









Solid technology, for limited resources.

日本磁力選鉱株式会社 NIPPON MAGNETIC DRESSING CO., LTD.







[Headquarters]

6-42, Bashaku 3-chome, Kokurakita-ku, Kitakyushu City, Fukuoka 802-0077, Japan

(Main Number) TEL: +81 93-521-4455 FAX: +81 93-521-4494

http://www.nmd.co.jp

Message from the Chairman and President

We will continue to be a pioneer in developing next-generation technology



We have been developing businesses mainly involving recycling of slag and other iron and steel by-products since our establishment.

In today's environmentally conscious and resource-recycling society, recycling has become a matter of course in all industrial fields, and we have been receiving an increasing number of recycling-related consultations from fields other than iron and steel.

We are confident that the recycling technologies, equipment, plants, and operational know-how that we have cultivated over many years will enable us to make a full contribution to solving these growing social needs.

We look forward to your continuing patronage and support.

Nippon Magnetic Dressing Co., Ltd.

Mitsuhisa Harada, Chairman and Representative Director Makoto Harada, President and Representative Director

About our Company Emblem

Magnet

The outer circle symbolizes the Sun.

Our company emblem was adopted on December 14, 1950.

The sun, magnet, and **separation** come together to express "Nippon Magnetic Dressing."

The outer circle is also associated with the spirit of harmony, and with the letters "M" and "S" it has the additional meaning of "Mutual Support."

This company emblem was selected based on the ideas of many employees at the time.

Company Overview



With more than half a century of confidence and experience, we provide support for your business.

With our headquarters in Kitakyushu and plants in various locations, Nippon Magnetic Dressing Co., Ltd. (NMD) satisfies the needs of companies in our core businesses related to steel, the environment, and plant equipment. Through recycling, we will strive to help resolve problems faced by companies as well as environmental issues.

If you have any questions about magnetic separation or resource recycling, please feel free to contact NMD.

Trade Name	Nippon Magnetic Dressing Co., Ltd.			
Location	6-42, Bashaku 3-chome, Kokurakita-ku, Kitakyushu City, Fukuoka 802-0077, Japan			
Establishment	February 4, 1949			
Capital Stock	448,600,000 yen			
Sales	12,204,270,000 yen (perio	od ending September 20	020)	
	Chairman and Representative Director President and Representative Director	Mitsuhisa Harada Makoto Harada		
	Director and Managing Executive Officer	Takashi Toshimitsu	(Head of Steel Manufacturing Dept.Head of Engineering Business Dept. Head of Non-Ferrous Metals Manufacturing Dept.)	
	Director and Executive Officer	Kazuya Baba (Head of Accounting Dept.)		
	Auditor	Tsunemasa Kojima		
Officers	Managing Executive Officer	Tsutomu Kuwazaki (Head of General Affairs Dept.)		
	Managing Executive Officer	Katsuhiro Nakamura ((Head of Steel Sales Dept.)	
	Executive Officer	Shuji Tsujimura (Head of Engineering Dept.)		
	Executive Officer	Shingo Sekioka (Head of Corporate Planning Dept.)		
	Executive Officer	Hiroyuki Shibata (Head of Engineering Business Dept.)		
	Executive Officer	Masaru Kabu (Head of Non-Ferrous Metals Manufacturing		
	Executive Officer	Shinichirou Shimamura (Head of Environmental Sales Dept.)		
Number of Staff	410 (September 2020)		_	
	Ore dressing business	Processii	ng and sales of base materials for steel, etc.	
Business Contents	•Environment-related busi	iness · Resour	ce separating equipment business	
	Plant business	• Other b	pusiness	



Management Philosophy





Calligraphy by Genzaburo Harada, our founder

In this land of burning stone and iron, we hope for a closer passage.

Our greatest mission is to devote our creativity to develop nature's resources to their full potential.

- 1. Serve the nation and society while seeking to develop the company and the happiness of our employees.
- 2. Devote our creative abilities to developing natural resources to their full potential.

Our "Founding Vision" shown above was written by our founder, Genzaburo Harada. The first half of this tanka poem was written by Kihachiro Okura, the head of the Okura Zaibatsu, and the second half is from the company motto of the Honkeiko Baitetsu company. We have incorporated them both into our management philosophy.

