a full range of components and tools to enhance yield for the production of

300 mm products
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Automatic Wafer Sorter 300 mm

Economical
Targeted for cost sensitive applications including R&D, test/assembly and application labs.

Simple
Compact portable design for moving single 300 mm wafers between any FOUP, FOSB or metal cassette. Operator friendly touch screen display provides for “manually” moving individual wafers, or “program handling” pre-defined groups of wafers between carriers. Only required 120V/220V AC Power

Safe
The WS300M features an industry standard 300 mm edge grip end-effector for safe edge handling of valuable wafers. The end-effector features an integrated mapping sensor which scans each 300 mm carrier to determine wafer location and any wafer positioning errors, including cross-slotted and double stacked wafers.
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 silicon-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.
Wafer Alignment

This fully automatic microprocessor controlled notch finder model provides for wafer notch finding with minimal operator involvement. To align wafer notches, the operator places the open bottom 300 mm carrier on the unit and pushes the “RUN” switch. All wafer notches are automatically aligned to the bottom, then, relocated to one of the 16 positions as set by the operator. LED indicates cycle in process and end of cycle.

Accuracy is better than plus or minus one degree. No manual operation or override is available. Rotation is controlled at a constant speed for minimal particulate generation. A 16-position rotary switch controls final wafer notch location. Standard adjustment points are 0, 2, 45, 88, 90, 135, 176, 178, 180, 182, 184, 225, 270, 272, 315 and 358 degrees.
Our 300 mm low contact transfer machine provides safe means of mass transferring wafers from cassette to cassette. Wafers are gently lifted midpoint in the cassette slots before extracting or loading to minimize contact with the cassette which could cause particulation. Safety sensor detects wafers in the pod.

Optional mapper available to detect cross slotted wafers. User-friendly fail-safe operation features simple one-button actuation. Small footprint saves valuable cleanroom space. Sturdy construction assures high reliability and robustness required in high throughput fabs. Unit is compatible with SEMI standard FOUPs and FOSBs Class 1 cleanroom compatible. ESD safe construction.

**Horizontal wafer slide transfer systems**
These units are designed to transfer wafers between high profile cassettes or between high profile and low profile cassettes and vice-versa. Chemical resistant materials and manual or automatic operation make these units ideal for all applications including wet areas. ESD safe models utilize static dissipative materials to both protect against damage from static electricity and minimize particle attraction.
FOUP Opener

AFO self-contained automatic and manual FOUP door openers provide means to gain access to wafers off-line and keep the FOUP door cleaner. FOUP can be rotated on turntable for easy access to wafers. Small footprint saves valuable cleanroom space. Unique low profile design ideal for tabletop applications and FOUP wash stations.

FOMH Manual ergonomic dual-pistol grip design allows for FOUP door to be manually removed and then propped up by using handles as stand-offs. Simple designs for reliability and low maintenance.

FOUP stand
Stand alone stainless-steel floor-mounted manual FOUP stand provides ergonomic safe means to gain access to wafers off-line. Operator-friendly design aligns FOUP, FOSB, or open bottom 300 mm cassette, with the operator’s body and line-of-sight.

The 360° degree rotation with positive stop points allows any operator to find a comfortable position for safely handling 300 mm wafers to/from the specified carrier. The FS-002 features a telescoping stand for ergonomically adjusting the height of the FOUP for tall or short operators. Table-top designs are also available.

Simple design for reliability and low maintenance. Cleanroom compatible. ESD protection insured by static dissipative plastics.
Metal Cassettes

300 mm thin wafer cassette
Lightweight ergonomic design minimizes weight and potential for operator fatigue. Made from welded hard clear anodized aluminum to provide dimensional stability over time and temperature changes. Features SEMI standard kinematic coupling positioners and info pad. Transfer compatible with all FOUP and FOSB carriers. Temperature: maximum recommended continuous operating temperature without causing distortion is 350ºC. Cassette features wafer retaining lock-bar for safe transportation of wafers in a horizontal wafer position.

