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CLEANING SYSTEMS AND AUTOMATION

WE DELIVER THE RIGHT SOLUTIONS



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.

110+
STAFFS

CONSISTS OF
SKILLED EXPERTS AND
PROFESSIONALS

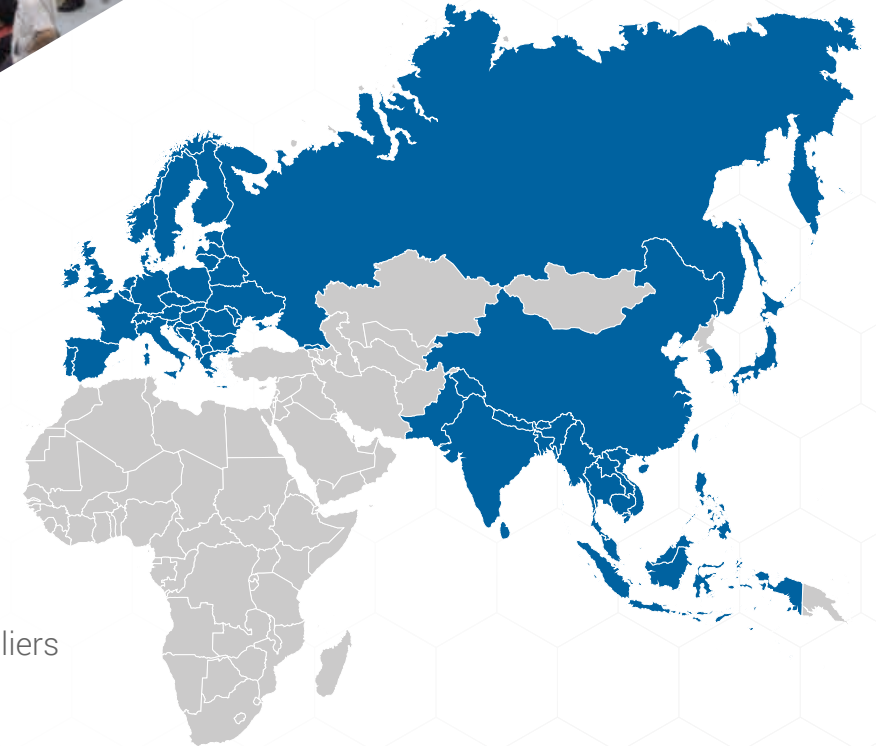
20+
YEARS

OF EXPERIENCE
AS A CLEANING AND
AUTOMATION SOLUTIONS
PROVIDER

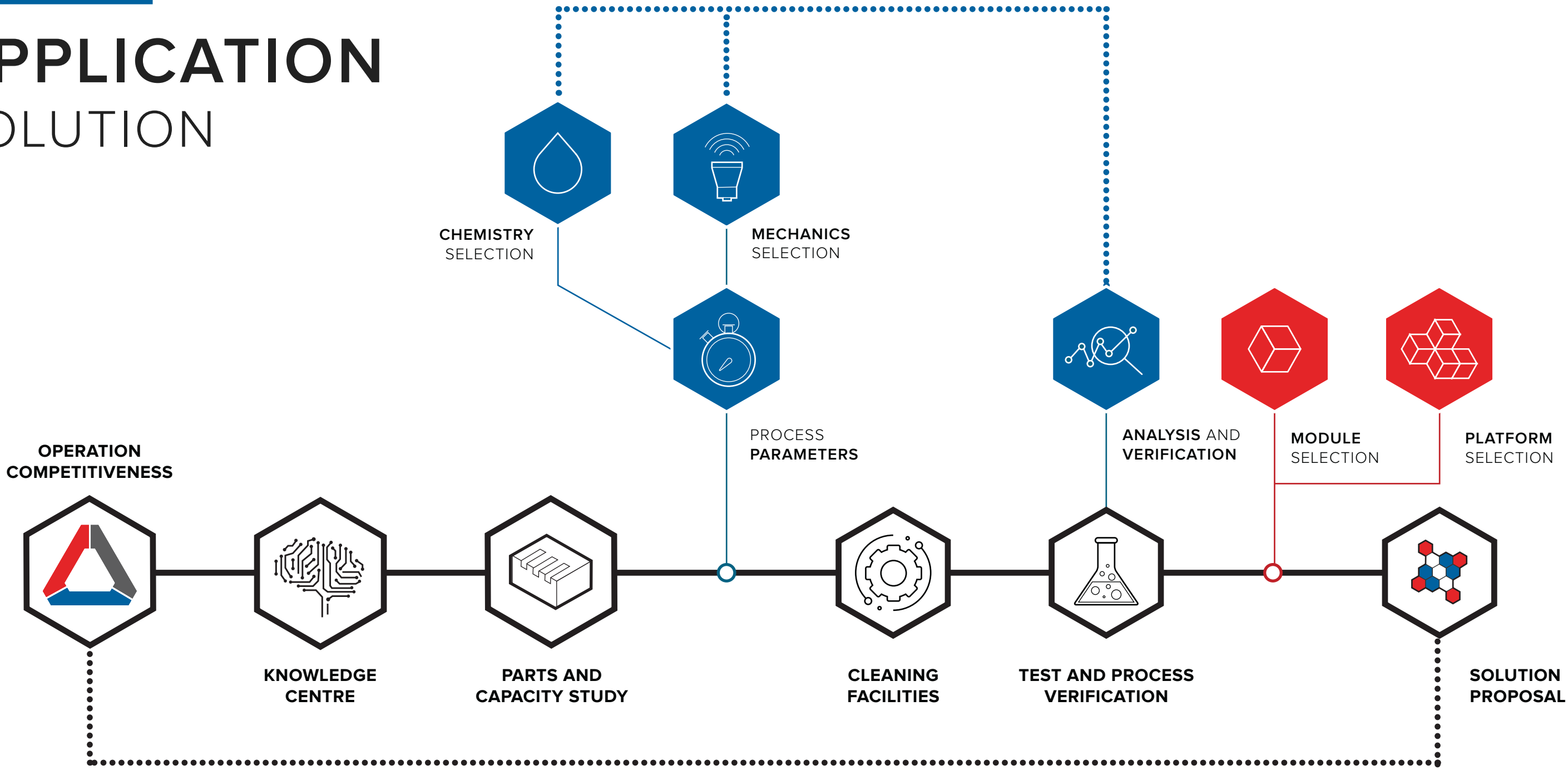
1900+
SOLUTIONS

HAVE BEEN SOLD
WORLDWIDE
TILL THE YEAR
2019

With over 20 years of experience , JKS partners with our customers and suppliers to develop solutions with operation competitiveness.

