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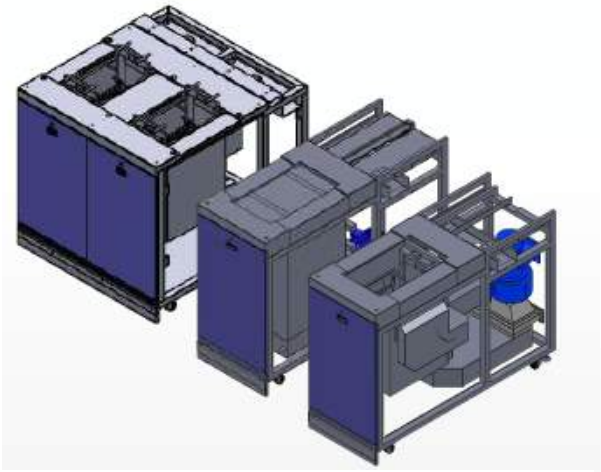
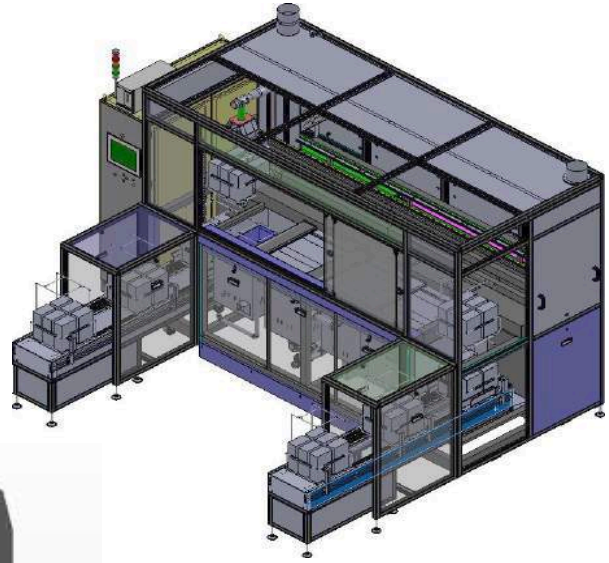
XCEL CT Series SEMICON BACKEND PRECISION TOOLS CLEANING

AUTOTECH SOLUTION (M) SDN. BHD.

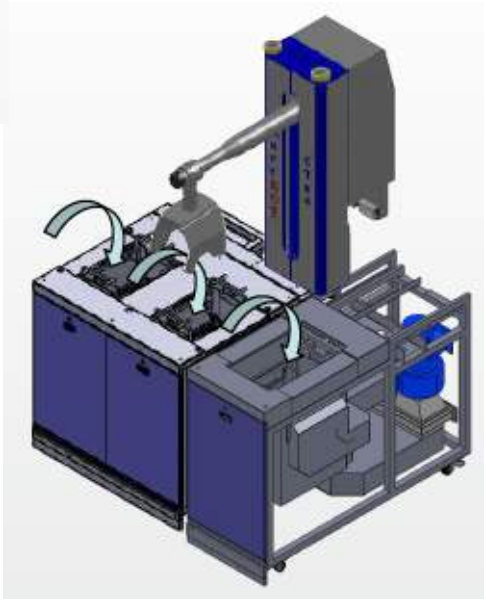
advanced MODULAR BATCH HANDLING Design Platform (Wash - Rinse - Dry)



Modular Design



Enclosed System



Single Arm CTs4 SmarBOT Handling

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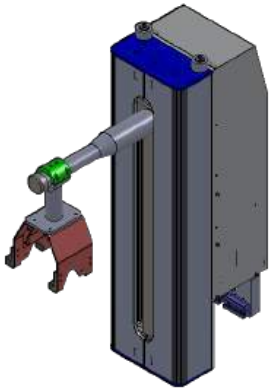
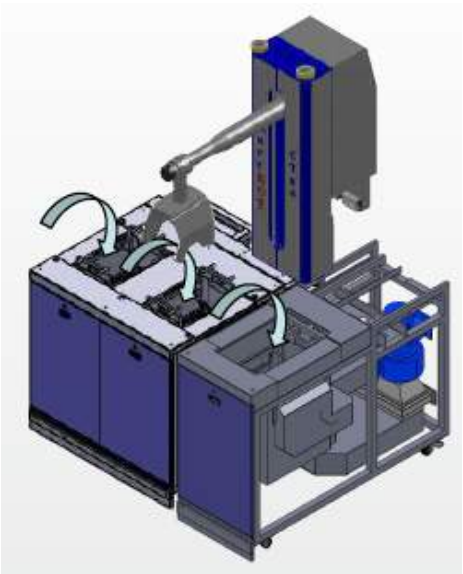
Basket Handling : SmartBOT, CTs4





Fully Automated Handling
reduce manpower, ensure cleaning quality & repeatability

- Covers made from SUS304 with 4B finishing
- Standard stroke 770mm
- Dual swing door enclosure for ease of maintenance
- Dual servo drive
- Vertical max speed 15m/min
- Horizontal max speed 40m/min
- Max load 40 Kg
- Mis-hook sensor for basket missing detection
- Arm vertical crash sensor

