Business Strategy of the Magnetic Materials Company

Hitachi Metals IR Day 2018

May 25, 2018
Hitachi Metals, Ltd.
Ryoji Akada
Executive Officer
President of the Magnetic Materials Company
Business Strategy of the Magnetic Materials Company

[Table of Contents]

1. Basic Policy of the Company
2. Market Environment
3. FY2018 Action Plan
4. FY2025 VISION
5. Summary
1-1. Medium-Term Management Plan: Basic Policy and Goals of the Company

Basic Policy of the Magnetic Materials Company

Innovate *monozukuri* to pave the way for growth

- Strengthen the global production system
- Build innovative production lines

2018 Medium-Term Management Plan: Goals

<table>
<thead>
<tr>
<th></th>
<th>FY2016 actual (¥108 = US$1)</th>
<th>FY2017 actual (¥111 = US$1)</th>
<th>FY2018 forecast (¥110 = US$1)</th>
<th>Change vs. FY2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenues</td>
<td>¥99.8 bn</td>
<td>¥106.1 bn</td>
<td>¥115.0 bn</td>
<td>+8.4%</td>
</tr>
<tr>
<td>Adjusted operating income</td>
<td>¥9.3 bn</td>
<td>¥9.6 bn</td>
<td>¥7.5 bn</td>
<td>-2.5%</td>
</tr>
<tr>
<td>Adjusted operating margin</td>
<td>9.3%</td>
<td>9.0%</td>
<td>6.5%</td>
<td></td>
</tr>
<tr>
<td>Overseas sales ratio</td>
<td>53%</td>
<td>51%</td>
<td>58%</td>
<td>+7.0%</td>
</tr>
</tbody>
</table>
### 1-2. Overview of Initiatives in FY2016 and FY2017

| Strengthening of global production system | Established Hitachi Metals San Huan Magnetic Materials (Nantong) Co., Ltd. (Opened Apr 2017; started mass production in 2018) |
| Building of innovative production line | Introduced an innovative production line in the Kumagaya district  
  ･ Neodymium magnets (Started mass production in 2H 2018)  
  ･ Ferrite magnets (Started mass production in Apr 2018) |
| Optimization of material flow | Made Santoku Corporation a subsidiary (Apr 2018) |
| Creation of “mother plant” | Integrated Magnetic Materials Research Laboratory with Kumagaya Works (Move completed in Apr 2018) |
Business Strategy of the Magnetic Materials Company

[Table of Contents]
1. Basic Policy of the Company
2. Market Environment
3. FY2018 Action Plan
4. FY2025 VISION
5. Summary
2. Market Environment

Global surge in demand for EVs*

Industrial infrastructure–related also strong due to robust capital expenditure

Projected production volume of EVs in each country/region
(Source: Hitachi Metals’ estimate based on various research materials)

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

Response to the surge in demand is urgently required

Productivity improvement, capacity increase
(China base, innovative production line)

In-house manufacturing of raw materials (incl. recycled)
(Acquisition of Santoku as a subsidiary)

Evolution of rare earth–saving technology
(Concentration of R&D/production in Kumagaya district)
Business Strategy of the Magnetic Materials Company

[Table of Contents]

1. Basic Policy of the Company
2. Market Environment
3. FY2018 Action Plan
4. FY2025 VISION
5. Summary
3-1. Growth Strategy and Action Plan (1)

**Carry out monozukuri innovations:**
Innovative production line

Improve quality and maximize productivity through thorough automation and use of IoT

**Neodymium magnets**
- Adopt new diffusion process for heavy rare-earth
- Production line specializing in mass production
- Further line expansion planned

**Ferrite magnets**
- Enhance production lines to address small and thin shapes
- Quality and trend management using IoT technology
- Further line expansion planned

- Neodymium magnet NEOMAX®
  Mass production in 2H FY2018

- Ferrite magnet NMF™
  Mass production in Apr 2018
### Synergies from the acquisition of Santoku as a subsidiary