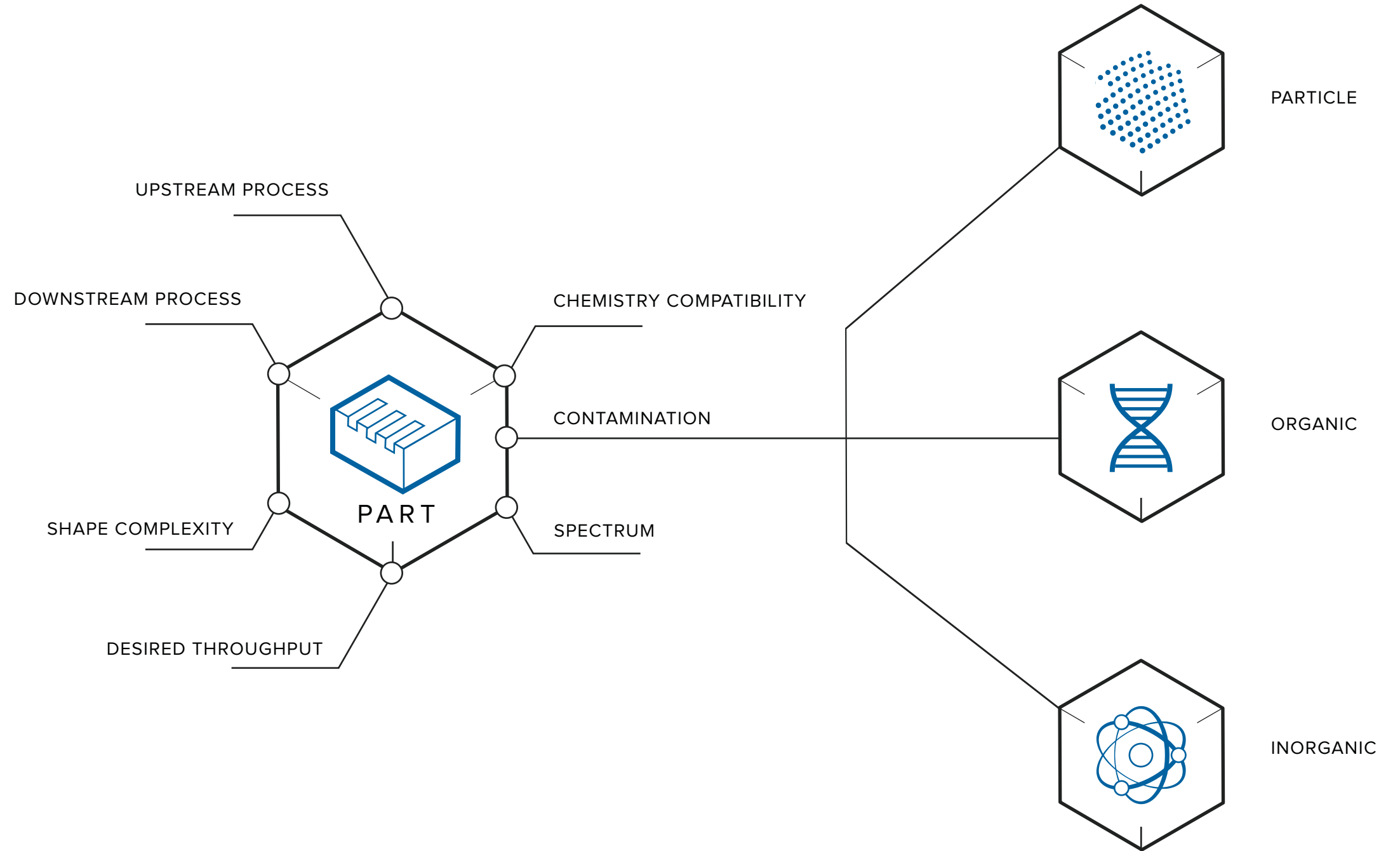


APPLICATION SOLUTION



WHAT WE CLEAN

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.



AQUEOUS /
SEMI-AQUEOUS



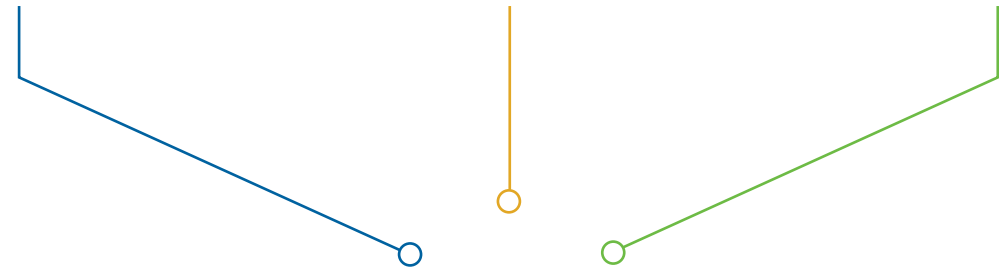
HYDROCARBON



FLUORINATED
SOLVENT



HYBRID
Combination of
2 or more chemistry



OUR MECHANICS

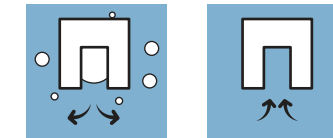
Utilizing the right chemistry and cleaning mechanics to satisfy the need of different industries.



ULTRASONIC CLEANING



SPRAY CLEANING



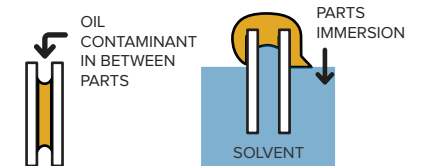
ADVANCED VACUUM
EXTRACTION (aVX)



FILTRATION



VAPOR CLEANING



MICRO SPACE CLEANING

CLEANING FACILITY



XCEL FE01-FS

Fully Sealed Single Chamber Platform for Degreasing and Defluxing Process using Fluorinated Solvent.

XCEL CT12-HY

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

APPLICATION R&D CENTER

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.

TESTING FACILITY



GLAESER
ACM 18

Particle extraction & filtration system



GLAESER
EASY DRY II

Filter membrane drying



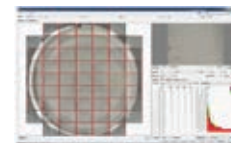
PRECISION
MASS BALANCE

Gravimetric analysis



KEYENCE
MICROSCOPE VHX-5000

Particle counting



MITANI CONTAMI
ANALYZER

Particle classification & report

VDA
19.1

ISO
16232

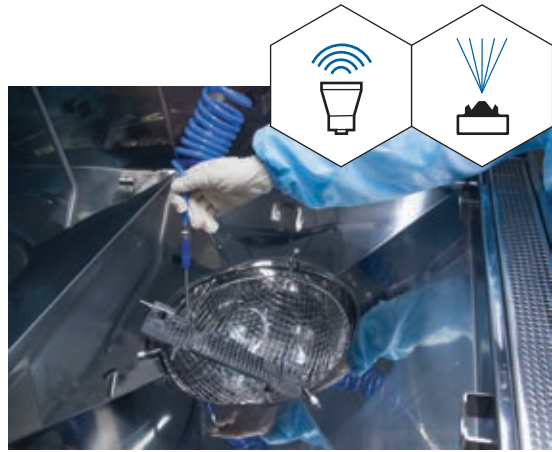
ASTM
D2578

TAPPI
T698

GLAESER KEYENCE MITANI



PARTICLE EXTRACTION PROCEDURES



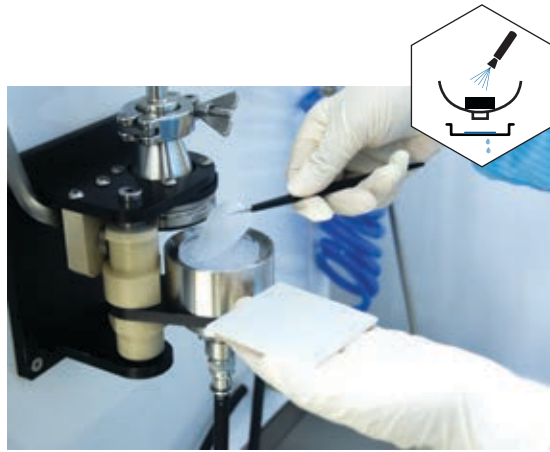
1. PARTICLE EXTRACTION

Process to detach particulate contamination from part using rinsing solvent.

