputation for meeting the very toughest quality standards.

Discs can be produced with various forms such as 2 half segments and/or with different holes.

- ALF - 1395°C (2543°F)
- Quartz - 1050°C (1922°F)



# Process Boats & Storage Boxes

## Process boat storage boxes

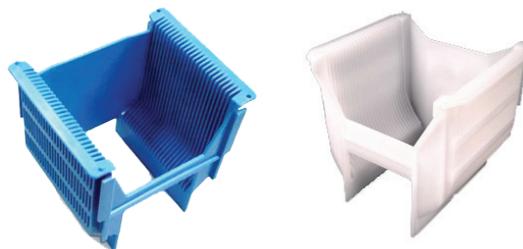
- Storage boxes are stackable
- Available in many material options: eM-01-BLK is equivalent to Entegris® Stat-Pro® 100 (PP + CP) material



Wafer size	ePAK description	ePAK order code	Material and color
2"	ePBX-2-Shelf-eM-01-BLK	eWB0095-SHELF-eM-01-BLK	Conductive Polypropylene black
3"	ePBX-3-R.2-Shelf-eM-01-BLK	eWB0123-SHELF-eM-01-BLK	Conductive Polypropylene black
4"	ePBX-4-ASSY-12-eM-01-BLK	eWB0124-ASSY-12 (eM-01-BLK)	Conductive Polypropylene black
6"	ePBX-6/150-R.3-ASSY-6-eM-01-BLK	eWB0099-ASSY-6	Conductive Polypropylene black
8"	ePBX-8/200-ASSY-23-eM-01-BLK	eWB0094-ASSY-23	Conductive Polypropylene black

## Process boats

- Easy and safe handling of wafers.
- Available in 2", 3", 4" 6" & 8"
- Open or closed slot design.



Wafer size	ePAK description	Internal diameter	ePAK order code	Material and color
6"	ePB-6/150-25-eM-08-BLU	150 mm	eWB0051-eM-08-BLU	Polypropylene Blue
6"	ePB-6/150-25-eM-01-BLK	150 mm	eWB0051-eM-01-BLK	Conductive Polypropylene black
6"	ePB-6/150-25-R.8-eM-39-NAT	150 mm	eWB0304-eM-39-NAT	PFA no color option
8"	ePB-8/200-25-R.2-eM-08-BLU	200 mm	eWB0090-eM-08-BLU	Polypropylene Blue
8"	ePB-8/200-25-R.2-eM-01-BLK	200 mm	eWB0090-eM-01-BLK	Conductive Polypropylene black
8"	ePB-8/200-25-R.6-eM-39-NAT	200 mm	eWB0220-eM-39-NAT	PFA no color option



# Wafer Canisters & Wafer Jars

## Wafer canisters

- Secure 4 latch system (with 2 latch option)
- Enhanced protection of wafer surfaces
- Impact resistant design
- Advanced design minimizes particle generation
- Large label areas
- Interfaces with industry robotic handling equipment
- Drop-in replacement for old industry designs
- Minimizes lateral movement without applying compression to delicate wafer edges



Wafer size	ePAK description	Internal diameter	Internal height	Corner latches	Outside base Size	ePAK order code
6"	eCT-LX6/150-4-44-R.1-ASSY-1-eM-01-BLK	151 mm	44 mm	4	174.5 mm x 174.5 mm	eWB0086-4-ASSY-1
8"	eCT-LX8/200-4-44-ASSY-1-eM-01-BLK	201 mm	44 mm	4	225 mm x 225 mm	eWB0018-4-ASSY-1
12"	eCT-LX12/300-4-44-ASSY-1-eM-01-BLK	301.5 mm	44 mm	4	326 mm x 326 mm	eWB0026-4-ASSY-1

Material	Code	SR
Conductive PP	eM-01-BLK	10e4-10e5

## Wafer jars

- Easy loading/unloading in automated or manual applications
- Impact resistant containers feature a snap-on lid for secure packing
- Available in both conductive PP and natural (non-conductive) PP materials
- A wide range of cushion disks, jar liners and wafer separators are available



