

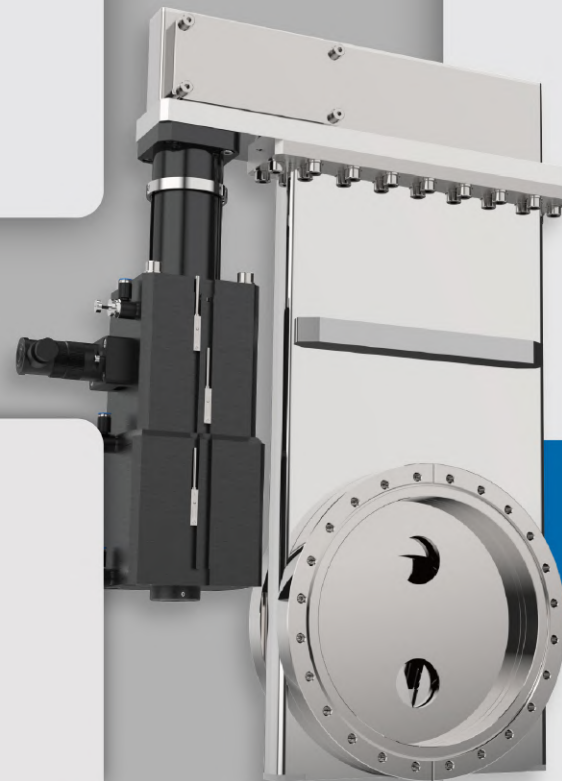


BEST PARTNER FOR VACUUM AND SUB-FAB SOLUTIONS

HIGHLIGHT TECH CORP.

www.htcvacuum.com

- **HEADQUARTERS**
Tainan , Taiwan
- **OPERATION CENTER**
Hsinchu , Taiwan
- **OFFICE**
Taichung , Taiwan
Kaohsiung , Taiwan
- **GLOBAL FOOTPRINTS**
Phoenix , AZ , USA
Shanghai , China
Kumamoto , Japan



Vacuum System Services & Solutions
Sub-Fab Services & Solutions
Wafer Processing Solutions
High Power & Voltage Solutions

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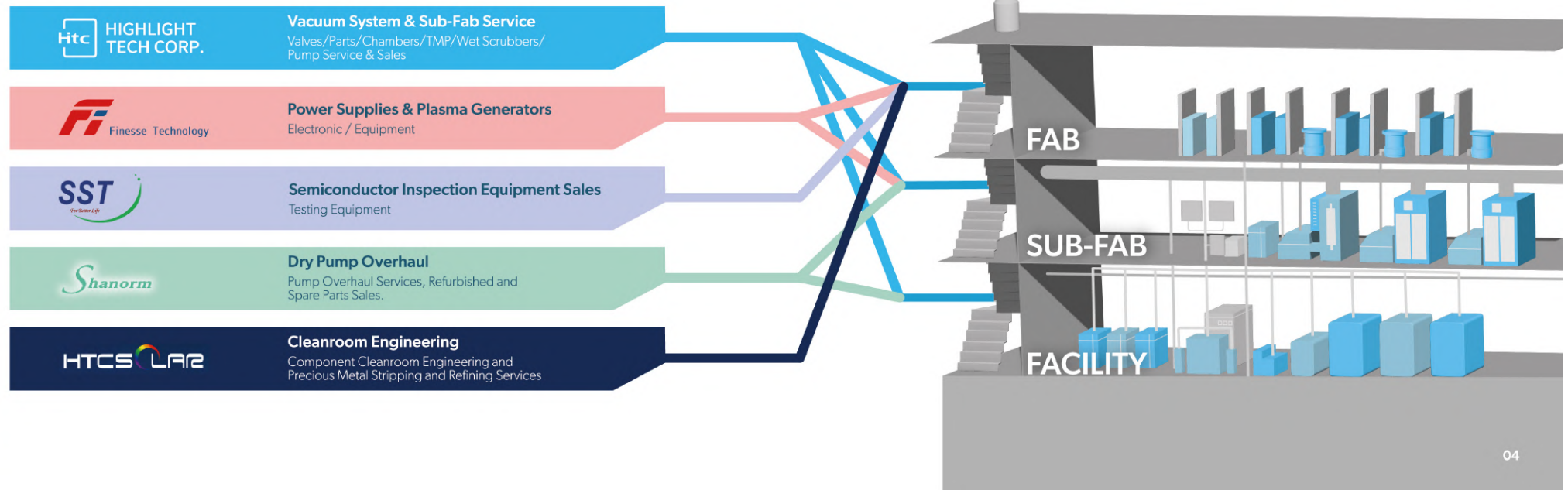
ESSENTIAL SOLUTIONS FOR FAB APPLICATIONS

Htc Group specializes in providing advanced vacuum technology solutions tailored to the semiconductor industry, focusing on resolving particle issues and optimizing exhaust gas systems to boost production yields. Through

innovation, we undertake wafer manufacturing challenges, helping our customers achieve their energy efficiency and carbon reduction goals.



