

sarnikon

SMT / THT Assembly Line



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SMT/THT Line
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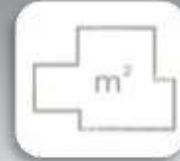
Overview



Establishment
2016



Location
Ataşehir / İstanbul



Square
2500 m²



Capacity Increase
2019-2020



HIGH CAPACITY



SHORT LEADTIME



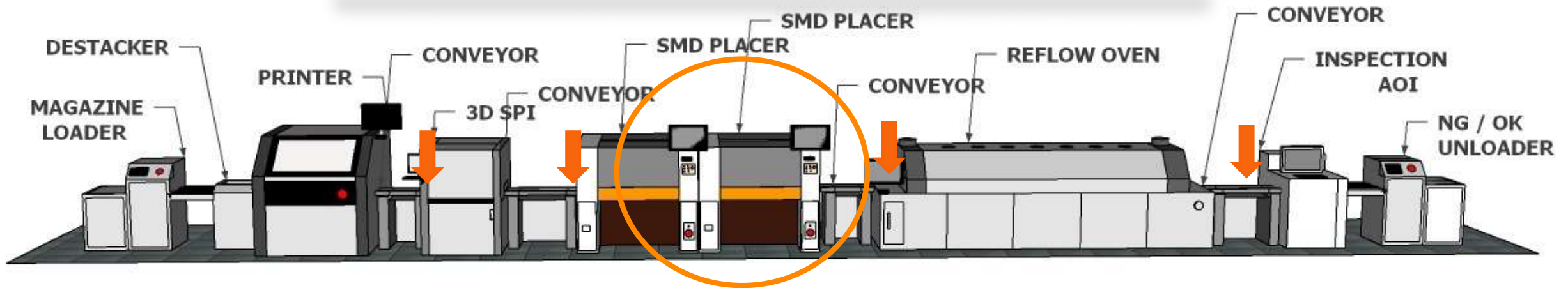
HIGH QUALITY

HIGH CAPACITY

SHORT LEADTIME

HIGH CAPACITY

FULL AUTOMATIC LINE



**Double SMD
Technology**

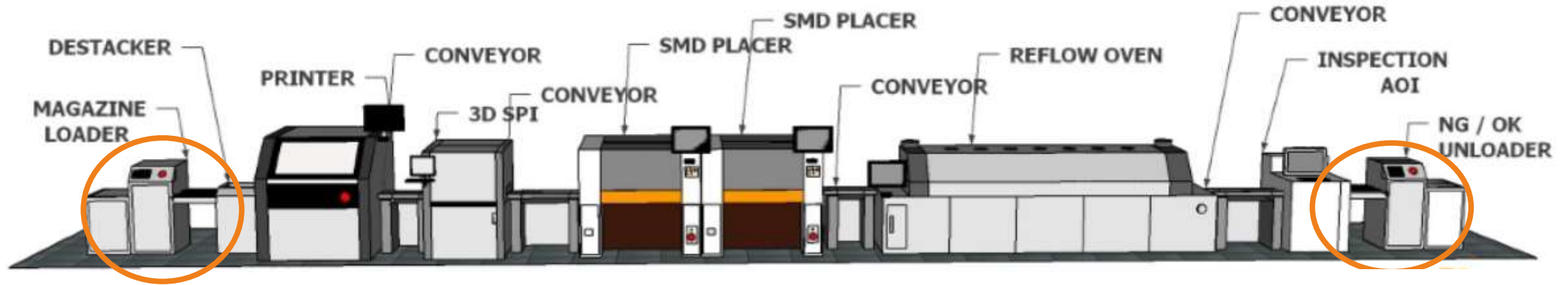
220.000
component /hour

HIGH CAPACITY

SHORT LEAD TIME

HIGH QUALITY

ONTouched PRODUCTION

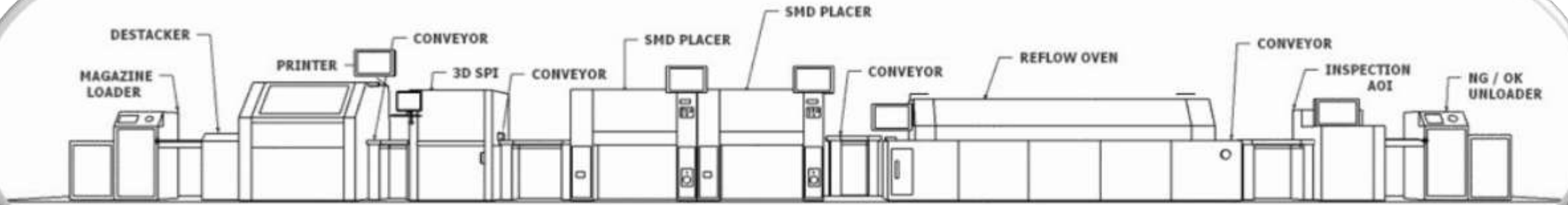


HIGH CAPACITY

SHORT LEAD TIME

HIGH QUALITY

The Machine Range Produce High Quality



Printing



Pick & Place Machines



Reflow Oven



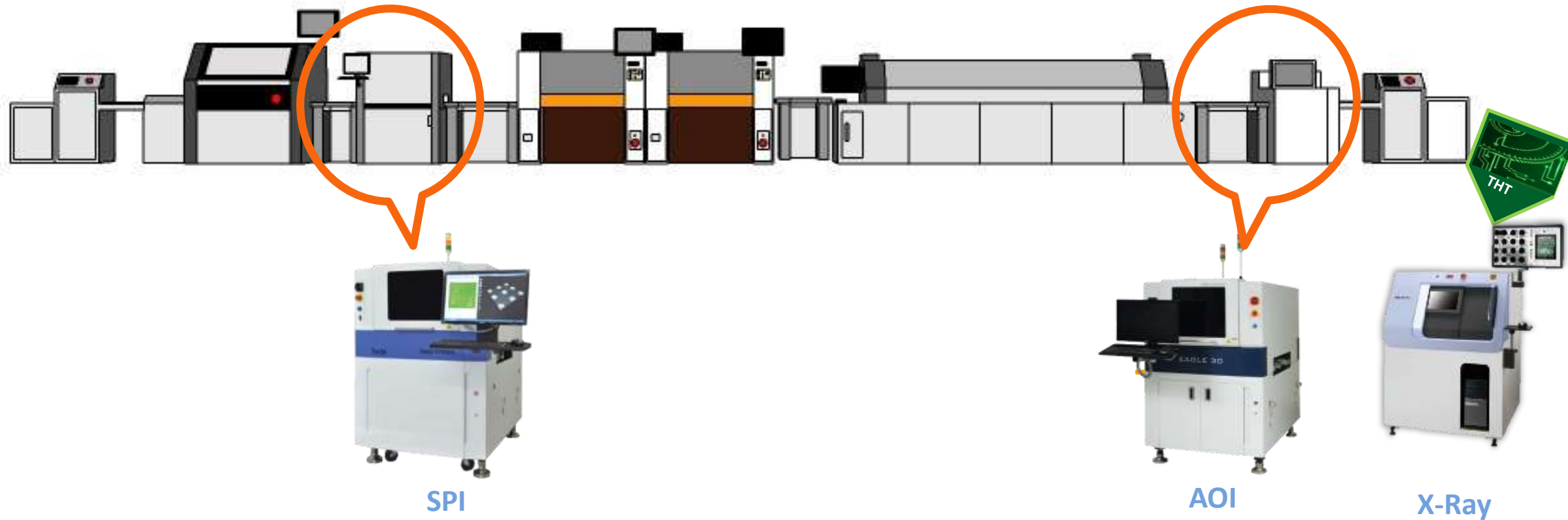
Selective Soldering

HIGH CAPACITY

SHORT LEAD TIME

HIGH QUALITY

Quality Control Machines



HIGH CAPACITY

SHORT LEAD TIME

HIGH QUALITY

Expert Engineer Team



sarnikon



MACHINE PARK

Automatic Loader Machine



w/o operator,
untouched
loading



Printing Machine



CreamSolder: Lead-freecreamsolder that we use in production is Alpha brand. It is one of the top 3 markers in the soldering industry. The most of preferred model sare SAC305 and SAC307
SAC305 has %3 silver weight and it is often used to produce electronic card for White goods and TV.
For the LED Lighting sector SAC07 is preferred because of %0,3 silver weighton the creamsolder

- **Full Automatic**

Operator free unthouched production

- **1200 mm panel**

Ability soldering 1200 mm length card

- **Perfect Printing**

Can read the reference (Fiducial) points, makes direction verification and centering.



