



ClassOne



**HIGH
PERFORMANCE**



**PROCESSING
EQUIPMENT**



***FOR THE
REST OF US***

ClassOne

ClassOne is the leading supplier of $\leq 200\text{mm}$ tools to the semiconductor manufacturing industry. ClassOne offers class-leading new wet process tools and refurbished tools from major OEM suppliers that are functionally superior to the original. We specialize in the complex needs of the compound semiconductor and related markets, and supply both single-wafer and batch processing tools to clients worldwide.

During fifteen years of growing accomplishment and market success, ClassOne has installed more than 1,000 new and refurbished tools in the finest and most respected fabs in the world. ClassOne enjoys a well-earned reputation for high-quality tools that consistently produce exceptional process results, and our customer service is widely regarded as the finest and most responsive in the industry. We succeed when our customers succeed, and our partnerships transcend individual tool sales to include support, process development, and foundry work.



Advanced $\leq 200\text{mm}$ plating and wet processing tools

ClassOne Technology delivers a suite of new, high-performance plating and wet process tools specifically for users of $\leq 200\text{mm}$ wafers—at very budget-friendly prices.



Premium refurbished major-brand tools

ClassOne Equipment is the industry's premier provider of better-than-new, professionally-refurbished major-brand processing equipment—at a fraction of new equipment prices.



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Advanced $\leq 200\text{mm}$ electroplating and wet processing tools

Class-leading results for $\leq 200\text{mm}$ wafer processes

ClassOne Technology designs and manufactures new semiconductor wet-chemical processing equipment using the latest technology – specifically for users of 3" to 8" substrates of GaAs, GaN, SiC, Ge, InP, HgCdTe, silicon, glass and sapphire.

More performance for less

ClassOne provides new solutions that are both innovative and affordable—at roughly half the price of competitive systems from the larger equipment manufacturers. ClassOne delivers superior performance to cost-sensitive manufacturers of Power Devices, RF, LEDs, Photonics, Sensors, MEMs, Microfluidics, and other emerging technologies—market segments that have long been underserved by the larger semiconductor equipment manufacturers.



Solstice S8 / S4
Electroplating Production



Solstice LT
Electroplating Development



Trident SST
Spray Solvent Tools



Trident SRD
Spin Rinse Dryers



Solstice S8

Fully Automated Electroplating System

8-chamber, high-throughput plating and multiprocessing



More powerful, more flexible

The fully-automated Solstice® S8 is the easiest and most cost-efficient route to volume production for applications that use 200mm and smaller substrates. Solstice® is a highly affordable solution that is engineered with class-leading performance and exceptional operational flexibility. Solstice® enables a wide variety of single-wafer wet processes, including Electroplating, High-Pressure Metal Lift Off, High-Temperature Spray, UBM Etch, and more.

Speed, uniformity, control

Solstice® provides wet bench users with an affordable upgrade path to the benefits of automated processing, with major improvements in consistency, throughput, and safety—all with state-of-the-art automation and control.

Key Solstice Features

- Three platforms offer configuration options from 2 to 8 chambers
- Configurable for plating, cleaning, or etching on a single tool
- Easily process 75mm to 200mm substrates with rapid diameter changes
- High plating rates provide excellent throughput with high performance
- Superior process control and excellent uniformity for thin or bonded substrates
- Accommodates transparent or opaque substrates
- Wide range of process options for Au, Cu, Ni, Sn, Ti , alloys, and more
- Au applications include Au VCSEL, Au TWV, Au Thin Layer Stacks, and AU Deplate
- Cu applications include Cu TSV, Cu Pillar, Cu Bump, Cu RDL, and Cu Damascene
- Other applications include Low-Stress Ni, Lead-Free Solder, and many others



On Solstice, wafer diameters can be easily changed in less than three minutes.

Why users choose Solstice plating tools

- Engineered for 200mm or smaller substrates
- Excels at accommodating the unique requirements of the compound semiconductor industry
- GoldPro and CopperMax variants have been highly optimized for Au and Cu processes
- Compelling economics for wet bench users that need the safety and processing benefits of single-wafer automation
- Rapid wafer diameter changes
- Capable of running multiple independent processes simultaneously

Solstice S4

Fully Automated 4-Chamber Plating

Up to 4 chambers for medium-volume plating and multiprocessing



Small yet powerful

The fully-automated Solstice® S4 provides most of the features and capabilities of the S8, but with fewer chambers, a smaller footprint, and a more economical price point. The S4 is ideal for users with simpler processing needs who require an economical entry point into mid-level automated plating production.

Key Solstice S4 Features

- S8 capabilities, just fewer chambers
- Smaller footprint, lower cost than S8
- Cassette-to-cassette automation
- For 75mm to 200mm substrates
- Up to 4 chambers and chemistries
- Up to 75wph throughput
- Automated recipe execution

Solstice LT

Semi-automated 2-Chamber Development

Up to 2 chambers for development
or low-volume plating production



Smarter, easier plating development

The Solstice® LT accommodates one or two chambers for manual-load semi-automated process development. It features automated recipe execution and the same chambers and controls as other Solstice® models, enabling easy scaling.

Key Solstice LT Features

- 2 ECD or 1 ECD & 1 prewet chamber
- One or two chambers and chemistries
- Manual wafer load/unload
- Automated recipe execution
- For 75mm to 200mm substrates
- Chambers and software match S4/S8
- Smallest Solstice system footprint



Sample port on the LT



Operator loading wafer

SOLSTICE® AU^{pro}

The Solstice for high-performance, high-quality Au plating

Advanced gold plating

Solstice® GoldPro has been engineered as an optimized environment for exceptional defect-free gold plating, with class-leading uniformity, wafer throughput, and reproducibility at a remarkably low cost of ownership.

Maximum throughput, minimum cost

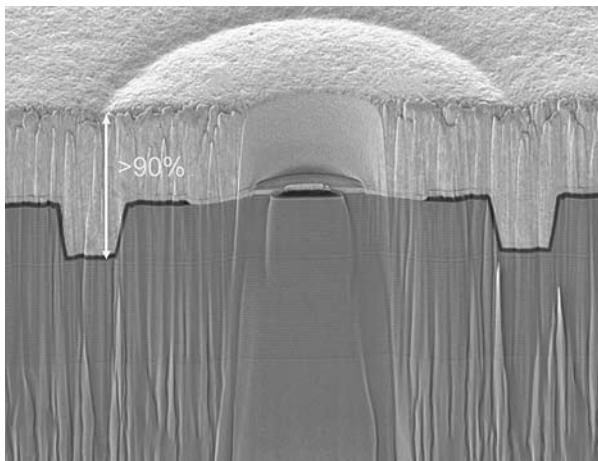
GoldPro can deposit thick or thin gold layers quickly and efficiently without gold waste—as much as ten times faster than earlier deposition methods. GoldPro achieves nearly 100% step coverage with excellent feature fill while minimizing defect and integration issues, with enough gold savings to pay for the equipment, typically within a year.