MC12-13HC1

300 mm SEMI standard bake and process cassette
Lightweight ergonomic design minimizes weight and potential for operator fatigue. Made from welded hard clear anodized aluminum to provide dimensional stability over time and temperature changes. Temperature: maximum recommended continuous operating temperature without causing distortion is 350ºC. Features SEMI standard kinematic coupling positioners and info pad. Transfer compatible with all FOUP and FOSB carriers. Weighs only 6.5 lbs. Standard plastic FOUP weighs approximately 10 lbs. Cassette features wafer retaining lock-bar for safe transportation of wafers in a horizontal wafer position.

MC12-25HC1

Ultra thin wafer support with custom extended shelf design
Electro-polished SST, Peek or Teflon® coatings.
Single Wafer Vacuum Handling

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
Portableself contained 300 mm vacuum wand with SGI - safe grip indicator light.

FWCR3
Portable self contained cordless 300 mm rescue vacuum wand.

300 mm Auto shutoff FWTTA1 table top portable freedom wand™. A popular custom version of the standard FWTTA1 platform. The FWTTA1-AC-004 has all the standard features of the FWTTA1 but includes a 300 mm shutoff holder and NO3T3PKAS1 vacuum wand assembly.

FWTTA1

SQ22949 Belt clip portable freedom wand™ auto shutoff. Custom heavy-duty self-contained portable freedom wand™ vacuum system. System is compatible with all our vacuum tips up to 300 mm. Wafer rescue operation belt clip mounted production unit is designed to provide 22” - 24” Hg vacuum for over 4 hours of continuous operation. White polypropylene base construction with press-fit NO3AS1 300 mm wand handle. FWTTA1 features LED shut-off holder to automatically turn system off when the vacuum wand handle is placed in holder. Internal battery pack with “smart” charger system keeps battery at full charge when attached to the power supply. Smart charger LED illuminates 20 minutes before discharge. Class 1 cleanroom compatible. 300 mm T3PKAS1 tip included. The SQ22949 series has multiple ordering part numbers.
Our vacuum wands provide a safe means of handling wafers, die and packages. They are designed to operate at 22 - 24” hg of vacuum*. We are often asked to recommend a complete setup for wafer handling. Below are the most up-to-date sets for these applications. These sets incorporate our newest products and materials. They are ESD protected to ensure wafer and component safety while eliminating particle attraction due to static changes. Tips are made off ESD safe peek and wands are made from chemical resistant conductive PVDF.

*Vacuum flow at 22” Hg is approximately 0.5cfm (0.24 liters/sec) for the standard size wand with tubing, no tip.

### 300 mm wafer handling

- T3PKAS1 TIP
- NO3AS1 HANDLE
- CC115DS CORD
- HSU3 HOLDER
- CTA12 GROUND

**NO3T3PKAS1 / NO3T3PK1—300 mm standard vacuum wand assembly**

**NO3T3PKAS-005 (ESD PEEK) / NO3T3PK-001 (Nat**

**NO3T3PKASU-001 (UHMW)/**

**NO3T3PKAS-008 (Thin) - 300 mm**
Wafer Storage & Shipping

eLX™ wafer canisters

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

<table>
<thead>
<tr>
<th>Wafer size</th>
<th>ePAK description</th>
<th>Internal diameter</th>
<th>Internal height</th>
<th>Corner latches</th>
<th>Outside base size</th>
</tr>
</thead>
<tbody>
<tr>
<td>12”</td>
<td>eCT-LX12/300-4-44-ASSY-1-eM-01-BLK</td>
<td>301.5 mm</td>
<td>44 mm (1.73”)</td>
<td>4</td>
<td>326 mm x 326 mm</td>
</tr>
<tr>
<td>12”</td>
<td>eCT-LX12/300-4-71-ASSY-1-eM-01-BLK</td>
<td>301.2 mm</td>
<td>71 mm (2.79”)</td>
<td>4</td>
<td>326 mm x 326 mm</td>
</tr>
</tbody>
</table>