%64

**OF THE ERRORS THAT OCCUR
IN SMD PRODUCTION ARE
CAUSED BY SOLDERING..**



- ## 3 D Control

Combines **2D color images** with **3D measurement** data to provide more detailed, near-real PCB images, unlike traditional color maps.

Our machine also provides with the best solution for **high-quality and high-precision PCB production** with a variety of statistical programs, along with information you need to quickly and accurately judge positive/failure

- ## %100 Control

- Verify whether the soldering paste is present and has been applied exactly
- Checks the accuracy (**quantity and height**) of the **soldering process**.
- This control makes 100% on **all pads on the panel (PCB)**.

SPI Analysis



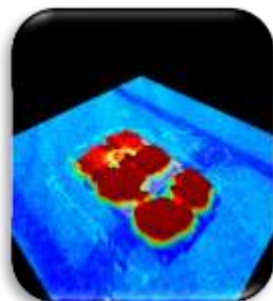
- ✓ Short Circuit Control
- ✓ Solder Control
- ✓ Stained Sieve Control
- ✓ Reference Point Control
- ✓ Soldering Position Control
- ✓ Solder Area Control
- ✓ Solder Height Control
- ✓ Solder Form /Shape Control
- ✓ Solder Volume Control

HIGH CAPACITY

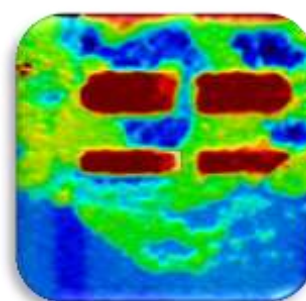
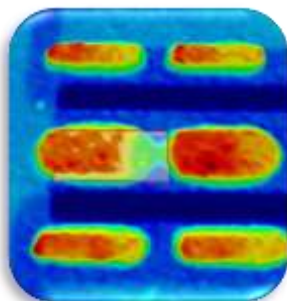
SHORT LEAD TIME

HIGH QUALITY

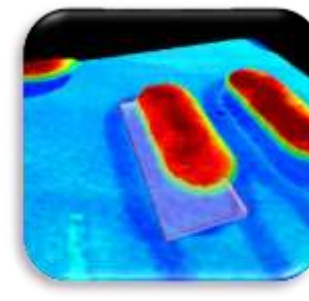
SPI Analysis Examples



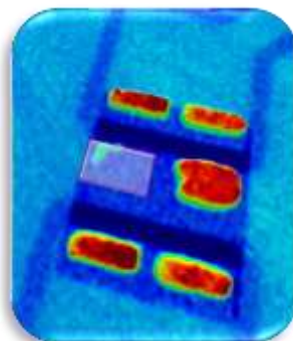
Short Circuit
Control



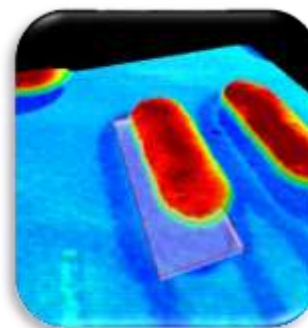
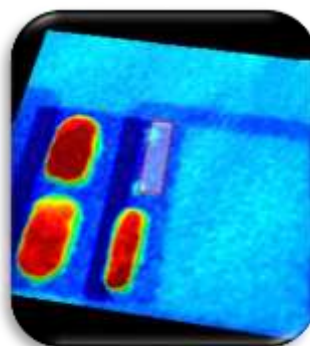
Stained Sieve
Control