Recycling as both a word and a mindset has spread widely throughout the world.

Our efforts to use natural resources to their fullest potential are not limited to the field of iron and steel, but we will also expand them and deepen them in a variety of other fields. We will continue to work hard to serve the customers who have come to need us, and to achieve prosperity for ourselves and our customers.



Environmental Policies



We will contribute to a resource-recycling society with our technology, and aim to be a comprehensive recycling company

To contribute to a resource-recycling society with our technology and to become a comprehensive recycling company,

NMD is striving to continuously improve the effectiveness of its environmental management systems while setting the following action goals.

Action Goals

- 1. We are committed to improving our recycling technologies.
- 2. We will contribute to establishing a recycling-based society by reducing burdens on the environment through the effective use of underutilized resources, promoting energy conservation, and other measures.
- 3. Each of our employees is committed to environmental conservation, and we aim to pursue environmental initiatives based on the mutual trust we have established with local communities and our customers.
- 4. We strive to prevent pollution by complying with laws and regulations related to the environment, as well as other requirements NMD has agreed to.

Company History



Established on February 4, 1949

On February 4, 1949, "Nippon Magnetic Dressing Co., Ltd." was established after completing registration procedures with the Fukuoka Legal Affairs Bureau.

Actually, the company name had been used the year before the official founding.

In September 1948, when a request was received from the Second Coke Section of the Yawata Steel Works to manufacture an iron particle separator, the estimate sheet already contained the company name.

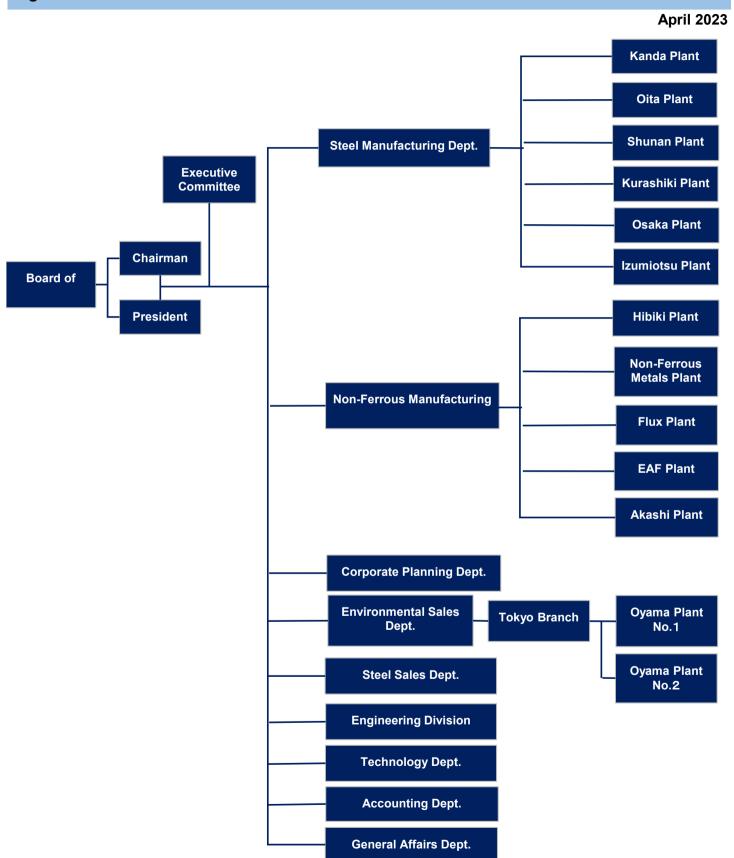
1949	Company established		
	Delivered our first iron particle separator		
	Started blast furnace gas ash processing (Yahata)		
1950	Started briquette production		
1951	Started manufacturing and sales of magnetic separating equipment		
1955	Started open-hearth furnace slag processing (Yahata)		
1956	Delivered our first coupled pole magnetic separator		
1957	Started converter furnace slag processing (Yahata)		
1962	Opened Tokyo office (Koenji)		
	Started restored briquette production		
1963	Invented a new type of vibrating sieve (motorized vibrating type)		
	Established Nippon Toseki Co., Ltd., predecessor of the non-ferrous metal dressing plant		
1967	Start of physical-property recovery of welding flux		
	Started EAF slag processing operations (Wakamatsu)		
1968	Started thickener ash flotation and fluorite powder making operations (Yahata)		
1970	Started hot metal preprocessing slag processing (Kanda)		
	Started stainless steel slag processing operations (Shunan)		
	Started manufacturing tailings for steelmaking		
1972	Entered the real estate business		
1973	Started converter furnace slag processing operations (Kurashiki)		
1974	Established Nissen Development Co., Ltd.		
1975	Started EAF slag processing and metal recovery ballast production (Izumiotsu)		
1977	Started converter furnace slag processing operations (Oita)		
1978	Started converter furnace slag and EAF slag processing operations (Osaka)		
1982	Installed EAF (5000 kVA) and entered the electric furnace business (EAF Plant)		
1985	Installed EAF (300 kVA) and started smelting and recovery of welding flux (molten material)		
1987	Started special steel smelting operations		



