

# **KAGA ELECTRONICS EMS Business Briefing Material**

March 30, 2022 TSE 1st section 8154

# Preface

#### **Business Domains**

| Sales agent activities for general<br>electronic components and<br>semiconductors for customers in<br>Japan and worldwide           | Electronic part<br>and<br>Semiconductors | EMS    | Providing total support for design,<br>development, and manufacture of<br>products ranging from semi-<br>finished to finished products |
|-------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|--------|----------------------------------------------------------------------------------------------------------------------------------------|
| Supplying PCs and peripherals to<br>domestic and international<br>distribution channels, and serving<br>the network solutions field | Information<br>Equipment                 | Others | Development, manufacture, and<br>sale of amusement-related<br>products and software                                                    |
|                                                                                                                                     |                                          |        |                                                                                                                                        |



Medium-Term Management Plan 2024 : Management Targets

Realize sustainable growth by organic growth and further M&A challenges

|                     | FY2021 Forecasts   |  | FY2024 Management Targets |                    |
|---------------------|--------------------|--|---------------------------|--------------------|
|                     |                    |  | Organic growth            | Including new M&As |
| Net Sales           | JPY <b>475</b> bn  |  | JPY <b>600</b> bn         | JPY <b>750</b> bn  |
| Operating<br>Income | JPY <b>17.5</b> bn |  | JPY 20 bn                 |                    |

With cost of shareholders' equity (7-8%) in mind,

| ROF $123_{\text{exc}}$ at the $85_{\text{exc}}$ is the form |
|-------------------------------------------------------------|
|-------------------------------------------------------------|



#### Medium-Term Management Plan 2024 : Business Portfolio



#### Medium-Term Management Plan 2024 : Summary





# About Kaga' EMS Business

#### The Strengths of Kaga's EMS : Convenience Store-type EMS

# Kaga Electronics globally deploys a "Convenience Store-type EMS" that is convenience and valuable for its customers.



# The Problem-solving Power of Convenience Store-type EMS (A Case Study from an Existing Customer)





#### Construction of a New Plant in Turkey

#### A new base for circuit board mounting in Europe







[Overview of the new plant in Turkey]

- Completion: Planned for November 2022
- ▶ Site area: 15,000m<sup>2</sup>
- ▶ Floor space: 11,600m
- Production equipment: Manufacturing and inspection equipment associated with circuit board mounting and electrical equipment assembly
- ► Number of employees: 330
- ▶ Planned products:

Electrical equipment units for air conditioners

Mounted circuit boards for electrical tools Mounted circuit boards for automotive equipment



#### Priority Strategy for the EMS Business (From [Medium-Term Management Plan 2024])

| Reinforce and expand our customer base in high quality markets, with shift to higher value-added areas |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                         |  |  |  |
|--------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|--|--|--|
| Reinforcement<br>and Expansion<br>of Customer<br>base                                                  | <ul> <li>Expansion of businesses with high<br/>quality requirements and stable long-<br/>term demand orientation</li> <li>Expansion of US, European, and Asian<br/>customer bases</li> </ul>                                                                                                                                                                                                                                                                                              | Large lot,<br>short life-<br>oriented Mega<br>EMS Cost<br>requirements  |  |  |  |
| Shift in Value<br>chain to High<br>value-added<br>areas                                                | <ul> <li>Design/Development + EMS service</li> <li>Support for software and hardware design and development</li> <li>External sales of production equipment/IT systems developed inhouse</li> </ul>                                                                                                                                                                                                                                                                                       | High Development Equipment/ICT<br>Manufacturing<br>Upstream Dow nstream |  |  |  |
| Reinforcement<br>of Business base                                                                      | <ul> <li>Global site collaboration and construction of human resource development structure, with EMS Towada (Production Center) at the core</li> <li>Fast and flexible launch of new factories with limited initial investment (development of "convenience store-type EMS")</li> <li>Promotion of smart factories through automation and visualization</li> <li>Reinforcement of BCP (fast and flexible inter-Group collaboration on procurement/production/logistics risks)</li> </ul> |                                                                         |  |  |  |



Strengthening and Expanding our Customer Base: Long-term Stable Demand + Focus on Quality







#### Shifting Our Value Chain to High Value-added Domains: Development/Design + EMS Services



#### Shifting Our Value Chain to High Value-added Domains: Internally Developed Production Equipment and IT Systems

#### Internally developed production equipment

#### #ATTEN



#### Illustration of visualization systems



#### Concept of coordination with our customers' systems



Strengthening Our Business Base: Production Center

The role of the Production Center

**Cross-functional management of information for each EMS plant** and standardization of manufacturing at each EMS plant





#### The Role of the Production Center

Building coordination between global bases and human resource development with the Towada plant (Production Center) as the core



## The Function of the Production Center

#### Coordinating between global production bases, centering the Production Center



## The EMS Business Portfolio by Industry

Through our key strategies of "strengthening and expanding our customer base," "shifting our value chain to high value-added domains," and "strengthening our business base," we aim to rapidly grow the business scale to 1.4 times the level of fiscal 2021.





