Tamagawa Company Profile

TAMAGAWA SEIKI CO., LTD.
May, 2016
1. Company Introduction

Company Profile

• Company Name: Tamagawa Seiki Co., Ltd.
• Founded: March 3, 1938
• Employees: 2,400 in total group
• Representatives: Hiroyuki Hagimoto, Chairman
  Norifumi Hagimoto, Vice Chairman
  Shigeo Seki, President of Tamagawa Seiki
  Akifumi Arai, President of Tamagawa Trading
• Sales (group): ¥48.5 billion/ US$401 million (as of Nov. 2015)

Business Content

✓ Angular Sensors and Motors for pilot control system, flight control system such as high lift system, and so on for commercial aircraft.
✓ Products are Resolver, LVDT (Linear Variable Differential Transformer), RVDT (Rotary Variable Differential Transformer), and DC Brushless motor.
✓ Aircraft electrical equipment, gyros, inertial measurement instruments
✓ Electro-Mechanical Actuators such as Throttle Quadrant Assy, Landing Gear Actuators, so on.
1. Company Introduction
   - Company Profile / Commercial Aircraft Group

Tamagawa Seiki Commercial Aircraft Group

ORGANIZATION CHART

Hiroshi Miyazaki
President
Board of Director

Mitsuyoshi Matsuzawa
Quality Assurance Management
Vice President
Director

Takahide Sugiyama
Quality Assurance Management
General Manager

Kazunaga Higo
Quality Assurance & Inspection Dept.
General Manager

Toshibo Kubota
Supply Chain Management & OEC Innovation
Vice President
Executive Director

Tomoo Shirota
Supply Chain Management
Production Planning & OQC Innovation
General Manager

Nanukiho Sakai
Supply Chain Management & OQC Innovation
General Manager

Elchi Matsumura
Management & Production Planning
Vice President
Executive Director

Yoichikazu Nakayama
Production Planning & OQC Innovation
Deputy General Manager

Tadasu(TED) Takigawa
Marketing & Sales Management
Director
"Tamagawa Trading Co., LTD"

Masahiro Yamamoto
U.S.A Marketing Office
Manager
"Tamagawa Trading Co., LTD"

Tsuyoshi Suganuma
Application Design & Engineering Management
Director

Akiyoshi Kubota
Engineering Planning & Coordination
Director

Masashi Nakata
Senior Design & Engineering
General Manager

Yuki Shimoda
Senior Design & Engineering
General Manager

Isamu Okada
Aerodynamics Design & Engineering Management
Director

Tetsuro Yuzawa
Customer Service Engineering Management
Director

Masafumi Kiryu
Aerodynamics Design & Engineering
General Manager

Masafumi Kiryu
Nagoya Design & Engineering Center

[Organization Chart Image]
1. Company Introduction

- HQ & First Plant
- Second Plant
- Third Plant
- Tamagawa Trading HQ
- IIDA, NAGANO
- Hachinohe Plant
- Misawa Plant
- Fukuchi Plant (No. 1 and 2)
- Tokyo Office and R&D Center

Main Locations
1. Company Introduction

- Tamagawa Group Overseas Locations

- Tamagawa Seiki Suzhou Co., Ltd.
- Taiwan Office
- Tamagawa Hong Kong Ltd.
- Singapore Office
- Tamagawa Europe GmbH
- Los Angels Office

Nov. 2015 Opened
2. Development Experiences

Tamagawa has experiences in following applications as commercial aircraft components.

- Motor for Air Management System
- Pilot Control Systems
- Primary Flight Controls
- Slats and Flaps Controls
- EHSV
- HSTA and THSA
- Thrust Reverser Actuation System
- Power Drive Unit of High Lift
- Door Motor for Freighter
- Steering Control Sensor
- Weather Radar
- Landing Gear Systems
2. Development Experiences
Application for Pilot Control Systems

Resolver Thrust Control
Motor, DC Brushless
RVDT
LVDT, BRAKE Pedal Position

RVDT, Triple Cluster, yaw controls
RVDT, Triple Cluster, elevator controls
RVDT, Quadruple Cluster, lateral controls
2. Development Experiences

Application for Flight Control or Other Systems

Multi Function PCU  Elevator PCU  Rudder PCU  Power Drive Unit

Wingtip Position Sensor  Flap Skew Sensor For High Lift  Slat Skew Sensor  Motor, DC Brushless

Aileron PSU  RVDT  RVDT Dual  Position Sensor Unit for THSA  Motor with Gear for air valve
2. Development Experiences

**Electro Mechanical Actuators**

Tamagawa actuators are used in Cockpit, Landing gears and flight controls.
## 2. Development Experiences

### Electro Mechanical Actuators

<table>
<thead>
<tr>
<th>Electro Mechanical Actuator (Ball-screw type)</th>
<th>Electro Mechanical Actuator (Jack-screw type)</th>
<th>Flap Slat Control Lever</th>
<th>Throttle Quadrant Assy</th>
</tr>
</thead>
</table>

![Electro Mechanical Actuator (Ball-screw type)](image1)

![Electro Mechanical Actuator (Jack-screw type)](image2)

![Flap Slat Control Lever](image3)

![Throttle Quadrant Assy](image4)
Tamagawa Seiki’s leading-edge technology embodies an ideally balanced integration of three key element technologies - “Motor” technology, “Electronic” circuit technology and precision “Mechanics” technology. This sophisticated composite technology is the basis for each and every one of Tamagawa Seiki’s many products, which are actively at work in diverse industrial realms.

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Thank you for your attention!!

Tamagawa believes the greatest importance for the company and willing to show its flexibility at complying with customer requests and support you.

Tamagawa Seiki Co., Ltd.