Equipment :
Glaeser ACM 18

Method :
Ultrasonic / Spray Rinse

Rinsing Solvent :
Paraffinic Hydrocarbon

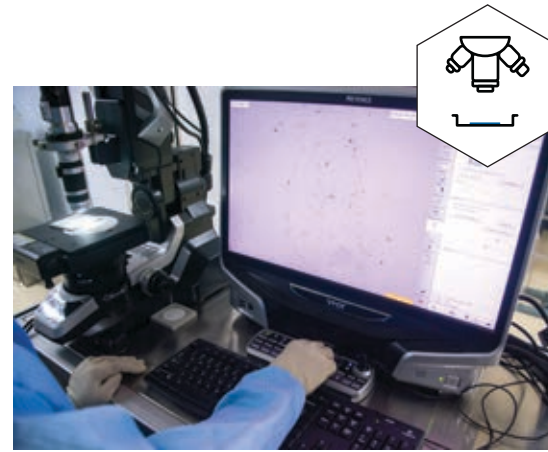


2. FILTRATION & DRYING

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

Equipment :
Glaeser Easy Dry II

Method :
Vacuum Dry

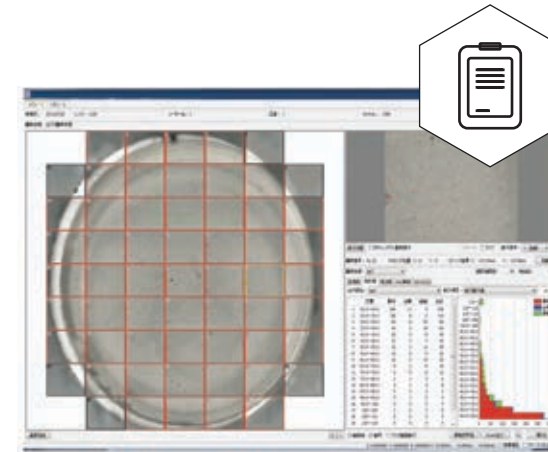


3. PARTICLE COUNTING & CLASSIFICATION

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.

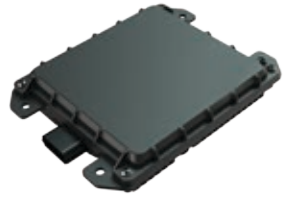


19.1



16232

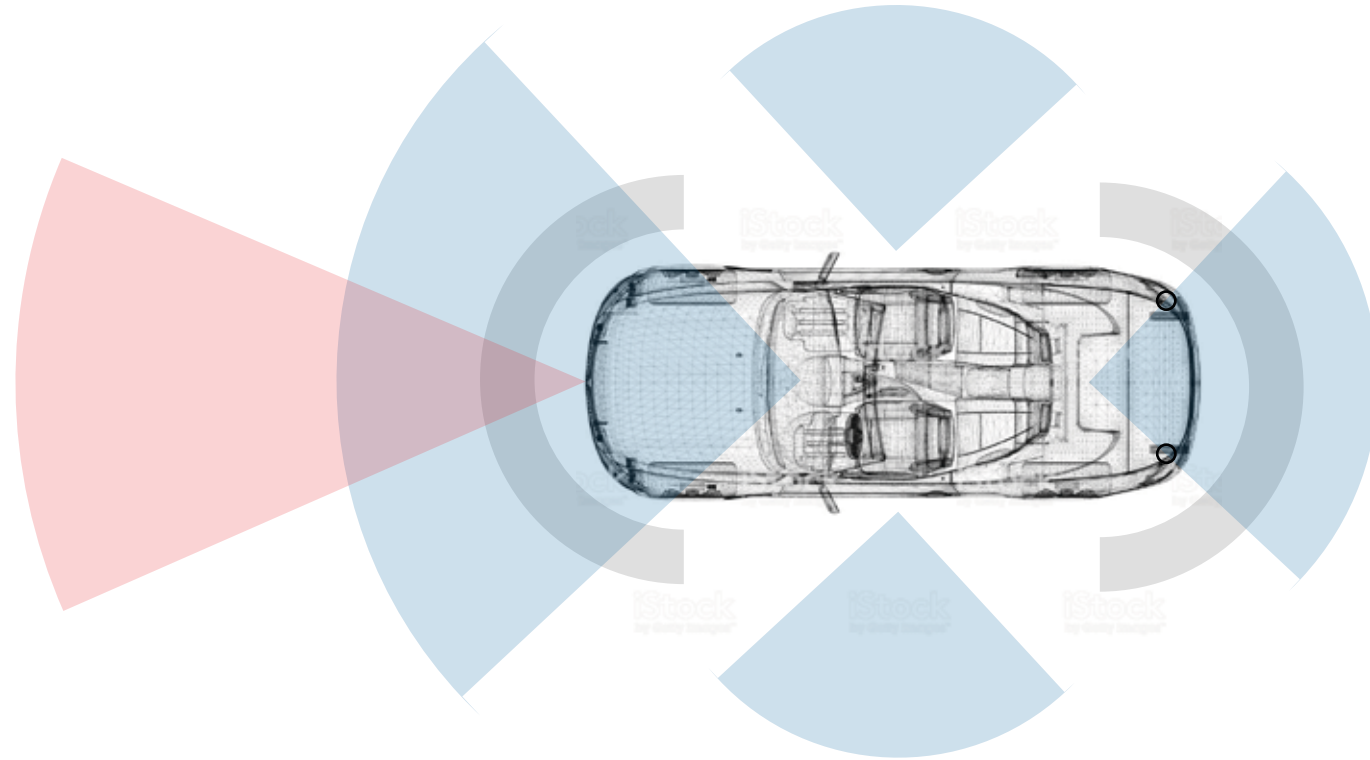
ASC
ACTIVE SAFETY CONTROL



ADAS AUTOMOTIVE INDUSTRY

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.