Solstice GoldPro Advantages

- Electroplating system configured and optimized for gold plating applications and the compound semiconductor market
- Expandable from 1-6 gold chambers in a single tool, supports multiple configurations, multiple processes, and multiple wafer sizes
- Fourth-generation plating chambers provide unparalleled feature quality, uniformity, consistency, and throughput at high speeds
- Exceptional configuration flexibility permits alternate wet processes and wafer sizes to be run simultaneously



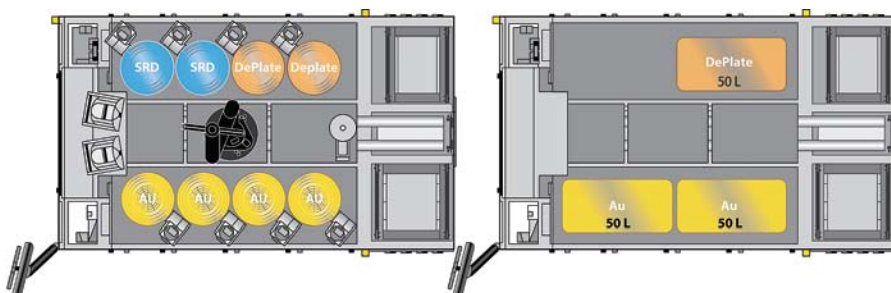
Gold VCSEL Structures



Solstice superior performance:

- Exceptionally uniform plating throughout the VCSEL structure
- High aspect ratios of up to 10:1
- Thin layer deposition minimizes waste

Solstice S8 example system configuration



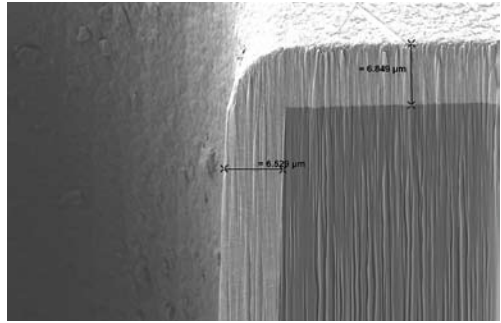
About this application

Superior deposition uniformity is critical for high-yield VCSEL fabrication, and the Solstice GoldPro provides class-leading uniformity with exceptional wafer throughput. The results of this increase in plating uniformity are higher yield, greater device reliability and lower CoO.

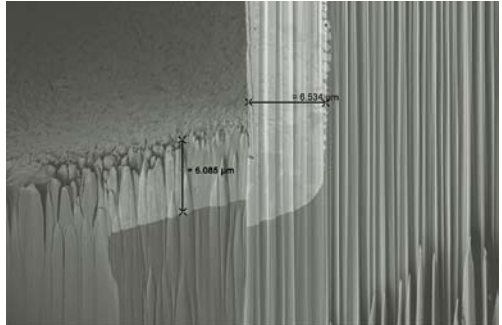
Gold TWV Structures

Top
of
TWV

- Structures shown are 60 μm wide x 100 μm deep
- 88% step coverage



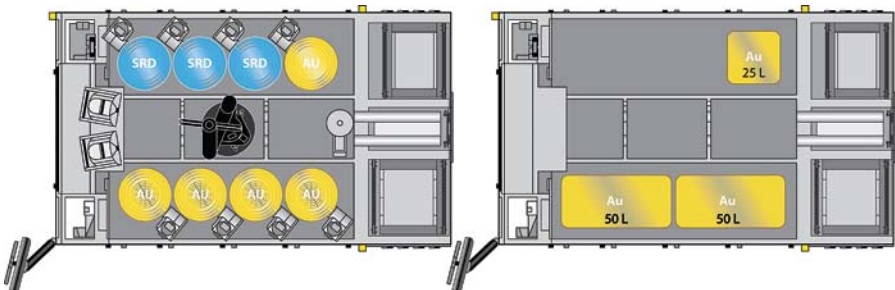
Bottom
of
TWV



Solstice superior performance:

- Typical plating rates in excess of 0.25 $\mu\text{m}/\text{min}$
- Outstanding Within-wafer uniformity: $\leq 3\%$
- Capable of plating thin films of $< 2.6\mu\text{m}$
- Excellent step coverage
- Excellent void-free fill

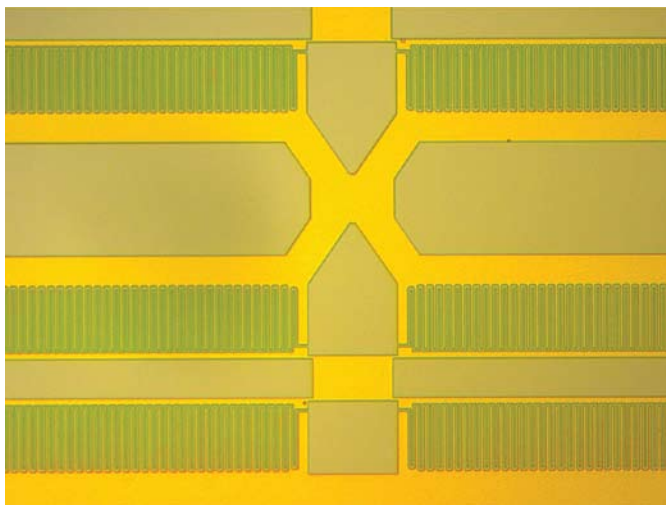
Solstice S8 example system configuration



About this application

The Solstice GoldPro excels at highly uniform gold plating for high-aspect-ratio TWVs. The resulting vias demonstrate defect-free step coverage with exceptional uniformity.

Gold Deplate Process



Solstice superior performance:

- Excellent consistency in pre- and post-plating feature structures
- Fine-grained control of surface roughness
- Within-feature metal loss of $<2\mu\text{m}$

About this application

Deplating of gold is a time-tested process for excess thin film removal with low operating costs, low energy use, and high wafer throughput. The challenge has been to control undercut and surface roughening. The Solstice GoldPro minimizes undercut and surface roughening through recipe-driven voltage and current control.