Solder Shape
Control



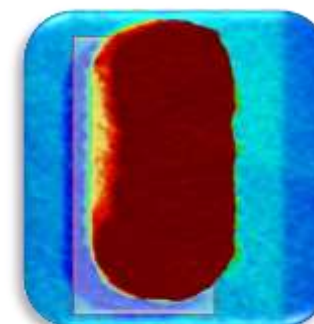
Short Circuit
Control



Solder Position Control



Reference Point
Control



Solder Form
Control

Pick & Place Machine



High Capacity & Fast Production

220.000 component /hour
Dual lane conveyor system

- **Double Head**



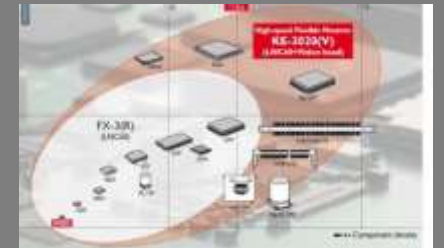
Safe & Sensitive Production

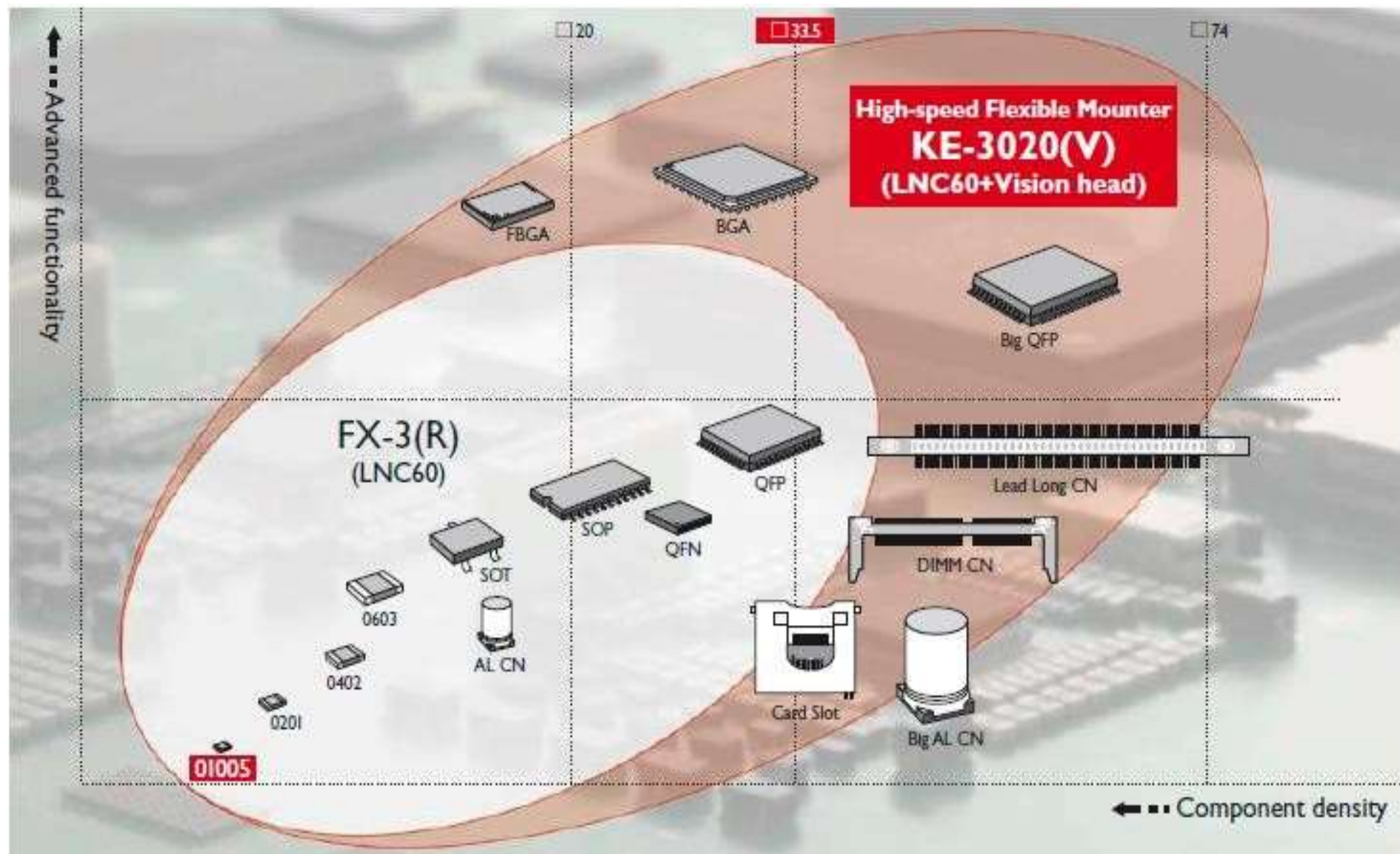
- **Flying Vision Camera System**
- **Electronic Feeder**



Flexible Component Assembly

No: 01005 Component
1200 mm card







- **Ideal Zone Number/ Length**

- It has the number of zones (as heating / cooling) and length that provide the most suitable conditions for the LED assembling.