1989	40th Anniversary: Completed headquarters extension and renovation		
1995	Started production of magnesium desulfurizer		
	Founder Genzaburo Harada passed away		
1996	Completed nugget copper production facility		
1998	Established joint venture NJ Eco Service Co., Ltd.		
	Established joint venture Tokyo-Wan Butsuryu Co., Ltd.		
	Started EAF base material manufacturing equipment (MRS) installation and operation (Shunan)		
1999	Completed construction of a slag processing facility at the Kure Works of Nisshin Steel Co.		
	Started aluminum recycling business (Oyama)		
2000	Started magnesium recycling business (Oyama)		
2001	Started crushing and separating operations for home appliance recycling		
	companyGreen Cycle Corporation (Nagoya)		
2003	Acquired ISO 9001 certification (see ISO Certification Status)		
2004	Started granulation operations (Shunan)		
2005	Acquired ISO 14001 certification (see ISO Certification Status)		
	Started first Hibiki Plant operations at Kitakyushu Eco Town		
	Certification for Kitakyushu Eco-Town operations (Non-ferrous metals recycling business)		
	Established Shanghai Kaituo Magnetic Dressing Metal Co., Ltd. as a joint venture with the Baosteel Group		
2008	Second Hibiki Plant operations: Strengthening the comprehensive non-ferrous metal recycling business		
2010	High Gauss Magnetic Separator (HIGAMS) obtained Kitakyushu City Eco-Premium 2010 certification		
2011	Absorption merger with Nissen Development Co., Ltd.		
2012	Third Hibiki Plant operations: Completed rare metal and precious metal concentration recovery facility		
2013	Obtained small home appliance recycling company certification (Ministerial Certification No. 0002)		
2015	Started weighting material business (Oyama)		
2017	Additional certification for Kitakyushu Eco-Town operations (small home appliance recycling business)		
	Mitsuhisa Harada appointed as Chairman and Representative Director;		
	Makoto Harada appointed as President and Representative Director		
2018	Fourth Hibiki Plant operations: Completed secondary battery recycling facility		
2019	Additional certification for Kitakyushu Eco-Town operations (secondary battery recycling facility)		
2020	Afflicated companies Nagomi kosan Co.,Ltd.		
2021	Registered with Kitakyushu City SDGs Registration System		
	Started RC roadbed material manufacturing equiqment installation and operation (Kurashiki)		
2022	Started copper tailings treatment business (Oyama)		
2022	Certified as an advanced company for decarbonization in Kitakyushu City and the Kitakyushu City the Decarbonized Power Certification System		