SOLSTICE® CU^{max}

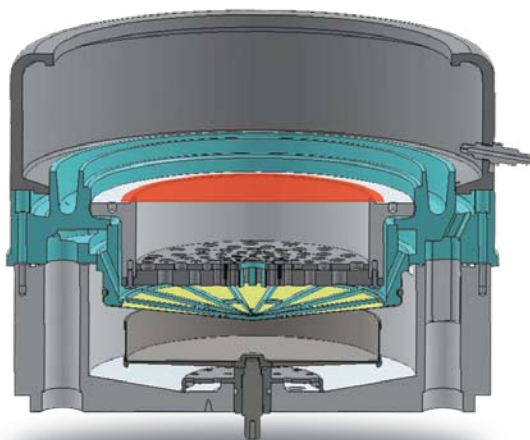
The Solstice designed specifically for advanced, cost-cutting Cu plating

Optimized for copper

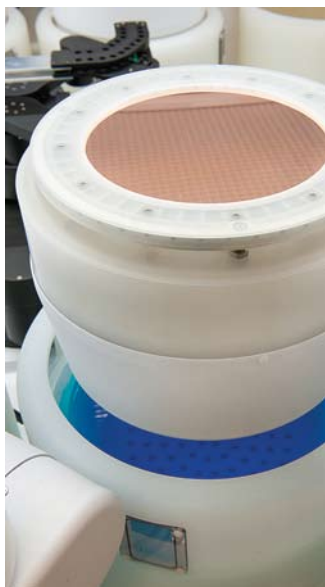
The Solstice® CopperMax is a highly-advanced electroplating tool optimized for the deposition of copper chemistries. CopperMax features a membrane fountain plating chamber with a recirculating anolyte and catholyte to deliver exceptional uniformity and cost reduction at high rates of throughput for 75-200mm substrates.

Cutting copper plating costs

CopperMax solves the expensive problem of rapid bath degradation through the use of a cation exchange membrane that isolates the bath additives from the anode. As a result, the plating bath stays cleaner much longer, and the additives need replenishment far less frequently, yielding significant cost savings.



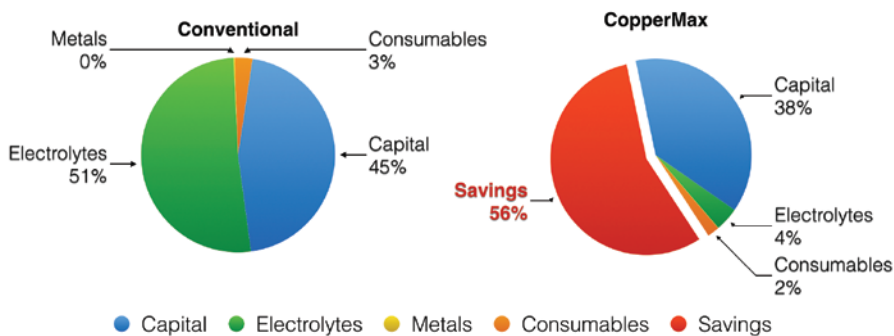
The proprietary CopperMax chamber employs a semipermeable membrane that greatly reduces additive consumption and keeps plating baths clean longer.



Solstice CopperMax benefits

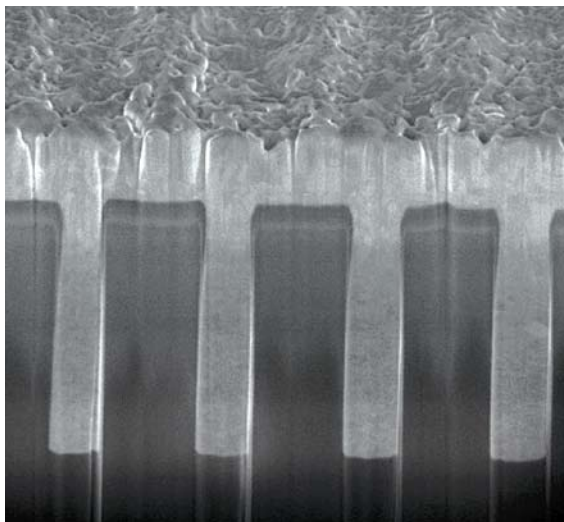
- **Additive savings:** Cuts the consumption of very expensive additives by >95%, yielding a major cost savings
- **Longevity:** Extends bath life by 20x.
- **Cleanliness:** Reduces unwanted by-products in the bath
- **Consistency:** Stabilizes deposit quality
- **Anode savings:** Bulk anode pellets replace solid anodes, increasing effectiveness and reducing anode costs by >50%
- **Speed:** The maximum plating rate is increased by a factor of 10 due to the increased anode surface of the pellets

CopperMax Savings*



* Annual cost of ownership

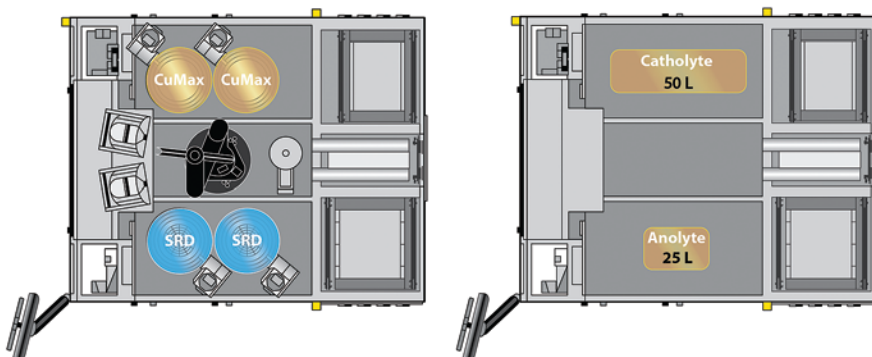
Copper TWV Structures



Solstice superior performance:

- Uniform plating for high-aspect-ratio vias
- Reliable, void-free results
- Feature sizes as small as 5 μm