**HIGH QUALITY,
TIMELY RESPONSE,
CUSTOMER SATISFACTION**

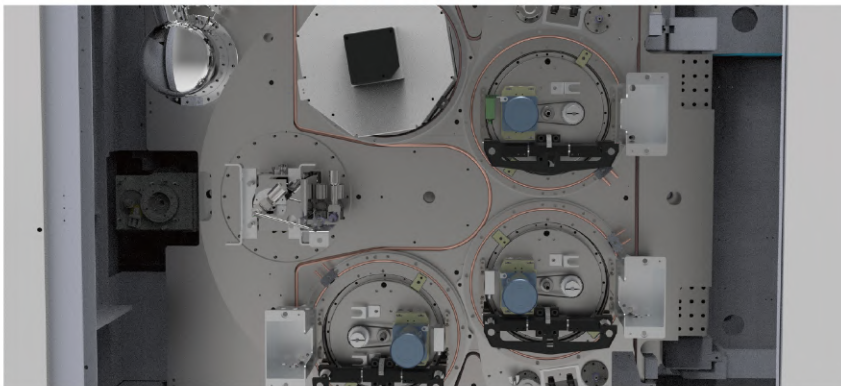


PROGRESSIVE WORKFLOW & ASSURANCE

From Concept to Completion: Ensuring Excellence at Every Stage

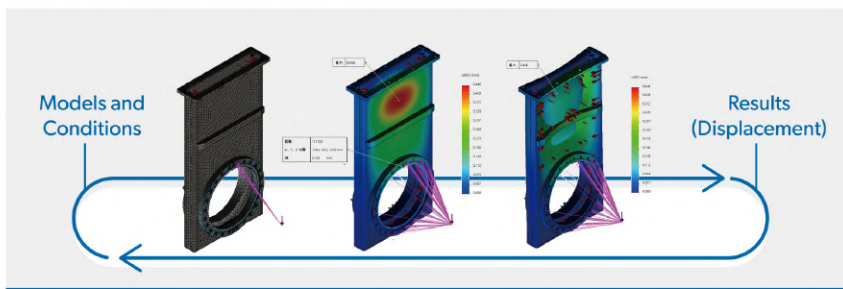
■ Innovation Design

Since 1997, Htc has been at the forefront of vacuum parts development and system integration. We offer a comprehensive range of parts and services, tailored to meet your specific needs. Our innovative design approach focuses on understanding your requirements to deliver solutions that enhance performance and efficiency.



■ Precision Verification

Ensuring the highest product quality is our priority. We rigorously collect data from customer feedback and on-site services to develop precise test plans for our prototypes. Every variable and factor is meticulously considered in our simulation tests. Each Htc product undergoes thorough testing from the design phase to manufacturing, guaranteeing reliability and excellence.



■ Consistent Manufacturing

At Htc, quality is our cornerstone. We integrate cutting-edge processing techniques to establish a consistent, efficient, and reliable production workflow.



Processing



Cleaning



Assembling

Every Htc product is crafted with meticulous attention to detail, following standardized procedures to ensure superior quality and consistency.



Coordinate Measuring Machine (CMM)



Leakage Test



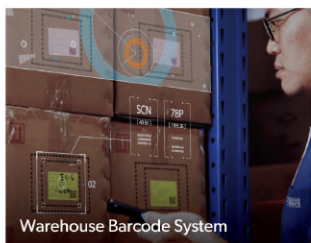
Welding (Cleanroom)

Smart Operations

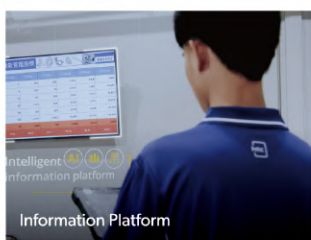
Our SMART management system provides real-time monitoring and analysis of production data, preventing unexpected issues and sudden shutdowns.



Read more



Warehouse Barcode System



Information Platform

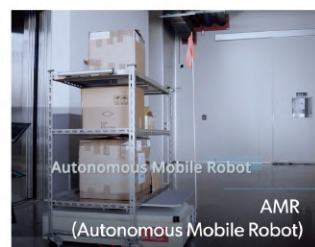


Product ID and Traceability

Combined with automated production lines, we ensure maximum efficiency, quality, and workplace safety. Our proactive approach guarantees smooth operations and continuous improvement.



