Business Strategy of the High-Grade Functional Components Company

Hitachi Metals IR Day 2016

June 3, 2016
Hitachi Metals, Ltd.

Masato Hasegawa
Executive Officer
High-Grade Functional Components Company President
Business Strategy of the High-Grade Functional Components Company

[Table of Contents]

1. Business Overview
2. Cast Iron Business
3. Heat-resistant Cast Steel (HERCUNITE™) Business
4. Investment Plans
5. Revenues by Region
6. Conclusion
1. Business Overview
1-1. Business Composition

World’s Largest Manufacturer of Casting Components

Piping Components Business
For gas and water
Flexible piping systems, cast pipe fittings, polyethylene piping systems (for gas)

Heat-Resistant Cast Steel (HERCUNITE™) Business

Aluminum Casting Component Business

FY 2015 Revenues ¥365.1 bn

Cast Iron Business

For automotive & transport equipment
Passenger cars, trucks, buses, construction machinery, agricultural machinery, rolling stock

Waupaca Foundry, Inc. U.S. subsidiary
1-2. Manufacturing Locations

- Kyushu Works (Fukuoka Prefecture)
- Moka Works (Tochigi Prefecture)
- Kuwana Works (Mie Prefecture)
- Kumagaya Works (Saitama Prefecture)
- Waupaca Foundry, Inc. (Wisconsin, U.S.A.)
- AAP St. Marys Corp. (Ohio, U.S.A.)
- Ward Manufacturing, LLC (Pennsylvania, U.S.A.)
- HNV Castings Private Limited (India)
- Namyang Metals Co., Ltd. (S. Korea)

- Cast iron
- HERCUNITE™ heat-resistant cast steel
- Aluminum wheels
- Piping components
Contribute to the future of cars with superior environmental performance, driving performance, and safety through casting components

**HERCUNITE™**
heat-resistant cast steel

**HNMTM**
high-grade ductile cast iron

**Environmental Performance**
Lightweight and heat-resistant

**Safety**
Strength and durability

**Aluminum casting components**

**General-purpose ductile cast iron**
Gray iron (Gray cast iron)
1-4. Direction of Business Development

- Maintaining a technological advantage
- Adding value through advanced processing technology
- Enabling expansion overseas, even with distribution costs added in
- Achieving efficiency through consolidation of manufacturing

- Minimizing distribution costs through local production and local consumption
- Achieving efficiency through high market share and mass production

- Market targeted by Hitachi Metals
- Expanded domain in Nov. 2014

Product volume

Cast steel

Cast iron

Heat-resistant cast steel

High-grade ductile cast iron

General-purpose ductile cast iron

Gray Iron
1-5. Strengths of Our Company

- **Planning and proposal skills**
  - Selection of quality materials
  - Lightweight, slim design

- **Extensive product line-up**
  - HERCUNITE™ heat-resistant cast steel, Malleable™ ductile, gray iron, aluminum
  - Strong, heat-resistant

- **Manufacturing technology capabilities**
  - Casting technology
  - Processing technology
  - Coating technology

- **High manufacturing efficiency**
  - Maximizing production efficiency using the world’s largest manufacturing scale
We aim for global growth by strengthening the foundation of monozukuri and creating new value.

**FY2018 Medium-Term Management Plan: Goals**

<table>
<thead>
<tr>
<th></th>
<th>FY2015 Results (¥120 = US$1)</th>
<th>FY2018 Goals (¥115 = US$1)</th>
<th>Change vs. FY2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenues</td>
<td>¥365.1 bn</td>
<td>¥375.0 bn</td>
<td>103%</td>
</tr>
<tr>
<td>Adjusted operating income</td>
<td>¥26.1 bn</td>
<td>¥37.5 bn</td>
<td>+ ¥11.4 bn</td>
</tr>
<tr>
<td>Adjusted operating margin</td>
<td>7.2%</td>
<td>10.0%</td>
<td>+2.8%</td>
</tr>
<tr>
<td>Overseas sales as a % of total sales</td>
<td>80%</td>
<td>84%</td>
<td>+4%</td>
</tr>
</tbody>
</table>
Business Strategy of the High-Grade Functional Components Company

[Table of Contents]

1. Business Overview
2. Cast Iron Business
3. Heat-resistant Cast Steel (HERCUNITE™) Business
4. Investment Plans
5. Revenues by Region
6. Conclusion
2. Cast Iron Business
2-1. Market Environment

