Formed in year 2000, JKS Engineering (M) Sdn. Bhd. has been fully committed on development of cleaning and automation solutions to over 100 companies worldwide.

With over 20 years of experience, JKS partners with our customers and suppliers to develop solutions with operation competitiveness.
The quality of our products and services starts with the understanding of customer’s part manufacturing processes and their cleaning requirements. We provide customised cleaning process designs within our standard platform after considering various aspects of the part and the type of contaminant affecting the part.
**OUR CHEMISTRY**

Our strength lies in building long-term partnership with various chemical suppliers in the dedicated industry to provide our customer with operational competitive chemistry.

*Combination of 2 or more chemistry*

**AQUEOUS / SEMI-AQUEOUS**

**HYDROCARBON**

**FLUORINATED SOLVENT**

**HYBRID**

**OUR MECHANICS**

Utilizing the right chemistry and cleaning mechanics to satisfy the need of different industries.

**ULTRASONIC CLEANING**

**ADVANCED VACUUM EXTRACTION (avX)**

**VAPOR CLEANING**

**SPRAY CLEANING**

**FILTRATION**

**MIX SPACE CLEANING**
JKS Application Lab conducts customer parts testing with our in-lab cleaning systems, mainly using XCEL FE01-FS and XCEL CT12-HY. Our experienced engineers would focus on process selection and optimization on key elements of chemistry, mechanics, temperature and time.

JKS in-lab available verification methods include particle extraction analysis, complies with VDA 19.1 / ISO 16232 standards, and dyne pen test for degreasing results, which complies with ASTM D2578 and TAPPI T698 standards.

**XCEL FE01-FS**

**XCEL CT12-HY**
12-Station Hybrid Complete Platform for Multiple Process Evaluation using Hydrocarbon and Aqueous-Based Cleaning Chemistry.

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**GLAESER**
- ACM 18: Particle extraction & filtration system
- EASY DRY II: Filter membrane drying

**PRECISION**
- MASS BALANCE: Gravimetric analysis

**KEYENCE**
- MICROSCOPE VHX-5000: Particle counting

**MITANI CONTAMI**
- ANALYZER: Particle classification & report
1. PARTICLE EXTRACTION

Process to detach particulate contamination from part using rinsing solvent.

- **Equipment:** Glaeser ACM 18
- **Method:** Ultrasonic / Spray Rinse
- **Rinsing Solvent:** Paraffinic Hydrocarbon

2. FILTRATION & DRYING

Process of capturing particulate contamination from rinsing solvent using filter membrane, followed by membrane drying.

- **Equipment:** Glaeser Easy Dry II
- **Method:** Vacuum Dry

3. PARTICLE COUNTING & CLASSIFICATION

The sizing and categorizing of particulate contamination under cleanliness class / range.

- **Equipment:**
  - Keyence Microscope VHX-5000
  - Mitani Contami Analyser
- **Particle Classification:** Metal, Non-Metal, Fiber

4. REPORT

Particle Count Report specifies the cleanliness level of extracted part. The report is in compliance with VDA 19.1 and ISO 16232.
We focus mainly on cleaning Advanced Driver-Assistance (ADAS) related components, as Autonomous Vehicle (AV) technology is set to become the biggest disruptor in the automotive industry.

Component cleanliness is viewed as a quality criterion, where particle as small as 100µm can cause damage and failure in the field. The parts have corners, edges or drill holes from which particles and processing residues can only be removed with considerable effort. JKS Precision Particle Cleaning System is designed to overcome such high complexity parts with through holes and blind holes.
Semiconductor backend process is the packaging process that includes assembly and testing. It is important to remove particle & flux contamination to prevent potential damage and failure of the assembly.
HDD industry has historically emphasized on high precision cleaning requirements. Our exposure in the industry for almost two decades has given us a leading advantage to tackle contaminants in micro and nanoscale. (Particle contaminant up to 0.3 microns and Organic up to nanoscale).
PRIORITY TO
PVD COATING
APPLICATION

JKS Precision Cleaning System prior to PVD coating allows the parts to achieve residue-free surface, especially those with through and blind holes. The cleaning process and basket handling is specifically designed to prevent surface oxidation and parts damage. Precision cleaning prior to PVD coating ensures high quality coating and improves yield.
JKS Cleaning Systems is not limited to the previous mentioned industries. General metal working parts, polymer parts, plastic tools and optical parts can also be cleaned when there is demand from customer.
CT SERIES
Open/Fully Enclosed batch handling type Cleaning System which consists of multiple tanks, capable of providing high throughput and performing high flexibility processes.

FULLY AUTOMATED
Fully automated cleaning system with high process flexibility & precision recipe control system, where all process sequences for each cleaning requirement can be adjustable by the user.

HIGH FLEXIBILITY
CT-Series is being designed with a solid modular platform that could cater to multiple chemistries, varies precision cleaning & drying technology in a single system.

ROBOTIC ARM HANDLING
JKS SmartBOT handling features precision positioning & speed control system with process synchronised capability. It is also designed to minimise risk of particle generation during movement (cleanroom compliance).

PROCESS BASKET / BARREL
Process basket & barrel options cater for different parts handling, where barrel is capable of rotation movement.
FE SERIES

Front Loading Fully Enclosed Cleaning System Design which consists of a fully sealed single chamber, capable of performing flexible process with high efficiency.

COMPACT DESIGN
Efficient floor area utilization with multi-stage cleaning process performed in a single chamber, while providing ease of access for maintenance.

LOW ENERGY & OPERATION COST
Cost-efficient particle cleaning & degreasing applications using reliable, economical and energy-saving manner.

