





## Team NLM— Groundbreaking Innovator of Aluminum and Beyond

### Mission of the NLM Group (Corporate Philosophy)

Be forever committed to the development of new applications for aluminum and aluminum-related materials and thereby contribute to the improvement of people's quality of life and environmental protection.

## Message from the President & CEO

Since its establishment, the NLM Group has been a comprehensive manufacturer of aluminum products with diverse offerings ranging from aluminum raw materials to fabricated products.

Aluminum is lightweight, strong and possesses many other superb properties such as workability, corrosion resistance, thermal conductivity, electrical conductivity, and recyclability. These characteristics have made it the metal of choice for many applications that greatly benefit society.

The NLM Group develops aluminum and aluminum-related materials to supply highly diversified products for a wide range of industries. Our products all leverage the NLM Group's core strengths: highly original technologies for making the most of aluminum's properties, and a wealth of knowledge and expertise amassed over the years.

### Team NLM—Groundbreaking Innovator of Aluminum and Beyond

Everyone at the NLM Group is working together as a single, united team to ensure that customers can rely on us and will continue to choose the NLM Group as a partner. We are deploying the Group's comprehensive capacities to completely satisfy the heartfelt aspirations of every customer and create value that our customers appreciate. We are leveraging the Group's wealth of knowledge and technology to go beyond being a mere materials manufacturer and take our business as a group to an entirely new level.



We always deeply ponder the question, "What will bring joy to our customers?" In that spirit, we are pursuing sustainable growth by vigorously pursuing the limitless and new possibilities arising with the changing times.

As we strive to improve the Group's overall corporate value by doing business in this manner, we remain committed to supporting customers in a wide variety of industries, thereby contributing to the improvement of people's quality of life and environmental protection.

*I. Okamoto*

**Ichiro Okamoto**  
President and Chief Executive Officer

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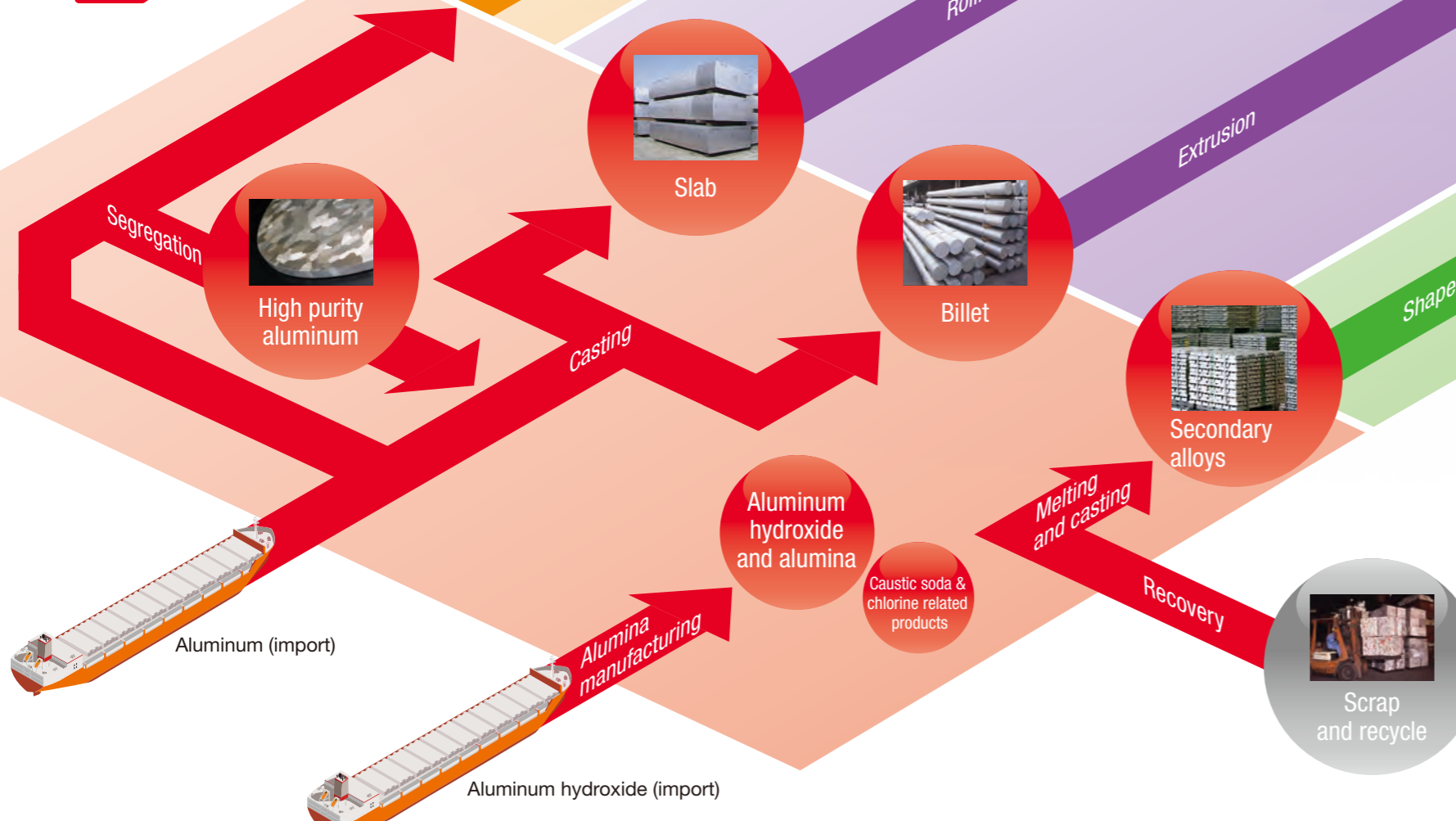
As a comprehensive manufacturer, the NLM Group provides total solutions, from aluminum materials to semi-manufactured and fully fabricated products.

As a comprehensive manufacturer, the NLM Group has established an aluminum production organization focused on its four main businesses. We produce high quality, high value added products.

### Aluminum Ingot and Chemicals

The NLM Group manufactures a wide variety of chemicals such as alumina and aluminum hydroxide used in aluminum raw materials such as flame retardants, ceramics, and grinding materials. In addition, we manufacture high purity aluminum and aluminum alloys at the highest levels of industrial production in the world.

### Aluminum Ingot and Chemicals



A wide range of products for society

- Automobiles..... P.9
- Machinery, Electronics, and Communications..... P.11
- Environment, Safety, and Energy..... P.13
- Public Works, Landscape, Construction..... P.15
- Transportation..... P.17
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### Aluminum Foil, Powder and Paste



Foil products  
Powder products  
Paste products  
Solar cell related products

### Variety of fabricated products

Automotive parts, transportation related products, electronic materials, panel products, heat exchanging products, food containers, landscaping products, building products, carbon products, etc.

### Fabricated Products and Others

### Aluminum Foil, Powder and Paste

The NLM Group constantly pursues the full possibilities of aluminum through innovative research and high precision material fabrication technology. We also create multi-material products with resins, films, and other materials to offer a wide variety of high quality, high performance aluminum foils, powders, and pastes.

### Fabricated Products and Others

The NLM Group offers a wide variety of extremely reputable, fabricated aluminum products such as aluminum foil for electrolytic capacitors, automotive parts, landscaping products, and building materials, such as those used in van and truck bodies, commercial refrigerator and freezer panels, and clean room panels.