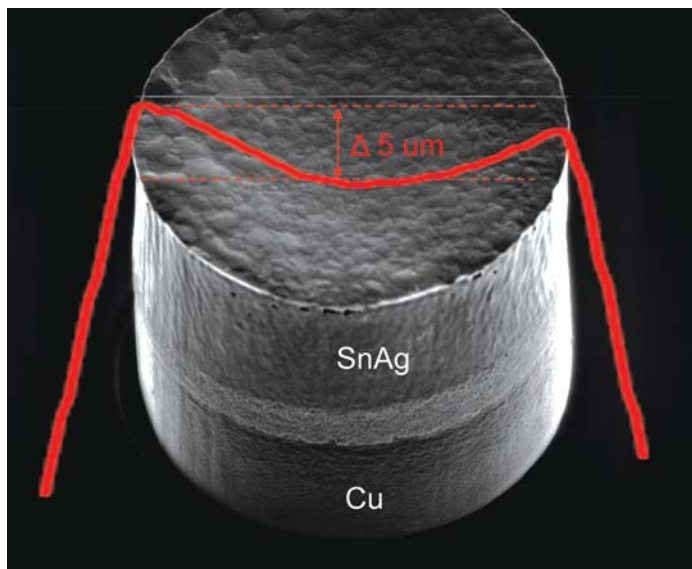
Solstice S4 example system configuration



About this application

The Solstice CopperMax is capable of plating high-aspect-ratio features for uniform, void-free filling. It sets a new standard for cost-effective, robust, and reliable solutions for the critical step of TWV formation designed specifically for substrates up to 200mm.

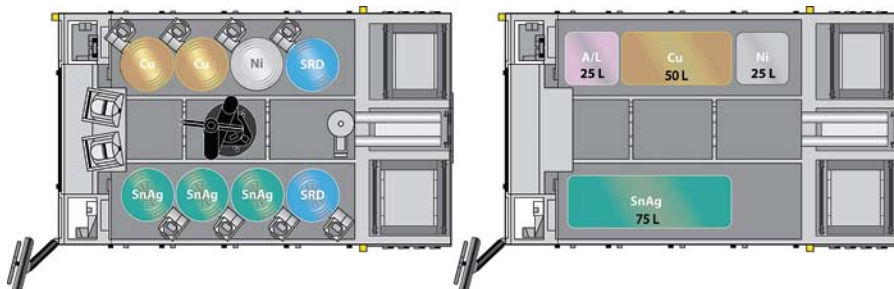
Copper Pillars



Solstice superior performance:

- Fine-grained control of Total Indicator Reading (TIR)
- Plates Cu/Sn/Ag and Cu/Ni/Sn pillars as well as other metals
- Plating times of under 20 minutes results in up to 1800 wafers/week

Solstice S8 example system configuration



About this application

Copper pillars offer a smaller form factor, thin thicknesses, and better performance with lower power consumption than traditional bumping technologies. The advanced Solstice CopperMax excels at high-uniformity, high-speed deposition for fine-pitch copper pillar structures.

Other Key Copper Processes

Microelectromechanical Devices (MEMS)

The MEMS industry favors the use of thicker, more precisely deposited metal layers. CopperMax is highly effective at reducing the operational cost of precise thick-layer copper deposition by increasing both flow rates and bath life.

Copper MEMS Process of Record	
Parameter	Typical Result
Plating Thickness	150 μm
Plating Time	60 min
Feature Size	10-1000 μm
Within Wafer (WIW)	+/-5%
Wafer to Wafer (WtW)	+/-1%
Capacity	760 W/wk

Copper Damascene

Damascene deposition is characterized by via etching, trench etching, and barrier/seed layer depositions to produce extremely fine feature sizes, fine lines, and 3-dimensional layering of conductive features. CopperMax is capable of plating highly-uniform thin-layer copper depositions quickly and consistently for features sizes as small as .025 μm .

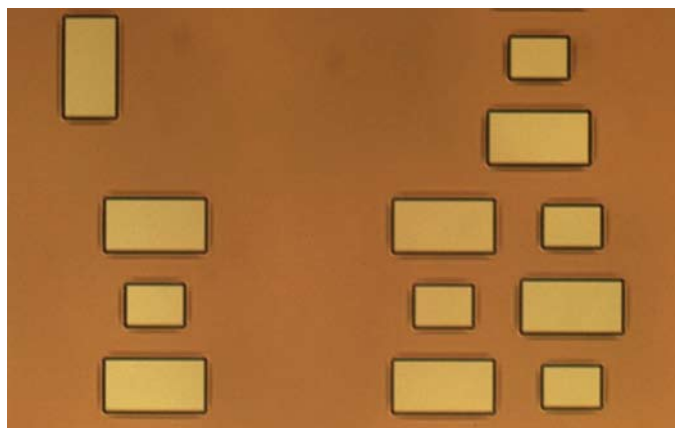
Copper Damascene Process of Record	
Parameter	Typical Result
Plating Thickness	2.5 μm
Plating Time	2.2 min
Feature Size	.045 μm
Within Wafer (WIW)	+/-3%
Wafer to Wafer (WtW)	+/-1%
Capacity	10,600 W/wk

Copper Redistribution Layers (RDL)

Redistribution layers enable subsequent packaging steps by facilitating higher contact density, and exceptionally small package sizes. CopperMax is optimized for Fan-in RDL deposition processes, with capabilities for plating, etching, and under bump metallization.

Copper RDL Process of Record	
Parameter	Typical Result
Plating Thickness	10 μm
Plating Time	6.7 min
Feature Size	5-250 μm
Within Wafer (WIW)	+/-5%
Wafer to Wafer (WtW)	+/-1%
Capacity	2,200 W/wk

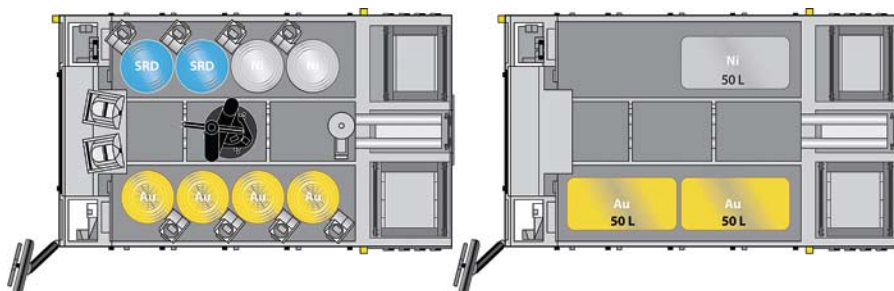
Thin Layer Stacks



Solstice superior performance:

- Solstice can be configured to plate multiple metals on a single wafer without additional steps
- Uniform, repeatable results for high aspect ratio features

Solstice S8 example system configuration



About this application

Thin layer stacking is an excellent way to reduce gold usage by partially replacing it with copper. Techniques typically include using nickel as a barrier layer between the gold and copper. Solstice excels at these applications, with the capacity to plate thin layers of multiple metals without additional process steps.