Automatic Cleaning Machine



Autonomous Mobile Robot

AMR

(Autonomous Mobile Robot)



Transport Equipment

Automatic Loading System

COMPREHENSIVE VACUUM SOLUTIONS

Beyond Products: Collaborative Solutions for Every Challenge

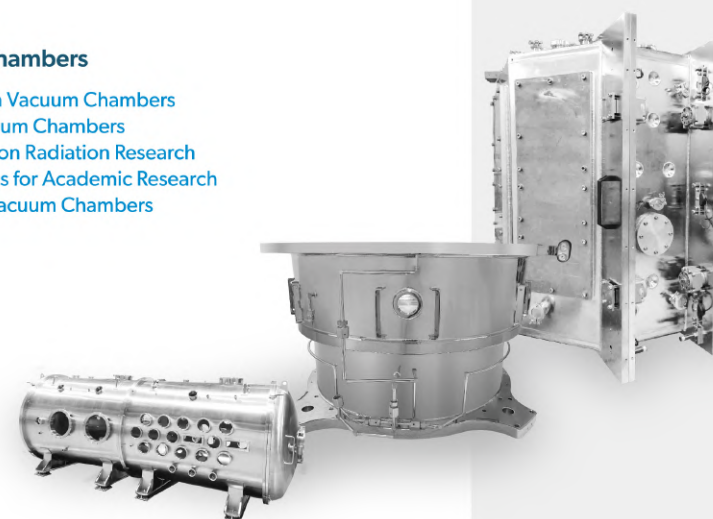
Vacuum Components

- Flanges
- Clamps
- Centering Rings
- Gaskets
- Bellows
- Fittings
- Adaptors
- Viewport
- Feedthrough
- Vacuum Gauge



Vacuum Chambers

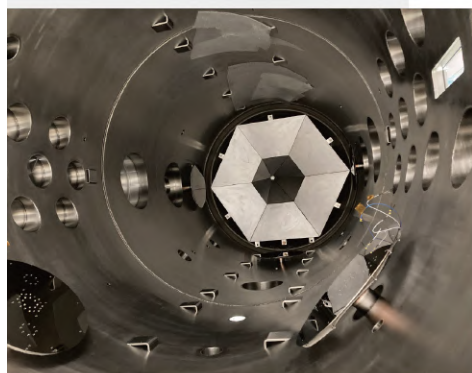
- Aluminum Vacuum Chambers
- UHV Vacuum Chambers
- Synchrotron Radiation Research
- Institutions for Academic Research
- Custom Vacuum Chambers





Vacuum Valves

- Angle/Inline Valves
- Gate Valves
- Butterfly Valves
- Transfer Valves
- Pendulum Valves
- Ball Valves
- Check Valves
- Venting Valves
- All Metal Valves
- APC Valves



System Integration

- Satellite Reaction Wheels Test System
- UHV Chambers for Beam Line
- [Ground Application System for Hard X-ray Modulation Telescope](#)
- XHV System for XPS/ESCA
- Space Simulation Vacuum Chamber and System

Expertise and Precision:

Delivering Reliable Solutions from Start to Finish

Expertise in Vacuum Technology	Meticulous Manufacturing Practices	Comprehensive Solutions	Commitment to Excellence
Deliver Reliable Products and Services	Ensure High-quality Outcomes	Address Every Challenge from Start to Finish	Drive consistent Performance and Innovation



Low Vibration Pneumatic Valve



FESTO/Htc co-developed pressure control technique that can reduce vibration over 70%



Ideal for various pneumatic valves used in advanced semiconductor processes



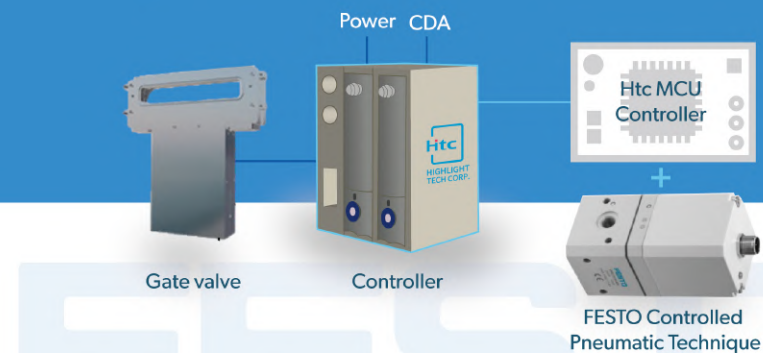
External module can be used to upgrade existing pneumatic valves



Embedded module will be developed as new pneumatic valves



FESTO's compact, low-vibration solution with Htc Valve will be launched in Q4, 2024.