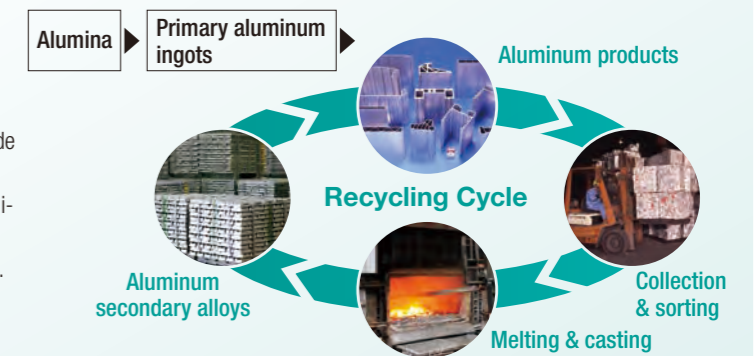
### Aluminum Sheet and Extrusions

The NLM Group offers aluminum sheets and extrusions for a diverse range of fields, including transportation, machinery, and electronics. We are applying our advanced designs and structural analysis technology to create many high precision, high quality sheets, as well as highly complex-shaped, difficult-to-manufacture extrusions.

### Spotlight

#### Recycling Aluminum for a Sustainable Society

Compared to other metals, aluminum does not corrode very easily. Also, since it has a low melting point, it is very easy to melt for recycling. In fact, recycling aluminum is very energy efficient, taking only 3% of the energy needed to manufacture new aluminum ingots. We meet the need for recycled aluminum in various fields, particularly the automotive industry.

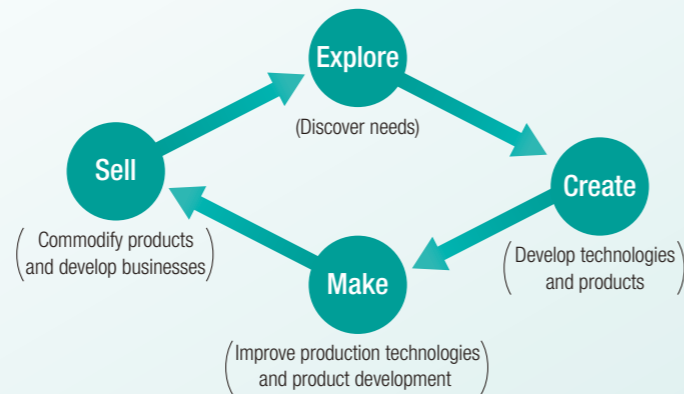


## The NLM Group's Yokogushi Development Platform\*1 leverages the Group's comprehensive capacities to meet diverse customer needs.

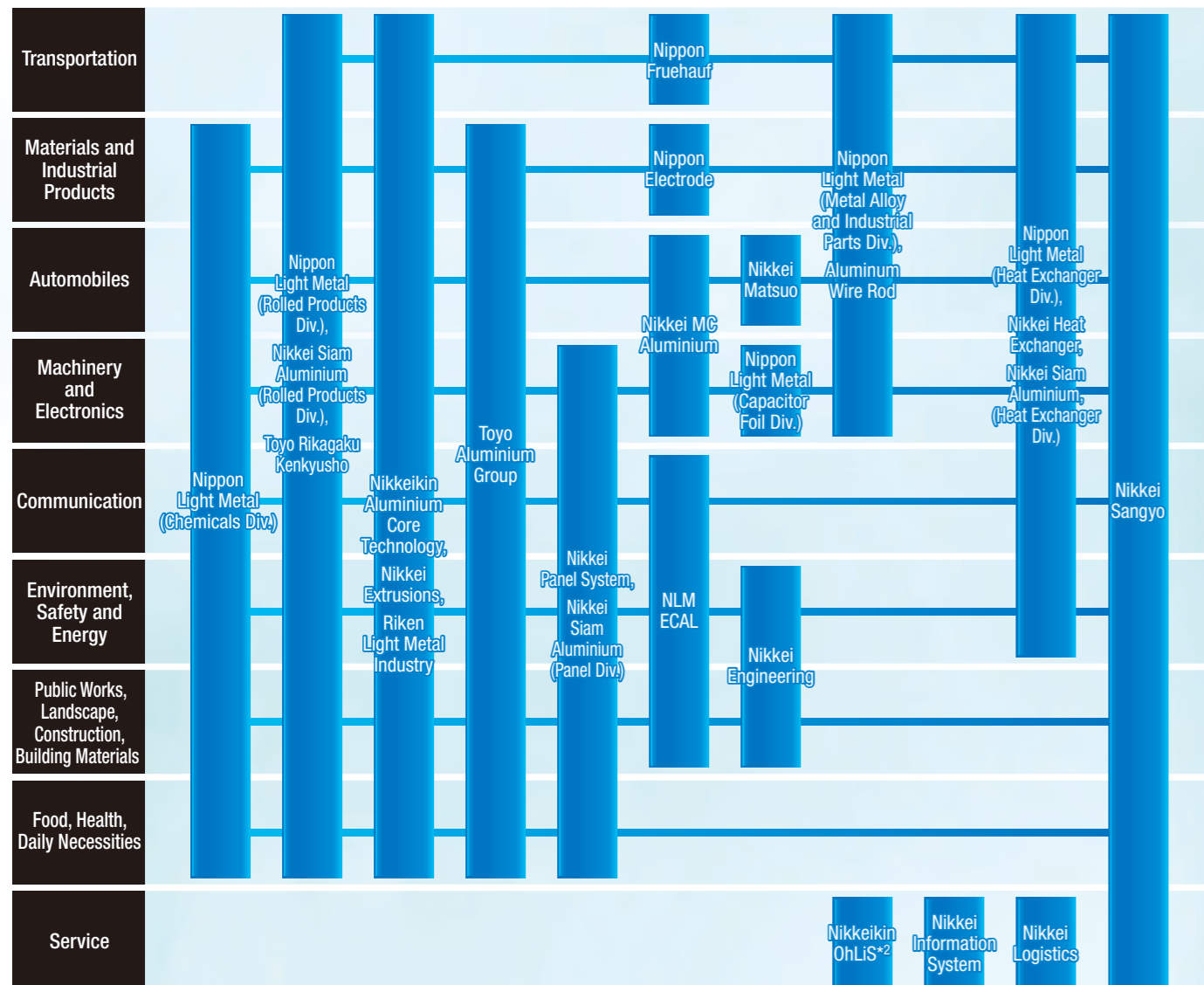
### Spotlight

#### Yokogushi Development Platform facilitates a single team driving business development

All the Group's employees share a single mindset: "explore customer needs and then find the right solution." Based on that spirit, the NLM Group uses a workflow of "explore, create, make, and sell" to produce high value added products and services that are competitive in the marketplace.



\*1 Yokogushi Development Platform: A cross-functional platform for developing multifunctional products



\*2 Special Subsidiary Company

### Spotlight

#### Corporate Governance

The NLM Group uses a holding company system. Under the umbrella of Nippon Light Metal Holdings, the two core operating companies are Nippon Light Metal and Toyo Aluminium.

The NLM Group forms and decides on overall group strategies, distributes business resources strategically, and manages its respective companies to achieve sustained growth while strengthening its competitiveness with the goal of increasing its corporate value. (See page 23 for more about management organization.) In addition, as part of our effort to strengthen corporate governance, we are organizing and improving internal control systems, strengthening compliance positioning, and actively implementing risk management.

The NLM Group is also striving to build an organization that always lives up to our corporate governance code. We are taking steady steps to address each principle of the code in order to realize effective corporate governance.



The NLM Group distributes its management policy and compliance handbook to all employees to ensure that the content takes root group-wide. (Back [left to right]: Vietnamese, Thai, Chinese, English; Front: Japanese)

### Spotlight

#### Improving Product Safety and Quality

The NLM Group has obtained ISO 9001 certification (covering 57 sites as of March 2020) to ensure the quality and safety of the services and products provided by all of its companies.