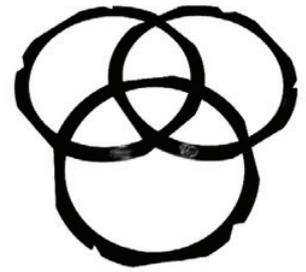
Wafer size	ePAK description	Internal diameter	Internal height	ePAK order code
4"	eJR4-100-32-ASSY-3-eM-08-NAT	111 mm	32 mm (1.3")	eWB0044-ASSY-3
6"	eJR-170-38-ASSY-14. eKT6J1.5-4F6C (Kit 1)	167 mm	38 mm (1.5")	eWB0001-ASSY-14
8"	eJR-235-51-ASSY-5-eM-08-NAT (Kit 2)	235 mm	51 mm (2")	eWB0010-ASSY-5
12"*	eJR12-300-23-ASSY-5-eM-08-NAT	303 mm	23 mm (0.9")	eWB0054-ASSY-2
<b>Kit 1 eJR-170-38-ASSY-14. eKT6J1.5-4F6C</b> 1x 6" Wafer Jar eJR6-170-38-eM-08 167mm ID 38mm IH 1x Jar Foam Liner eFL6-518-37-6-eM-04-H (CloseXd Cell) 4x 6" Foam Cushion Disks eFD6-150-6-eM-04-H (Closed Cell)			<b>Kit 2 eJR-235-51-ASSY-5-eM-08-NAT</b> 1x Jar eJR-235-51-eM-08 1x Liner eFL8-712-50-13-eM-04-H 7x Foam eFD8-205-6-eM-04-H)	

Material	Code	SR
Natural PP	eM-08-NAT	n/a

# Dicing / Flex / Film Frames & Shippers

## Dicing / flex / film frames

- Designed for 100, 125, 150, 200 and 300 mm wafers
- Low cost alternative to metal flex frames
- Designed to be used one time and then discarded
- Of special interest to those who ship wafers to customers on flex frames
  - No need to bear freight cost to return heavy metal frame
  - No need for cleaning metal frame before reuse
- Call for further details +31 341 360 590



ePAK description	Flat to flat	Internal diameter	Internal height	Fits into flex frame shipper	ePAK order code
eFF6-150-2.2-R.8-eM-59-BLK	216 mm	185 mm	2.2 mm	eVT0415-x	eOP0437-eM-59-BLK
eFF8-200-2.6-eM-59-BLK	276 mm	250 mm	2.6 mm	eVT0320-x	eOP0132-eM-59-BLK
eFF12-300-3.5-eM-59-BLK	380 mm	350 mm	3.5 mm	eVT0287-x	eOP0137-eM-59-BLK

Material	Code	SR
PPS Glass Reinforced	eM-59-BLK	n/a

## Dicing / flex / film single frame shippers - For shipping flex frames with mounted wafers

- Designed for 100, 125, 150, 200 & 300mm wafers
- Available in uncoated, anti-static coated or conductive PS materials
- Call for further details +31 341 360 590



Wafer size	ePAK description	Frame dims flat to flat	Shipper style	Framestyle	ePAK order code
6"	eFS6-150-R.5-eM-20-BLK	216 mm	C	K&S 350-103	eVT1384-eM-20-BLK
8"	eFS8-200-R.2-eM-20-BLK	276 mm	C	DISCO DTF 2-8-1	eVT0320-eM-20-BLK
12"	eFS12-300-A-eM-20-BLK	380 mm	C	SEMI G74 & G87	eVT0287-eM-20-BLK

Material	Code	SR
Proprietary conductive PS	eM-20-BLK	10e4-10e11





# Almost 30 years of quality service and products

For almost 30 years SPS-Europe has offered quality products and services as a one-stop shopping point for front-end semiconductor manufacturers and related industries. We supply a range of industry leading products used worldwide for Wafer Handling, Wet Processing, Photolithography, OEM Replacement parts and the Solar industry. Dedication towards our customers and flexibility

in finding the right solution, combined with solid application knowledge and fast supply logistics, are the keywords of our service. SPS-Europe B.V. is a full-service distributor offering full-time service engineer support for the systems we supply. We manufacture our own SPIN150™ and POLOS™ spin coating systems - widely installed across the world.

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