Business Strategy of the Specialty Steel Company

Hitachi Metals IR Day 2017

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Hitachi Metals, Ltd.

Koji Sato
Executive Officer
President of the Specialty Steel Company
Business Strategy of the Specialty Steel Company

[Table of Contents]

1. Message
2. Business Overview
3. Action Plan
4. Conclusion
1. Message

“Transform changes into opportunities”

- Collaboration between steel and copper
  — Achieve further growth by incorporating SH Copper Products —

- Strengthen *monozukuri* + business activities (sales capabilities)

- Large-scale capital expenditure
Business Strategy of the Specialty Steel Company

[Table of Contents]

1. Message
2. Business Overview
3. Action Plan
4. Conclusion
2-1. Business Composition

Top manufacturer in Japan with No. 1 share in numerous products

(1) Tool steel
- Cold working tool steel
- Hot working tool steel

(2) Industrial equipment materials
- CVT belt materials
- Piston ring materials

(3) Electronic materials and components
- Lithium-ion battery foil
- Target materials

(4) Aircraft- and energy-related materials
- Turbine case
- Turbine blades

(5) Rolls
- High-speed steel rolls

(6) Soft magnetic components and materials
- Amorphous metals
- FINEMET®

Specialty Steel Products Segment
FY2016
Revenues ¥234.7 bn
2-2. Market Environment

Increase in demand for energy-efficient products—due to introduction of stricter environmental regulations and demand for environmentally-friendly products

- **EV**: Annual growth of 30% after 2017
- **Combustion engine vehicles**: Expected to continue increasing after 2025

<table>
<thead>
<tr>
<th>Year</th>
<th>EV</th>
<th>Aircraft and energy</th>
<th>Tool steel</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>1.0</td>
<td>Large forged components</td>
<td>Hot working tool steel</td>
</tr>
<tr>
<td>2020</td>
<td>2.0</td>
<td>Aircraft engine components</td>
<td>Cold working tool steel</td>
</tr>
<tr>
<td>2025</td>
<td>3.0</td>
<td>Turbine blades and others</td>
<td>New steel type (SLD-i™)</td>
</tr>
</tbody>
</table>

Source: Hitachi Metals’ estimate based on various research materials

*Including term for hybrid electric vehicles (HEV) and plug-in hybrid electric vehicles (PHEV)

- Basic policy and growth strategy of the Specialty Steel Company

Achieve growth internationally by focusing on “special steel”

Monozukuri: Conduct “eye-opening” manufacturing
Sales abilities: Further enhance the strength

- FY2018 Medium-term Management Plan: Goals

<table>
<thead>
<tr>
<th></th>
<th>FY2016</th>
<th>FY2018 Goals* (¥110 = US$1)</th>
<th>Change vs. FY2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenues</td>
<td>¥234.7 bn</td>
<td>¥320.0 bn</td>
<td>136%</td>
</tr>
<tr>
<td>Adjusted operating income</td>
<td>¥23.5 bn</td>
<td>¥38.0 bn</td>
<td>+ ¥14.5 bn</td>
</tr>
<tr>
<td>Adjusted operating margin</td>
<td>10.0%</td>
<td>11.9%</td>
<td>+1.9%</td>
</tr>
<tr>
<td>A percentage of overseas revenues to total revenues</td>
<td>41%</td>
<td>42%</td>
<td>+1%</td>
</tr>
</tbody>
</table>

*Figures include the impact of the transfer of SH Copper Products Co., Ltd.
Business Strategy of the Specialty Steel Company

[Table of Contents]

1. Message
2. Business Overview
3. Action Plan
4. Conclusion
3-1. Collaboration between Steel and Copper (1)

Cable Materials Company

Location: Ibaraki Prefecture
Capital: ¥1.0 billion
Established: 2013
No. of employees: Approx. 500
Business: Manufacture and sale of copper products and processed copper products for copper strips and electrical use

Specialty Steel Company

SH Copper Products

- Jul. 1, 2017
  Reorganization: the Cable Materials Company to the Specialty Steel Company
- Oct. 1, 2017
  Sales integration
- Apr. 1, 2018
  Company integration with Hitachi Metals Neomaterial, Ltd.
Contribute to customers’ improvement—in trust in products and adding value

**Tsuchiura Works***

**Hitachi Metals Neomaterial**

- Clad band technology
- Copper product manufacturing technology

**Synergies in the electronic and battery areas**
- Unify contacts for customers
- Share technical know-how

**Cooperation in developing next-generation products**

**Hitachi Metals Yasugi Works**

**Wide-width rolling technology**

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*SH Copper Products Co., Ltd. is scheduled to become Tsuchiura Works of Hitachi Metals Neomaterial, Ltd. in April 2018.*
3-3. Initiatives for the Automotive Industry