SOLUTIONS FOR PARTICLE & EXHAUST

Enhancing Pumping Efficiency: Tackling Particle Clogging in Vacuum Systems

RCC (Rotor Cover Cap)

Prevent residue buildup, reduce particle recoil, and boost process yield

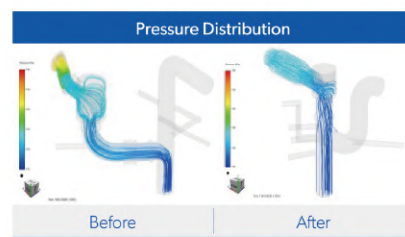
- Prevention of Residue Accumulation
- Reduction of Particle Recoil to the Chamber
- Reduction of Particle Accumulation on the Wash Plate
- Reduction of Chemical Reactions Between Screws and Gas



Foreline Flow Field Simulation and CIP Solutions

Visualize and identify particle buildup with custom solutions to enhance efficiency

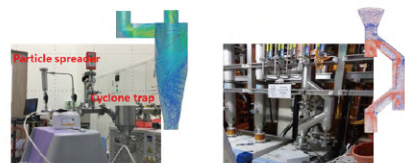
- Utilize **Fluid Domain (FD)** techniques to analyze and address particle accumulation
- Custom-designed clogging solutions to prevent future issues
- Tailored solutions for process improvement and increased yields



Cyclone Trap

Passively collect particles at inlets, improving performance without extra utilities

- Installed on the inlet port of dry pumps or scrubbers
- Efficient particle collection without electricity, water, or air supply
- Enhance equipment performance and extend lifetime cost-effectively



WEH® Coating

Prevent particle clogging, reducing repair frequency in advanced processes



Adhesion
Good adhesion to stainless/Al



Hydrophobicity
High contact angle, easy to clean



Temperature
Wide range of working temperature



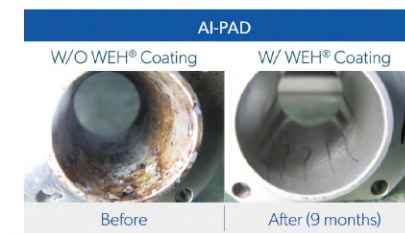
Anti-Corrosion
Protect vacuum parts from being etched by acids and radicals



Hardness
Protect vacuum parts from being bombarded/scratched by particles.



Roughness
>70% roughness reduction suggesting that deposition and reaction on the surface can be decreased.



Heater Jacket and Thermal Management Solutions

Boosts thermal management and extends vacuum part lifetime cost-effectively



Price
Lower price by 10%



Energy
Energy saving efficiency of 27.2%



Flexibility
Suitable for various of vacuum parts.



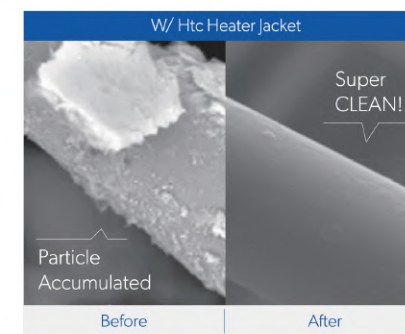
Eco
Environmental friendly.



Lifetime
High-quality packaging and materials.



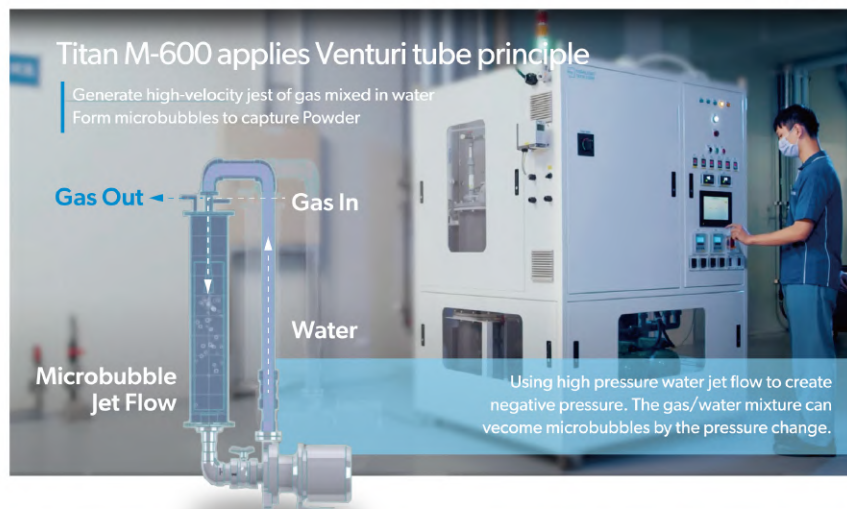
Powder-free
No particle release issue.