The Central Product Safety & Quality Assurance Division, which reports directly to the president of NLM Holdings, works hard to coordinate quality assurance activities within the Group and to foster the next generation. As such, it performs these roles: (1) quality diagnosis, namely periodic quality audits confirming the quality assurance organization within group companies in and outside Japan is effective; (2) self-directed *kaizen* continuous improvement activities involving actual products at actual sites; (3) total quality inspection, a company-wide event held in conjunction with Quality Month; and (4) theme-based quality training activities (ISO internal auditor training, why-why analysis, process FMEA, etc.).

In product development and 4M changes, risks and opportunities are evaluated at each step from the planning stage to the start of mass production. Ultimately, top executives of each company conduct examination meetings to evaluate compliance with safety, quality, and regulations.



Quality education activities (basic education for quality management)



Quality diagnosis in action (Thailand)

### Spotlight

#### Environmental Preservation and Health & Safety

The NLM Group Environmental Committee deliberates and establishes policies related to the Group's environment management. The committee is chaired by the president of NLM Holdings and composed of directors of NLM Holdings and presidents of each group company. The NLM Group collaborates with each of its factories and offices to implement environmental activities and ensure operations are in accordance with the ISO 14001 international environment management system (33 sites in Japan and 11 outside Japan certified as of March 2020). In doing so, the Group carries out group-wide initiatives to realize a sustainable society including pollution prevention, environmental law compliance, reduction of greenhouse gas emissions, energy conservation, and biodiversity conservation.

In addition, safety takes priority over everything else. Based on this commitment, we take Group-wide measures to comply with health and safety laws, ensure safety in all equipment and operations, improve conditions to ensure proper workplace hygiene, and implement mental health measures. The NLM Group determines Group health and safety policy and other action policies for disaster prevention at its Group Safety and Health Committee, comprising executives of NLM Holdings, group company presidents, and representatives of the labor union. The Committee also monitors the status of occupational safety and health management systems.



Meeting for persons in charge of environmental measures (Thailand)

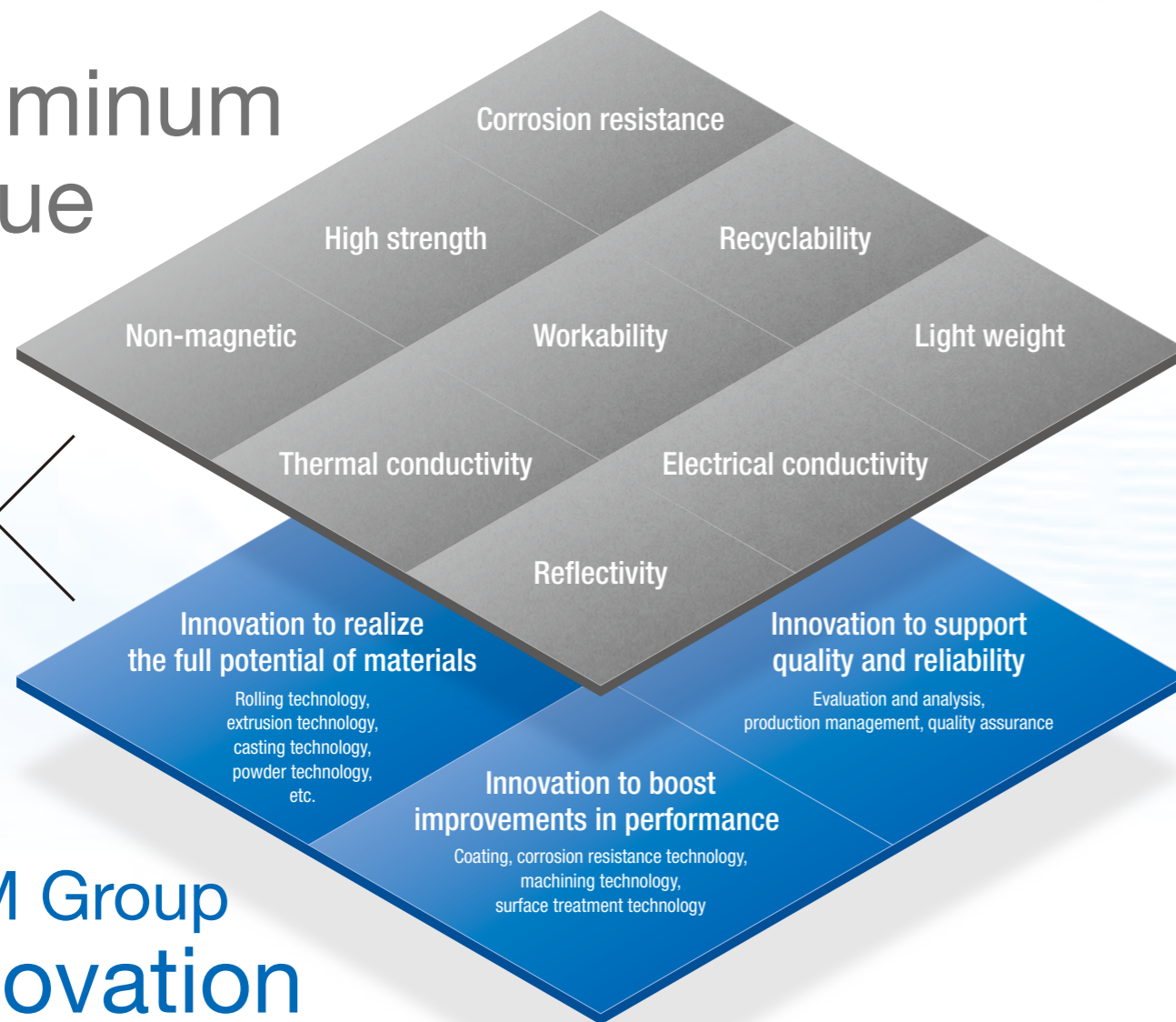


Simulated safety training (virtual reality)

Leveraging technology and knowledge built up over the years, the NLM Group creates high value added products and services.

The NLM Group seeks to create one-of-a-kind value by multiplying its culture of innovation with the fundamental value of aluminum.

## Aluminum Value



## NLM Group Innovation

### Spotlight

#### Hydroelectric Power to Support Business Activities

The Nippon Light Metal Company utilizes the strong current of the Fuji River with two dams and six power plants to provide stable power to its Kambara Complex. The total amount of power generated is 144,500 kW, making it possible to supply most of the power needs of the complex.

## Advanced R&D Centers

With its various R&D centers leading the way, the NLM Group enthusiastically welcomes the challenge of creating new value.

### Nippon Light Metal Company Nikkei Research and Development Center

This is the overall NLM Group R&D center that supports horizontally integrated development by effectively applying the innovative technologies possessed by each group company. This center is focused on realizing products that meet customer needs to create new business opportunities.



### Nippon Light Metal Company Shimizu Plant, Kambara Chemical Plant

This company does chemical R&D directly at its plants. The Shimizu Plant is equipped with the highest level of aluminum hydroxide related technology in Japan, enabling speedy development. The Kambara Chemical Plant works on new product development such as caustic sodas, all varieties of inorganic compounds, and chlorinated organic compounds.



### Toyo Aluminium Core Technology Center (CTC/TEC)

The Core Technology Center (CTC) conducts research and development of new technologies and new products for the creation of new business. The Technical Solution Center (TEC) provides services for the commercialization of R&D products. As the core of the NLM Group's R&D organization, these two research departments strive to develop unique technology and products.

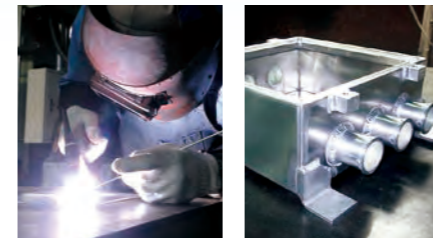


## High Level Fabrication Technology

The NLM Group possesses distinctive fabrication technology that makes the most of materials and adds even more value.

### Welding

The skilled technicians of Nikkei Metal's Inazawa Plant perform high precision welding at the millimeter level that even machines cannot reliably do. Working with MIG and TIG welding, they also support products in need of spot welding and FSW (friction stir welding) for very thick sheets of metal.