**Medium-term**
Contribute to meeting fuel saving demand for combustion engines

- Piston ring materials
- CVT belt materials
- Turbine wheels

**Long-term**
Become a core supplier of EV industry

- Cladding materials for batteries
- Soft magnetic coil and core materials
### Infiltration of the battery components market

<table>
<thead>
<tr>
<th>Expansion of EV market</th>
<th>Deployment of thin foil, high strength cladding products</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Expected annual growth of 30%)</td>
<td></td>
</tr>
</tbody>
</table>

#### Usefulness of thin foil materials and cladding materials in storage batteries

<table>
<thead>
<tr>
<th>Laminated type</th>
<th>Cylinder type</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Negative electrode</strong>*</td>
<td><strong>Negative electrode lead material</strong>*</td>
</tr>
<tr>
<td><strong>Exterior (foil)</strong></td>
<td><strong>Current collector foil for negative electrode</strong>*</td>
</tr>
<tr>
<td><strong>Foil</strong></td>
<td><strong>Cladding material</strong></td>
</tr>
<tr>
<td><strong>Improved conductivity</strong></td>
<td><strong>Improved conductivity</strong></td>
</tr>
<tr>
<td><strong>Weight reduction (Fewer components)</strong></td>
<td><strong>Greater strength (Current collector foil)</strong></td>
</tr>
</tbody>
</table>

**FY2020 sales goal for the cladding material-related business: Trippling the sales* (vs. FY2016)**

*Includes the impact of the transfer of SH Copper Products Co., Ltd.
3-5. Become a Core Supplier to the EV Industry (2)

**Soft magnetic components and materials: New product launch**

 Consolidate the materials and components businesses (FY2016) ⇒ Accelerate the development of applications

**EV drive module**

- FINEMET®
- Ferrite
- FINEMET®
- Lead battery
- Converter
- Li battery
- Inverter
- High-speed charger
- Motor
- Charger

**Fits perfectly to next-generation demand**

Installed in EVs by changing forms (e.g. transformers, choke coils, and core materials)

**FY2018 sales goal for soft magnetic components and materials:** +28% (vs. FY2016)
3-6. Contribute to Meeting Demand for Fuel Saving in Combustion Engines (1)

**Turbine wheels**

- Investment for production increase at Hitachi Metals Precision

**Turbo demand**

<table>
<thead>
<tr>
<th>Year</th>
<th>Diesel cars</th>
<th>Gasoline cars</th>
</tr>
</thead>
<tbody>
<tr>
<td>'16</td>
<td>0</td>
<td>20</td>
</tr>
<tr>
<td>'17</td>
<td>20</td>
<td>40</td>
</tr>
<tr>
<td>'18</td>
<td>30</td>
<td>50</td>
</tr>
<tr>
<td>'19</td>
<td>40</td>
<td>60</td>
</tr>
<tr>
<td>'20</td>
<td>50</td>
<td>70</td>
</tr>
<tr>
<td>'21</td>
<td>60</td>
<td>80</td>
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<td>'22</td>
<td>70</td>
<td>90</td>
</tr>
<tr>
<td>'23</td>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td>'24</td>
<td>90</td>
<td>120</td>
</tr>
</tbody>
</table>

Source: Hitachi Metals’ estimate based on various research materials

- Expansion + facility expansion/strengthening
- Production capacity 1.5 times (2020)

**Mold design technology + short delivery prototype process**

**Improved customer satisfaction**

Achieve further growth as the industry’s top supplier

Turbo demand for combustion engines as diesel and gasoline cars increase.

Wax model molding, mold design, mold prototype.

Turbo wheels contribute to meeting demand for fuel saving in combustion engines.
3-7. Contribute to Meeting Demand for Fuel Saving in Combustion Engines (2)

**Piston ring materials**
- **High quality materials**
  - Atypia extraction technology
  - Microstructure control
  - Our original steel type

**CVT belt materials**
- **High quality materials**
  - Inclusion control technology

**Production increase in Japan and China**
- Suzhou plant, China (Operation in 2H FY2017)
- Specialty cable & wire plant, Yasugi Works (Operation in 2H FY2018)

**Sales expansion**
- Yasugi Works 24-ton vacuum induction melting and casting furnace (VIM)
- Accelerate acquisition of certification
- Cultivate new customers

**Won the “Patent Office Commissioner Prize” of the FY2016 Nat’l Invention Award**

**FY2018 sales goal for industrial equipment materials: +17% (vs. FY2016)**

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3-8. Tool Steel: Progress of Global Sales Expansion

Brand penetration
Promotion of solutions (Strengthen sales, bases, processing)
Reinforce local human resources
Strategic Products, “SLD-i™”

Sales expansion
II “increase added value”
+ “Strengthen distribution → quick delivery”

Europe
Strengthen distribution

China
Strengthen sales structure

Americas
Concentrate on Diehl Tool Steel to expand sales in the Americas market

Asia
Increase and strengthen processing locations

Further enhance strength

Solution Sales
— From sale of materials to provision of solutions —
Wholly offering of materials, processing, heat treatment, and surface treatment

2016 2017 2018–
(Thailand) Inventory/processing center
(S. Korea) Surface treatment
(U.S.) Processing ability
(Taiwan) Surface treatment
(China) Heat treatment plant

FY2018 sales goal: +25% (vs. FY2016)

Challenge the world’s top three aircraft forging materials manufacturers, and establish a position as the fourth core.