High-Pressure Metal Lift-Off Process



Solstice superior performance:

- Ideal for applications with large feature sizes
- Comparatively inexpensive, time-tested processes
- Extremely reliable, repeatable results

About this application

The special Solstice Metal Lift-Off chamber can provide single-wafer Metal Lift-Off as a convenient and easy part of a series of automated wafer processing steps—all on a single easy-to-use tool.

Plating-Plus™ Chambers

Adding more capabilities to the powerful Solstice repertoire

Enabling you to do more

The Solstice® platform provides more chamber positions to give you more capabilities, pure and simple. It's about enabling you to do more on this uniquely flexible tool. ClassOne has engineered an array of specialized wet process chambers to address specific types of plating and plating-related processes, and every tool is configurable for your specific process requirements. Shown here are some of ClassOne's proprietary, high-performance Plating-Plus™ chambers.

- Add processes without adding tools
- Increase control and consistency
- Everything on one easy-to-use system
- Save time
- Automated, integrated, in-line
- Minimize handling



UBM Etch (left) and High Temperature Spray chamber (right) in a Solstice S8 system.

High-Temperature Spray Chamber

This special chamber is designed to perform at the higher temperatures needed for certain chemical spray processes such as KOH.



Spray Acid Chamber

This ClassOne-designed chamber may be used to spray acids or other chemicals for a broad range of process needs.



UBM Etch Chamber

This spray chamber has advanced end-point detection to avoid under-cut and give precise, consistent etching.



High-Pressure Metal Lift-Off Chamber

This chamber utilizes high pressure for very rapid and efficient removal of metals and photoresist.



Spray Solvent Chamber

Designed for Metal Lift-Off, Photoresist Strip, Polymer Removal and similar solvent based processes.



Vacuum Prewet Chamber

This unique chamber is designed especially for TSV applications, using vacuum to effectively prewet even very high aspect ratio vias.



Trident® SST

Spray Solvent Tools

Next-generation SSTs

ClassOne's own Trident Spray Solvent Tool is the next generation of batch-processing SSTs. It provides 1-, 2- or 3-chemical configurations to enable a range of solvent-based process applications, including Metal Lift-Off, Photoresist Strip, Polymer Removal, Substrate Cleaning, Resist Develop and more.



SST Key Features

- Single chamber
- 2-, 4-, or 6-tank models
- 50mm to 200mm wafer capability
- Wide range of rotors
- Automated recipe execution
- Windows®7-based Solaris™ controller
- Much more affordable than other SSTs

Advantages of Trident SST over Wet Benches

- Up to 75% less chemical usage
- Up to 30% less DI water usage
- Up to 30% less exhaust
- Recipes execute up to 70% faster
- Significantly smaller footprint
- Purged tank, no moisture absorption
- Minimal evaporation
- No exposure to chemicals/fumes

SST Stainless Steel Process Chamber Features

- Enclosed controlled environment
- In-situ processing
- On-axis design
- Controlled boundary layer
- Dry-dry operation
- Semi-automated operation
- Efficient use of DIW

SST Applications

- Polymer Removal
- Resist Develop
- Positive or Negative Photoresist Strip
- Substrate Cleaning
- Metal Lift Off
- Dry Film Resist Stripping
- Post Plate Strip

Trident SST is also effective for Resist Develop

The Trident Spray Solvent Tool can be effectively used as a Resist Develop tool, working very efficiently and saving both time and cost...

SST Resist Develop Benefits

- CoO savings on developer and rinse
- Develop and rinse times for 25-50 wafers is same as track
- Average time: 10 -15 minutes, depending on rinse medium, DIW vs. IPA
- 15 minutes dry-in/dry-out
- Uniformity of <1% (as good as any spin developer)
- Reduced handling required

Trident® SRD

Spin Rinse Dryers



State-of-the-art SRDs

ClassOne's Trident Spin Rinse Dryers (SRDs) provide the state of the art in cleaning, rinsing and drying wafers after wet processing. The systems' non-contact heating results in cleaner N_2 because it places a filter after the heater and eliminates direct contact between N_2 and the heater.

Trident SRDs also use ultra-pure valves and fittings throughout, and all systems include a comprehensive facility panel to precisely control all pressures and flows.

Trident Spin Rinse Dryers are available in bench-top and roll-around single-stack units, and in dual-stack configurations for processing up to 50 substrates per batch in sizes of 50mm to 200mm, depending upon the model, bowl size and rotor used.

SRD Key Features

- Stainless steel cabinetry
- Negative-pressure motor seal
- Non-contact ultra-pure N_2 heater
- Uniform water spray
- Full-control facility panel
- Door-top DC ionizer
- Full wrap-around bowl heater
- PLC control with color touch screen

SRD Major Benefits

- FM4910 compliance
- Much cleaner seal, reduced particles
- Cleaner N_2
- Uniform rinse, no nozzle replacement
- Precise control of flows and pressures
- Reduced particles
- Optimum drying performance
- All SRD components readily available



SRD Stainless Steel Chamber Features

- Enclosed controlled environment
- In-situ processing
- On-axis design
- Controlled boundary layer
- Dry-dry operation
- Semi-automated operation
- Efficient use of DIW

The ClassOne Applications Lab

A world-class facility with advanced tools and experienced personnel to help optimize your processes

An extraordinary commitment to customer service

Nowhere is ClassOne's commitment to customer service better illustrated than in our Applications Lab. This newly-expanded Class 100 facility rivals some of the industry's largest manufacturers, with state-of-the-art metrology equipment and instrumentation working alongside ClassOne tools to facilitate detailed analysis of every aspect of the wet-process applications in use by our customers. From demonstrations to foundry work, the ClassOne Applications Lab is an extraordinary resource for refining and perfecting wet process applications.

The ClassOne Apps Lab

- Newly-expanded state-of-the-art Class 100 facility
- Fully equipped with wet process and metrology equipment
- Staffed with process engineers and equipment-knowledgeable subject matter experts
- Focused on demonstrating ClassOne equipment performance on specific processes requested by users
- Ideal for assisting customers in developing Processes of Record



Leave nothing to chance

The ClassOne Apps Lab offers our customers everything needed to develop optimal electroplating and wet-chemistry applications on all types on substrates and in a range of sizes. It enables customers to confirm tool capabilities first-hand, for specific applications on specific wafers—all prior to purchase.