Vehicle production volume (passenger cars, commercial trucks, etc.) (2015 ➔ 2021)

Cast Iron: Automotive-Related Sales as a % of Total Sales in FY2015: 85%

Hitachi Metals projections
2-2. Product Competitiveness

High-Grade Ductile Cast Iron

- Ability to design high strength and high tensile strength materials (dialog with customers and CAE technology)
  ⇒ Achieves thin, lightweight products

General-Purpose Ductile Cast Iron and Gray Iron

- Clearly superior production volume
- Proprietary casting equipment that differentiates Hitachi Metals
  ⇒ Achieves lower costs
2-3. Policies and Achievements since Waupaca Foundry, Inc. was Acquired

<table>
<thead>
<tr>
<th>Policies</th>
<th>Achievements</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sales</strong></td>
<td></td>
</tr>
<tr>
<td>Work to cross-sell the Hitachi Metals and</td>
<td>Secured major orders in North America under the Hitachi Metals</td>
</tr>
<tr>
<td>Waupaca brands</td>
<td>brand</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Procurement</strong></td>
<td></td>
</tr>
<tr>
<td>Improve procurement leverage by building a</td>
<td>Begin joint procurement of 15 types of raw materials and subsidiary</td>
</tr>
<tr>
<td>joint procurement structure</td>
<td>materials</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>R&amp;D</strong></td>
<td></td>
</tr>
<tr>
<td>Initiate development-driven business by</td>
<td>Secured opportunities to produce prototypes of next-generation</td>
</tr>
<tr>
<td>Waupaca, using R&amp;D resources in Japan</td>
<td>products</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Manufacturing</strong></td>
<td></td>
</tr>
<tr>
<td>Make mutual use of superior technologies</td>
<td>• Increased lifespan of Waupaca molds</td>
</tr>
<tr>
<td></td>
<td>• Improved manufacturing efficiency</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>IT</strong></td>
<td></td>
</tr>
<tr>
<td>Use the IT resources of Waupaca</td>
<td>Consolidate the existing financial control servers in North</td>
</tr>
<tr>
<td></td>
<td>American locations and improve operating efficiency</td>
</tr>
</tbody>
</table>

Synergistic benefits

FY2018: $50 million (a cumulative total of $100 million since November 2014)
2-4. Developing Leads into New Markets

**Americas**

- **Response to the movement of the auto manufacturers into the Central and South American markets**
  - Step up sales activities directed at auto manufacturers moving into the Central & South American markets
  - Explore new supply structures for Central & South America

- **Expand sales for commercial trucks, construction equipment, and agricultural machinery**
  - Expand production capacity for large components (for commercial trucks, construction equipment, and agricultural machinery) by introducing a horizontal casting line (30% increase in FY2018 revenues compared to FY2015)

- **Add even higher value to products**
  - Improve quality and manufacturing efficiency by dedicating a plant exclusively to ductile cast iron and gray iron

**Asia**

- **Expand sales in growth markets (India and Southeast Asia)**
  - Utilize locations in Japan, South Korea, and India

- **Develop leads into new markets**
  - Mine the agricultural and industrial machinery markets

**Europe**

- **Develop leads into the European market**
  - Engage in sales activities that utilize Japanese and U.S. planning and presentation skills and European locations
  - Explore new supply structures for Europe

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2-5. Strengthening Product Competitiveness through Technological Innovation

**Innovation in monozukuri**
- Development of new pouring technology
- Improvement in the quality of molding sand
- Progress on mechanization with robots

**Improvement in development of lightweight designs**
- More robust design and use of CAE
- Integrated design of products and production methods

**Global roll-out of achievements in material development**
- Global roll-out of achievements in R&D in Japan
2-6. Goals

Revenues

FY2015  US$2,050 million

FY2018  US$2,250 million

Achieve sustainable growth by implementing a cycle of adding even higher value and expanding production volume

Contribute to the development of society through casting components as the world leader in cast iron
Business Strategy of the High-Grade Functional Components Company

[Table of Contents]

1. Business Overview
2. Cast Iron Business
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3. Heat-Resistant Cast Steel (HERCUNITE™) Business
3-1. Market Scale

Global Powertrain Forecast

<table>
<thead>
<tr>
<th></th>
<th>2015</th>
<th>2020</th>
<th>2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of vehicles with gasoline-powered turbo engines</td>
<td>15 million vehicles/year</td>
<td>28 million vehicles/year</td>
<td>42 million vehicles/year</td>
</tr>
<tr>
<td>Percentage of vehicles having gasoline-powered turbo engines</td>
<td>13%</td>
<td>38%</td>
<td>52%</td>
</tr>
</tbody>
</table>