<table>
<thead>
<tr>
<th>Generate synergy between three firms</th>
<th>2010</th>
<th>2015</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hitachi Metals Yasugi Works</td>
<td>▼24-ton VIM</td>
<td>▼10,000-ton free forge press</td>
<td>▼High-speed radial forging machine</td>
</tr>
<tr>
<td>Japan Aeroforge</td>
<td>▼50,000-ton die forging press</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hitachi Metals MMC Superalloy</td>
<td>▼Made a consolidated subsidiary</td>
<td>▼840-ton ring mill</td>
<td></td>
</tr>
</tbody>
</table>

▼Initiatives in 2017

- Shifting from “acquisition of certification” to “mass production” stage: Aircraft engine large disk case
- R&D

Development of new Super Heat-resistant Alloys
Metallurgical Research Laboratory in Yasugi

FY2025 sales goal: ¥60.0 billion

VIM: Vacuum Induction Melting & Casting, ESR: Electro-Slag Remelting
VAR: Vacuum Arc Remelting, CAE: Computer Aided Engineering
3-10. Strategic Investment Plans

Investment amount: ¥60.0 billion (cumulative total for FY2016–FY2018)

[1] Key investments in sources of competitiveness

- **EV Cladding materials**
  - Hitachi Metals Neomaterial x SH Copper Products

- **Soft magnetic components & materials**
  - Hitachi Ferrite Electronics

- **Tool steel, aircraft & energy**
  - Processing Technology Center
  - 10,000-ton forge press
  - High-speed radial forging machine

- **Aircraft & energy (Large forged components)**
  - Underway
  - Continued development of new steel type

- **Combustion vehicles**
  - Hitachi Metals Precision

- **Turbine wheels**
  - Underway
  - Tool steel, aircraft & energy

[2] Strengthen the network for expanding international sales

- **Secure distribution location in Europe**
- **Expand and strengthen processing locations in the U.S. and Asia**
3-11. Global Growth

Percentage of overseas total revenues: 41% (FY2016) ⇒ 42% (FY2018)

Europe

- Tool Steel: Build distribution services
- Aircraft & Energy: Mine target customers
- Industrial Equipment Materials: Mine the automotive-related market

 Americas

- Tool Steel: Concentrate on Diehl Tool Steel to expand sales
- Aircraft & Energy: Put direct business into place
- Rolls: Concentrate resources in technology sales
- Soft Magnetic Components/Materials: Enhance technical support for customers

Asia

- Tool Steel: Establish a plate and surface treatment location
- Soft Magnetic Components/Materials: Step up lobbying activities

China

- Tool Steel: Strengthen the local sales structure

Japan

- FY2016
- FY2018

Tool Steel

Japan: +33%

Europe: +30%

Americas: +23%

Asia: +58%

The graphs compare FY2018 sales to FY2016 sales, with FY2016 sales indexed to 1. Figures include the impact of the transfer of SH Copper Products Co., Ltd.
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[Table of Contents]

1. Message
2. Business Overview
3. Action Plan
4. Conclusion
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Achieve international growth by focusing on “special steel”

Specialty Steel Company
FY2018 Plan*

Revenues: ¥320.0 billion
Adjusted operating income: ¥38.0 billion (11.9%)

*Figures include the impact of the transfer of SH Copper Products Co., Ltd.
Information on Risks Inherent in Future Projections

This document contains forward-looking statements—such as results forecasts and management plans—that are not historical facts. All such forward-looking statements are based upon all available information and upon assumptions and projections that were deemed reasonable at the time the Company prepared this document. Changes to the underlying assumptions or circumstances could cause the actual results to differ substantially. The factors causing such differences include, but are not limited to, the following:

- Changes in economic conditions and regulations in the main markets where the Company operates, particularly Japan, the United States, Asia and Europe
- Sudden changes in technological trends
- Changes in competitive advantage and the capabilities of the Company and its subsidiaries and affiliates to develop and commercialize new products and businesses
- Fluctuations in the status of product markets, exchange rates and international commodity markets
- Changes in financing environment
- The capability of the Company and its subsidiaries and affiliates to cope with fluctuations in product supply and demand, the status of product markets, exchange rates and international commodity markets
- Protection of the Company's intellectual property, and securing of licenses to use the intellectual property of other parties
- Changes in the status of alliances with other parties for product development, etc.
- Fluctuations in Japanese stock markets