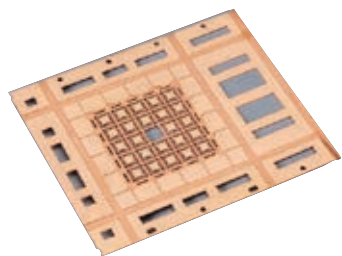


ECU
ELECTRONICS CONTROL UNIT

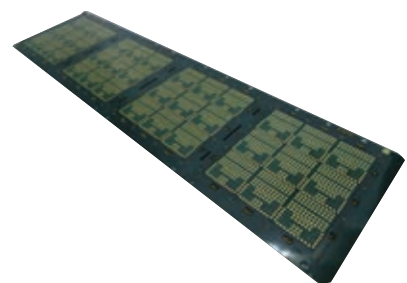


ESP
ELECTRONIC STABILITY PROGRAM

SUBSTRATE

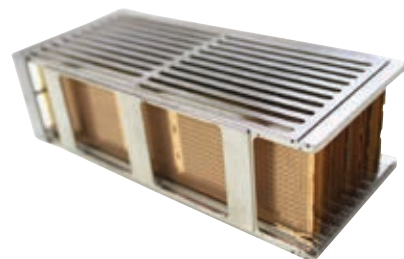


LEADFRAME



PRINTED CIRCUIT BOARD (PCB)

PACKAGE ASSEMBLY



LEADFRAME BASED PACKAGES



PCB BASED PACKAGES

FIXTURING TOOLS



MAGAZINE



STACK MAGAZINE



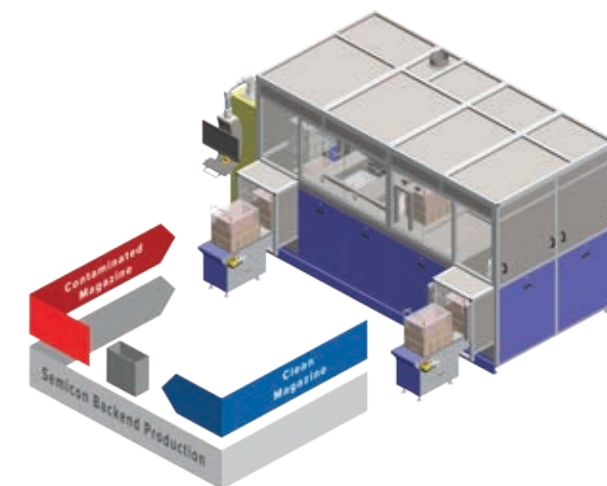
MAGAZINE BASKET



WAFER FRAME CASSETTE

SEMICON BACKEND INDUSTRY

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.





HEAD STACK ASSEMBLY



HARD DISK DRIVE INDUSTRY

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).



VCM MAGNET



VCM ASSEMBLY



BASE PLATE & TOP COVER



CLAMP & SPACER RING

CUTTING TOOLS



WATCH PARTS



AUTOMOTIVE PARTS



IMPLANT PARTS



PRIOR TO PVD COATING APPLICATION

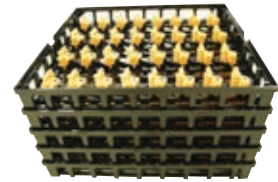
JKS Precision Cleaning System prior to PVD coating allows the parts to achieve residue-free surface, especially those with through and blind holes. The cleaning process and basket handling is specifically designed to prevent surface oxidation and parts damage. Precision cleaning prior to PVD coating ensures high quality coating and improves yield.



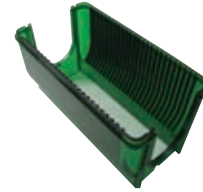
GENERAL METAL WORKINGS



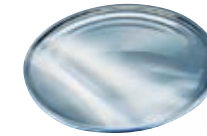
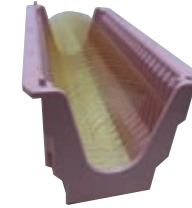
POLYMER PARTS



PLASTIC TOOLS

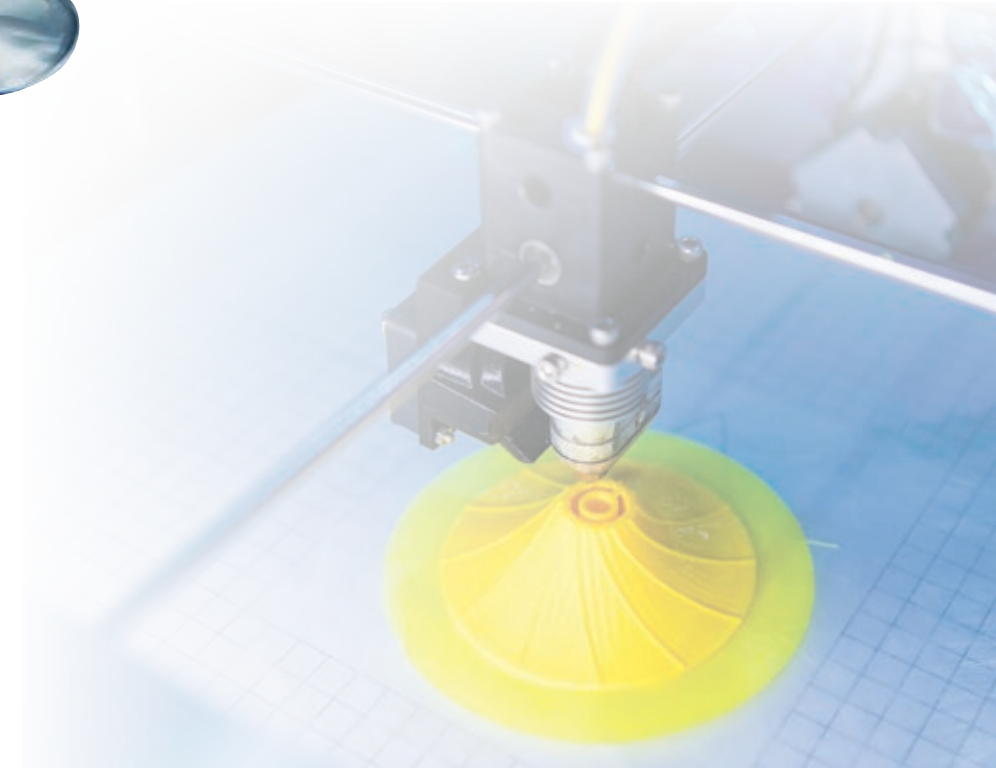


OPTICAL PARTS



OTHER APPLICATIONS

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.



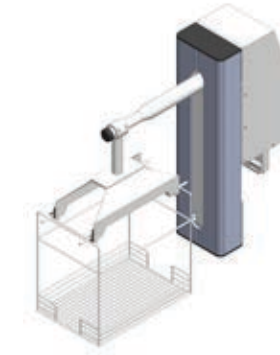
FULLY AUTOMATED

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.



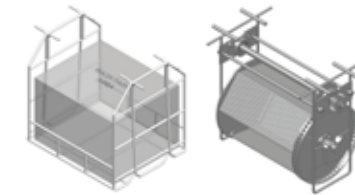
HIGH FLEXIBILITY

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.



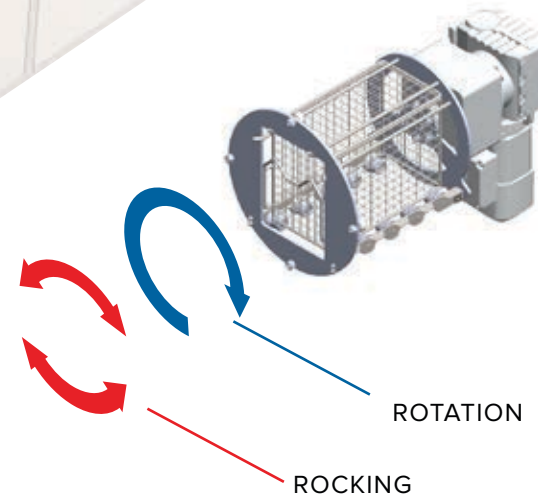
COMPACT DESIGN

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.