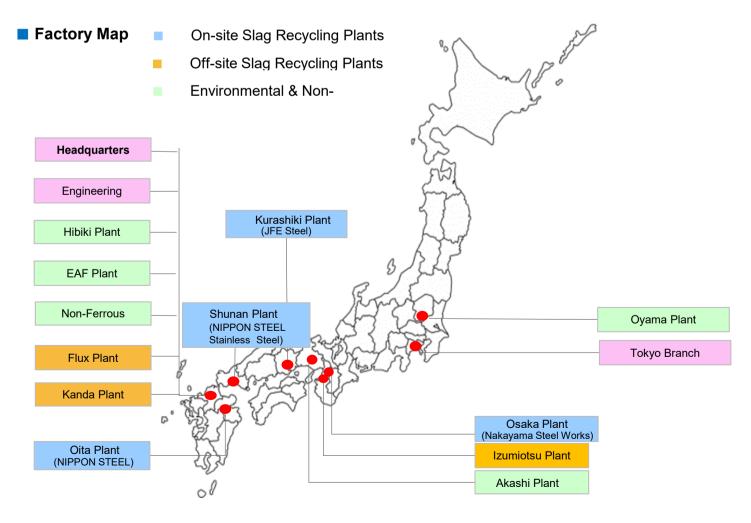


Organization Chart



Headquarters

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	General Affairs Section (Main)	TEL: +81 93-521-4455	FAX: +81 93-521-4494	Reception, legal, public relations, etc.
General Affairs	Personnel Section Safety Management Section	TEL: +81 93-521-4456	FAX: +81 93-521-4457	Personnel and labor relations, safety management
Dept.	Purchasing Section	TEL: +81 93-521-4493	FAX: +81 93-521-4494	Material purchasing, procurement
	Systems Planning Section	TEL: +81 93-521-4471	FAX: +81 93-521-6942	System development, management
Accounting	g Dept.	TEL: +81 93-521-5254	FAX: +81 93-521-6942	General accounting
Corporate Planning Dept.		TEL: +81 93-521-4400	FAX: +81 93-521-4167	Management, operations, planning, Support for subsidiaries and affiliates
Steel Manufacturing Dept., Non-Ferrous Metals Manufacturing Dept.		TEL: +81 93-521-4402	FAX: +81 93-521-5102	Plant supervision, production control Metal, slag
Steel Sales Dept. Environmental Sales Dept.		TLL. 101 50-021-4402	1777. 101 33-321-3102	Special steel, shot, flux Environment-related (including non- ferrous metals)
Engineering Division		TEL: +81 93-521-4481	FAX: +81 93-521-6949	Equipment manufacturing, equipment sales Equipment design, servicing and maintenance

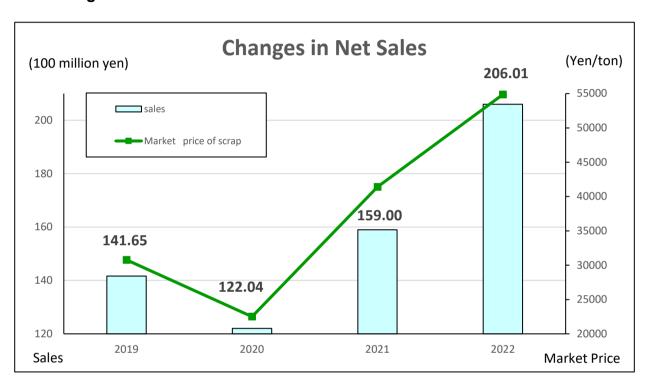


Net Sales and Sales Composition Ratio

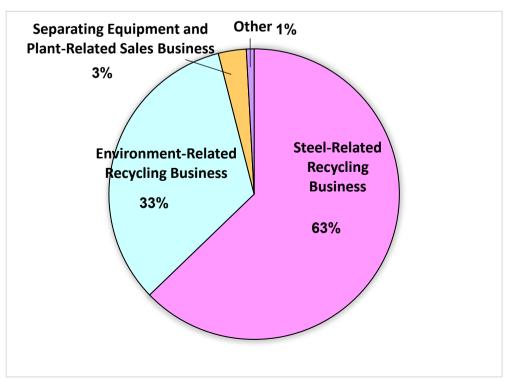
NMD is making a company-wide effort in the recycling business.

Our slag and non-ferrous metal recycling business accounts for more than 90% of NMD's sales, which clearly indicates that society's needs for recycling are increasing.