- **1200 mm card**

- Able to assemble up to 1200 mm long panel

- **Heat Measurement Device**

- Since the temperature values are very important in soldering, it makes weekly measurements according to the solder and pcb used with our heat profile measurement device and ensures heat stability and accuracy in standard products. In the new product, it determines the temperature value needed by measuring the temperature.

AOI (Automatic Optic Inspection) Machine



- **%100 Control with 3D**

8-way projection for **3D measurements** to all models, minimizing shadow effects errors and **performing 100%** 2D&3D examinations simultaneously in all FOV areas

- **High Speed Control**

- Sensivity: 10-15-18 um
- Component are missing and incorrectly mounted,
- Solder climbs can be recognized very quickly.

- **1200 mm card Control**

- It can control cards up to min. 50x50 mm /**max:1200 x650 mm long.**
- Inspecting up to 30mm in height components

- **Perfect Analysis**

Machine can separate all cards according to OK / NG (no go) result itself at the end of control process.

AOI Analysis



- ✓ Missing Component
- ✓ Shifted Component
- ✓ Short Circuits
- ✓ Component w/o Solder
- ✓ Reverse Component
- ✓ Wrong Component
- ✓ Height of Components- *with 3D only*

AOI Analysis Examples



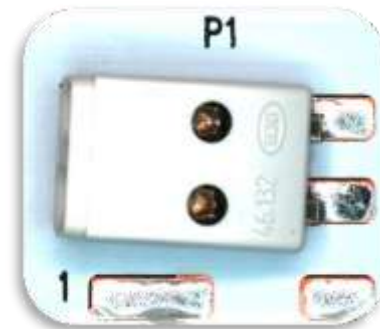
Short
Circuits



Solderless Pad
Detection



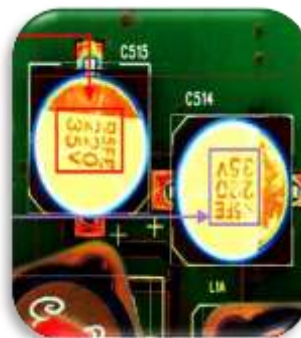
Component
Control



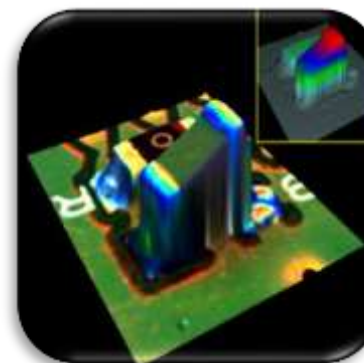
Shifted
Component



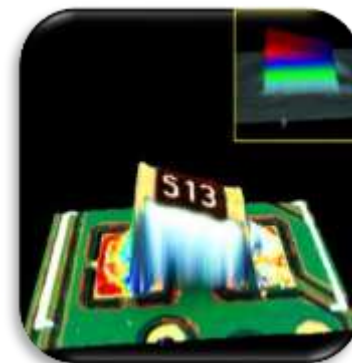
Axial Offset Control
(Y)



Text
Control



Height of
Components



Only
3D

Automatic Unloader Machine



w/o operator,
untouched
unloading



Soldering in **narrow areas**
of electronic cards



Kurtz VersaFlow 4/55 -Germany

THT



- ~~Missing Solder~~
- ~~Excess Solder~~
- ~~Cold Solder~~
- ~~Short Circuit~~
- ~~Card Pollution~~

N2



Perfect & Fast Soldering



Selective flux system advantage

There is no need for the cleaning process, no soldering breakages that may occur.