Material: Conductive PP (eM-01-BLK)

eFORM™ – Clean adjustable platform option to minimize vertical movement

<table>
<thead>
<tr>
<th>Wafer size</th>
<th>ePAK description</th>
<th>Diameter</th>
<th>Adjustable height</th>
<th>ePAK order code</th>
</tr>
</thead>
<tbody>
<tr>
<td>12”</td>
<td>eAP12-300-16-eM-01-BLK</td>
<td>300 mm</td>
<td>16 mm</td>
<td>eOP0042-eM-01</td>
</tr>
</tbody>
</table>

Ring separators

- Ring separators are used when a surface contact is not preferred. Outer raised edge contacts only the wafer outer circumference on its active surface.
- Ring separators are only for use in “eLX” style canisters as they require lateral movement to be minimized.
- The eLX canisters mWB0371 (300 mm) is designed for 25 wafers when using Ring Separators.

<table>
<thead>
<tr>
<th>Wafer size</th>
<th>ePAK description</th>
<th>Separator diameter</th>
<th>Separator thickness</th>
<th>ePAK order code</th>
</tr>
</thead>
<tbody>
<tr>
<td>12”</td>
<td>300 mm COIN STACK RING SEPARATOR-eM-01-BLK</td>
<td>300 mm</td>
<td>1.75 mm</td>
<td>eRS0002-eM-01-BLK</td>
</tr>
</tbody>
</table>

Material: Conductive PP (eM-01-BLK)
Wafer Storage & Shipping

Standard wafer canisters
- For high-security transit of wafers
- Designed for stacking
- Quick release snap-lock design for lid removal
- Recessed slots for easy loading and unloading
- Wafer loader machine compatible with most industry equipment

<table>
<thead>
<tr>
<th>Wafer size</th>
<th>ePAK description</th>
<th>Internal diameter</th>
<th>Internal height</th>
<th>Corner latches</th>
<th>Outside base size</th>
</tr>
</thead>
<tbody>
<tr>
<td>12&quot;</td>
<td>eCT12-300-18-x</td>
<td>303 mm</td>
<td>18 mm (0.7”)</td>
<td>4</td>
<td>eWB0069-x</td>
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<tr>
<td>12&quot; *</td>
<td>eCT-303-21-x</td>
<td>303 mm</td>
<td>21 mm (0.9”)</td>
<td>4</td>
<td>eWB0009-x</td>
</tr>
</tbody>
</table>

Material: Conductive PP (eM-01-BLK) & Natural PP (eM-08-NAT) * Patented “Double Ring” design

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

<table>
<thead>
<tr>
<th>Wafer size</th>
<th>ePAK description</th>
<th>Internal diameter</th>
<th>Internal height</th>
<th>ePAK order code</th>
</tr>
</thead>
<tbody>
<tr>
<td>12”***</td>
<td>eJR12-300-23-X</td>
<td>303 mm</td>
<td>23 mm (0.9”)</td>
<td>eWB0054-x</td>
</tr>
</tbody>
</table>

Material: Conductive PP (eM-01-BLK) & Natural PP (eM-08-NAT) ** Patented “Double Ring” design does not require a foam liner.
Backlapping

Adhesive plastic films

Silicone-free
Silicone-free adhesive plastic films contain absolutely NO silicone release agents, resulting in a much cleaner process and more consistent adhesive properties. They share both the same linear elongation properties and uniformity of base film as well as adhesive properties similar to our other film lines.

Standard UV
UV adhesive plastic films have the advantage of high adhesive strength - for the securing of wafers/sustrates during sawing - which becomes significantly reduced after UV light exposure, to facilitate die removal. This tape provides an ideal media for thin waferdicing, followed by gentle die removal. We are proud to offer the widest selection of UV film available to meet even your most stringent process requirements.