Changes in Net Sales



Sales Composition Ratio





ISO Certification Status

Details	ISO 14001	ISO 9001
	Headquarters	
	Engineering Dept.	
	Kanda Plant	
	EAF Plant	Headquarters (Steel Sales Dept.)
Annliachte Division	Flux Plant	Headquarters (Non-Ferrous Metals
Applicable Division	Non-Ferrous Metals Plant	Manufacturing Dept.)
	Hibiki Plant	Non-Ferrous Metals Manufacturing
	Izumiotsu Plant	Dept., Flux Plant
	Oyama Plant	
	(No.1 Plant, No.2 Plant)	
Specified activities in products, processes, and services	 Processed metal and non-metal product manufacturing (Iron and steel slag processing, smelting and refining of metals and non-metals, etc.) Intermediate processing of indust 	
First Registration Date	 Separating equipment design and October 14, 2005 	April 24, 2003
ot region anon bate	High Pressure Gas Safety Institute of	High Pressure Gas Safety Institute
Review and	Japan	of Japan
Registration Agency	ISO Registration Center	ISO Registration Center

Steel-Related Business

We make use of the proprietary technology NMD has developed to recycle steel slag in the forms described below.

- (1) In our on-site slag processing business, we process slag on-site at steel mills. We design plants according to the quality requirements of our customers, and provide integrated support from operation to maintenance of our own equipment.
- (2) In our off-site slag processing business, we collect slag generated by domestic steel manufacturers and process it at two bases in the Kyushu and Kansai regions. Metal products are recycled for use by steel manufacturers as substitute base materials for special grade scrap, and slag products are recycled as base materials for cement and roadbed materials.

The combined volume of these two businesses is approximately 3.5 million tons per year, or 30% of the total volume of steel slag handled in Japan.

We are taking action to support the SDGs by using recovered metal and recycled slag to protect the environment and conserve resources.

Steel-Related Recycling 1

- Slag Processing Business
- Osaka Plant, Kurashiki Plant, Shunan Plant, Oita Plant
- Izumiotsu Plant, Kanda Plant



- Steel Slag
- EAF Slag
- · Stainless Steel

Pig Iron Type







Crushing, Magnetic Separating, Grinding, Screening Quality production of

Steel Type

Metal Products



Application: Substitute base materials for special grade scrap

Features: • Carburizing effects

· Increased filling rates

 Dilution of Trump elements (trace elements)

Components



Pig iron >89% 50~300mm T.Fe Granular iron 0.5~50mm Р 0.07~0.18% 0.07~0.13% S Si 0.3~0.5% Mn 0.15~0.3% С 2~3%

Granularity

Slag Products



Application: Base materials for cement (lime source, clay source, iron source)

Metal Products



Application: Coolant

	Granularity	Components	
Coolant 2~50mm		T.Fe	>90%
	-	Р	<0.04%
		S	<0.04%
		Si	<0.2%
		Mn	<0.5%
		С	< 0.7%