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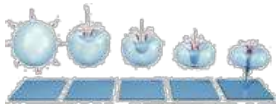
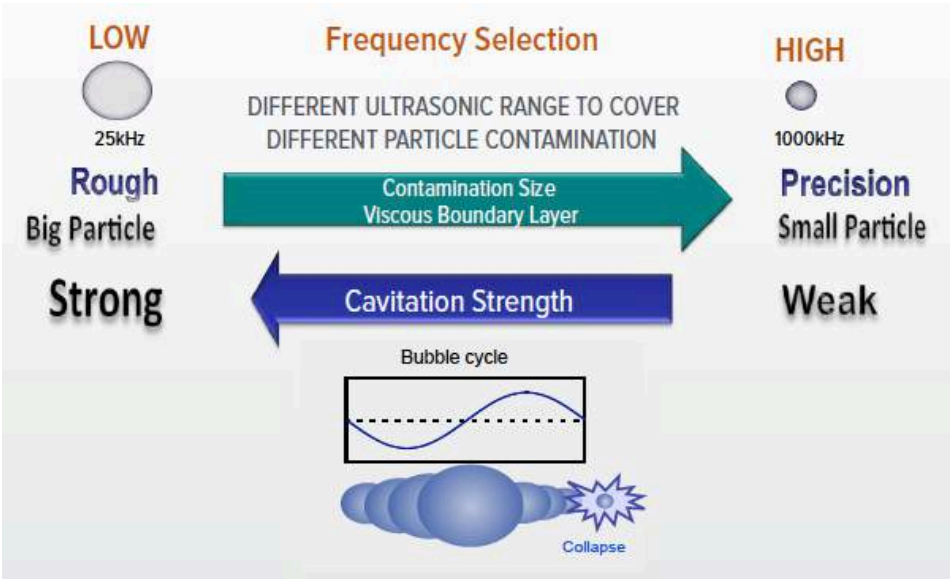
Ultrasonic Cleaning



PRECISION ULTRASONIC WASH / RINSE

» Right Application Frequency Selection
» The size of Cavitation Bubble determines amount of energy released during implosion !
» High Frequency Selection for Micro Streaming Cleaning

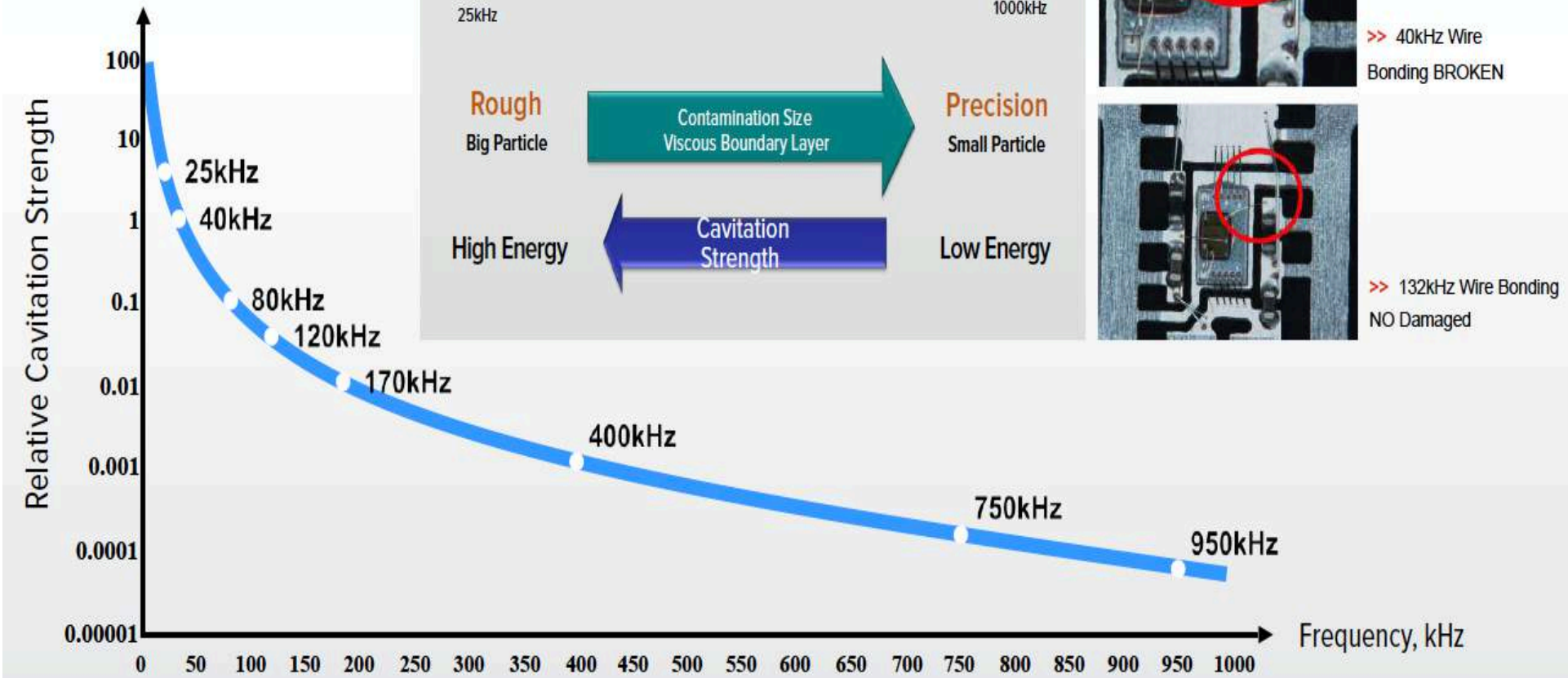
Programmable Ultrasonic Power & Frequency Control through Recipe Management System

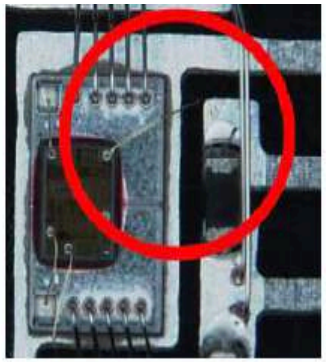


Ultrasonic Cleaning

Control of Energy

Frequency Selection

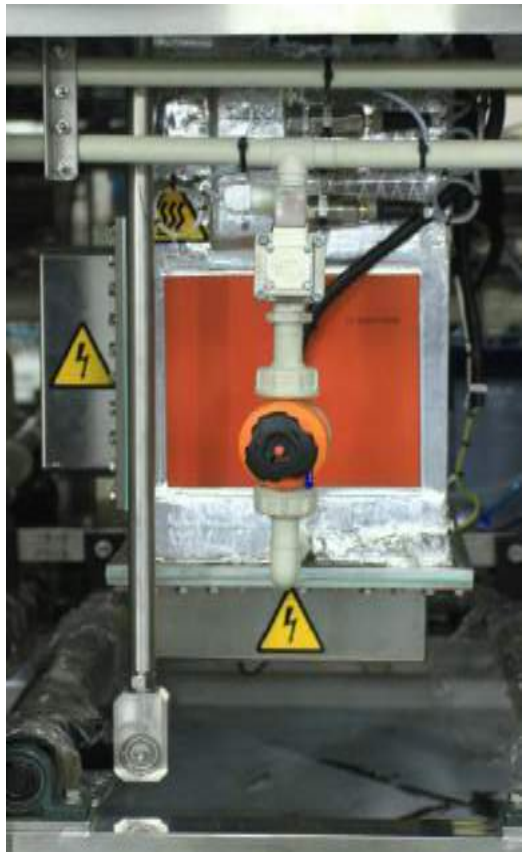




>> 40kHz Wire Bonding BROKEN

>> 132kHz Wire Bonding NO Damaged

Ultrasonic Cleaning & Filtration



Flange Type
Ultrasonic Design
(easy maintenance)