Hoop rings shippers  Plastic flex frame  Single flex frame shippXer  Flex frame multi shippers

- 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
- Designed for 100, 125, 150, 200 & 300 mm wafers
- Available in uncoated, anti-static coated or conductive PS materials
- Designed for 100, 125, 150, 200 & 300 mm wafers
- Available in uncoated, anti-static coated or conductive PS materials
Backlapping

Model UH108-12 wafer backlapping film applicators are the ideal benchtop solution for your frontside protection tape application requirements. They offer a high degree of repeatable accuracy and are capable of cutting the film to the edge of the wafer, including the alignment flats, within 0.005 inches in less than 20 seconds. The standard Model UH108 can accommodate 3, 4, 5, and 6-inch wafers.

Model UH104 UV curing systems are the most cost effective UV tape exposure solutions on the market. Despite their low cost, these units offer the same uniformity of UV exposure and fast UV curing times as other semiautomatic and automatic high-end UV curing systems. In addition they feature a new environmentally safe, ozonefree UV lamp array with a cool, low-temperature UV-C 365nm curing process.

Model UH114-12 wafer/frame film applicator, up to 12” (300 mm) Wafers. With the following features:

- Easily adjustable spring-loaded roller assembly
- Uniform film tension: Film tensioner bars (along both x/y-axes and front/rear)
- Uniform adhesion provides bubble-free lamination
- Circular cutter (wheel-type) for cutting film on film frame
- Adjustable cutting pressure for different films (thickness/hardness)
- Digital temperature controlled platen
- Adjustable workstage height from top of unit
- Operates with non-backed or backed (optional) film
- Accommodates film/protective layer wound on the outside or inside
- Adjustable alignment pins and vacuum cups
- Accepts all film frames (specify type and size)
- Built-in end cutter for film separation

Model UH130 die matrix expander accommodates up to 300 mm wafers / film frames and features a 3-inch stroke with speed control and adjustable ram height. The heated wafer ram is regulated by a digital temperature controller and stops at a user preset height, resulting in consistent repeatability of expansion. The unit features a compact tabletop form factor and is extremely easy to operate.
In-Line Chemical Heaters

Ultra-pure PFA/PVDF in-line fluid 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. These heaters deliver maximum power in the smallest possible space. Built with all PFA or PFA/PVDF wetted surfaces, esPRO heaters are made to endure the ravages of aggressive chemical environments. 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.

Benefits
- 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

Immersion Heaters

SPS-Europe offers a broad line of immersion heaters for constant temperature baths and other processes that require the direct application of clean heat. Immersion heaters are compact and highly customizable, allowing for maximum work area to reduce the amount of process chemicals consumed. Immersion heaters heat efficiently and evenly for better temperature results.

Features
- All PFA wetted surfaces
- Ambient to 200°C temperature range

Safety interlocks to heater power
- Over-temperature thermocouple

Benefits
- Heats harsh chemicals
- Compact and flexible in design
- Easily customizable
- No nitrogen purge required

Note: The immersion heater is designed for use with tanks of PVDF, PFA, or quartz. Please check with SPS Europe on compatibility with tanks of other construction materials.
Pillar Fittings

Super300 Pillar fittings™
This fittings are rated as the most reliable fittings in the world, and are especially used for high-temperature, high-purity applications and 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 Super300 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. ⅓ – ⅓ 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).

Valves

SPS-Europe supplies a full range of Surpass, IPS and CKD high purity valves. All wetted surfaces are made of high grade PTFE, well suited to clean room, deionized water and harsh chemical applications. These valves are designed to handle both ultra pure media as well as extremely caustic / harsh chemistries.

The full range consists of:
- Air operated valves
- Needle valves
- Regulators
- Check valves
- Solenoid valves

Custom configurations are available.
Ultrasonic Flowmeters

The esPRO flow meters are designed for contact-free precision flow measurement of high purity fluids. The ultra-pure PFA body contains no moving parts, eliminating any possibility for particle generation.

The esPRO flowmeter uses a non-contact ultrasonic sensor method, that detects the Karman vortex in your fluid. Light weight and compact, the esPRO flow meters compact design allows fitting on closely-spaced parallel piping. D-series are equipped with a small monitor and provide analog output, pulse output as well as high & low boundary output.