Micro-bubble Wet Scrubber



Read more



- Uses a high-speed fluid jet combined with water to generate micro-bubbles that collect particles and eliminate PM2.5 emissions
- Real-time monitoring by AIoT provides clear lifecycle analysis and data for early maintenance, preventing equipment shutdowns and improving production yield rates



High Particle Capture Rate
Over 90% efficiency



NO_x Emission Elimination
Effectively eliminate NO_x emissions

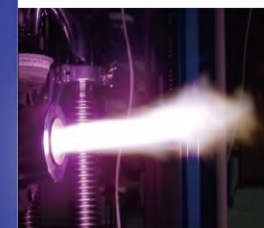


Reduced N₂ Purge Usage
Decrease N₂ purge by over 25%



Negative Pressure Design
Support inspections and prevents air leakage

Plasma Scrubber



Long Plasma Flame

Temp. Frame: 2,000-10,000°C
Flame length: about 20cm

- Efficiently address piping clogging and particle emissions
- Provide a reliable and environmentally friendly method of cleaning and surface treatment compared to burn scrubbers, with lower costs (<60%) and longer PM cycles (>180 days)



High CF₄ Throughput
200 LPM with DRE > 95%



Compact Size
Space-efficient design
(80x80x175cm).



Multi-Chamber Support
Support over 10 chambers with one scrubber



1500+
Proven Reliability
Over 1,500 units sold to
8" & 12" fabs and solar plants.

MONITOR SYSTEM AND MAINTENANCE SERVICE

Comprehensive Monitoring:
Beyond Gas Exhaust, Full Pumping System Oversight

24/7 Turbo Pump, Dry Pump, Valve MRO Services

Comprehensive MRO (Maintenance, Repair, and Overhaul) services ensure maximum uptime and optimize performance for your vacuum systems



- Cover dry pumps, turbo pumps, and valves with 24/7 MRO services
- Analyze equipment lifetime based on usage patterns
- Ensure optimal productivity, performance, and around-the-clock efficiency

3000+
Capacity Units/year

< Turbo Pump >
Edwards, Shimadzu,
Pfeiffer, Alcatel

2000+
Capacity Units/year

< Dry Pump >
Ebara, Kashiya,
TA IKO, ULVAC

1600+
Capacity Units/year

< Valve >
Pendulum Valve,
Gate Valve

CIU Monitor System

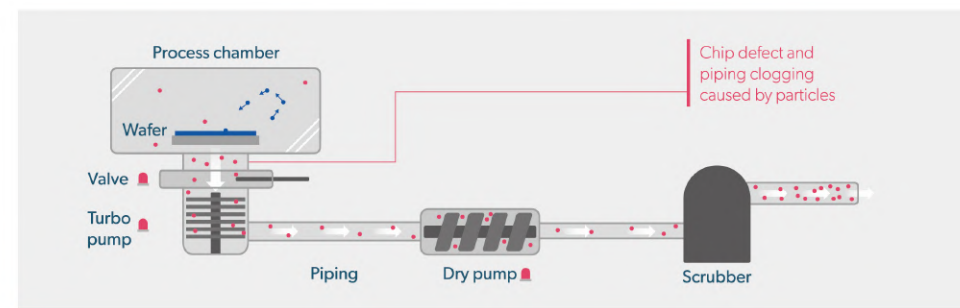
An intelligent method for monitoring and controlling pumping systems and Gas Exhaust treatment, optimizing energy usage and preventing sudden system shutdowns

- Collect and analyze data on current condition, vibration, temperature, and health indicators
- Provide real-time insights and proactive maintenance recommendations
- Prevent sudden shutdowns and ensure optimal performance and reliability



Smart Condition Monitor System (SCMS)

SCMS tracks valve, turbo pump, and dry pump conditions in real-time, sending **early warning notifications** to prevent unexpected issues. It assesses health, generates trend charts, and performs root cause analysis to improve reliability and efficiency.



Htc's particle solutions significantly reduce particle-related issues.



Beyond particle management, our solutions extend exhaust system PM cycles and reduce dry pump energy consumption.



SCMS's advanced warning system prevents unexpected failures, reducing operational risks.