Auto Sensor
- filter changed alert

- **Varies Pump & Filtration Selection System.**
- **Selection depends on the type of chemistry being used !**
- **Precise Programmable Filtration Control Sequence through Recipe Management System.**

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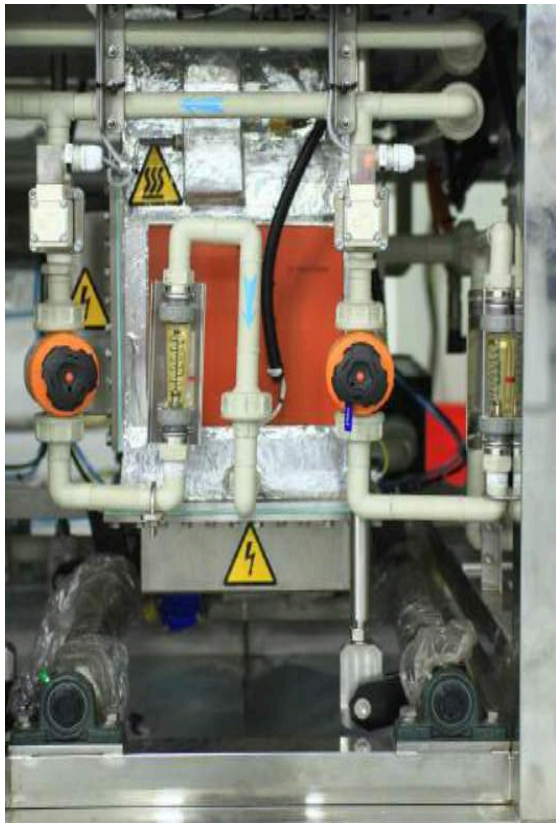
Accessories