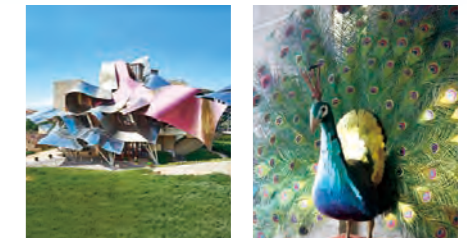
### High Precision Fabrication

Nikkei Technology Center performs high precision fabrication using unique technologies related to brazing, cutting, welding, assembly, rigging, and so on. The center obtained JIS Q 9100 certification in 2014 and also manufactures products for aerospace and military defense.



### Surface Treatment

Toyo Rikagaku Kenkyusho applies the metal surface treatment technology it has fostered since the beginning to bring out the maximum beauty and functionality of metal. Some of its original technology includes color anodizing aluminum, stainless steel and titanium.



If you ever want a small consultation on making a prototype or implementing a development plan, or wish to request testing, inspection, and so forth, first try **Shisaku.com**. (in Japanese only)

Shisaku.com

SEARCH

\*Shisaku.com searches a network of 120 of Japan's finest manufacturers to help customers find the right prototype service.

# 1 Automobiles

The NLM Group leverages its know-how and comprehensive group capacities as a fully integrated aluminum manufacturer to solve multilayered, multifaceted problems.

## Electrical and Electronic Components

Aluminum harnesses, water chillers for cooling power modules, heat sinks for LED headlights, etc.

## Gas Pedals, Brakes

Brake caliper bodies, etc.

## Climate Controls

Parallel flow sub-cooled condensers for automobile HVACs, etc.

## Body Structure and Exterior Components

Bumper reinforcement, etc.

## Interior Components

Seat slide rails, etc.

## Paint

Aluminum paste, etc.

## Power Controller Unit

Aluminum nitride powder, etc.

## Engine & Powertrain

Engine mount brackets, intercooler pipes, etc.

## Suspension & Wheels

Suspension components, etc.



## » Solutions

### Making the most of comprehensive Group capacities to find solutions to advanced problems in automobile development

NLM Group

In recent years, developed countries have further strengthened CO<sub>2</sub> emission regulations, which in turn has increased the need for weight reduction of automobiles. As such, aluminum has been highlighted as an ideal solution for achieving weight reduction since it has one third the specific gravity of steel and copper.

In these market conditions, the NLM Group has been leveraging its integrated system spanning materials, manufacturing, design, and evaluation to provide products that are optimized for the needs of its customers.



## » Solutions

### Solving heat challenges of electric cars by leveraging comprehensive strengths of the NLM Group

Nippon Light Metal (Heat Exchanger Div.)	Nikkeikin ACT
Nippon Light Metal (Metal Alloy & Industrial Parts Div.)	Nippon Light Metal (Chemicals Div.)
Nikkei Matsuo	Toyo Aluminium

Seizing the characteristics of aluminum, we provide varied products that improve fuel efficiency through weight reduction, and create solutions for driving performance and ride comfort.

The electrification of cars has been rapidly advancing worldwide. In order to contribute to this trend, the NLM Group provides aluminum coolers that limit heat generated from lithium-ion batteries essential for electrification and the power modules supplying electricity to motors. We will disseminate these products not only in Japan but also globally.

## » Products

### For Sensors, Honeycomb, Plugs



#### Alumina for ceramic materials

Nippon Light Metal (Chemicals Div.)

Alumina created using powder manufacturing technology that enables tailoring for the necessary properties for ceramic applications

### For Sunroof Guiderails

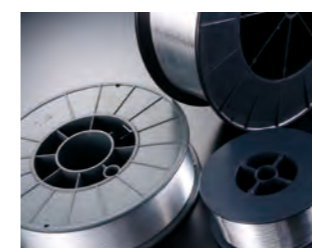


#### Sunroof guiderail materials

Nikkeikin ACT

Superior products in terms of quality and cost competitiveness, used in a wide variety of automobiles throughout Japan, Europe, China, and North America

### For Wire Harnesses



#### Aluminum wire harnesses for automobiles

Nippon Light Metal (Metal Alloy & Industrial Parts Div.)

Aluminum alloy wires with superior strength and bend tolerance to meet the need for weight reduction to improve fuel efficiency

### For Paint



#### Metallic pigment Alpaste®

Toyo Aluminium

Aluminum pigments with coin-shaped particles for a smooth surface, with high design functionality, used as the topcoat for automobiles

### For Suspensions



#### Suspension components

Nikkeikin ACT

Each component's shape is designed and tested using optimized methods for manufacturing in terms of material selection as well as developed alloys, extrusion, and forging

### For Engine & Drivetrain Systems



#### Abrasion resistance aluminum alloy NH41

Nikkei MC Aluminium

Aluminum alloys that are easy to handle and have abrasion resistance, which can reduce operating costs in the manufacturing of components

An example of processing by one of our clients

### For Brakes



#### Brake caliper bodies

Nippon Light Metal (Metal Alloy & Industrial Parts Div.)

Integrated caliper body castings using original technology employing aluminum pipe inset casting

### For HVACs



#### IPFC (parallel flow sub cooled condensers) for automobile HVACs

Nippon Light Metal (Heat Exchanger Div.)

Nikkei Heat Exchanger

All aluminum condensers with superior thermal conductivity, strength and corrosion resistance due to original aluminum material development

## Spotlight

### Adoption of the Unique Fabrication Process of FLEXCASTER™ to Transform Liquid Aluminum Directly into Sheet

Nippon Light Metal (Rolled Products Div.)

FLEXCASTER™ is a leading edge, high volume, continuous casting technology which can transform liquid aluminum into high quality coils of thin sheet in a single operation. Compared to the conventional method using the same chemical composition, this new method achieves 15% more strength and the same level of deep drawing performance as steel.

Automobile hood inner material (plate material made using FLEXCASTER™)



### The world's first motorcycle brake caliper made using high-speed casting

Nikkei Matsuo

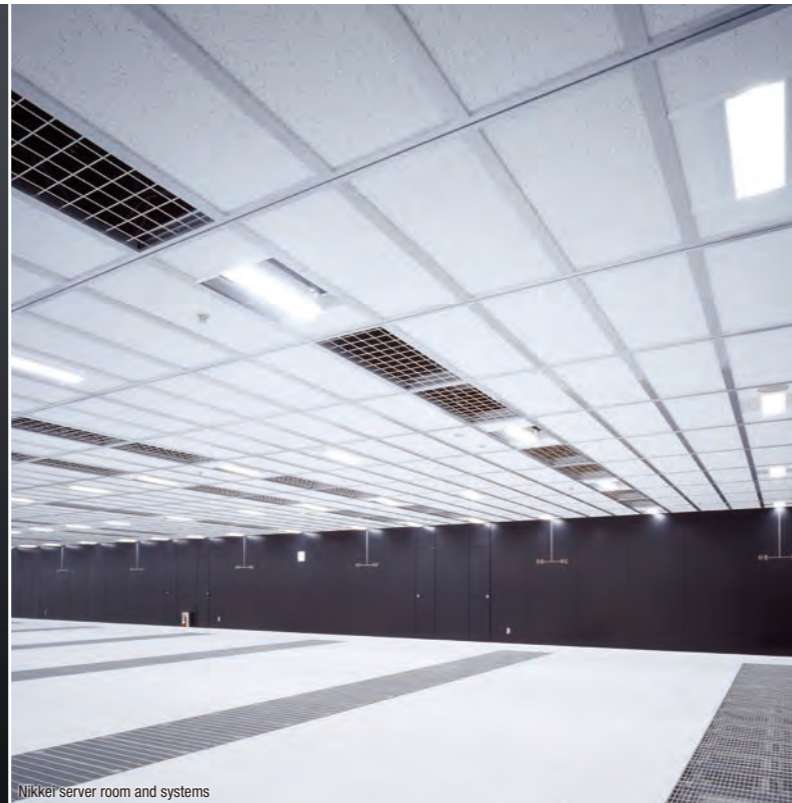
Brake calipers are critical safety components. As such, a high level of internal quality is a mandatory characteristic for ensuring the necessary capacity to withstand pressure, functionality, and rigidity. Traditionally, a gravity casting method is used for this application, but the NLM Group successfully mass-produced the world's first motorcycle brake caliper using a high-speed casting method leveraging its proprietary die casting technology (PFDC) and an originally developed alloy. Compared to the products made using the conventional method, the result is a lighter product, which higher design flexibility. The response to this product in the market has been very favorable.