Customer Needs and Corresponding Solutions



Optimize Performance



Reduce Costs



Extend Lifetime



Save Energy

System Shutdown Prevention

Smart Condition Monitor System (SCMS)

Particle Reduction and Gas Flow Improvement

WEH® Coating + Energy Savings Heater Jackets (Patented)

Particle Removal, Power Saving & NO_x / Carbon Emission Reduction

Micro-bubble Wet Scrubber (Patented)

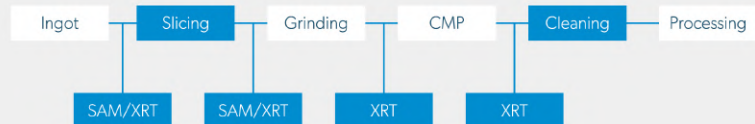
NO_x/Carbon Emission Reduction

Plasma Scrubber

NON-CONTACT WAFER SLICING AND IN-LINE INSPECTION

Efficiency Meets Precision:
Lean Manufacturing Solutions for Wafer Processing

From ingot slicing to cleaning, coating, and quality inspection, Htc offers process development, contract manufacturing, and customized equipment solutions. Our technologies ensure high efficiency and minimal environmental impact.

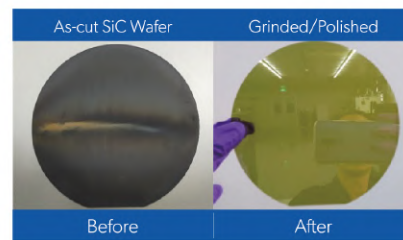


Note: Htc plays a central role in the process.

■ Contactless and High Efficiency Slicing Techniques

Eliminates defects and boosts efficiency in wafer slicing without environmental impact

- Non-contact slicing eliminates flaws or defects
- Environmentally friendly: No slurry required, reducing pollution
- High productivity: 6" SiC slicing time under 8 hours
- Ideal for wafer slicing process under 8 inches



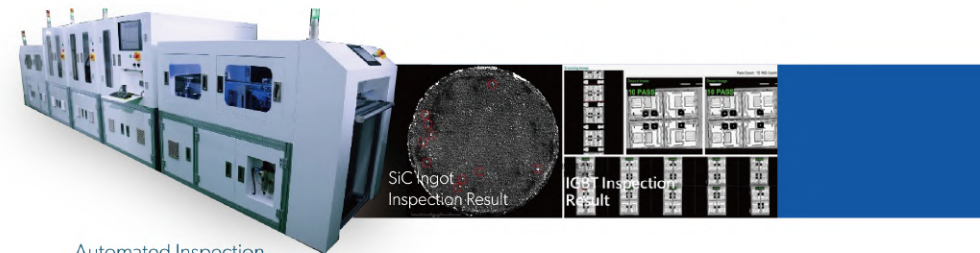
DOLPHIN



Read more

■ Scanning Acoustic Microscopy (SAM)

Optimize defect detection and enhance process efficiency with advanced imaging technology

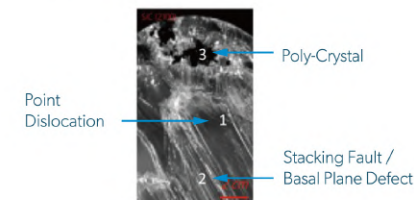


Automated Inspection Equipment

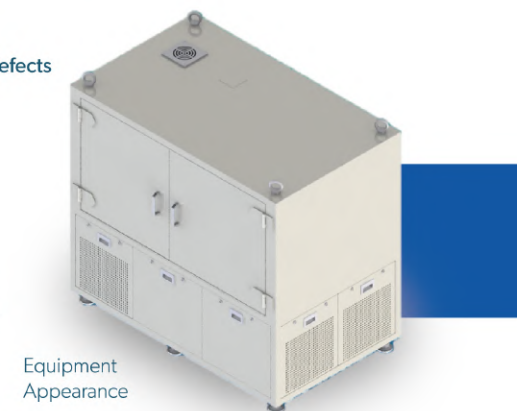
- Facilitates detection and elimination of SiC ingot, wafer, IGBT, packaging module defects
- Advanced 3D Imaging: Integrated energy control and image processing for comprehensive surface analysis
- Efficient Inspection: 6" wafer scanned in 30 minutes (@40MHz Probe)

■ Acumen (X-ray Topography, XRT)

Precise inspection for identifying structural defects in ingots and wafers



Ingot Inspection Result



- Support ingot under 8" and wafers with thickness between 100μm and 600μm
- Detect voids, cracks, micropipes, dislocations, and stress
- Compatible with 3D u-CT for comprehensive defect analysis



Read more

■ Solvent Spray Technology (SST)

High-efficiency Cleaning for Wafer Manufacturing Process

- Improve wafer cleaning efficiency with multi-wafer rotary cleaning technique
- All-in-one process with cleaning, processing and drying integrated
- Real-time monitoring and support customization request with Htc-owned system
- Customized Rotor Design & Dynamic Balancing Calibration
- Reducing chemical usage with Htc-owned DIO₃ system