Optimal homogeneous preheating

The solder connection of the island and component legs to be soldered on the PCB is brought to the thermal regime, ensuring



Soldering module X / Y / Z variable

Safe / error-free component soldering is provided with automatic adjustment with Gerber file support.



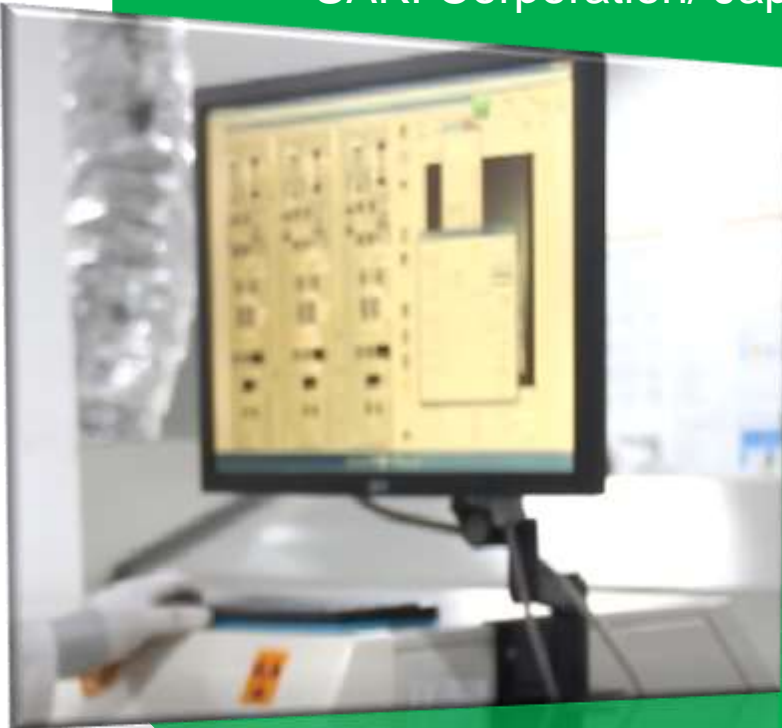
Nozzle Selection Setting

The process time is shortened by multiple soldering by selecting suitable sizes of nozzles.

solder materials.

X- Ray Control

SAKI Corporation/ Japan



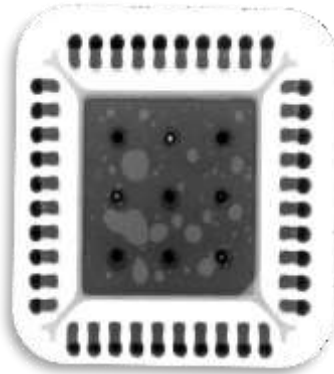
- ✓ Error Analysis of Very Intensive Cards
- ✓ State the possible air gaps in the solder points
- ✓ Point Analysis of BGA, micro BGA, QFN, LED, Ic, Leg component.
- ✓ Volume Calculations of High Precision Void.