#### Utilizing renewable energy



As part of our efforts to utilize clean energy, we plan to use electricity generated from solar power at some of our plants from fiscal 2022.

#### Initiatives for a work-friendly environment



At our Shenzhen plant (China), we held an event inviting the children of employees to experience the workplace at the plant.



\*The photograph is for illustrative purposes only.





# An Introduction to KAGA EMS TOWADA

#### Introduction to KAGA EMS TOWADA

#### ■ KAGA EMS TOWADA CO., LTD.

|  | Site area           | 30,564 m <sup>2</sup>                                                                                                                                                             |
|--|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | Building<br>area    | 13,264 m <sup>2</sup>                                                                                                                                                             |
|  | Number of employees | 290                                                                                                                                                                               |
|  | Approval            | <ul> <li>·ISO 9001</li> <li>·ISO 14001</li> <li>·ISO 13485</li> <li>·License for manufacturing general medical devices</li> <li>·IATF 16949 (to be acquired in FY2022)</li> </ul> |



#### 1. Main Production Items and Production Lines

#### Main production items

#### Circuit board mounting and electronic equipment assembly and inspection

Automotive related Medical device related Consumer product and industrial equipment related, food processing equipment related, etc.

#### Main production lines

Automated surface mount technology (SMT) lines

5 lines + exclusive use of 5 lines at partner factory



**2** Dual in-line package (DIP)

lines

3 lines + exclusive use of 1 line at partner factory



**3** Finished product assembly lines

Flow production lines: 4 lines Cell production lines: 8 rooms (clean room available)





## 2. Automated Surface Mount Technology (SMT) Lines



▼Component mounter





▼ Reflow oven



## [Basic Flow-(1)]

# (1) Print solder with a printer



# [Basic Flow-(2)]

(2) Precisely inspect state of printed solder paste using a printing inspection machine (inspect volume, bleeding, dimness, position deviation, average height, etc. with 3D precision)







## [Basic Flow-(3)]

#### (3) Mounting: Install the components using a component automatic mounter





Vacuum pickup and placement at specified position on board





## [Basic Flow-(4)]

#### (4) Mounting: Melting, cooling, and bonding of solder by reflow (oven)



Board passes through a number of baths of different temperatures along a conveyor





#### SMT Line

#### Features of our configuration

Specialized manufacturer equipment (high quality, high reliability, 🕇 and high speed)

Equipment developed inhouse (pursuit of productivity and low cost)

Improves traceability and saves manpower

#### Basic configuration of one of our lines











[Reflow (joining by melting and cooling solder) → 3D optical solder appearance inspection] (0 minutes 36 seconds)





### 3. Dual In-line Package (DIP) Lines

• Process to insert leads of components into copper foil holes in the board and solder them (large components, connectors, coils, transformers, etc.) (higher strength than surface soldering)

The terminals of components are inserted into the through holes (circuit conduction pattern holes) in the board.



Insertion error imaging inspection machine developed by Kaga Electronics Group (prevents component, missing, polarity, tilt, height, and other human errors)



Terminals of a component inserted into the soldering surface of the board are soldered by jet-flowing molten solder at a high temperature





#### Basic Configuration of Our Dual In-line Package (DIP) Lines

#### Developed by Kaga Group (made by HATTEN)



![](_page_33_Picture_1.jpeg)

![](_page_33_Picture_2.jpeg)

#### 4. Finished Product Assembly Lines

#### • Module assembly in clean room

![](_page_34_Picture_2.jpeg)

#### • Finished product assembly line

![](_page_34_Picture_4.jpeg)

![](_page_34_Picture_5.jpeg)

![](_page_34_Picture_6.jpeg)

## [Flow production assembly line]

#### (0 minutes 34 seconds)

![](_page_35_Picture_3.jpeg)

![](_page_35_Picture_4.jpeg)

#### Our own developed Production Equipment

![](_page_36_Figure_1.jpeg)