Spray Gun for Easy Tank Cleaning Maintenance

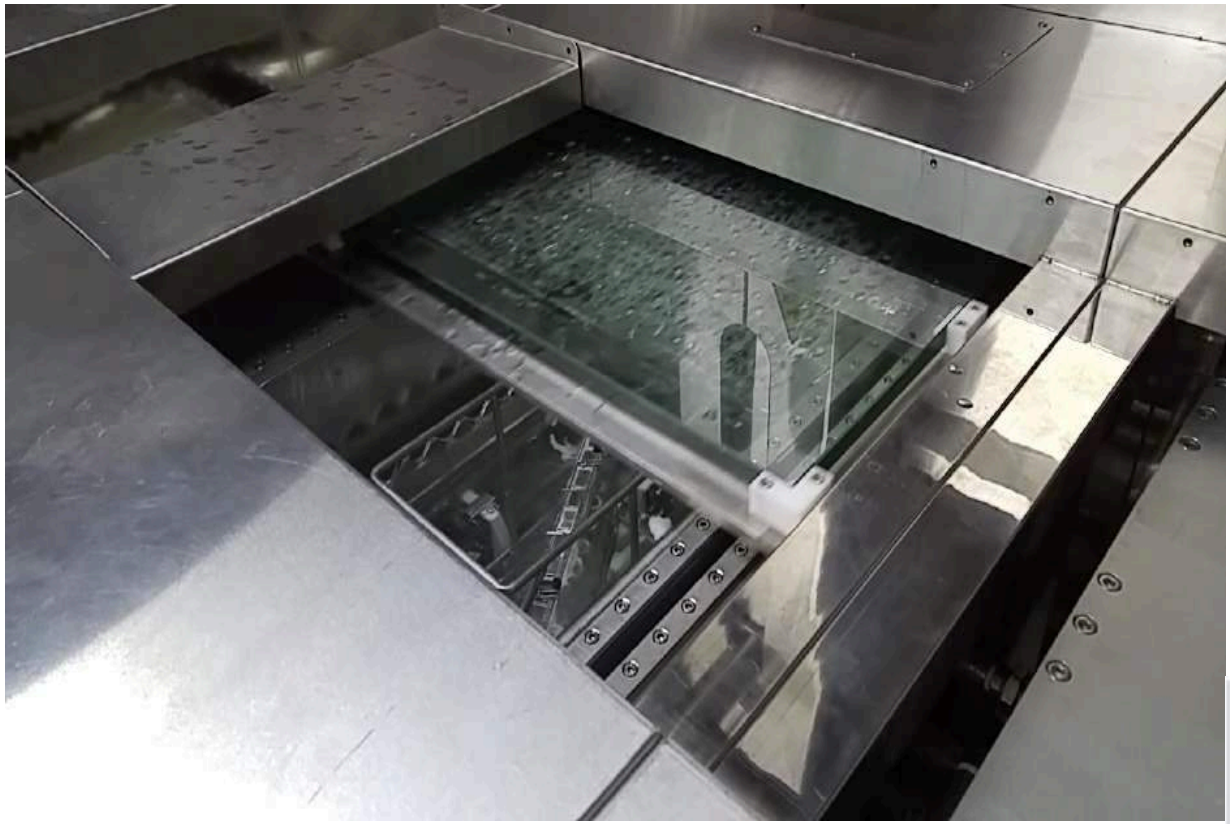


Incoming DI Water Flowmeter

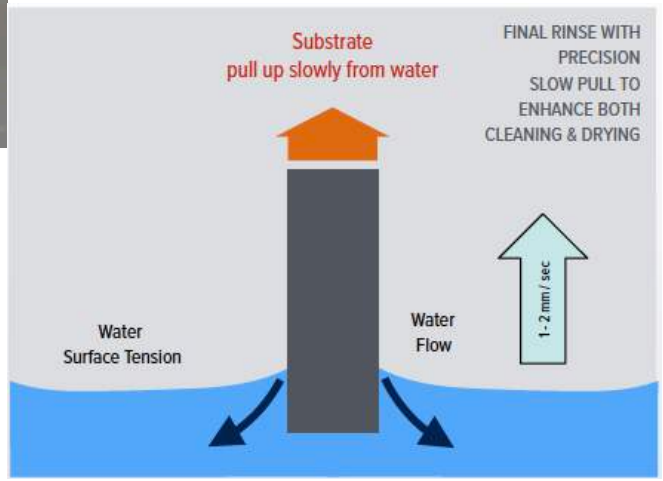
Others Process Control Instrumentation

CONDUCTIVITY CONTROL

Basket Handling : SmartBOT, CTs4 - Programmable Slow Pull

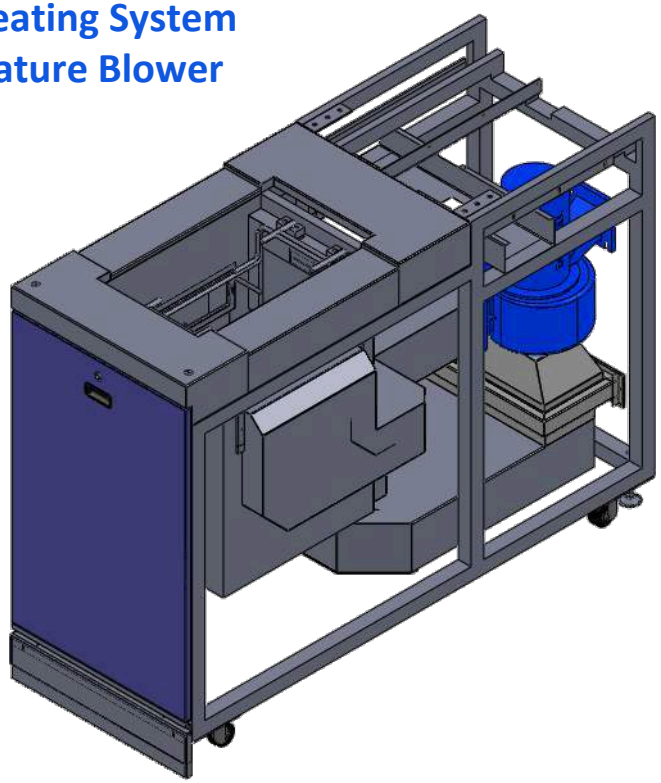


SmartBOT Slow Pull



Hot Air Recirculation Dryer

Hot Air Recirculation Design
Stainless Steel Finned Heater Heating System
Made in Germany High Temperature Blower
HEPA Filtration



Elektror airsystems gmbh

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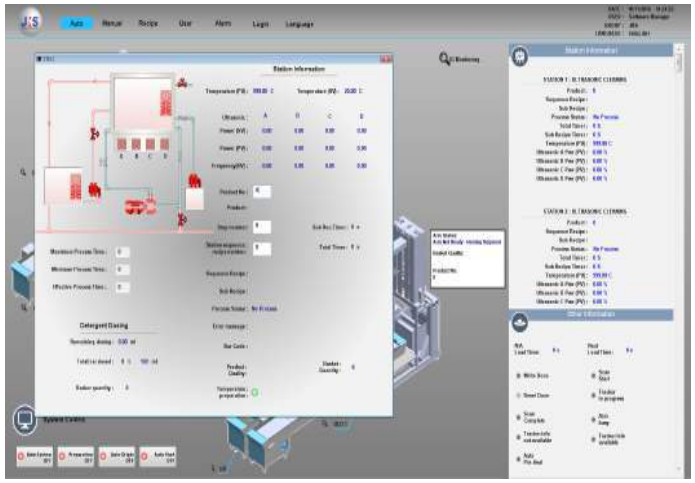
System Control Software



Smart Automation Software Control
Precise control on each process station's instrumentation activation, timer & sequence via recipe management system.
Capable of multiple recipe settings with continuous multiple recipe loading.
Recipe control capable to skip unnecessary process and with recipe import & export function.
Basket tagging / bar code / QR code / RFID basket identification system link to recipe management system.
In case of abnormal operation (emergency stop activation / system pulse request by operator), process basket involved would be labeled as ' alert basket ' by program quality control management.
Process quality monitoring to avoid parts damaged (oxidization / surface erosion) due to over process timing or over cavitation power by ultrasonic.
Capacity optimization program to optimize system output with process quality monitoring management.
Effective detergent management & safety control system.
Remote access for trouble shooting & data logging system (optional).

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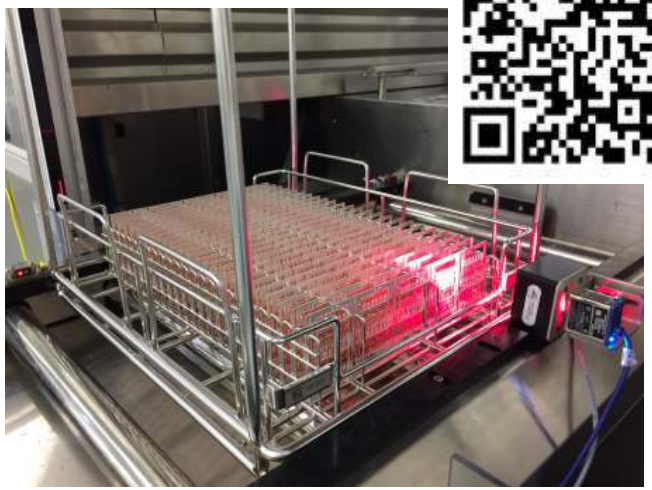
Tagging System to Recipe Management & Data Logging - optional

Various configurations possible

- Batch number and cleaning program number are included in bar code (best case).
- Input format e.g. Barcode, DMC (Data Matrix Code), QR code, RFID, mechanically coded Basket.