Motorcycle brake caliper

# Machinery, Electronics, and Communications

Since aluminum is superior due to its light weight, thermal conductivity, electrical conductivity, and strength, the demand for it is ever increasing as products continue to evolve and become more advanced.



Nikkei server room and systems

## » Solutions

**Solving serious heat challenges by leveraging comprehensive strengths as an aluminum manufacturer**

Nippon Light Metal (Heat Exchanger Div.)	Nikkeikin ACT	Nippon Light Metal (Metal Alloy & Industrial Parts Div.)
Nippon Light Metal (Chemicals Div.)	Nikkei Matsuo	Toyo Aluminium

Electronics are indispensable to contemporary trends such as the electrification of cars and the acceleration of communication networks. They need to achieve a high level of performance, which in turn can present a serious design challenge when it comes to implementing heat countermeasures. The NLM Group is addressing this need by developing optimum heat solutions that make the most of its analysis, design, and manufacturing technologies.

**The NLM Group delivers heat solutions by employing its materials, processing, and a wide range of other technologies.**



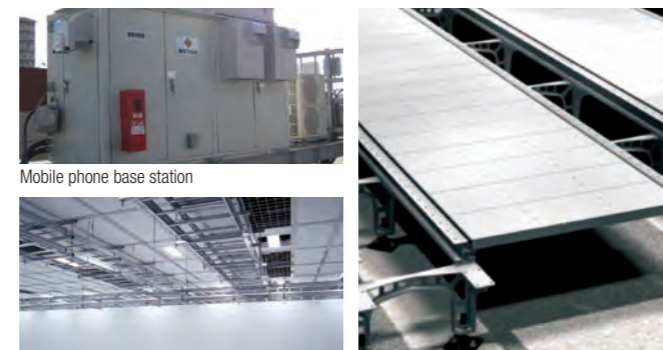
High tongue extrusion heat sinks | Pipe embedded cold plates | An example of a product with heat countermeasures

## » Solutions

**Supporting equipment for the information networks that are indispensable to society**

Nikkeikin ACT	Nikkei Panel System	NLM ECAL
Nikkei Sangyo		

The NLM Group supports the environmental equipment used for information networks by designing and delivering communication-related products that are lightweight, rigid, and have other necessary characteristics.



Mobile phone base station

Nikkei server room and systems

Aluminum double flooring

## » Products

### For Electronics



#### Etching circuit foil for IC cards

Toyo Aluminium

Etching circuit foil that provides high functionality to contactless banking and public transportation IC cards

### For Electronics



#### Aluminum electrolytic capacitors

Nippon Light Metal (Capacitor Foil Div.)

Aluminum electrolytic foil, which is the main material in aluminum electrolytic capacitors, jointly developed with Japan Capacitor Industrial Co., Ltd., the top manufacturer in the field of capacitors

### For Mobile Devices



#### High quality anodized sheets

Nippon Light Metal (Rolled Products Div.)

Anodized sheets with a non-yellowing color tone and a very high level of quality that is so stable that it dramatically improves yield rate

### For Mobile Devices

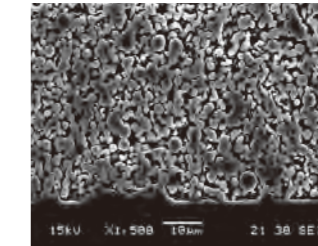


#### High purity alumina for sapphire boards

Nippon Light Metal (Chemicals Div.)

High purity alumina lineup made by improving the refining process of alumina as much as possible, for applications including LED boards and mobile phone cover glass

### For Electronics

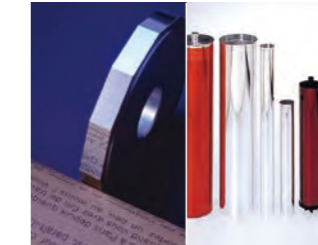


#### Powder laminated foil

Toyo Aluminium

A laminated material created by sintering aluminum foil and powder together to form a porous body with a large amount of surface area

### For Digital Office Automation Equipment



#### Polygon mirrors & photoreceptor drums

Nikkeikin ACT

Cutting tubes for high precision photoreceptor drums and materials for polygon mirrors used to realize the high reflectivity needed in laser printers and other digital office automation equipment

### For Electronics



#### High conductivity plate material and components

Nippon Light Metal (Rolled Products Div.)

A full lineup of products to meet the demand for conductivity and strength, available in various made-to-order surface treatments (plating, conductive grease application) to reduce contact resistance

### For Mobile Devices



#### Photoluminescent alumite die-cast alloys

Nikkei MC Aluminium

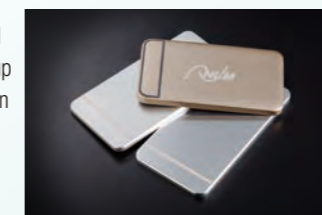
Beautifully colored die-cast aluminum alloys produced using anodizing

## Spotlight

### Development of Hybrid Aluminum/Resin Manufacturing Technology

Nippon Light Metal (Rolled Products Div.)

Aluminum possesses the properties of heat dissipation, conductivity, and heat absorption. Resin possesses the properties of thermal insulation and chemical resistance. The NLM Group has developed the technology to join aluminum and resin to successfully manufacture an aluminum-resin hybrid. We anticipate such applications as smartphone chassis.



Hybrid product (smartphone chassis prototype)

### Aluminum with the Highest Level Purity in the World

Nippon Light Metal

The NLM Group produces high purity aluminum at the world-class 6N level (99.9999% pure) using industrial production techniques to meet a variety of customer needs.



High purity aluminum

# Environment, Safety, and Energy

The NLM Group contributes to safety and preservation of the environment in a variety of ways using its group-wide technical development capacities to make the most of the innate characteristics of aluminum in environmental applications.