Premium refurbished major brands

The industry's premier provider of better-than-new, totally-refurbished major brand processing equipment – at a fraction of new-equipment prices

Major-name tools , up to 60% lower pricing

At its headquarters in Atlanta, Georgia, ClassOne Equipment carries an extensive inventory of professionally reconditioned 75mm to 300mm equipment semiconductor processing equipment from the top manufacturers – at up to 60% less than the price of new tools. ClassOne Equipment is a recognized leader in equipment refurbishment with over 2,500 tools installed world-wide in four key product categories: KLA-Tencor Wafer Inspection and Metrology, Semitool Wet Chemical Processing, Plasma Etching and PECVD from SPTS, Plasmatherm and Oxford, and Mask Aligners from Suss and EVG.

Exceptional quality

ClassOne's equipment refurbishment is done by factory-trained technicians to original specifications. Systems can also be upgraded, enhanced and custom-configured to meet specific customer process requirements. Known for its superior quality equipment, customer-first service, warranties and 30-day unconditional return policy, the ClassOne team has been serving customers in the traditional semiconductor and emerging technology sectors since 2002.



Extensive parts inventory

ClassOne Equipment maintains a strategic inventory with over 5000 key parts to support equipment in the four major product lines we handle. Customers can save up to 50% on parts through ClassOne.

ClassOne Benefits

- Professional refurbishment by factory-trained technicians
- Like-new performance at a fraction of the cost!
- Up to 60% savings compared to OEMs
- 30-day unconditional return policy
- Upgrades and custom enhancements
- Certified Class 100 cleanroom
- Inventory stored in temperature-controlled facilities
- Professional installation and training
- 6- and 12-month warranties available
- Long-term spare parts support



Wafer Inspection & Metrology

Premium refurbished tools

The KLA-Tencor experts

ClassOne is the industry's premier source for refurbished KLA-Tencor Wafer Inspection and Metrology Equipment. We have expertise in a broad range of KLA-Tencor tools, including the Surfscan 6000 Series, SP1, AIT, and 21XX inspection tools.

With a large inventory and a dedicated Class 100 cleanroom, we provide a complete turn-key solution: everything from a fully refurbished system meeting original specifications, to installation and training at your facility, to after-sales spare parts and field service support. We back our systems with warranties on parts and labor and a 30-day return policy. Our high-quality refurbished tools can reduce your costs considerably compared with OEM prices while providing exceptional quality and performance.

Equipment Available

- Wafer Inspection
- Surface Profilers
- Thin Film Measurement
- Overlay Registration
- Resistivity Measurement
- Stress Measurement

ClassOne Advantages

- The industry's most respected supplier of refurbished KLA-Tencor equipment
- KLA-Tencor factory-trained technicians
- Highest quality refurbishment process
- Best warranty in industry (up to 1 year)
- Spare parts support (1000+ parts in stock)

Bare Wafer Inspection

The Surfscan series is the industry standard for bare wafer particle inspection. ClassOne's focus is on the Surfscan 6200, 6220, 6400, 6420, and SP1 systems.



Patterned Wafer Inspection

For patterned wafer inspection the standard of performance is the KLA-Tencor AIT series. ClassOne covers the AIT 1, AIT 2, AIT XP, AIT UV, and XUV Series equipment.



Film Measurement

For optical film measurement ClassOne offers the UV1050, UV1080, UV1250, UV1280, and F5x. For metal film thickness measurement ClassOne offers the RS-Series of 4-point probe systems.



Surface Metrology

ClassOne can provide an array of refurbished major-name Surface Profilers, Stress Measurement, Overlay Registration and other surface metrology tools.



Wet Processing Equipment

Premium refurbished tools

Semitool equipment revitalized

ClassOne Equipment is the industry's leading provider of quality refurbished Semitool Wet Process Equipment, including Spray Acid Tools (SAT), Spray Solvent Tools (SST), and Spin Rinse Dryers (SRD).

Our Semitool-factory-trained technicians provide a complete turn-key solution, from a fully refurbished system meeting original specifications to installation and training at your facility with after-sales service and parts support.

Industry-leading warranties

ClassOne Equipment backs our systems with an industry-leading 6- or 12-month warranty and a 30-day return policy. Buying refurbished equipment can save you up to 65% off OEM prices while providing the exceptional quality and performance you demand.

Plus parts and service

ClassOne provides parts and field service support for all our core refurbished Semitool systems. We have over 5000 parts in stock for support of Equinox, Paragon, LT210C, Raider, SST, SAT, Sceptor, and SRD systems.

Equipment Available

- SRD
- Resist Strip
- Metal Lift-Off
- Polymer Removal
- Cleaning/Etching

Semitool SST

The Spray Solvent Tool is a world standard for batch wafer processing for metal lift-off, resist removal, and wafer cleaning applications for up to 200mm wafers.



Semitool SAT

The Spray Acid Tool is designed for batch wafer processing for acid etch or clean processes for up to 200mm wafers.



Semitool SRD

The Semitool SRD is a standard for wafer cleaning, rinsing, and drying. ClassOne offers single- and dual-stack SRDs for wafers sizes from 2" up to 8" in diameter as well as square sub-strates.



Mask Aligners & Wafer Bonders

Premium refurbished tools

Specialists in SUSS MicroTec and EVG

ClassOne Equipment has become the industry's leading source for high-quality refurbished mask aligners and wafer bonders for semiconductor lithography applications. We carry an extensive inventory of mask aligners from top manufacturers SUSS MicroTec and EVG, including the Suss MJB3, MA6/BA6, MA8, MA150, MA200, and EVG 501, 520, 620 and 6200 systems and more.

A turn-key solution

ClassOne's turn-key solution includes full refurbishment of the tool to original specifications, industry-leading 6- or 12-month warranties, as well as full installation and training by factory trained technicians. Spare parts support is also provided on all of our mask aligners and wafer bonders. Buying a refurbished mask aligner or wafer bonder from ClassOne can save you up to 65% off OEM prices while providing the maximum performance and reliability that your processes require.

SUSS MA6

The MA6 Mask Aligner is considered one of the best mask aligners for semiconductor lithography. It can process small pieces and any size wafer up to 150mm. Highly reliable, it allows very low maintenance costs.



SUSS MA150

This mask alignment and exposure system offers unsurpassed, economical mass production capabilities for cassette-to-cassette wafer handling up to 150mm. Program storage allows ease of setup, and wafer alignment is simple, quick and precise.



EVG620

The EVG 620 mask aligner is a dual-use tool designed for optical double-side lithography and precision alignment up to 150 mm wafer sizes. Automated cassette-to-cassette handling processes wafers up to 150 mm, regardless of their shape or thickness.