HIGH CAPACITY

SHORT LEAD TIME

HIGH QUALITY

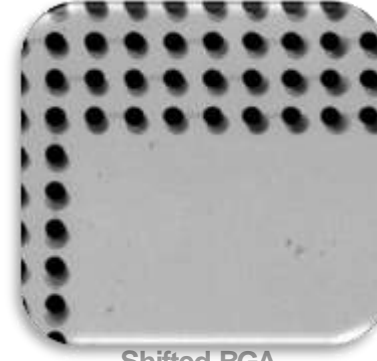
X-Ray Control Examples/1



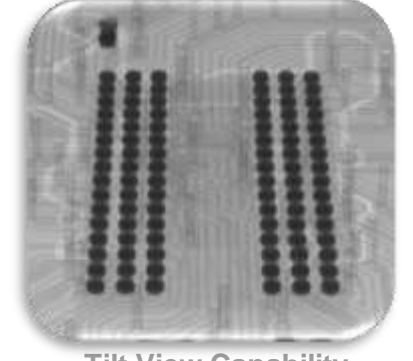
QFN Inspection



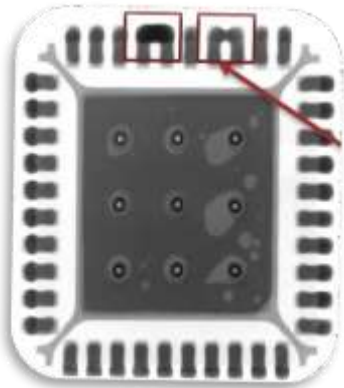
SOT89 Inspection



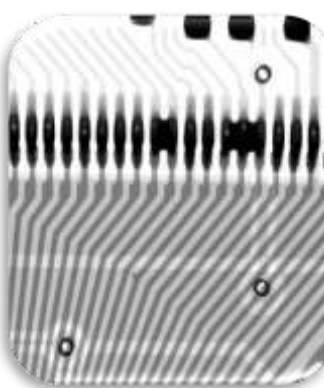
Shifted BGA
Components mounted incorrectly
Incorrect placement of solder masks



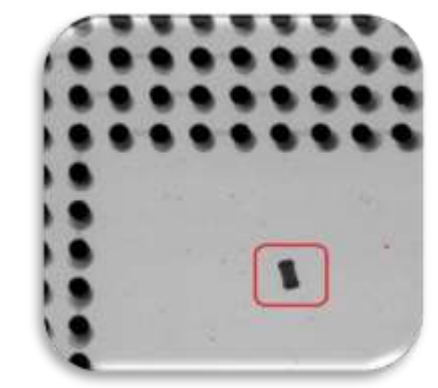
Tilt View Capability
All components can be
inspected from 1° to 60° tilt



Short Circuit Control



Solder-Pad Width Control



Dropped SMD Chip Under BGA

HIGH CAPACITY

SHORT LEAD TIME

HIGH QUALITY

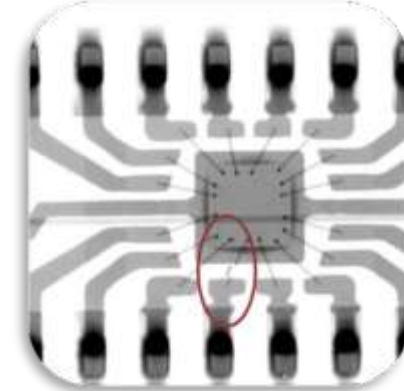
X-Ray Control Examples/2



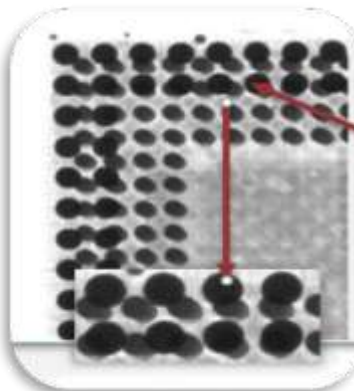
Missing Solder Balls



Cold Solder Joints



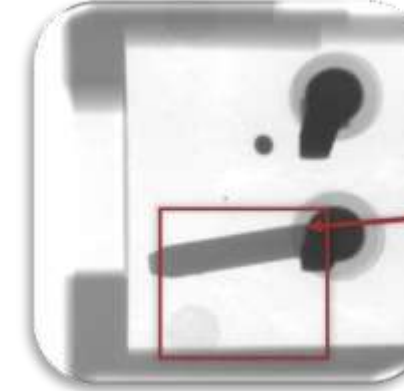
Broken Wire Inspection



BGA Via Open and Poor
Plating



BGA Via Open and Poor
Plating



Bending Pin Inspection



HIGH CAPACITY

SHORT LEAD TIME

HIGH QUALITY

Total Quality Management



- Necessary ventilation to make sure production area clean & hygienic.
- Infrastructure ESD (antistatic) supported epoxy floor.
- Low electric load, moisture and dust value in environment.



ISO 9001:2015

Quality Management System

ISO 14001:2015

Environmental Management System

ISO 10002:2018

The Customer Satisfaction and Compliance Management System

LED Light For You

Certified Partner for Region of EUROPE

sarnikon

HIGH CAPACITY

SHORT LEAD TIME

HIGH QUALITY

Total Quality Management



Kaizen

Lean Management

FIFO

Pok
a
Yoke

5s

Proces
s
Control

Optional Services



Labelling

2-axis printing capability

Printing matrix or QR code min.4 mmx4 mm area.
With our labelling machine,

- We are capable of making custom design marking. Customized marking can be text, brand, date of manufacture, article number.
- Colorful editing can be done.
- We have opportunity to make product traceability and simplified quality assurance



Optional Services



Safety Test

We can also test 62031 Led Modules in 60598 standards for the led modules that come out of our production according to customer requests.