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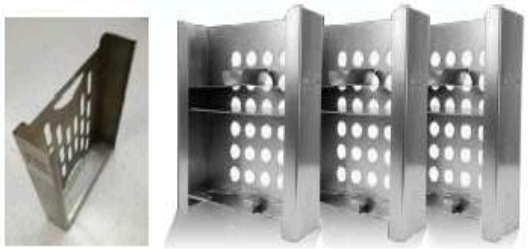
Packaging Tools

Magazine

Magazine (Plasma)

Stack Magazine

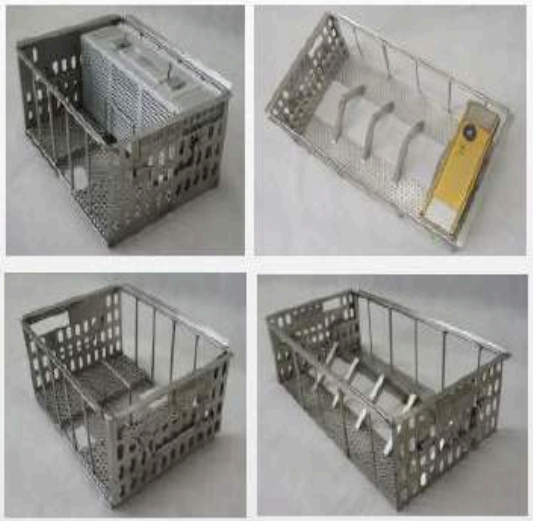


Tube

Magazine Cover

Magazine Body

Magazine Basket



Wafer Frame Cassette

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High **process flexibility** (precise control on each process station's instrumentation activation, timer, temperature & sequence); **ensure no over-time & over-temp process.**

Electronics assembly are normally with sensitive metal material ! Therefore right process control capability is very crucial to avoid damage to parts !!!

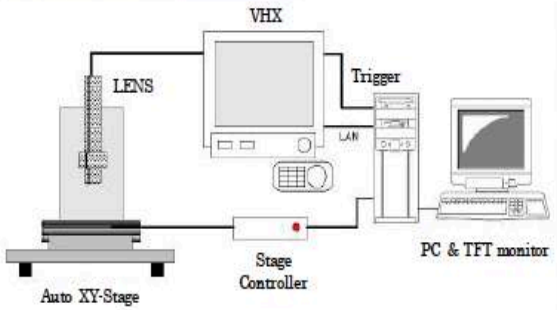
Application R&D Centre

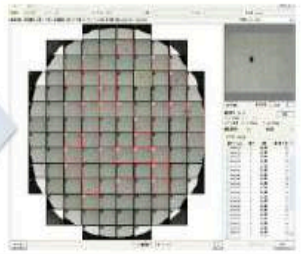
Process Development with Analysis & Verification

Technical Cleanliness Analysis : VDA19

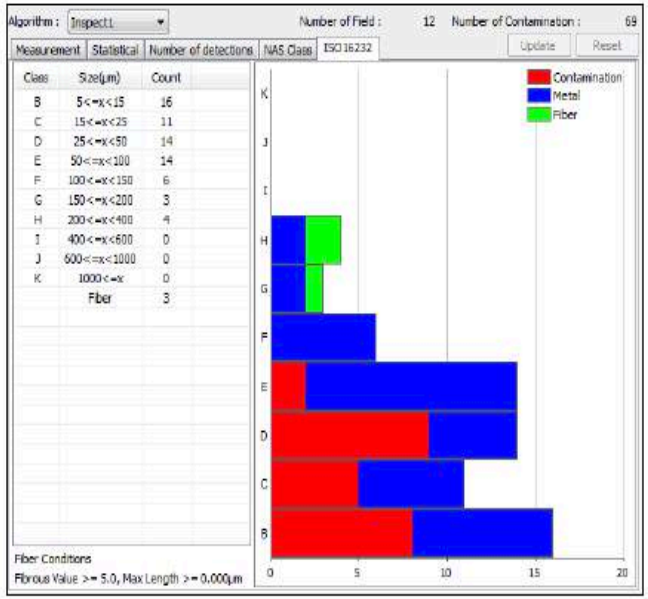
Particle Analysis

> Scan (Counting)
> Classification
> Report





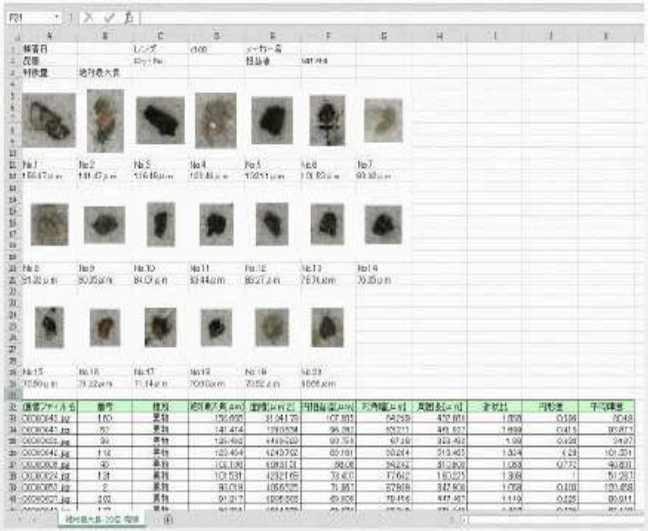
■ISO16232



Report

(Metal, Non-Metal & Fiber Particle)

Capable of displaying the cleanliness table that is based on ISO 16232 or NAS 1638



Keyence VHX-5000 Digital Microscope + Mitani Contami Analyzer (Particle Analysis Software)