EVG501, 520, 520IS

The EVG 501, 520, 520IS wafer bonders are designed to bond wafers up to 200 mm with semi-automated operation for low to mid-volume wafer to wafer bonding applications.



Plasma Etchers & PECVD Equipment

Premium refurbished tools

Featuring SPTS, Oxford Instruments and Plasmatherm

ClassOne Equipment is the industry's top resource for first-quality refurbished plasma etch (RIE, DRIE, ICP) and deposition (PECVD) equipment from the top manufacturers SPTS Technologies, Plasma-Therm, and Oxford Instruments.

Our factory trained technicians provide a complete turn-key solution from a fully refurbished system meeting original specifications to installation and training at your facility with after-sales service and parts support. We back our systems with industry-leading warranties and a 30-day return policy. Buying refurbished plasma etchers and PECVD equipment can save you up to 65% off OEM prices while providing the same exceptional quality and performance you demand.

SPTS Technologies

ClassOne Equipment possesses core expertise in the SPTS Multiplex ICP (DRIE, ASE, AOE, etc), Pegasus ICP (DRIE), MPX ICP platforms and PECVD systems.



Oxford Instruments

Our focus and expertise is in the Oxford Plasmalab 80 Plus, Plasmalab 100 Plus, Plasmalab 133 Plus, and Plasmalab 800 Plus RIE, ICP, and PECVD systems.



Plasma-Therm

ClassOne has experience and expertise in the Plasma-Therm 790 RIE, SLR-720 RIE, SLR-730 PECVD, SLR-770 ICP (DRIE) as well as other Plasma-Therm systems.



Quality Spare Parts

For refurbished tools



Extensive parts inventory

ClassOne Equipment maintains a strategic inventory with over 5000 key parts to support equipment in the four major product lines we handle. And customers can save up to 50% on parts through ClassOne.

Parts for same-day shipping

The following is a sampling of parts we keep in inventory for same-day shipping...

KLA-Tencor parts support

- New JDSU lasers
- New PMTs
- New wafer chucks
- New end effectors
- Analog board
- Polarizing beam splitter cube
- Auto cal pin
- BPS pin
- Below wafer mirror
- Centering device
- Optics isolator
- Robots

Suss & EVG parts support

- Vacuum chucks
- Mask holders
- Power supplies and motors
- Switches, relays
- PCBs
- DVCU
- Lamps
- Ellipsoid mirrors and cold light mirrors
- Mirror house cylinders
- Shutter cylinders
- UV meters and probes
- Keypad overlays
- Lead screws
- LCD monitor upgrade kits

Semitool SST/SAT/SRD parts from ClassOne

- **Brushless Motors** - We stock new 120V and 220V drop-in replacement motors for SAT, SRD, and SST tools.
- **Seals** - We stock a large number of different o-rings, seals and door seals for SAT, SRD, and SST tools.
- **Windows (SRD)** - We stock a number of different windows for SAT, SRD, and SST tools.
- **CRT to LCD Monitor Upgrade** - We designed an LCD in-place upgrade kit for your SST and SAT with front CRT monitor.
- **Rotors** - Custom stainless steel and PTFE rotors designed and manufactured to customer specifications.
- **Motor Controllers** - We stock refurbished 120V and 220V brushless motor controllers for SAT, SRD, and SST tools.
- **Clamshells** - Custom PTFE Clamshells designed and manufactured to customer specifications.
- **Circuit Boards** - We stock a wide selection of new and tested boards/assemblies.
- **Heater Blankets** - We stock 120V and 220V heater blankets for your Semitool SRD.
- **Immersion Heaters** - We stock a number of new replacement immersion heaters for your Semitool SAT.



Semitool Equinox, LT210, Raider parts from ClassOne

- **Lift/Rotates** - Entire department dedicated to refurbishing customer Raider, Equinox, and LT210 lift/rotates. We stock several refurbished models available to ship next day!
- **Robots** - Entire department dedicated to refurbishing customer Raider robots. We also offer many different models for sale.
- **Spin Motors (Drive Head)** - We offer many new drop-in replacement Raider, Equinox, and LT210 spin/drive head motors. These are upgraded versions of the OEM motors with longer warranties!
- **Poppets** - We stock a number of different poppets for the Raider, Equinox, and LT210 platforms.
- **CRT to LCD Monitor Upgrade** - We have designed a LCD in-place upgrade kit for your Equinox front CRT monitor.
- **Ceramic End Effectors** - We offer several different end effector designs, some include enhancements over the original design.
- **Swing Arm Motors** - An upgraded version of the originally supplied swing arm motor.
- **Pump Systems** - New and refurbished replacement pump system components and complete pump systems.
- **Circuit Boards** - We stock a wide selection of new and tested boards/assemblies.



ClassOne Financing Programs

Expediting and simplifying your path to obtaining new processing equipment



Quicker, easier equipment financing

Working with First American Vendor Finance (FAVF), ClassOne has developed a tailored program to give our customers more attractive and easy-to-use options for acquiring the processing equipment and services they need.

Advantages of ClassOne equipment financing

Depending on your company's specific needs, plans and financial profile, the right equipment financing plan may provide useful flexibility and benefits:

- Conserve cash and credit lines
- Spread payments over time
- Align expenses with revenue
- Gain potential accounting and tax benefits

Superior lending power

First American is a wholly-owned subsidiary of City National Bank, a part of the Royal Bank of Canada. Their low cost of funds and leasing expertise translates directly into competitive rates and an easier loan processing experience. First American offers industry expertise, responsiveness, and flexible repayment options to meet each user's individual needs. And, they have a 96% customer satisfaction rating!

Worldwide Service and Support

ClassOne keeps you fully covered,
wherever you are around the globe



Supporting customers, promptly and professionally

ClassOne's worldwide success is based upon more than just the quality and performance of our equipment—it's about our extraordinary commitment to customer service. With decades of experience in the semiconductor industry, ClassOne field technicians offer deep experience not only in the maintenance and operation of our tools, but in understanding the processes and markets that our tools support.

Putting experience to work

ClassOne's reputation and long-term customer relationships arise from knowing how to deliver that experience precisely and efficiently on a global scale. We'll ensure that your processes work well from the outset, and that our tools will continue to deliver excellent performance, day after day, year after year. It's about exceptional people—both yours and ours—coupled with a passion for engineering excellence and process profitability.