- Vehicles with non-turbo gasoline-powered engines
- Vehicles with gasoline-powered turbo engines

Hitachi Metals forecast

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3-2. No. of Gasoline-Powered Turbo Vehicles (that use heat-resistant cast steel) Produced by Region

- **Europe (Largest Market)**
  - 2015: 5 million vehicles
  - 2020: 6.2 million vehicles

- **Japan & China (Growth Markets)**
  - 2015: 2.4 million vehicles
  - 2020: 5.8 million vehicles

- **North America (Growth Market)**
  - 2015: 2.4 million vehicles
  - 2020: 5.1 million vehicles

Hitachi Metals forecasts
3-3. Strengths of the Heat-Resistant Cast Steel (HERCUNITE™) Business

- Withstand high temperatures generated by improvement in the combustion efficiency of gasoline engines
- Propose the optimal material for the purpose

<table>
<thead>
<tr>
<th>Material</th>
<th>Heat-resistant temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSHR - A5N</td>
<td></td>
</tr>
<tr>
<td>NSHR - A3K</td>
<td></td>
</tr>
<tr>
<td>NSHR - F5N</td>
<td></td>
</tr>
<tr>
<td>NMHR - MX</td>
<td></td>
</tr>
</tbody>
</table>

- Provide design support via CAE
- Make lighter weight, thinner, and improve castability

- Possess processing technology for hard-to-cut materials
- Optimize cost through process management
- Derive 80% or more of sales from overseas sales
3-4. Mounting a Response to the Growing Turbo Market

Kyushu Works: Increase production capacity by more than 60%

- Increase capacity of the casting line and processing line
- Streamline casting by automating pouring of casting steel
- Achieve a high degree of efficiency in cutting hard-to-cut materials

Bring online during 2H of FY2016

Achieve full production in FY2017 and consider increasing capacity further
<table>
<thead>
<tr>
<th>Needs</th>
<th>Action Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accommodate complex forms</td>
<td>Provide support for casting and processing of more complex forms for higher performance turbos such as twin scrolling</td>
</tr>
<tr>
<td>Reduce raw material costs</td>
<td>Take the market price of raw materials into consideration in launching new materials on the market (Achieve heat-resistance without using materials that have seen steep price rises)</td>
</tr>
<tr>
<td>High-performance high-quality</td>
<td>Consider introduction of IoT</td>
</tr>
</tbody>
</table>
3-6. Goals

Share (by weight)

24% in FY2015

30% in FY2025

Rapidly expand business scale and also improve the profit margin by increasing share in an expanding market

Help to improve environmental performance through heat-resistant cast steel

Share: Hitachi Metals projections
Business Strategy of the High-Grade Functional Components Company

[Table of Contents]

1. Business Overview
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5. Revenues by Region
6. Conclusion
### 4. Investment Plans

| Cast steel business | Install a line for large casting components in the U.S.  
|                     | Dedicate a plant in the U.S. exclusively to ductile cast iron and gray iron  
|                     | Introduce high-efficiency casting  
|                     | Streamline production equipment  
| Heat-resistant cast steel business | Increase production capacity by more than 60% and streamline production equipment  
| Aluminum wheel business | Streamline production equipment in the U.S. and Japan  
| Piping component business | Flexible piping systems  
|                          | Speed up pipe manufacturing and introduce a high-efficiency furnace for heat treatment  

**Capital investment:** ¥64.0 billion (cumulative total for FY2016-FY2018)
Business Strategy of the High-Grade Functional Components Company

[Table of Contents]

1. Business Overview
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5. Revenues by Region
6. Conclusion
5. Revenues by Region

- **Europe**: FY2015 $15.0$, FY2018 $18.0$
- **China**: FY2015 $2.5$, FY2018 $5.0$
- **Asia (exc. Japan & China)**: FY2015 $12.0$, FY2018 $12.5$
- **Japan**: FY2015 $69.0$, FY2018 $60.0$
- **Americas**: FY2015 $267.0$, FY2018 $280.0$

(¥billions)
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[Table of Contents]

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6. Conclusion
6. Conclusion

Accept the challenge of creating new value by improving the foundation of monozukuri to achieve global growth

FY 2018 Plan

Revenues: ￥375.0 billion
Adjusted operating income: ￥37.5 billion
Adjusted operating margin: 10%
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