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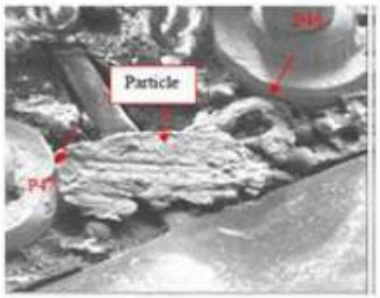
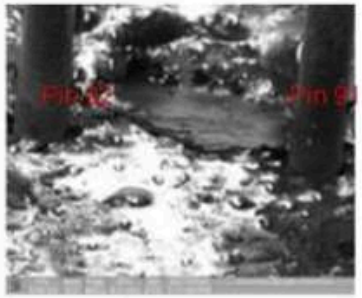
FOREIGN MATERIAL

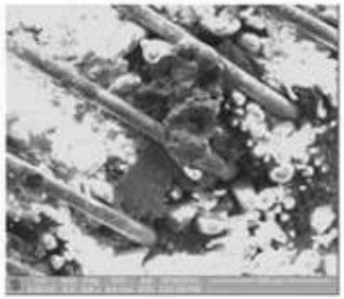
Analysis to FM from ECC



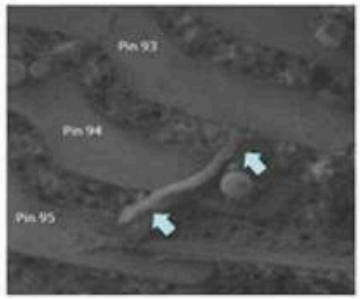
Nickel



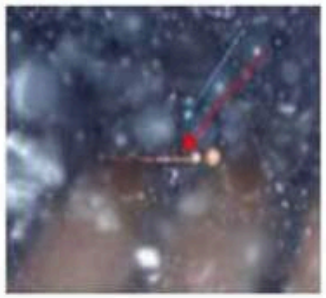
Stainless Steel



Aluminium/Nickel



Ferum/Nickel /Chromium

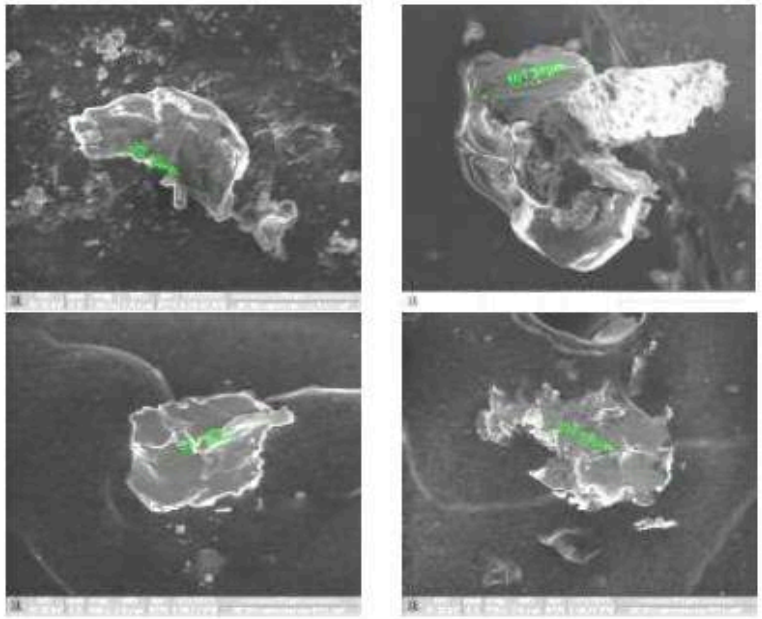


Copper

Aluminium 50%
Aluminium, Nickel 18%
Copper 13%
Nickel 10%
Ferum, Fe/Ni/Cr 10%

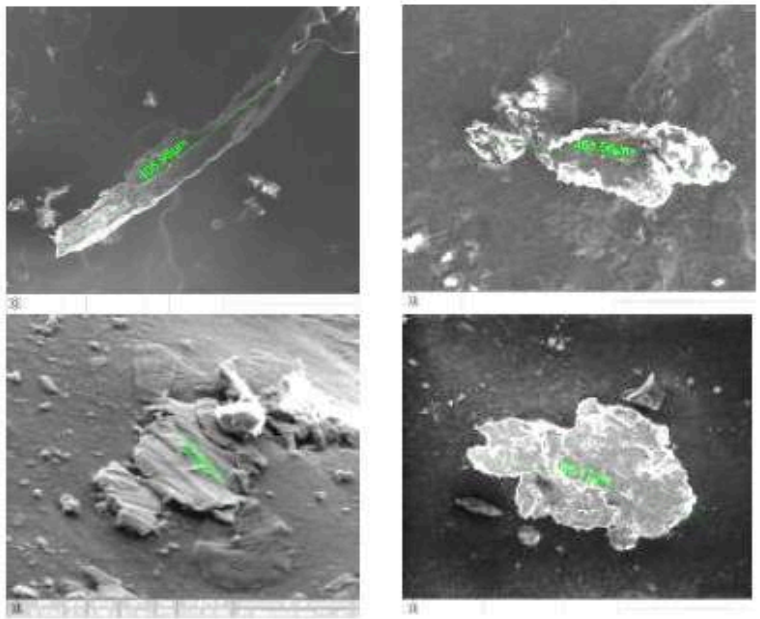
FM : Analysis

Collected from FOL



Element: **Aluminium 76.97%**
Copper 22.99%
Gold 0.04%
Min: 6 m
Average: 40 m
Max: 243 m