**Key features**
- Because PFA Flowmeters measure Karman Vortices using a non contact ultrasonic sensor method, they contain no moving parts such as flippers & floats, thus eliminating particle generation.
- High and low alarm boundaries can be set to any level using selector keys.
- Light weight and compact, ESPRO flowmeters are simple to install.
- Monitor attached series (V-xxD) and monitor unattached series (V-xx) are available depending on application.

**Principle of operation**
If a fluid flows past a shedder body, a regular pattern of vortices called Karman Vortex street alternately trails aft in the wake. The ultrasonic wave oscillating time varies proportional to the vortex shedding frequency. We can obtain the measured flow by detecting any changes in ultrasonic wave oscillating time.

The number of generated vortices is depending on the flow speed only and independent on other parameters as viscosity or specific gravity of the fluid.

**Dimensions**

```
Red: DC24V Power Supply  
Black: 0V Power Supply  
White: 4-20mA Output (+)  
Blue: 4-20mA Output (-)  
Gray: High/Low Boundary Output (+)
See "Instructions on wiring"
```

**Instructions on wiring**

```
A - Model V-10 - V-10D | 3/8 inch PFA tube (Ø9.53xØ6,35)  
B - Model V-15 - V-15D | 1/2 inch PFA tube (Ø12.7xØ9,53)  
C - Model V-20D | 3/4 inch PFA tube (Ø19.05xØ15,9)  
D - Model V-25D | 1 inch PFA tube (Ø25.4xØ22,2)
```

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**Low Alarm Selector Mode/Down key**

**High Alarm Selector Mode/Down key**

**High Output Alarm Indicator Lamp**

**Low Output Alarm Indicator Lamp**

---

**Flow**

**Housing**

**Receiver**

**Ultrasonic Waves**

**Shedder Body**

**Karman Vortex**

---

**A**

**B**

**C**

**D**

---

Tel.: +31 341 360 590  
info@sps-europe.com  
info@sps-asia.com
The CPFM-8800 series is a family of advanced flow meters based on the coriolis principle fabricated exclusively from PFA* (Perfluoroalkoxy) polymeric material. Series 8800 flow meters are comprised of two assemblies: one containing the sensor, the other containing the supporting electronics. Series 8800 sensors are specially designed for measuring liquids in high-purity semiconductor, biopharmaceutical and other applications that require all PFA-wetted* surfaces and provide a mass flow rate, total mass and temperature.

*Models 8808-1 and 8808-2 are also available in PEEK wetted parts.

**PE-20MA Bellows 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 our system.

**Features**

- Proprietary PTFE bellows provides excellent durability.
- Integrated in-house production from raw materials to finished assures quality and reliability.

**Megasonic Arrays with Impulse RF Controller**

- Operating frequencies from 400 kHz to 3 MHz
- Power densities up to 2 Watts/cm²
- Process fluid temperatures to 60 °C
- Single wafer to dual 200 mm
- Available for use with own tank or as complete quartz direct-megasonic cleaning station
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.*
Manifolds

Matrix manifold
SPS-Europe develops and delivers special custom-designed manifolds. The matrix manifolds 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 ¾”

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

Flow Switches

The operating principle is based on a free floating magnetic piston which responds only to the motion of fluids within the line, not to static or system pressures. In the presence of fluid flow, controlled movement of the piston actuates an external hermetically sealed reed switch. This switch can be used to actuate audible or visual alarms, as well as relays, or other controls.

Features
- For corrosive and non-corrosive gases or liquids
- Senses increasing or decreasing flow
- Very accurate custom flow settings
- Hermetically sealed
- All-PFA molded body with PTFE piston
Vibration Sensors

VS-series vibration sensors
Provide advanced warning when machine conditions are deteriorating, allowing engineers to take preventive action and avoid failure and losses.

- Diagnostic for tool integration
- Monitor trends of vibration conditions
- Detect dynamic problems

Our vibration sensors feature
Fingertip-size sensor head allows for easy fitting:

- Measuring 3 directions (X, Y, Z)
- High output data >200 measurements/sec
- Simple and convenient USB plug-n-use operation
- Seamless integration via SECS / GEM
- Tool integration or mobile use, on-/off-line monitoring

Subcase study 1
The VS-1™ was used to detect the vibration of the pad conditioner arm. The yellow arrow Y indicates the sweeping movement of the PC Arm.