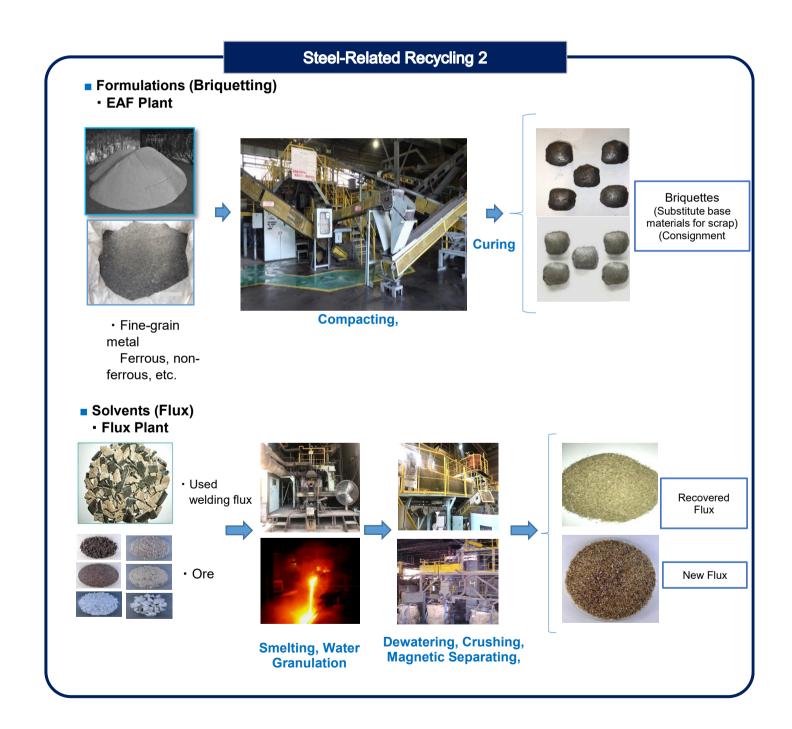
Slag Products



Applications: • Roadbed material
• Materials for civil engineering and land-based construction

*Fukuoka Prefecture Certified Recycling Products Certification number 151020402 Product name RC-40

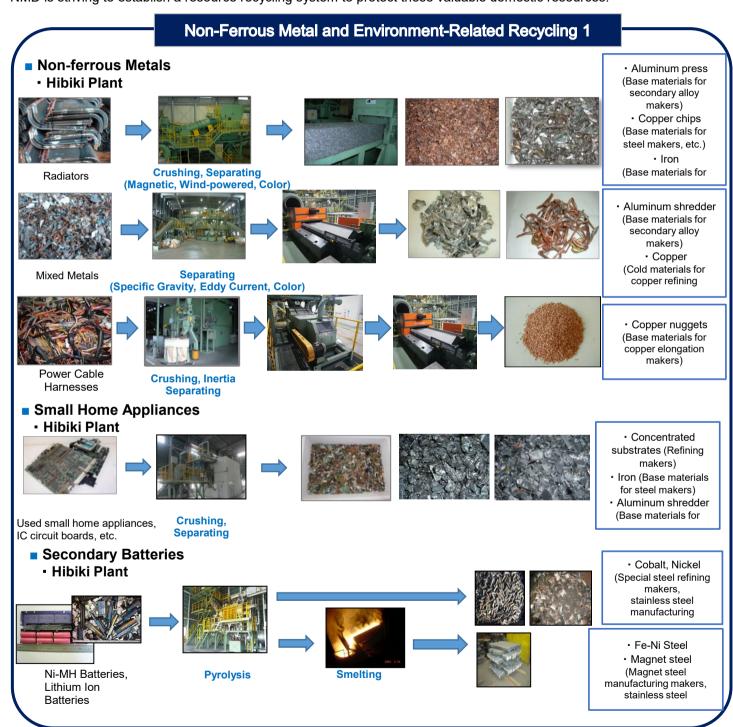
- (3) We agglomerate fine metal powders (ferrous and non-ferrous) and recycle them as base materials for steelmaking.
- (4) We make use of our proprietary recovery technology to produce recycled flux that is as good as new, from used welding flux generated during submerged arc welding for steel pipes, construction, construction machinery, and so on. We also use ore to manufacture and sell new flux.