Customized HMI monitoring system to ensure precise control and comprehensive oversight



Surface Passivation Wafer Cleaning Photoresist Stripping



All-in-One Solution: Integrated Cleaning, Drying and Processing for the finest performance

■ DIO₃ System

Htc in-house developed equipment and integrated solution for wafer cleaning

- DIO₃ system effectively cleans and removes surface particles, polymeric pollutants, and metallic residues from wafers with fewer chemicals
- Customizable Concentration Scale: 6-100 ppm
- Adjustable Flow Rate: 3-45 slm
- Precision Concentration Stability: 5%



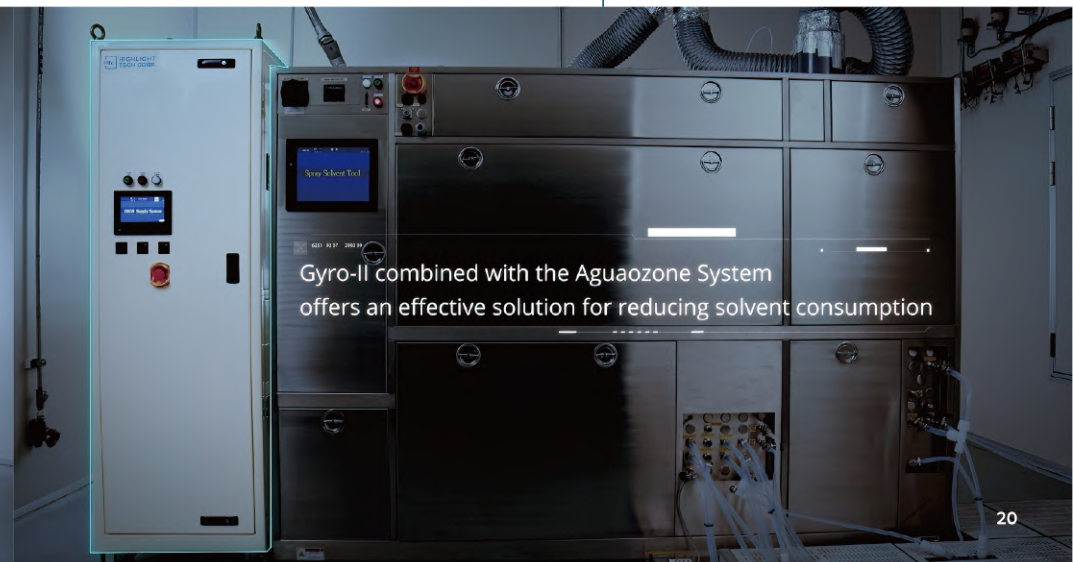
O₃ Generator



DIO₃ Deliver System



Solvent Spray Technology(SST)





PLASMA & HIGH POWER SOLUTIONS PROVIDER

Finesse Technology provides comprehensive technical services centering on advanced technologies and equipment for the semiconductor and electronics industries.

By incorporating Core Technology and Services of these industries, we develop our own products with optimal solutions.

What We Do

Core Technology

Plasma Physics, High Power & Voltage, Radio Frequency, Microwave, Electronics Control System