Readings show Z-axis vibration to be high at the centre of the pad. Follow-up investigation found that the high pressure rinse DIW nozzle spray was weak at the pad centre area. This will lead to low cleaning efficiency at pad centre area and induce pad glazing and microscratch issues.

Subcase study 2
Detected polisher platen bearing abnormality and resolve motor torque and point failure issue.

- Issue: Z-axis experience high working vibration and wafer polish endpoint unstable (motor torque)
- Root cause: found platen bearing worn out to cause PC Z-axis vibration high
- Corrective Action: change platen bearing, vibration level back to normal baseline

Rusty bearings that caused the unstable torque
Vibration Sensors

VS-1 Sensor

VS-1\textsuperscript{R} Sensor

VS-2\textsuperscript{SI} Sensor

### Specification

<table>
<thead>
<tr>
<th>Specification</th>
<th>VS-1 Sensor</th>
<th>VS-1\textsuperscript{R} Sensor</th>
<th>VS-2\textsuperscript{SI} Sensor</th>
<th>VS-BT\textsuperscript{TM} Sensor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measurement of acceleration</td>
<td>3 Directions (i.e. X, Y, Z)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measurement range</td>
<td>+ / -2g, 4g, 8g, 16g</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-linearity</td>
<td>0.5%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sensitivity change due to temperature</td>
<td>0.01% per 1 °C</td>
<td>0.02% per 1 °C</td>
<td>0.01% per 1 °C</td>
<td>0.02% per 1 °C</td>
</tr>
<tr>
<td>Resolution</td>
<td>0.01g</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output data rate</td>
<td>0.1 to 3200Hz</td>
<td>200Hz / 1000Hz</td>
<td>100Hz / 400Hz</td>
<td>200Hz / 1000Hz</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-20 to 80 °C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shock resistance</td>
<td>10000g</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analog output (X, Y, Z)</td>
<td>-</td>
<td>0 – 10 VDC</td>
<td>0 – 10 VDC</td>
<td>0 – 10 VDC</td>
</tr>
<tr>
<td>Supply voltage range</td>
<td>-</td>
<td>10 – 30 VDC</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

### VS-2\textsuperscript{SI} vibration sensor

- Real time monitoring capability
- Vibration stability index\textsuperscript{m} capturing the overall stability of a complete work cycle
- Higher yield rates
- Higher profit margin

### VS-BT\textsuperscript{TM} vibration sensor

- Advance statistical calculation
- Wireless transmission
- High sampling rate
- In-built SECS/GEM capability
Single Wafer Spin Processor

The POLOS300 advance single substrate spin processor is perfectly suitable for a wide range of applications, including drying, rinsing, cleaning, and coating. This table-top spin processor is seamlessly built in a full-plastic, housing in natural polypropylene (NPP) or optional PTFE, and is suitable for processing fragments as small as 5 mm up to substrates sizes up to Ø300 or 8"x8".

MegPie
The sapphire MegPie is a single-wafer megasonic transducer for cleaning and sonochemical processing. It applies a uniform dose of acoustic energy to a rotating substrate. The MegPie will improve process efficiency and lower process time.

Other spinner options

- **Vacuum Pump**
  The vacuum pump is quiet and reliable.

- **EBR (edge bead removal)**
  0.15 mm jet spray for accurate pointing of chemical dispense.

- **Auto dispense Lines**
  Full PTFE dispense vessel automated injector line.

- **Jet spray injector**
  For accurate dispensing of chemicals, with adjustable dispensing position.

**Features:**
- Post-CMP cleaning
- LIGA processes
- TSV processing
- Mask cleaning
- Etch assist
- SU-8 develop
- Plating pre-cleaning

- Lift off
- Pre-plating bubble removal
- Resist strip
- Post-laser cleaning

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For 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.