BASKET MOVEMENT VARIATION
Process basket capable of static & rotation movements to cater for different parts cleaning requirements.
TT SERIES

Flexible modular construction with simple movement mechanism, capable of handling general cleaning applications.

ENTRY LEVEL REQUIREMENTS
Lower entry barrier for small scale ultrasonic cleaning systems.

USER FRIENDLY
Comes with a simple interface with LCD display for fast & easy operation of the cleaning system.

EASY MAINTENANCE
Process tank designed to be electrically & mechanically easy to access and maintain.

MODULAR DESIGN
Simple modular design for hassle-free installation & flexible process with optional quantity of modules. Other additional modules include hot air recirculation dryer & manual hand-spray tank.
HIGH IMPACT SPRAY NOZZLE
Medium pressure spray with high impact nozzle & compressed air designed to remove loose burrs or chips and coolant.

SMALL-TO-MEDIUM SIZED FOOTPRINT
Efficient floor area utilization design.

HIGH CAPACITY, HIGH RELIABILITY & LOW MAINTENANCE
Conveyor system suitable for low mixed high volume precision cleaning applications. Simple conveyor drive system provide stable operation with little maintenance.

FT SERIES
Front Loading Cleaning System which consists of customized Single or Multi-Chamber capable of handling simple to mid-range processes.

CC SERIES
Fully Enclosed Continuous Conveyor Cleaning System which consists of multiple tanks, capable of providing high throughput and efficient process.
KEY FEATURES
- Cleanroom class 100 (ISO 5)
- ESD safe (10^9 - 10^12 Ω/√)
- Modular design
- Open center concept
- Zone independent control
- Stopping accuracy of ± 1 mm
- Max load of 5 kg
- Max speed of 465 mm/sec
- Low vibration and low noise
- CE compliance (optional)

CONVEYOR
- Max speed: up to 465 mm/sec
- Max length: up to 1,082 mm per module
- Min length: 182 mm per module

SHUTTLE
- Max length: up to 3 m per module

TURN TABLE
- Angle: up to 180°
- Direction: CW / CCW

ACCELERATED AUTOMATION

JKS specializes in cleanroom conveyor systems to meet almost any industries/applications namely HDD assembly, automotive sensor assembly, semiconductor inspection, electronics assembly inspection, CO2 / air blow dry cleaning and etc.
ACCELERATED AUTOMATION

CONVEYOR FEATURES

- OPEN CENTER CONCEPT DESIGN
- BIDIRECTIONAL MOTION
- SLIP FREE TRANSPORT WITH HIGH STOPPING ACCURACY OF ±1 MM
- HIGH SPEED (UP TO 465 MM/S)
- FLEXIBLE DIMENSIONS SUITABLE FOR COMPACT SPACES
- COLLISION FREE TRANSPORT WITH NON-CONTACT QUEING
- "PLUG AND PLAY" CONCEPT WITH INDEPENDENT ZONE CONTROL
- POSSIBLE COMMUNICATION WITH EXTERNAL CONTROLLERS VIA IO PORTS

- ISO 5
- CLEANROOM CLASS 100
- ESD SAFE (106 - 109 Ω/2)
- CE COMPLIANCE (OPTIONAL)
One of our most recent successful projects whereby the hardware namely conveyors, structure and enclosure were all done by JKS, however, for the control software, we managed to collaborate with our customer and designed a more sophisticated software for this automation system.
The level of handshake can range from a simple form of inhibit on/off signal or can be of a higher level depending on the scope of the application.
EXPLORE OUR CAPABILITIES

With the rise of new digital industrial technology, industry transformation makes it possible together and analyse data across machines and enabling faster, more flexible and more efficient processes to produce higher quality products at reduced cost.

CleanBasic provides recipe management with auto preparation capabilities and comes with extensive alarm notifications indicating the system’s current status and history recordings.

CleanXCEL has flexible recipe management with extensive control over processes and sub-processes, as well as algorithms capable of integrating planning and scheduling for multi-product continuous production line while ensuring process optimality and parts quality.

AutoXCEL control software provides different level of controls namely full control, basic control and handling control over an automation system. It also enable us to integrate with other software to perform a more sophisticated control.

SECS / GEM

Our software platform also provides the interface for SECS / GEM communication which is implemented on customers demand.

Environmental, health and safety concerns are becoming a requirement in the manufacturing industry. In JKS, we have adopted SEMI standards on our systems upon the request of our customers.

Our Industrial 4.0 Ready consists of various widely supported communication protocols for easy integration and data transfer with external systems.

Other than our CleanBasic and CleanXCEL HMI, we also provide the option to integrate with the Indusoft HMI platform for customers who are more familiar with its framework.

JKS has a fair share of market exposure and penetration in the Europe region. Therefore it is important to make sure that our product meets the CE compliance. For other regions, CE compliance are met on customer’s demand or needs.

INDUSTRY 4.0 READY

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Consultation and sharing of the right technology, application and business solutions

Upstream process, Downstream process, Shape complexity, Desired throughput, Spectrum, Contamination, Chemistry compatibility

Aqueous base, Hydrocarbon base, Halogenated solvent base

Contamination verification, Classification, Process verification, Reporting

Process flow diagram, Layout, Technical specification, Quotation

Planning, Design, Purchasing, Inventory

Fabrication, Machining, Assembly, Testing

Software checklist, FAT checklist, Open point list, Customer’s checklist


Warranty, Consumable parts, Spare parts, Service contracts, Process verification, Upgrade services

Customer centric approach

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Customer centric approach
Our people are the key elements of the successful Solution Model delivery. We are encompassed of multi-racial and multi-talented individuals who are inspired to work towards understanding technology, acquiring knowledge & continuous improvement of skills in the cleaning industry.