Finesse Brand Product

ACME RF Power Rack, AOS Ozone System, RPS

Technology Services

RPS & Ozone System Overhaul Services, CIP Solutions



SEMI Equipment

TF, Etch, Diff



Key Subsystem

Plasma, RF Power, Ozone System



Tech. Services

Overhaul, Refurbished

SEMICONDUCTOR OZONE GENERATOR & SYSTEM

Advanced and Customizable Solutions for Manufacturing Success

AOS 6800 Ozone System

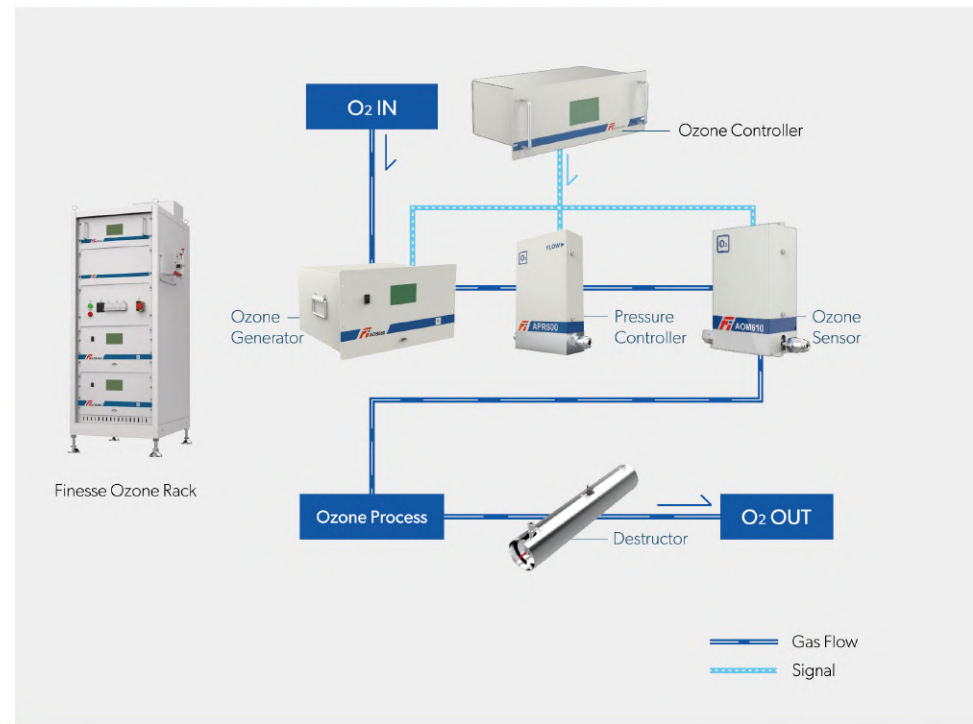
Not only greener but more flexible

High Concentration

Suitable for Photoresist Strip, Wafer Cleaning, Contaminant Removal, Surface Conditioning, Oxide Growth and ALD Processes

Power Control & Ozone Concentration Control Mode Selections

All-in-One System: O₂ MFC, Pressure Control & Ozone Sensors



INNOVATED POWER SOLUTIONS

Maximize Energy and Cost Efficiency

■ ACME® Rack

A Well-recognized Energy and Cost Saving Solution

- Lower Maintenance Cost by 60-80% / year
- Save Electricity Cost by 60% / year
- Higher Availability by 5%
- Zero Consumables



Fast RF Switch
(Patented)



High Tolerance of
Reflected Power



Arcing
Protection

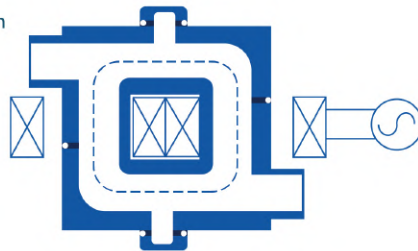


Low Harmonic/
Spurious Noise

■ RPS & CIP Solutions

Advanced, Customizable and Clean Power Solutions

- Patented Ignition Design
- Anodizing Improvement
- Energy and Carbon Emission Reduction in Components/System Integration
- Plasma Physic



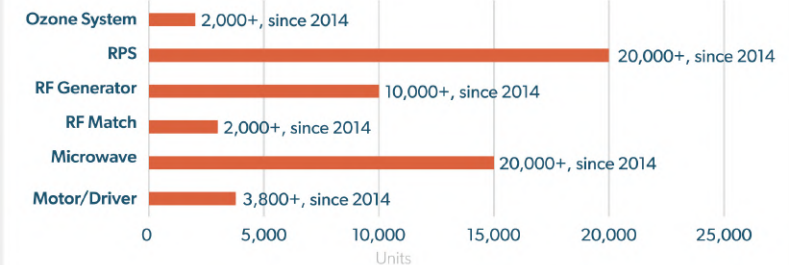
PRODUCT REPAIR / REFURBISHED SERVICES

Restore, Renew and Re-birth

With experiences collected through every piece we received; we develop our in-house verification method. Our extensive technical expertise covers all service areas, including

- Power RF/MW/DC
- Ozone Generator
- RPS (Remote Plasma Source)
- Motor/Driver
- Endpoint System
- E Chuck (Electrostatic Chuck)

Technical Experience



By offering comprehensive support to our customers, **Finesse Technology** continually develops and innovating ourselves to meet industry demands



Our Goal Fulfillment and Value Recognition

Awarded by TSMC as an Excellent Contractor



Ranked 63rd out of top 100 fast growing companies in Taiwan in 2019



Taiwan Mittelstand Award, granted by the Ministry of Economic Affairs (Taiwan) in 2021



D-U-N-S® Certified



TUV NORD
ISO 9001 ISO 14001 ISO 45001



SEMI S2 Certification



Annual Outstanding Supplier



Excellent EHS Management Contractor
Annual Finest Equipment Supplier



Member of Responsible Business Alliance



Htc Global Sites and Major Clients



From design and manufacturing to verification, we work closely with our global customers to meet their expectations.