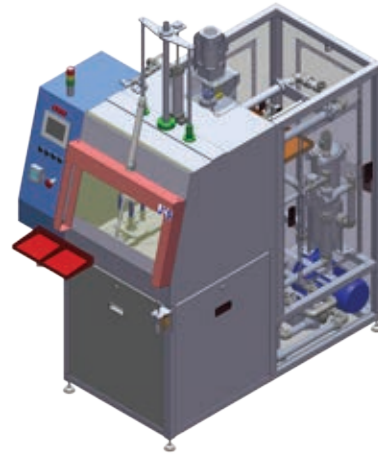
FT SERIES

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



HIGH IMPACT SPRAY NOZZLE

Medium pressure spray with high impact nozzle & compressed air designed to remove loose burrs or chips and coolant.

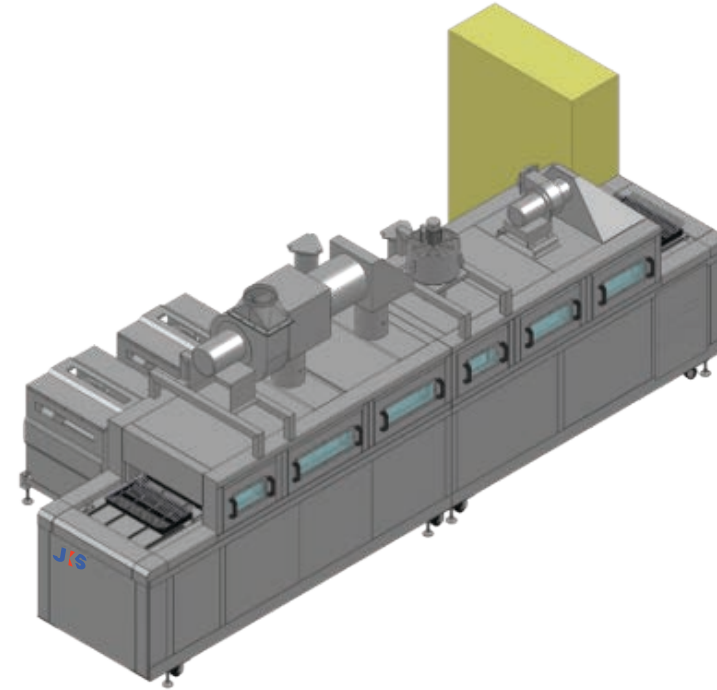


SMALL-TO-MEDIUM SIZED FOOTPRINT

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.



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 ($10^6 - 10^9 \Omega / \text{m}^2$)
- Modular design
- Open center concept
- Zone independent control
- Stopping accuracy of $\pm 1 \text{ mm}$
- 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

ACCELERATED AUTOMATION OVERVIEW

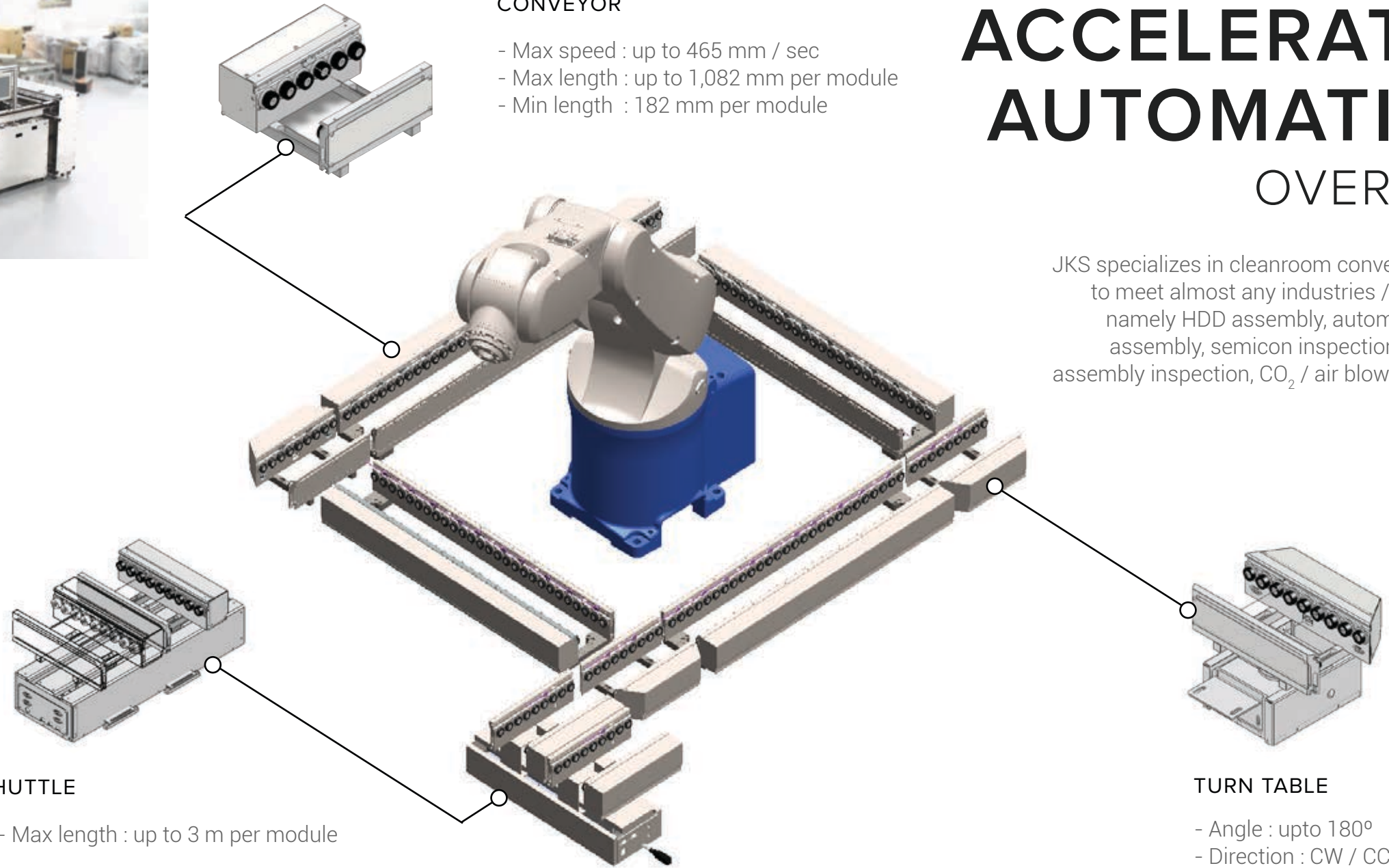
JKS specializes in cleanroom conveyor systems to meet almost any industries / applications namely HDD assembly, automotive sensor assembly, semicon inspection, electronics assembly inspection, CO₂ / air blow dry cleaning and etc.