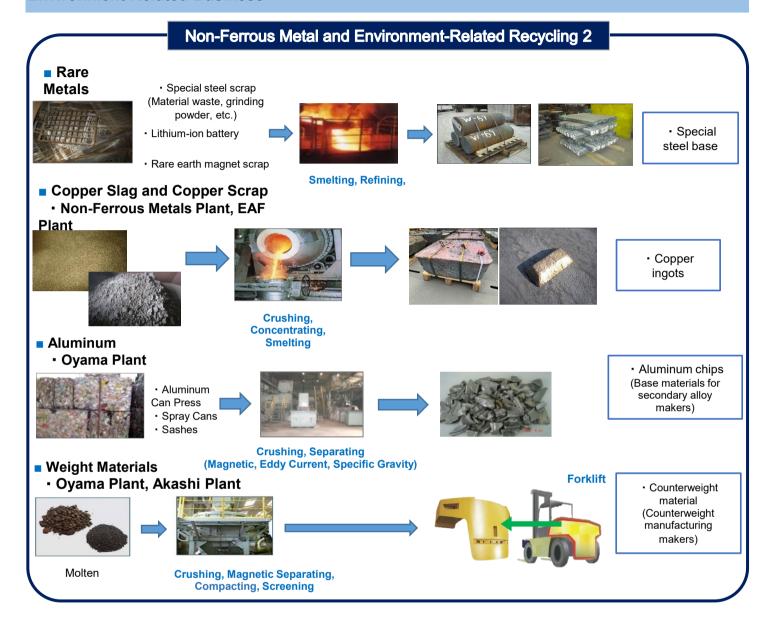
Environment-Related Business

Because it is too costly to separate and collect composite or mixed non-ferrous metals by metal type in Japan, more and more of these materials are being sent overseas, where the need for resources is growing.

NMD is striving to establish a resource recycling system to protect these valuable domestic resources.

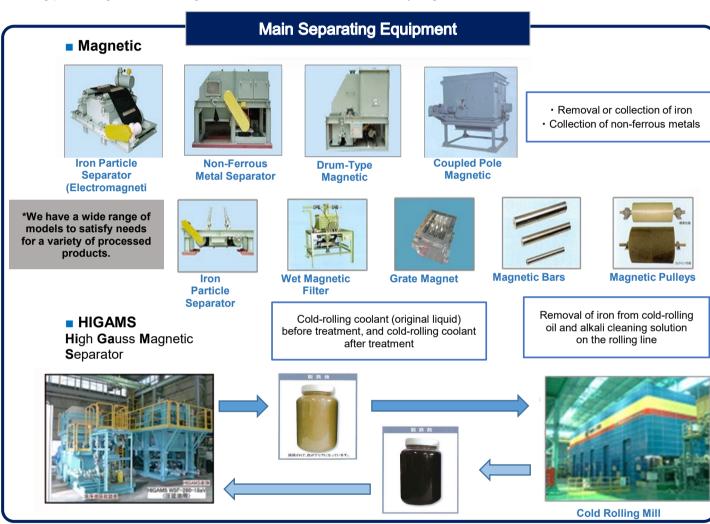


Environment-Related Business



Separating Equipment and Plant Sales Business

NMD develops and sells various kinds of recycling equipment and environmental improvement equipment (especially separating equipment) based on the waste processing technology we have cultivated through our processing operations at our own plants. In addition, we are also applying the crushing and separating technologies we have cultivated over many years in our slag processing business to engineer facilities that enable resource recycling and waste reuse.



Domestic Delivery

Domestic
deliveries of
magnetic
separators
(including
HIGAMS)
*In no particular
order

Nippon STEEL Corporation
Nippon STEEL Engineering
Nippon STEEL Environmental Plant Solutions Corporation
JFE Steel Corporation
JFE Engineering Corporation
Kobelco Eco-Solutions Co., Ltd.
Kubota Environmental Service Co., Ltd
Sintokogio, Ltd.
Mitsubishi Power, Ltd.
Primetals Technologies Japan
Municipalities

Taiheiyo Cement Corporation
Mitsubishi Materials Corporation
Daido Steel Co., Ltd.
Kinki Industrial Co., Ltd.
Fuji Car Manufacturing Co., Ltd.
Kawasaki Heavy Industries, Ltd.
Kyokuto Kaihatsu Kogyo Co., Ltd.
AGC Inc.
Ube Industries, Ltd.

...and many others.

Separating Equipment and Plant Sales Business



NMD has a track record of delivering products overseas since 1953, soon after our establishment, and we have been developing our business mainly in Asia and Russia.

In recent years, we have been working to expand our business to South Korea, China, India, and Southeast Asian countries.

First magnetic separator export: February 8, 1953

We received an order for a wet-type electromagnetic separator for the Philippines. This was NMD's first export.

It was quite a large machine for its time, and it was assembled outdoors using a tripod set up with a chain hoist.

It was a WDA model, made of steel instead of the conventional wooden frame.