Collected from EOL



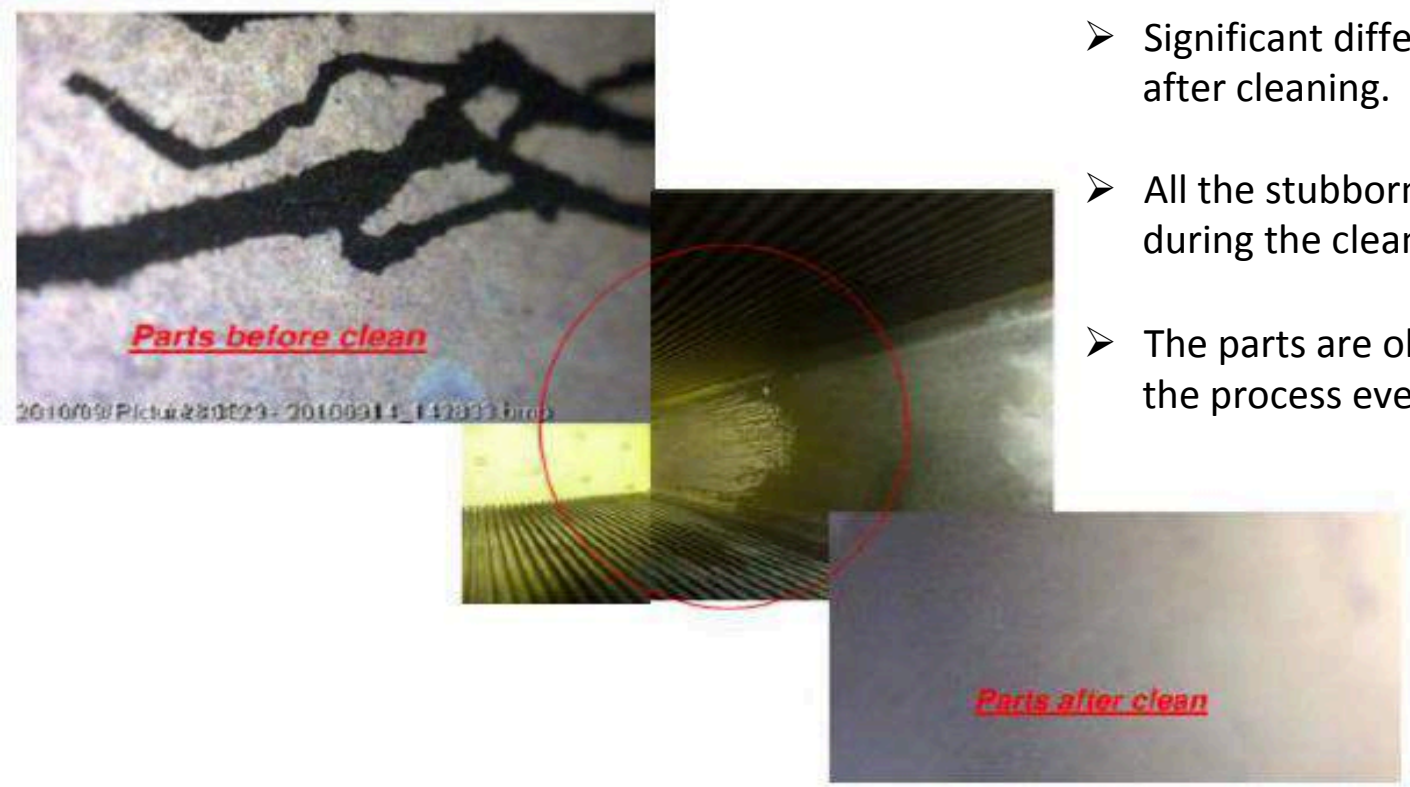
Element: **Aluminium 95.69%**
Copper 4.26%
Gold 0.06%
Min: 5 m
Average: 126 m
Max: 730 m

FM : Possible Sources

Material	Possible Main Sources	Remark
Aluminium	Aluminium magazine	Aluminium magazine coated with Nickel
Nickel	Aluminium magazine	
Copper	Copper wire	-
Ferum	Lunch box, magazine cover, machine parts, window clamp, etc.	Major elements for stainless steel: ferum, nickel, chromium.
Chromium	Lunch box, magazine cover, machine parts, window clamp, etc.	

OBJECTIVE & CLEANING RESULTS

Objective: To remove all contamination i.e foreign material, fluxes etc. from all the magazines/tray/etc. that have been heavily used in production.



- Significant difference condition of parts after cleaning.
- All the stubborn residue was removed during the cleaning Process.
- The parts are obviously cleaner after the process even by the naked eyes.

OBJECTIVE & CLEANING RESULTS

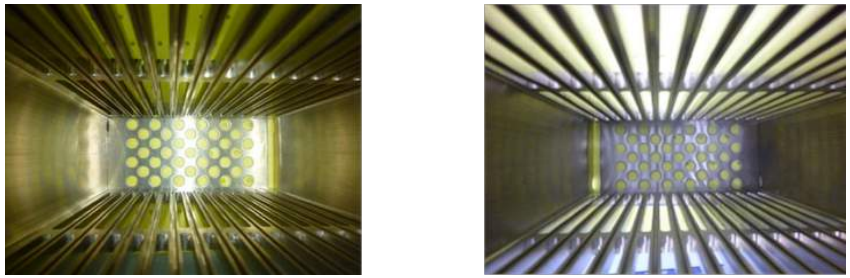
- No Visible residue
- Magazine surface look more shining

OBJECTIVE & CLEANING RESULTS

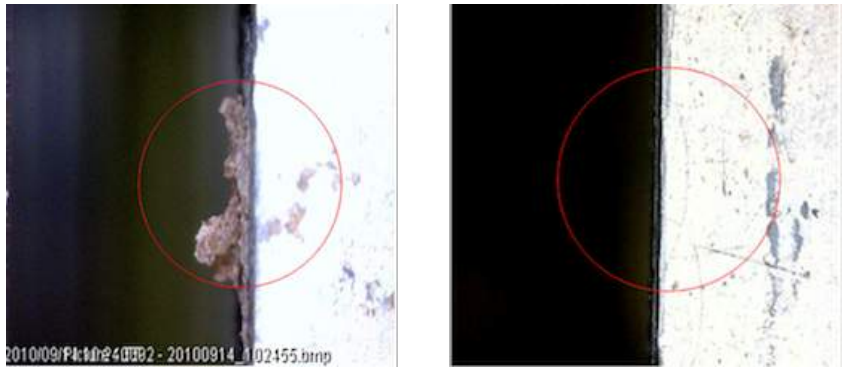
Effective cleaning:

- The cleaning process able to reach all the tight space between the slots.
- This is very important as most of the contamination stuck within this places.