SHUTTLE

- Max length : up to 3 m per module

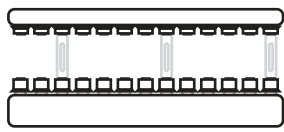
TURN TABLE

- Angle : upto 180°
- Direction : CW / CCW

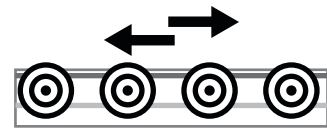




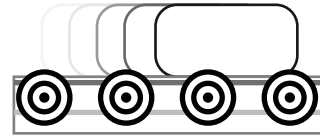
ACCELERATED AUTOMATION CONVEYOR FEATURES



OPEN CENTER CONCEPT DESIGN



BIDIRECTIONAL MOTION



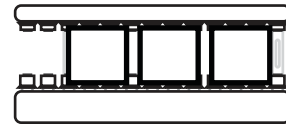
SLIP FREE TRANSPORT WITH
HIGH STOPPING ACCURACY OF ± 1 MM



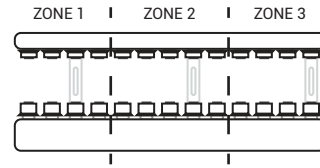
HIGH SPEED
(UP TO 465 MM/S)



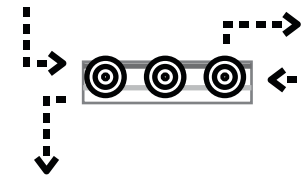
FLEXIBLE DIMENSIONS SUITABLE
FOR COMPACT SPACES



COLLISION FREE TRANSPORT WITH
NON-CONTACT QUEING



“ PLUG AND PLAY ” CONCEPT
WITH INDEPENDANT
ZONE CONTROL



POSSIBLE COMMUNICATION
WITH EXTERNAL CONTROLLERS
VIA IO PORTS



ESD SAFE
(106 - 109 $\Omega/2$)

ISO 5

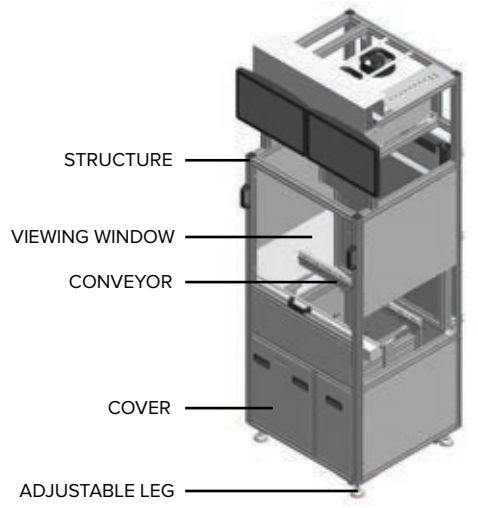
CLEANROOM CLASS 100



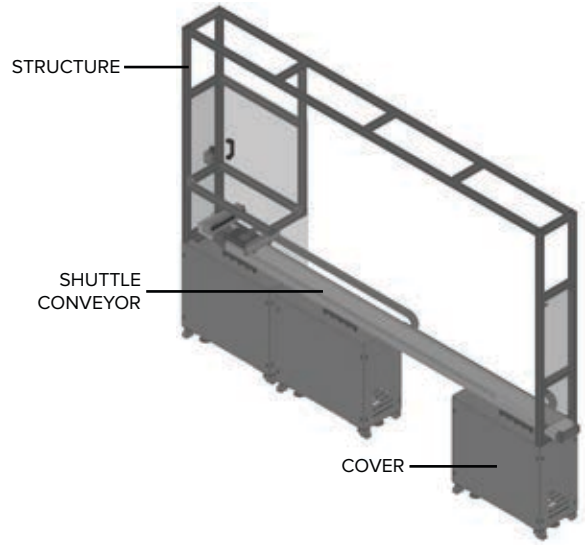
CE COMPLIANCE
(OPTIONAL)

ACCELERATED AUTOMATION MODULES & APPLICATION

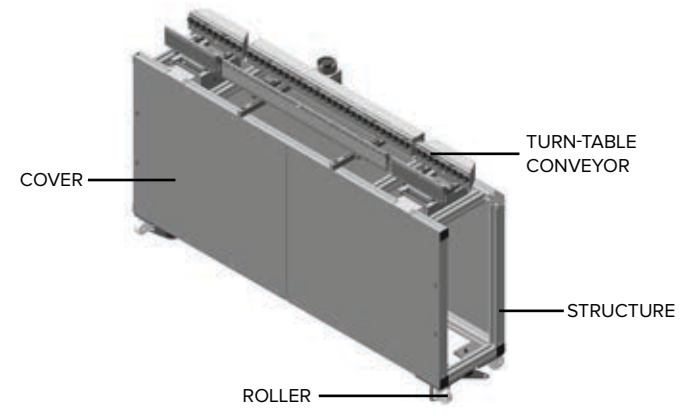
One of our most recent successful projects whereby the hardware namely conveyors, structure and enclosure were all done by JKS, however, for the control software, we managed to collaborate with our customer and designed a more sophisticated software for this automation system.