Local support on a global scale

- Field Service Offices strategically distributed in eight locations worldwide
- Wet process-experienced process engineers (ECD, SST, SAT)
- Factory-trained, certified field service engineers
- 20+ Senior FSEs worldwide with 200+ years' experience
- 24-72 hour onsite support
- Local parts depots
- Key spare parts stocked for same-day shipment



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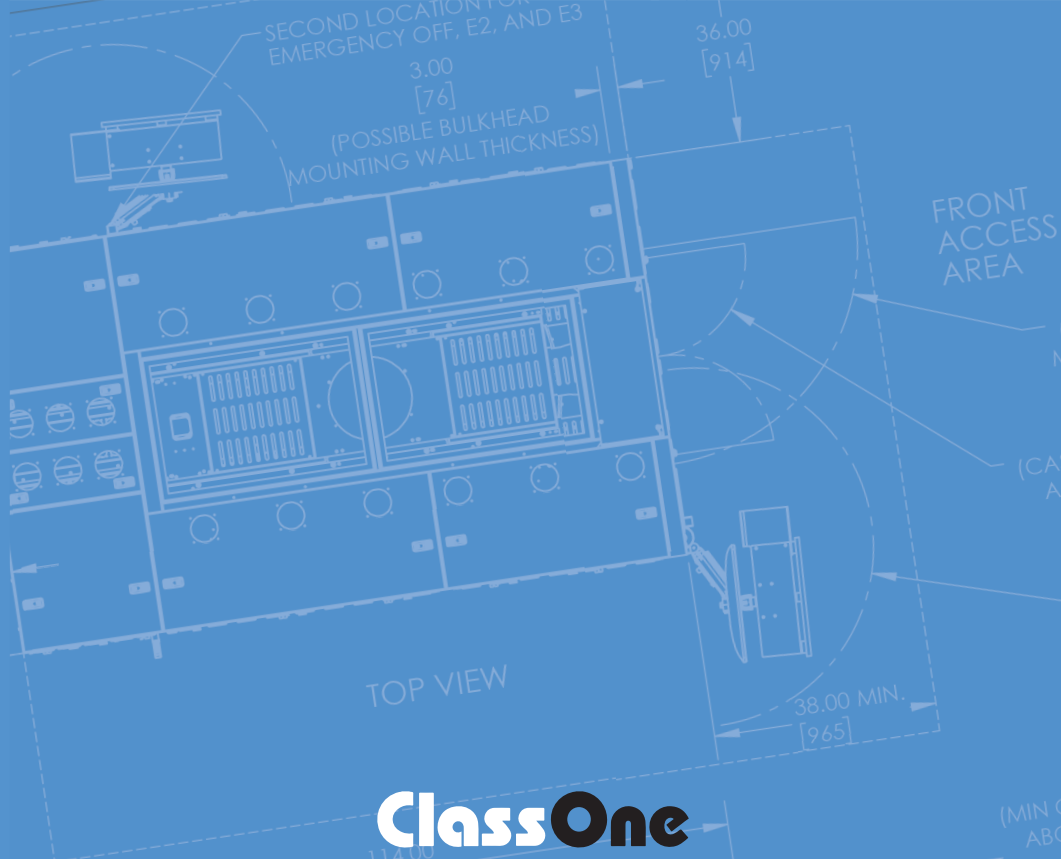
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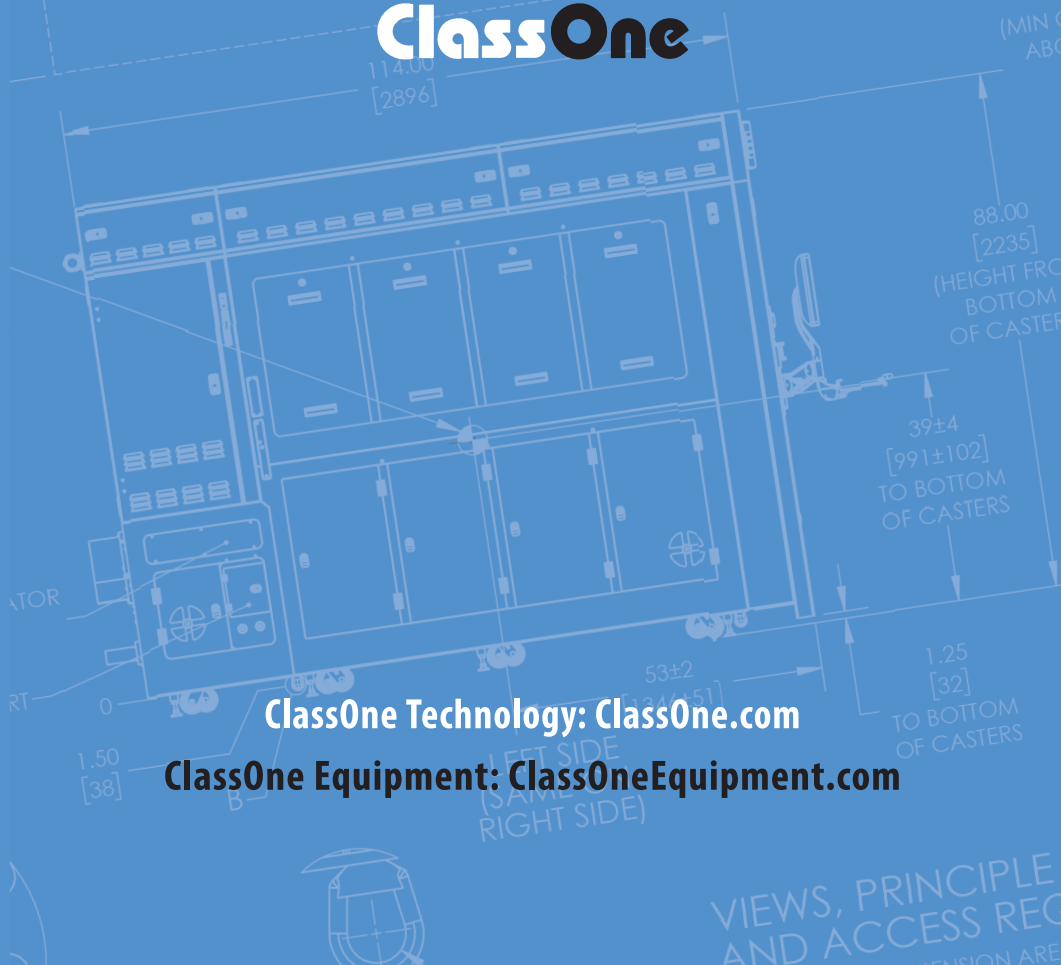
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