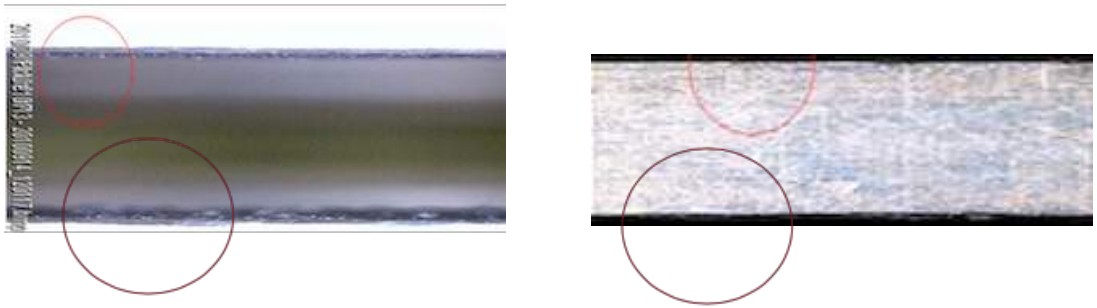
OBJECTIVE & CLEANING RESULTS



BEFORE → AFTER

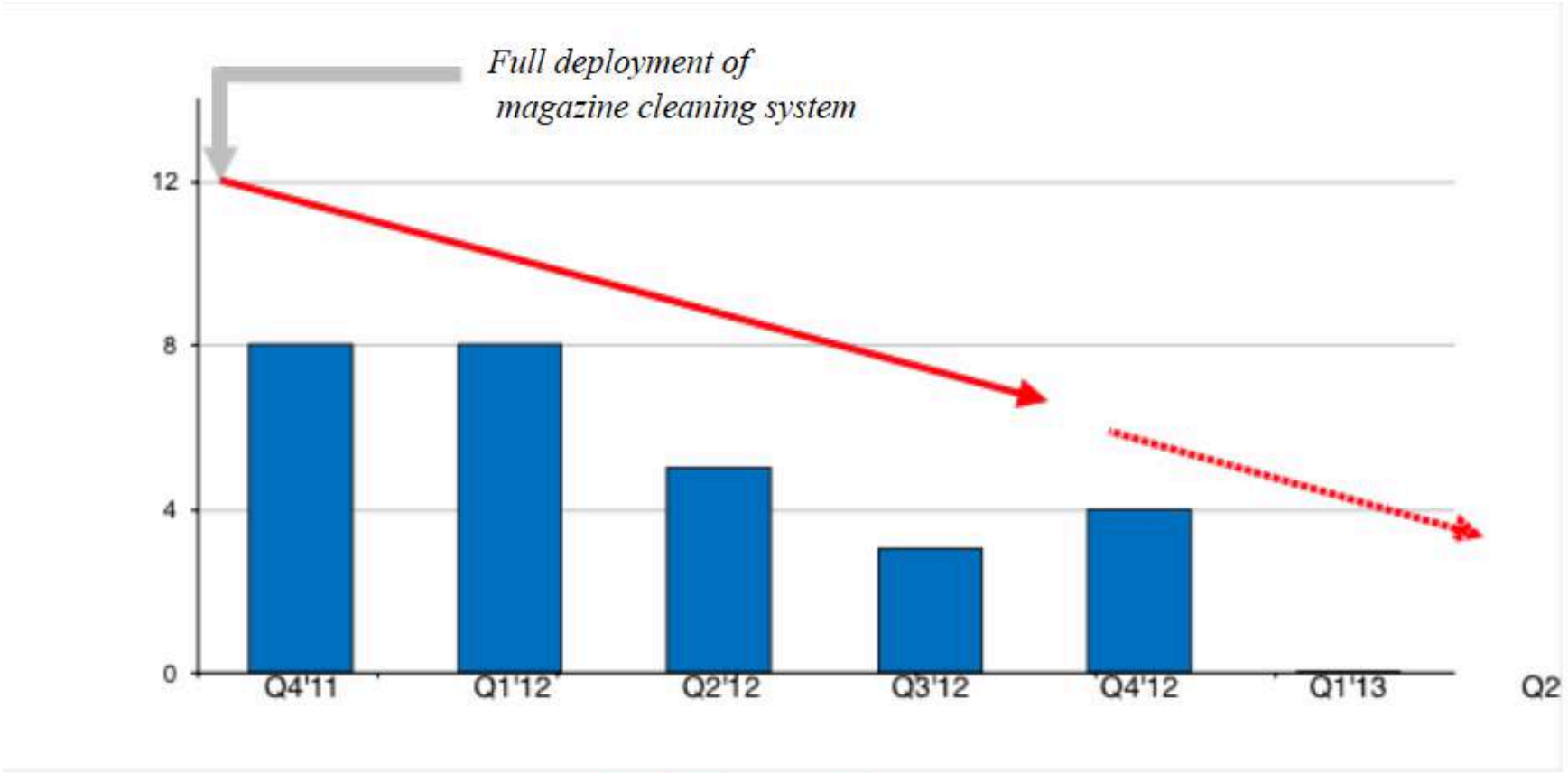


BEFORE → AFTER



BEFORE → AFTER

FM : Customer Complaints



By Manufacturing Date

MAIN CUSTOMER LIST

STMICROELECTRONICS SDN. BHD. (MALAYSIA) * SINCE YEAR 2007

STMICROELECTRONICS (MALTA) LTD. * SINCE YEAR 2015

FREESCALE SEMICONDUCTOR MALAYSIA SDN. BHD. * SINCE YEAR 2012

MICRON SEMICONDUCTOR MALAYSIA SDN. BHD. * SINCE YEAR 2013

INFINEON TECHNOLOGIES (MALAYSIA) SDN. BHD. * SINCE YEAR 2014

PT. INFINEON TECHNOLOGIES BATAM, INDONESIA * SINCE YEAR 2014

NXP SEMICONDUCTOR (THAILAND) CO. LTD. * SINCE YEAR 2017

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