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procurement</td>
<td>Reduction of procurement cost by consolidating procurement of raw materials</td>
</tr>
<tr>
<td>Process management</td>
<td>Reduction of work-in-progress due to reduced lead time through unified management</td>
</tr>
<tr>
<td>Production</td>
<td>Increased production volume due to concentration of alloy production/recycling</td>
</tr>
<tr>
<td></td>
<td>Reduction of processing cost due to enhancement of recycling process</td>
</tr>
<tr>
<td>Technology</td>
<td>Acceleration of product sophistication due to an integrated development system</td>
</tr>
</tbody>
</table>

**Strengthen business platform by handling the raw materials process internally**
3-3. Growth Strategy and Action Plan (2)

**Japan**
Improve magnet production efficiency through an integrated process

**China**
Establish a production system from magnet alloys to magnets

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**Optimize material flow**

**Japan**
- Improve magnet production efficiency through an integrated process

**China**
- Establish a production system from magnet alloys to magnets

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**Diagram**
- Supply of alloys
- Magnet manufacturing
- Recycle

**Locations**
- Hitachi Metals San Huan Magnetic Materials
- China Minmetals Santoku Rare Earth Material
- Santoku Tsuruga Plant
- NEOMAX KINKI
- Santoku Akashi Plant
- Hitachi Metals Kumagaya Works
- Santoku Wakayama Plant
- Santoku Kobe Plant
3-4. Growth Strategy and Action Plan (3)

Promote heavy rare-earth free and low heavy rare-earth magnets

**NEOMAX® F series**

Expand adoption in the automobile, industrial, and consumer electronics fields

- Heavy rare-earth free magnet
- New high-performance, low heavy rare-earth magnet
- F series: low heavy rare-earth magnet

Achieve resource-saving and high performance
Achieve competitive products with the same quality as Japan’s Neodymium magnets: Expand China business

- Full-scale mass production from 2H 2018
- Introduce new diffusion process for heavy rare earth
- Further line expansion planned (Capacity: 2,000 tons/year in FY2024)

Launched Apr 2017

Ferrite magnets: Strengthen global production system

- Roll out the innovative production technology across the Group to achieve globally identical quality and cost
- Increase share of global customers
- Capacity investment in response to growth markets (Capacity: 4,100 tons/month in FY2016 ⇒ 5,200 tons/month in FY2024)
3-6. Growth Strategy and Action Plan (5)

Turn the Kumagaya district into a “mother plant”

Accelerate development of technology that meets customer needs

- GRIT
  Global Research & Innovative Technology center
- Magnetic Materials Research Laboratory
- Innovative production line

Accelerate development of new magnets
Strengthen cooperation with production sites
Business Strategy of the Magnetic Materials Company

[Table of Contents]
1. Basic Policy of the Company
2. Market Environment
3. FY2018 Action Plan
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5. Summary
4-1. Medium- to Long-Term Vision

Increase share in growth markets to expand business scale

**FY2025 revenues target: ¥200.0 bn**
(FY2016 actual: ¥99.8 bn ⇒ FY2018 forecast: ¥115.0 bn)

Lead the market with the top performance neodymium magnets

- Productivity improvement, increased capacity
  (Target: More than 2.5x vs. FY2015)
- In-house manufacturing of raw materials
- Evolution of heavy rare earth-saving technology
4-2. Neodymium Magnet Production Capacity Enhancement Plan

Increase capacity by more than 2.5x by the end of FY2024

Note: The figures in the chart represent the production capacity of each medium-term plan period with the capacity of FY2015 as 100.
37%
Revenues mix FY2017 actual (Value basis)
Automotive-related: 63%
Industrial infrastructure–related, electronics-related, etc.

30%
Revenues mix FY2025 estimate (Value basis)
Automotive-related: 70%

Significant increase of automotive-related
4-4. Regional Sales

Expand revenues in Chinese and European/American markets

(FY2017 revenues; actual) ¥106.1 bn

(FY2025 revenues; estimate) ¥200.0 bn

Overseas 51%
Overseas 55%

Japan 49%
Japan 45%

China 18%
Asia 22%
Europe/Americas 11%

China 22%
Asia 19%
Europe/Americas 14%
Business Strategy of the Magnetic Materials Company

[Table of Contents]
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2. Market Environment
3. FY2018 Action Plan
4. FY2025 VISION
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## Magnetic Materials Company

**Innovate monozukuri to pave the way for growth**

### FY2018 outlook

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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 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. 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 the 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 the 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