Overseas Delivery

Oversed Benvery					
	1953	Philippines	First export (wet-type electromagnetic separator)		
	1958	Sri Lanka	Ilmenite Public Corporation		
	1963	Sri Lanka	Ilmenite Public Corporation		
	1999	Philippines	Philippine Sinter Corporation		
	2006	Korea	POSCO (Gwangyang)		
	2007	China	Maanshan Iron & Steel, Baowu Steel (Wuhan-Baosteel)		
	2008	Korea	POSCO (Gwangyang)		
Delivery of magnetic	2009	China	Guangzhou JFE Steel Sheet Shougang Group		
separators (including	2010	China	Shougang Group		
HIGAMS)	2011	India	Tata Steel		
		China	Baowu Steel (Baosteel)		
	2012	China	Baowu Steel (Baosteel), Maanshan Iron & Steel, Pangang Group		
	2013	India	JSW Steel		
		China	Taigang Stainless Steel		
	2015	China	Shougang Group, Zhejiang Nisshin		
	2016	China	Baowu Steel (Baosteel Zhanjiang Iron & Steel)		
	2017	China	Baowu Steel (Baosteel)		

echnical Assistance and Plant Sale

	1980	Korea	POSCO Pohang Steelworks	
	1990	Korea	Samsung Heavy Industries	
	1992	Korea POSCO Gwangyang Steelworks		
	1993	Ukraine	Makeevka Steel	
	2002	Korea	POSCO Pohang Steelworks	
Slag recycling technical cooperation	2006	China	Sinosteel Equipment & Engineering	
cooperation	2007	Russia	Chelyabgipromez	
	2010	China	Beijing Rilian Yongtuo	
			Haixin Iron and Steel (Shanxi Province)	
			Man-Teng Iron and Steel (Inner Mongolia Autonomous Region)	
			Sanxin Iron and Steel (Fujian Province)	
	1984	China	Baosteel Group (Shanghai Baoshan Iron & Steel)	
Slag recycling equipment deliveries	1000	Korea	POSCO Gwangyang Steelworks	
deliveries	1993	Ukraine	Makeevka Steel	
Joint ventures	1999	Korea	Hankook Matics	
			*Magnetic separator manufacturing and sales	
	2005	China	Shanghai Kaituo Magnetic Dressing Metal Co., Ltd.	
			*Stainless steel slag recycling	

Research and Development



NMD engages in applied development research on separation and sorting technologies to provide optimal solutions for our customers' recycling and resource recovery needs.

Model Name: PANalytical X-ray fluorescence spectrometer Axios mAX system

4.0kW

Model: PW4400/40

Main Research and Development Operations

Research, Development, and Testing

- Development of recycling processes
- Separating technology using differences in physical properties (specific gravity, heavy liquid, shape, magnetic force, electrostatic sorting, etc.)
- Separation and collection technology using metallurgical methods such as melting, refining, etc.
- Separation and collection technology using chemical reactions
- Steel slag processing and effective utilization
- Development of manufacturing technology for flux for welding and steel refining
- Development and research of various separating machines
- Various separating tests

Quality Control

- Promoting efficiency in quality control
- Analysis for product quality control
- Research and analysis of basic physical properties for development and testing
- ISO maintenance and promotion



Group and Affiliated Companies

Here we introduce NMD's group and affiliated companies.

We have prepared a system for collaboration in various fields, such as real estate and non-life insurance agency, manufacturing and sales, and transport agency businesses.

Company Name	Business Information	Location
Nissen Home Service Co., Ltd.	Services related to apartment building management and operation Business related to real estate transactions Non-life insurance agency business	Kitakyushu City
NJ Eco Service Co., Ltd. Collection and sale of fused mate fee, operations related to waste p plants (material supply, collection of re		Kitakyushu City
J.K. Line Co., Ltd.	omestic vessel rentals, harbor transport busines	Kitakyushu City
Tokyo-Wan Butsuryu Co., Ltd.	Aggregate loading/unloading and storage, aggregate transportation and handling Shipping agency business	Sodegaura City, Chiba Prefecture
Matics Co., Ltd.	Manufacturing and sales of magnetic separating equipment	Busan City, Korea
Nagomi Industries Co., Ltd.	Purchasing and sales of steel slag products Purchasing and sales of materials for civil engineering and construction Purchasing and sales of base materials for cement	Kitakyushu City