V –Cut Service

We can also test 62031 Led Modules in 60598 standards for the led modules that come out of our production according to customer requests.



Special Packaging

The products can be delivered in ESD protected packaging and delivered according to the customer's request.

Have You Asked These?

1. Which brand of solder cream are you using?



We use long-lasting British Brand Alpha lead-free cream solder. Quality soldering is guaranteed. We prefer solder with different silver weight in LED lighting and electronic card assembly.

2. Is the printer manual, semi-automatic or fully automatic?



We are aware that the %64 of the errors due to solder problems, therefore, we use fully automatic printers. We prefer a fully automatic printer that can solder 120cm automatically at one time; whose investment cost is 60 times more than manual printers and 10 times more than semi-automatic printers.

3. How is the soldering quality gets controlled?



We own a SPI (Solder Paste Inspection) machine to inspect homogeneous solder dispersion. We control solder length, width and height with 3D Imaging technology to provide %100 solder quality.

4. To how much length, can SPI devices control cards at one time?



Can inspect boards with up to 120cm at one time, the only SPI machine in the World which is custom designed to do so.

5. What is your assembly capacity and what are your deadlines?



We provide high capacity and short delivery time with our line which has double SMD production technology (double head assembly & double machine) and double conveyor, which can assembly 220,000 components per hour according to the IPC standards.

Have You Asked These?

6. How many heating and cooling zones does your oven have?



We cook precisely with a total of 13 zones, which is the ideal zone number that makes the solder, liquid, by slowly melting it in a healthy way and leaving it to cool so that it does not form cracks. Thus, we are able to create special oven conditions for each card.

7. Which packages/cases of components are your Pick & Place machine capable of assembly?



Our machine can assembly components in the package style from 01005 up to -74x74mm - 50x150 mm. Thanks to this feature, we can address different sectors such as automotive, medical and defense.

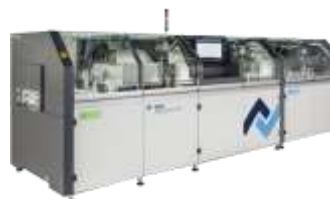
8. Do you own AOI (Automatic Inspection) machine ?



3D

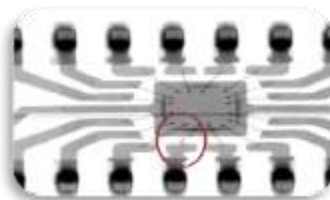
With our in-line AOI machine, we provide 100% control on each board. We take high resolution photographs and compare the cards produced with the witness sample. We prevent major errors by controlling also the height of the components with 3D technology.

9. How do you Assembly THT components, by hand?



With our Selective Soldering machine, which is a requirement for the automotive standards and used for THT assembly, we provide flawless and fast soldering. Hence, eliminating human errors.

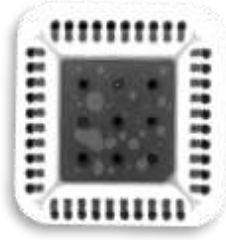
10. How do you Inspect the errors which can not be seen by naked eye?



With our X-Ray device, by looking at the internal structure of the components and the solder, we are able to detect problems such as solder coating bubbles, broken wires in the component, short circuit between legs, and prevent them with the right machine adjustments. For example, we examine with an X-ray whether the contact between the PCB islands and the legs of the chip is fully established.

Have You Asked These?

11. Do you check for air bubbles inside the solder?



In-solder oxidation is the oxidation of air bubbles formed in the solder, over time. We control the number of the air bubbles according to the IPC standards.

12. According to which standards do you follow up your assembly processes?



IPC is the Rework, Repair and Modification Standard for Electronic Board Sets. We follow our processes and create our production rules according to the IPC Standards. Our staff consists of people who have received IPC training.

Our SMT/THT Assembly line is
pleased to provide electronic card assembling services for the
Automotive, Defense industry and IT sectors
as well as LED assembling for the lighting sector.



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Thank you



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