![](_page_36_Picture_2.jpeg)

Developing an original mechanism improved productivity by shortening the process time and provided a measure against tenosynovitis due to tightening by hand

[Assembly – Developed in-house by KAGA

(automatic pressure feeding screw fastener + automatic horizontal screw fastener)] (0 minutes 50 seconds)

![](_page_37_Picture_3.jpeg)

![](_page_37_Picture_4.jpeg)

#### Our own developed Automatic Picking Machine

[Features of our equipment] Developed and manufactured by KAGA: Automatic picking machine for instruction manual and other accessories

![](_page_38_Picture_2.jpeg)

Effect: Achieves automation of preparation of accessories (instruction manual, warranty, etc.) and thus prevents mistakes by workers

![](_page_38_Picture_4.jpeg)

[Assembly – Developed in-house by KAGA (automatic picking machine for instruction manual and other accessories)] (0 minutes 36 seconds)

![](_page_39_Picture_2.jpeg)

![](_page_39_Picture_3.jpeg)

#### 5. Strengths of KAGA EMS TOWADA: High-Quality and High-Productivity Initiatives

#### Mechanisms "not to accept, use, make, or allow flow of defective parts" + "not to stop supply"

![](_page_40_Figure_2.jpeg)

#### KAGA EMS TOWADA Smart System

#### System developed by KAGA linked with planning, material, and production control

![](_page_41_Figure_2.jpeg)

compared with before deployment

![](_page_41_Picture_4.jpeg)

# • Thorough history control and prevention is implemented using traceability system developed by KAGA.

![](_page_42_Figure_2.jpeg)

![](_page_42_Picture_3.jpeg)

#### KAGA EMS TOWADA Smart System

• Method: Issue control labels when parts and materials are received and implement B/C check for each work process.

Traceability information can be acquired, as the results are collected in real time.

![](_page_43_Figure_3.jpeg)

#### KAGA EMS TOWADA Smart System

- Part alarm (part shortage warning) developed by KAGA improves productivity by preventing delays due to waiting for parts to be prepared
- Objective: Avoid machine stops due to part shortages by developing a part alarm function to display the order that part shortages will occur on a tablet

![](_page_44_Figure_3.jpeg)

Grasp the splicing time  $\rightarrow$  Reduce part replacement loss

![](_page_44_Picture_5.jpeg)

#### Examples of Awards received for Equipment

• The Commendation for Science and Technology and Prize for Creativity by the Minister of Education, Culture, Sports, Science and Technology

![](_page_45_Picture_2.jpeg)

Price reduced by 1/2 or more compared with existing products of equipment manufacturers

![](_page_45_Picture_4.jpeg)

![](_page_45_Picture_5.jpeg)

(manual, warranty, etc.) achieved

#### Measures for Static Electricity and Foreign Material

#### <<Static electricity and dust control>> Dry fog and ionizer equipment

![](_page_46_Picture_2.jpeg)

#### << Prevent foreign material from entering production floor>> Install sticky mat and air shower

![](_page_46_Picture_4.jpeg)

![](_page_46_Picture_5.jpeg)

#### The Role of the Production Center

Building coordination between global bases and human resource development with the Towada plant (Production Center) as the core

![](_page_47_Figure_2.jpeg)

# **Other IR Information**

IR Site
 <a href="https://www.taxan.co.jp/en/">https://www.taxan.co.jp/en/</a>

![](_page_48_Picture_2.jpeg)

![](_page_48_Picture_3.jpeg)

https://www.taxan.co.jp/en/ir/ir\_library/library\_05.html

![](_page_48_Picture_5.jpeg)

 Registering for "IR MAIL Distribution Service" <u>https://www.taxan.co.jp/en/ir/irmail/index.html</u>

![](_page_48_Picture_7.jpeg)

![](_page_49_Picture_0.jpeg)

![](_page_49_Picture_1.jpeg)

![](_page_50_Picture_0.jpeg)

![](_page_50_Picture_1.jpeg)

![](_page_51_Picture_0.jpeg)

![](_page_51_Picture_1.jpeg)

![](_page_52_Picture_0.jpeg)

![](_page_52_Picture_1.jpeg)

![](_page_53_Picture_0.jpeg)

![](_page_53_Picture_1.jpeg)

# "Everything we do is for our customers

![](_page_54_Picture_1.jpeg)

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Number : Truncated less than the display unit.

Ratio : After calculation in yen units, Round down one digit of Display unit.