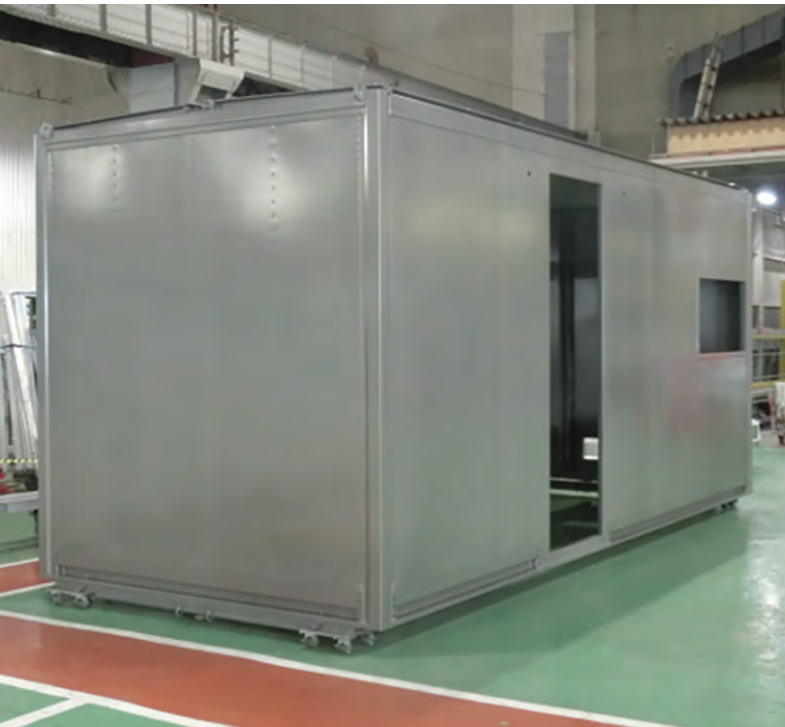


Photo provided by MAC International

Photo provided by ORANO TN International

Photo provided by ORANO TN International

## » Solutions

### Portable IT container to protect precision machinery from Earth's harsh environments

NLM ECAL	Toyo Aluminium
Nikkei Panel System	Nippon Light Metal

The use of IoT and AI is advancing rapidly, and many kinds of precision equipment, including digital and telecommunications equipment, now play an important role globally. The portable IT container developed by the NLM Group is winning praise as an outer shell for all kinds of precision equipment installed in areas of extreme heat and cold, desert, heavy salt damage, and strong UV.

#### ● Extreme environment features

- (1) Outside temperature blocking ±40 °C
- (2) Weather resistance (heavy salt damage, high humidity, UV)
- (3) Abrasion resistance (sandblasting)
- (4) Electromagnetic wave shielding (attenuation of approximately 40db up to GHz band)
- (5) Long-term durability (5 × life of normal coating)
- (6) Evacuation support (portable)

## » Solutions

### Leveraging know-how amassed by the NLM Group to provide aluminum materials for hydrogen accumulators with a high level of strength and corrosion resistance

Nikkeikin ACT	Nippon Light Metal
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Until now, hydrogen accumulators used for hydrogen stations and other purposes have been primarily made of iron. However, with the growing demand for hydrogen, needs have diversified, including ease of installation and cost reduction through weight reduction, and demand for mobile as well as stationary accumulators. Using the alloy development, casting, and extrusion technologies it has amassed over many years, the NLM Group has developed a high-strength 6000-series extruded tube meeting high levels of strength and corrosion resistance after processing, furthering development of a hydrogen society.



Aluminum material for hydrogen accumulators

## » Solutions

### MAXUS® and NEXUS-3000® neutron absorber materials for both spent fuel pool racks and dry storage casks

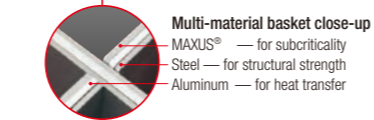
Nikkeikin ACT	Nippon Light Metal	Toyo Aluminium
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MAXUS® and NEXUS-3000® are MMC materials created by mixing aluminum powder with boron carbide powder, which absorbs neutrons. Mass production of these high-performance materials was made possible by the collective knowledge and know-how of each NLM division and the powder technology of Toyo Aluminium. These products meet customers' expectations because we produce Al-B4C MMC materials with the neutron absorption capacity required for spent fuel pool racks and dry storage baskets.



#### ● Images of dry cask baskets

- Multi-material basket  
MAXUS®, steel & aluminum
- Single material basket  
NEXUS-3000®



Multi-material basket close-up  
MAXUS® — for subcriticality  
Steel — for structural strength  
Aluminum — for heat transfer

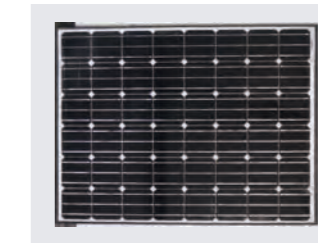
## » Products

### For Solar Cells



**ALSOLAR®**  
Toyo Aluminium  
Ink used to make the rear side electrodes of solar cells, indispensable to the manufacturing of high quality solar cells, and featuring superior weatherability

### For Solar Cells



**Hane™ Module**  
Toyo Aluminium  
A solar cell module that is half the weight but delivers the same performance as conventional ones, which can be installed in difficult places like rooftops of plants and warehouse, carports, walls of buildings and large facilities

### For Anodizing Factories and Printing Plate Factories



**Alkali collection device**  
Nikkei Sangyo  
A device that separates caustic soda and crystalline aluminum hydroxide from the caustic waste that results during the etching process of aluminum surface treatment so that those substances can be reused

### For Disaster Prevention Equipment



**Water supply tank**  
Nikkeikin ACT  
A water supply container used for water during disasters, foldable for improved storability and very hygienic with the use of an inner lining

### For Disaster Prevention Equipment



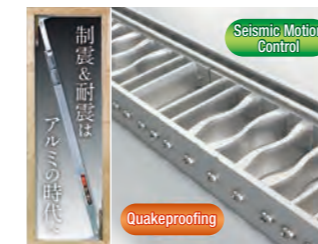
**Disaster prevention storage shed**  
NLM ECAL  
Disaster prevention storage sheds that are very reliable for long-term storage of physical goods, including some solar-powered models

### For Soil



**Aluminum chloride hexahydrate**  
Nippon Light Metal (Chemicals Div.)  
Aluminum chloride hexahydrate for spreading on soil to control the soil's acidity

### For Seismic Motion Control



**BRACEREE®**  
Nikkeikin ACT  
An aluminum brace that is capable of reducing seismic motion in wooden houses during an earthquake using an aluminum hysteretic damper to absorb energy

### For Quakeproofing



**Quakeproofing reinforcement brace**  
Nikkei Engineering  
Quakeproofing reinforcement implemented using a variety of construction methods to match existing building structures

## Spotlight

### Nikkei Ecolas: Chrome-Free Colored Aluminum for Better Health and a Cleaner Environment

Nippon Light Metal (Rolled Products Div.)

Up until now, processing agents such as hexavalent chromium have been used in the pretreatment stages of paint. However, since it became known that hexavalent chromium is highly toxic, world regulations have been enacted to restrict its usage.

In response, the NLM Group developed Nikkei Ecolas, a chrome-free colored aluminum which complies with ELV, WEEE, RoHS, and other such standards, and completely avoids the use of chrome, lead, and other materials and agents that negatively impact the environment.



Nikkei Ecolas, used on a truck

### Aluminum microchannel freezing pipes used in underground infrastructure construction

Nikkei Sangyo

The technique of ground freezing may be used to construct underground structures such as subways, sewers, underground tunnels for highways, and underground floors of station buildings. Unlike the method of hardening the ground with concrete and chemical agents, ground freezing is said to be an environmentally friendly method because it thaws after construction ends and leaves no waste. Heat exchangers with brazed joints at both ends of aluminum flat tubes made by Nikkei Sangyo are called "aluminum microchannel freezing pipe," and are often used in this ground freezing technique.

● Microchannel freezing pipe  
The ground is frozen to prevent it collapsing, and then widening work, etc. is carried out.



Affixed to the inner wall of the excavation site  
Frozen excavation site

# Public Works, Landscape, Construction

The NLM Group contributes to better energy savings and durability in safe, secure, and comfortable spaces for everyday life, which feature both excellent product function and superior design.



## » Solutions

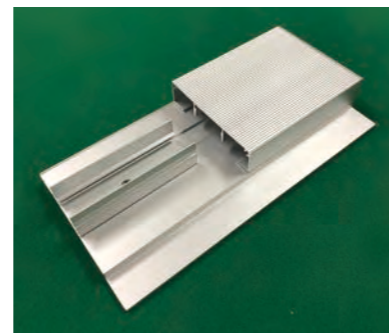
### Creating a comfortable sound environment with ALMISSIMO, an aluminum sound absorbing material that controls air vibration through resonance

Riken Light Metal Industry | Nippon Light Metal

ALMISSIMO is an aluminum interior finishing material incorporating the structure of a Helmholtz resonator. The reverberation of sound can be adjusted to provide a comfortable aural environment. With all the elements needed in a finishing material—sound absorption, incombustibility, lightweight, design qualities—ALMISSIMO can be used in a variety of spaces, including station buildings, libraries, and educational facilities.