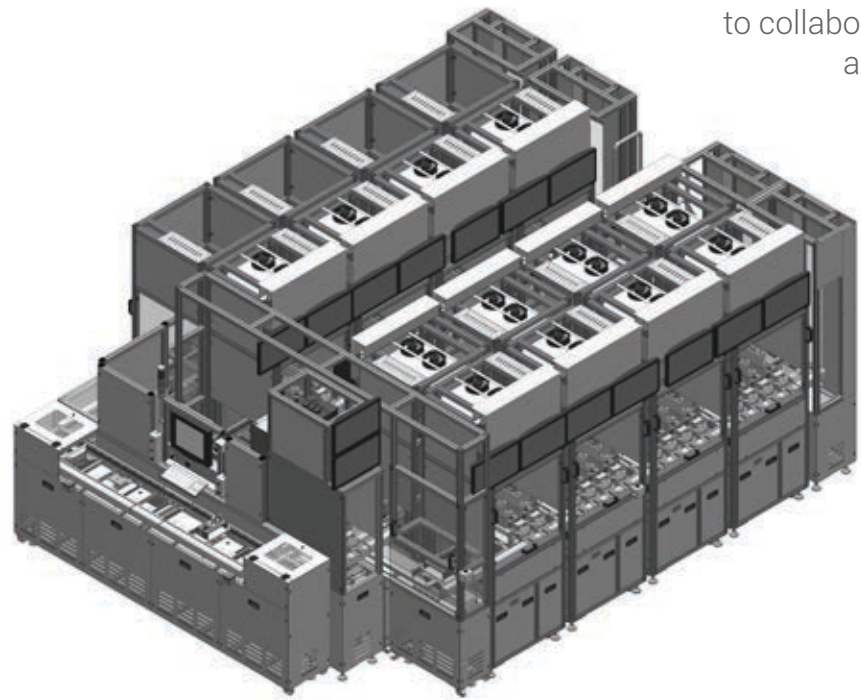
SAMPLE MODULE 1



**SAMPLE MODULE 3
WITH SHUTTLE CONVEYOR**

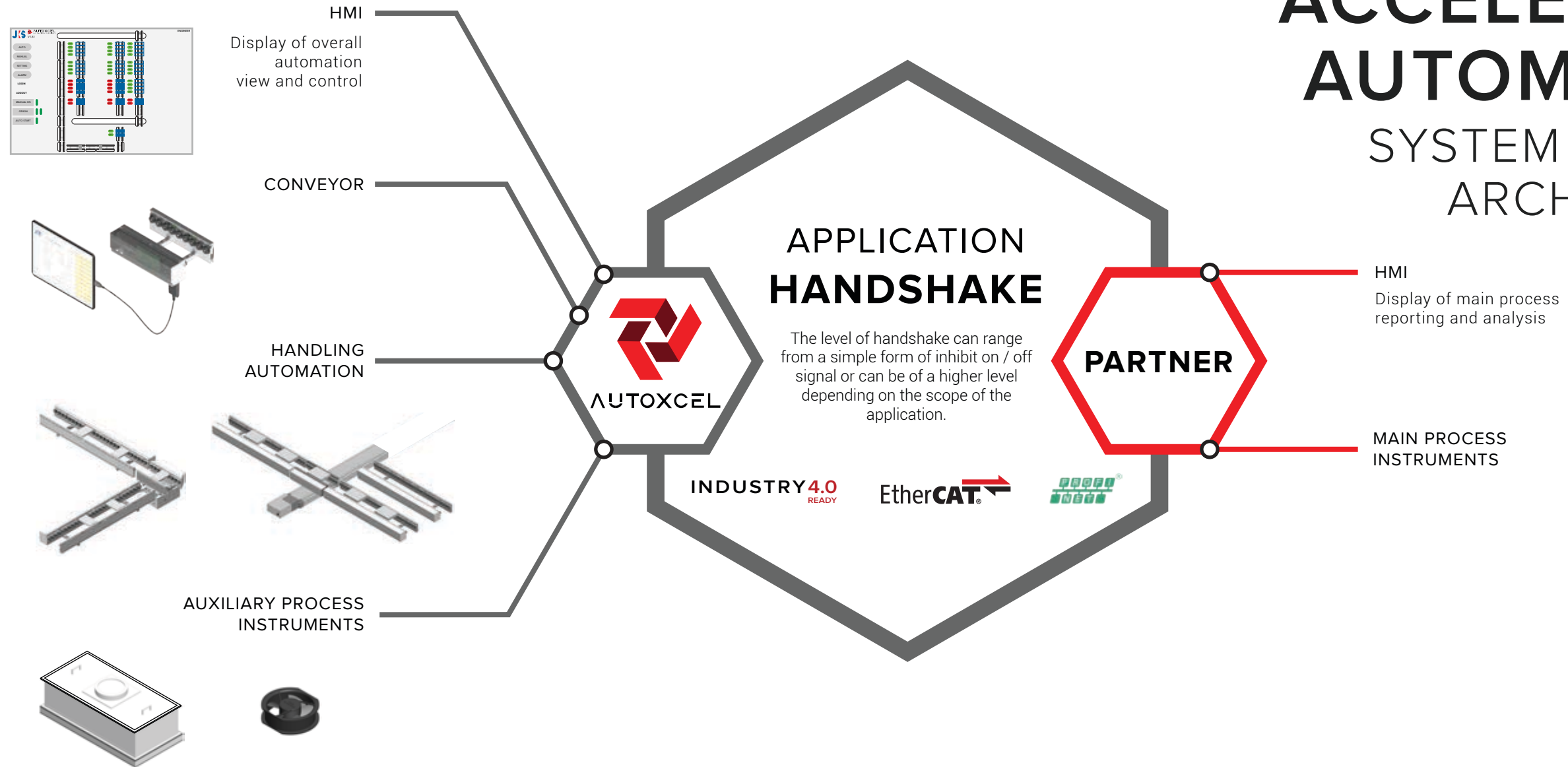


**SAMPLE MODULE 2
WITH TURN-TABLE CONVEYOR**



ACCELERATED AUTOMATION

SYSTEM CONTROL ARCHITECTURE





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



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

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



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.



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.

SECS / GEM

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



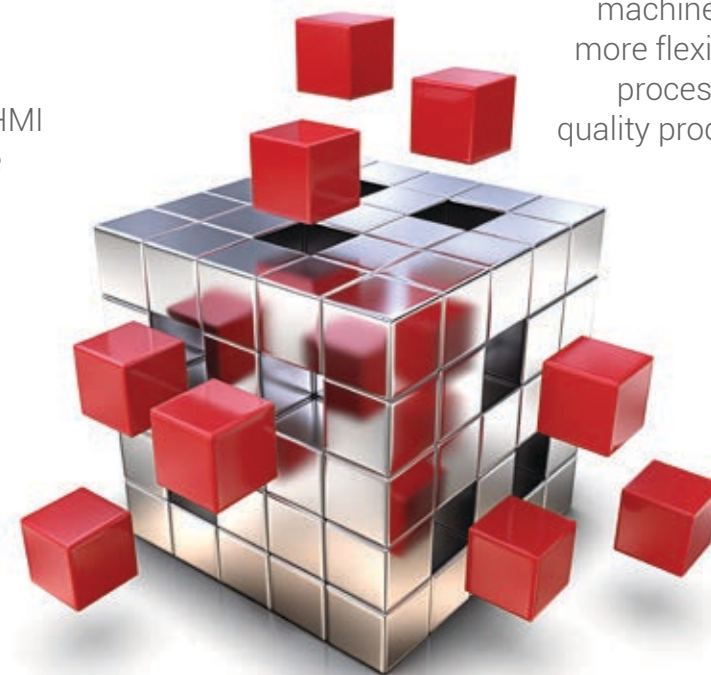
AutoXCEL control software provides different level of controls namely full control, basic control and handling control over an automation system. It also enable us to integrate with other software to perform a more sophisticated control.



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.