#### ● Features of ALMISSIMO

Sound absorption	Incombustibility	Lightweight	Design qualities
<ul style="list-style-type: none"> <li>Finishing material using the structure of the Helmholtz resonator, enabling sound absorption</li> <li>Sound absorbing material composed solely of aluminum, without a backing material such as glass wool</li> </ul>	<ul style="list-style-type: none"> <li>Essential for finishing materials in locations where an unspecified number of people gather</li> <li>Individual non-combustible material certification [NM-3348]</li> </ul>	<ul style="list-style-type: none"> <li>Lightweight, as it is entirely aluminum</li> <li>Compatible with "Specifications Route" for Specified Ceilings in Ministry of Land, Infrastructure, Transport and Tourism Notice No. 771</li> </ul>	<ul style="list-style-type: none"> <li>A wide variety of colors can be freely combined to produce the desired space.</li> </ul>



Cross-sectional surface of ALMISSIMO

## » Products

### For Public Spaces



#### Comprehensive development for train station surroundings

Nikkei Engineering

Proposed for optimized facilities that are integrated into the environment and which provide nice landscaping for pedestrian decks, shelters, etc

### For Paint



#### Stenshel® SABIKONA-ZU

Toyo Aluminium

Paint incorporating high-quality stainless steel flakes to create a tough coating that is highly durable and very rust-resistance; can help reduce the overall painting process, saving both time and money in construction

### For Refrigerators/Freezers (commercial)

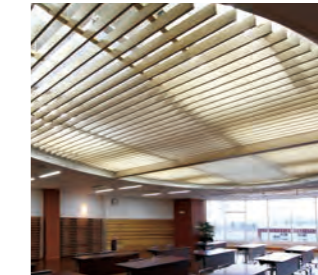


#### Thermal insulation panels for refrigerators and freezers

Nikkei Panel System

Panel systems for refrigerators and freezers that enable precise temperature control and meet the needs of HACCP and the globalization of food distribution

### For Buildings (interior and exterior design)

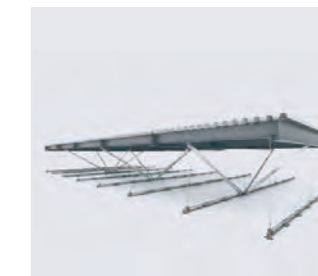


#### Interior/exterior louvers

Riken Light Metal Industry

A lineup of a wide array of design louvers for use as blinders, light shielding, ventilation, and even construction design

### For Buildings (ceilings)



#### NEQRES series of earthquakeproof ceilings

Nikkei Panel System

Ceilings using compression braces that deliver twice the design bearing force of conventional braces, resulting in lower brace volume and material costs and more effective use of ceiling space

### For Prevention of Contamination by Foreign Matter



#### Movable aluminum water purification plant cover

Nikkei Engineering

At water purification plants, covers are installed to stop algae from blooming in the tanks, to prevent garbage and other matter from dropping in, and as an anti-terrorism measure. Aluminum covers are lightweight, resistant to degradation due to chlorine-based chemicals and ultraviolet rays, and have excellent corrosion resistance.

## Spotlight

### GENESTA Incombustible®: CFC-Free Thermal Insulated, Incombustible Panels Designed for Environmental Performance



Nikkei Panel System

GENESTA Incombustible® is a CFC-free, thermal insulated panel that is environmentally friendly because it has zero negative impact on the ozone layer and almost no negative impact on global warming. The panel is the result of a world-first application\*1 of HFO.\*2 It has great environmental performance, is certified as a fire prevention material, and meets the needs of food plants, refrigerators, and freezers.



GENESTA Incombustible® in use at a food processing plant

\*1: World's first application for injected foam metal sandwich panels (Source: Nikkei Panel Systems' research)  
\*2: HFO (hydrofluoroolefin)

### Cusa Permanent Scaffolding Made of Aluminum Alloy for Girder Inspection and Long-Term Maintenance

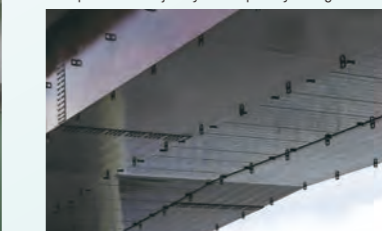
Nikkei Engineering

A ministerial ordinance to amend some of the rules for enforcement of the Road Act requires "close-up visual" inspection of bridges. Cusa is an aluminum alloy permanent scaffold that combines a work scaffold with an inspection scaffold enabling close-up inspection of bridges.

#### ● Features

- Improved workability for close-up visual inspection of bridges
- Measures to prevent salt damage to the bridge body
- Can be used as a work scaffold during repair
- Installed by advancing from inside the scaffolding
- Prevention of third-party damage outside the bridge

This product was jointly developed by Yokogawa Bridge Corp. and Nikkei Engineering Co., Ltd.



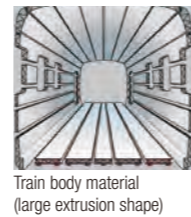
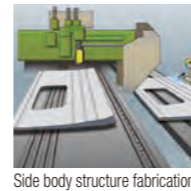
Upper construction of Iwamatsugawa Bridge



Perspective view

# Transportation

The NLM Group is focused on developing products that make the most of the properties of aluminum with the Group's original fabrication technology to meet needs in many transportation fields, including *shinkansen* bullet trains.



## » Solutions

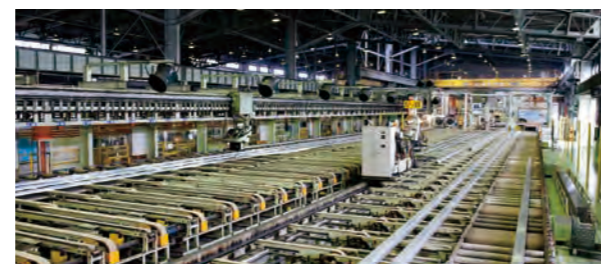
### Developing technologies to contribute to improvement of both the environmental performance and comfort of trains

Nikkeikin ACT

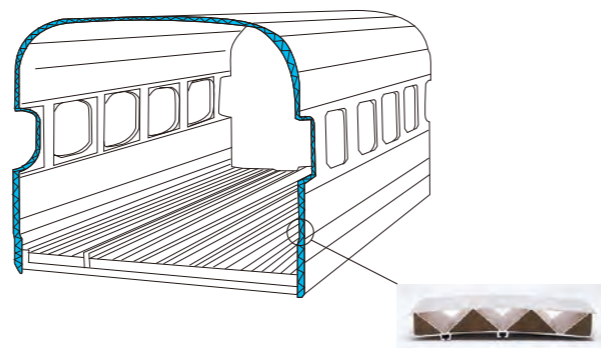
Nippon Light Metal (Rolled Products Div.)

In order to support the high speeds at which today's bullet trains travel, the materials used have to be both light and strong. In response, the NLM Group uses some of the best large-scale, hollow extrusion manufacturing technology in Japan to develop and manufacture aluminum alloy double skin structural material that is both light and very strong, used for the backbone. This double skin structural material has a truss shape section formed using a combination of triangular shapes.

Our solution has been adopted for the Tokaido, Sanyo, Tohoku, and Hokuriku *Shinkansen* bullet train lines. Our original technology and know-how has also contributed to the realization of all aluminum cars for some trains on other lines.