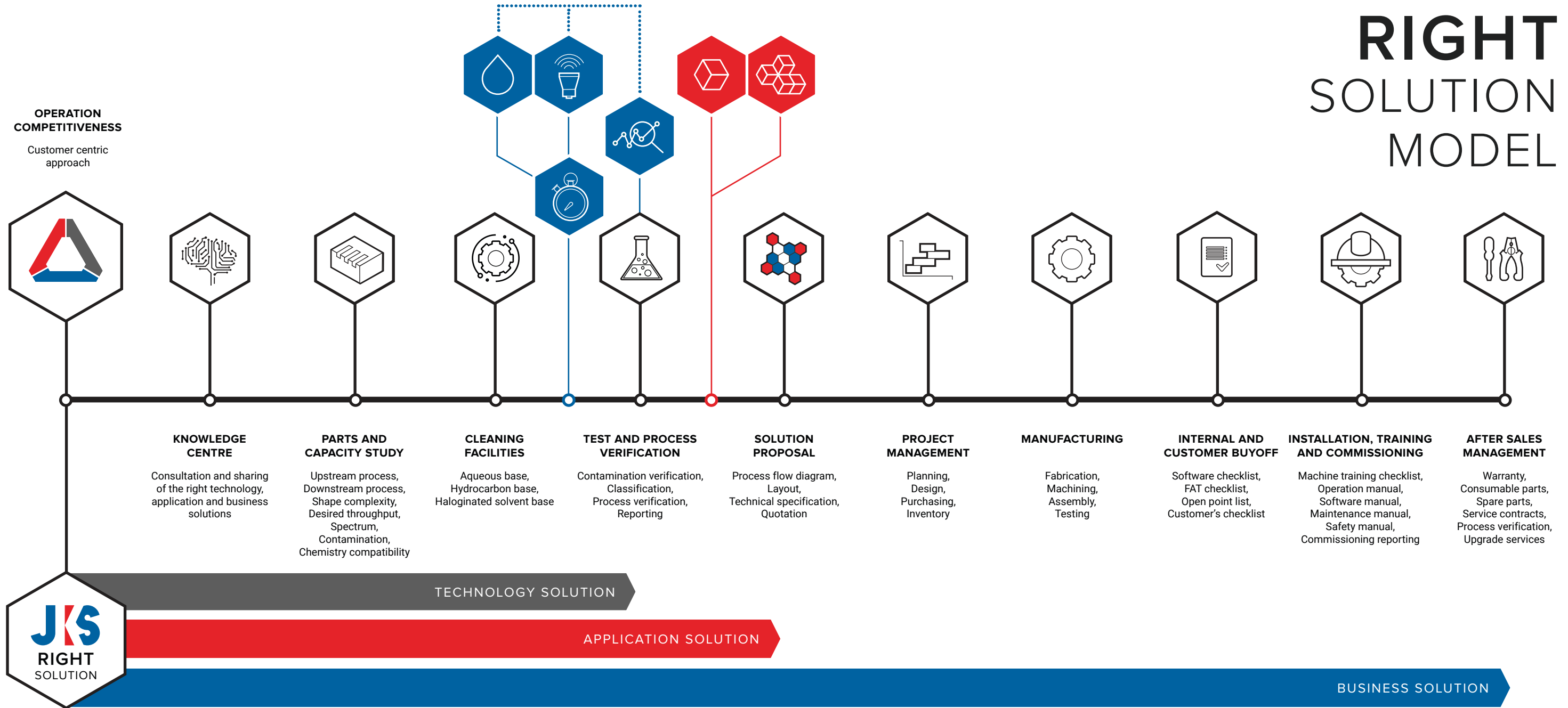
EXPLORE OUR CAPABILITIES

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.



RIGHT SOLUTION MODEL

OPERATION COMPETITIVENESS
Customer centric approach



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

PARTS AND CAPACITY STUDY
Upstream process, Downstream process, Shape complexity, Desired throughput, Spectrum, Contamination, Chemistry compatibility

CLEANING FACILITIES
Aqueous base, Hydrocarbon base, Halogenated solvent base

TEST AND PROCESS VERIFICATION
Contamination verification, Classification, Process verification, Reporting

SOLUTION PROPOSAL
Process flow diagram, Layout, Technical specification, Quotation

PROJECT MANAGEMENT
Planning, Design, Purchasing, Inventory

MANUFACTURING
Fabrication, Machining, Assembly, Testing

INTERNAL AND CUSTOMER BUYOFF
Software checklist, FAT checklist, Open point list, Customer's checklist

INSTALLATION, TRAINING AND COMMISSIONING
Machine training checklist, Operation manual, Software manual, Maintenance manual, Safety manual, Commissioning reporting

AFTER SALES MANAGEMENT
Warranty, Consumable parts, Spare parts, Service contracts, Process verification, Upgrade services

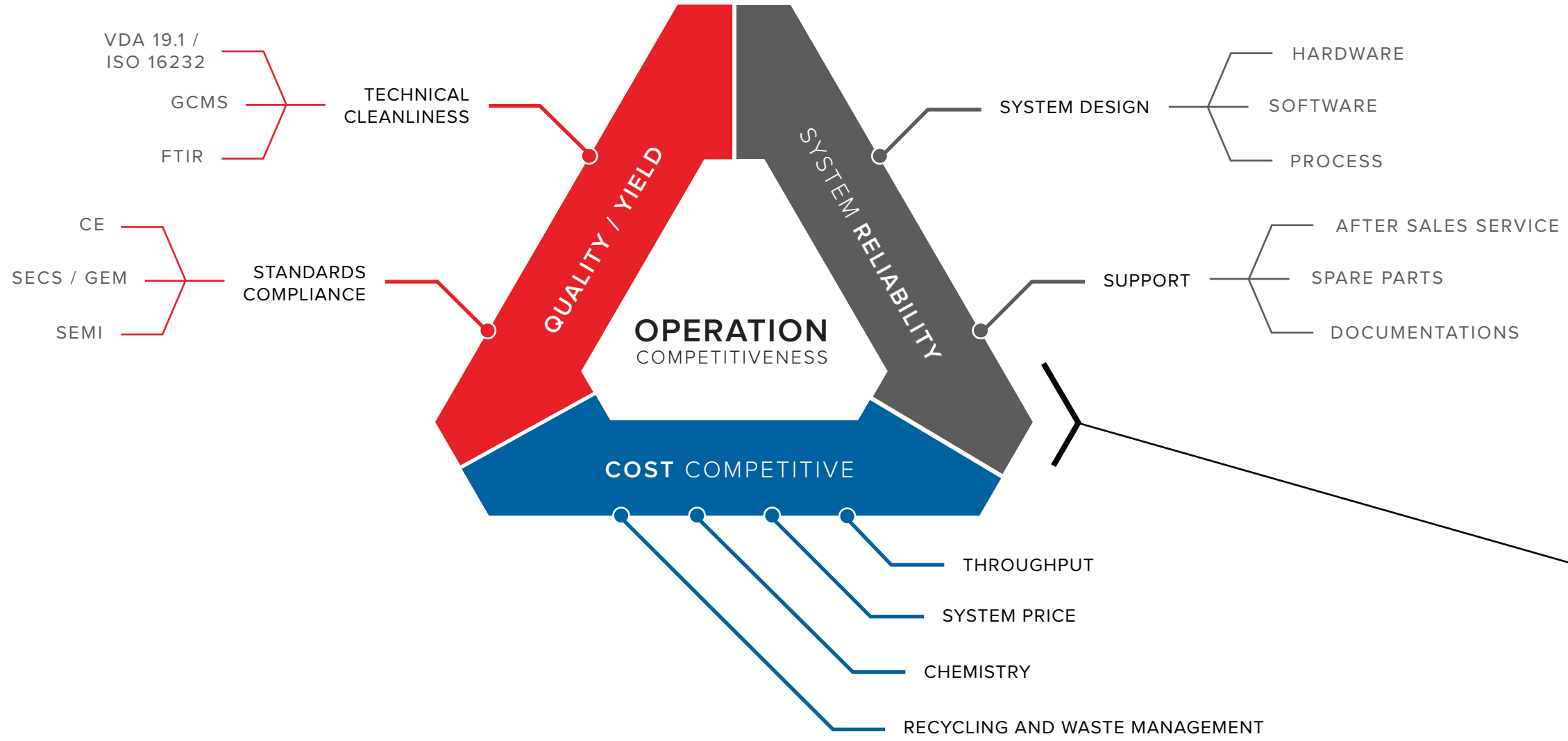
TECHNOLOGY SOLUTION

APPLICATION SOLUTION

BUSINESS SOLUTION



CUSTOMER CENTRIC APPROACH





OUR COMMUNITY

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.