High precision extrusion technology



Aluminum alloy double skin structural material

## » Products

### For Freight Transportation



#### Vans

Nippon Fruehauf

A wide range of vans, from large to small, all watertight and efficient for carrying and handling

### For Freight Transportation



#### Temperature controlled vans

Nippon Fruehauf

A lineup of vans with fantastic features such as CFC-free, thermal insulating materials and CHILNO, an original chiller unit

### For Freight Transportation



#### Containers

Nippon Fruehauf

Containers that meet the needs of the modal shift to train and other freight transport systems

### For Freight Transportation



#### Hinged drop sides for loading

Nikkeikin ACT

Enclosures for preventing objects from falling off the bed of the truck; featuring hinged drop sides that are very strong, light and durable so that truck beds can be widely used; can be installed on wing roof vehicles, as well

### For Transportation



#### Aluminum bridges

Nikkeikin ACT

Made from high strength aluminum alloy for welding, light and very strong to support the loading and unloading of construction and agricultural machinery

### For Freight Transportation



#### Wing roof

Nippon Fruehauf

Wing roof perfect for large items due to high handling efficiency

### For Freight Transportation



#### Trailers

Nippon Fruehauf

A full lineup of everything from van trailers to container chassis, as well as wing trailers to full trailers

### For Freight Transportation

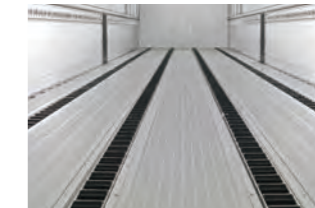


#### Power-saving devices

Nippon Fruehauf

Tailgate lifters and various other power-saving devices that improve the efficiency of cargo handling work

### For Transportation

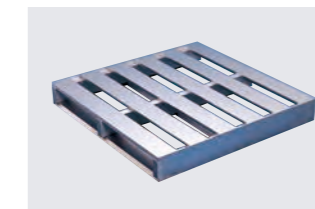


#### Air roll

Nikkeikin ACT

Air roll for labor savings with pallet handling work. It is an environmentally superior product because of the air drive and is also used for delivery of pharmaceuticals.

### For Cargo Handling & Transportation



#### Aluminum pallets

Nikkeikin ACT

Aluminum pallets that do not build up static electricity and are very sanitary, used in a wide variety of logistics fields

## Spotlight

### KaruBo Lightweight Dry Van for 2-Ton Trucks in Thailand

Nippon Fruehauf

By law, vehicles over 2.2 tons are not allowed to drive in Bangkok, the capital city of Thailand, from 6 to 9 am or 4 to 8 pm. For this reason, lightweight pickup trucks are commonplace for small-lot deliveries in the city. In response to this, our local group company, Fruehauf Mahajak, developed KaruBo, a lightweight dry van for 2-ton trucks, that keeps the overall vehicle weight to less than 2.2 tons. The volume is more than 1.4 times that of pickup trucks, which improves the transportation efficiency of city deliveries and helps reduce logistics costs.



KaruBo light weight dry van (for 2-ton trucks)

# Food, Health & Industrial Products

The NLM Group offers customer-oriented product ideas that are helpful in daily life for food, health, and industrial fields. These products are made from highly functional materials and are designed with full consideration for the environment.



## » Products

### For Pharmaceuticals



#### READ-MAX®

Toyo Aluminium

Aluminum foil for pharmaceutical tablet packaging that can be read by bar code readers without requiring the customary white background

### For Food



#### Aluminum can and dispenser cleaning can

Nippon Light Metal (Container Div.)

Originally developed large three-liter beer cans manufactured using drawing and ironing techniques

### For Food

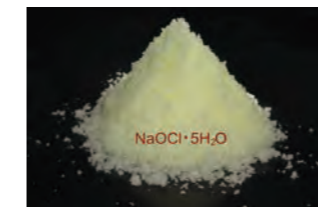


#### Thermal insulated panels for food processing plants

Nikkei Panel System

Non-flammable, high thermal insulated panels that reduce the risk of contamination and cross-contamination

### For Various Industries

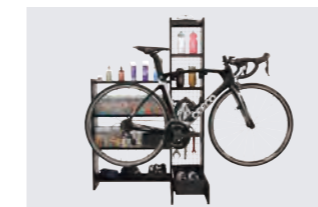


#### Fungicide and industrial oxidizer

Nippon Light Metal (Chemicals Div.)

Nippon Light Metal was the first in the world to industrialize solid sodium hypochlorite. It is used as a fungicide for food and drinking water and as an oxidizing agent in various organic synthesis reactions.

### For Sports



#### Cycle shelf

Riken Light Metal Industry

An aluminum shelf for indoor storing and exhibiting sports bicycles such as road bikes without leaning it against a wall or placing it directly on the floor. Simple maintenance is also possible, and cycling items can be stored in the rack part.

### For Food, Medical & Industrial Materials



#### TOYAL LOTUS® water-repellent packaging

Toyo Aluminium

Developed originally for the inside of yogurt container lids to keep the yogurt from sticking to the lid; currently working to expand into other applications

### For Food & Packaging



#### TD series of printing ink

Toyo Aluminium

Non-toluene type of aluminum pigment made using propyl acetate and ethyl acetate and other solvents, safe for the environment

### For Cosmetics

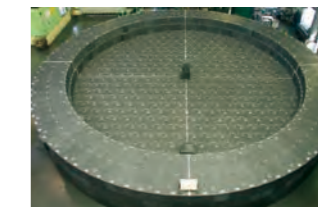


#### Cosmicolor®: Aluminum pigment with interference color

Toyo Aluminium

Pigment in which the reflection of light from the plating layer and aluminum flakes interfere with each other to make the hue change with the angle of view

### For Industrial Goods



#### Carbon blocks for blast furnaces

Nippon Electrode

The No.1 brand in the world thanks to high quality, high precision and a long life of over 20 years, used worldwide in large blast furnaces

### For Industrial Goods



#### Cathode blocks

Nippon Electrode

In recent years, electrolytic furnaces require high-quality products that contribute to their long life and high efficiency. We provide quality products from our diverse lineup and develop new ones to meet customer needs.

## Spotlight

### Light, easy-to-carry, easy-to-assemble aluminum cycle stand for sport bicycles

Riken Light Metal Industry

This aluminum cycle stand is light and easy to assemble. It is adjustable from 1,150 mm to 1,700 mm, making it possible to hold up to five bicycles. Great for convenience stores, bicycle shops, coffee shops along cycling paths, race venues, ride event venues, hotels, etc. It also folds and comes with an exclusive storage bag, making it easy to carry.



### NLM Group Products Playing an Active Role in the Field of Sports

Nikkeikin ACT

NLM Group products play an important role in many different fields of activity, including the sports field. At the 2002 FIFA World Cup soccer tournament, jointly hosted by Japan and South Korea, seven of the ten stadiums used soccer goals made by Nikkeikin ACT. In recent years, the NLM Group has also been offering alloys developed for use in baseball bats.



### Graphitization of lithium-ion battery negative electrode material in continuous vertical graphitization furnace

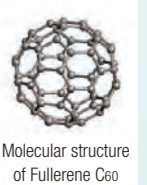
Nippon Electrode

The graphitization process, which is essential for the production of lithium-ion battery negative electrode material, achieves power savings and shorter production lead time with our unique continuous heat treatment technology. In addition to its economic benefits, it contributes to reducing environmental impact.

### Development of carbon electrodes from 100% natural raw materials

Nippon Electrode

We have developed carbon electrodes made from 100% natural raw materials that are environmentally friendly. Recognized for its high sublimation efficiency and sustainability, it is used in fullerene manufacturing by the arc discharge method. Fullerene is a carbon allotrope with a soccer-ball-shaped carbon structure. Discovered in 1985, it is expected to be applied in various fields.



Molecular structure of Fullerene C<sub>60</sub>

**Asia**

- Shandong Conglin Fruehauf Automobile Co., Ltd. 
- Shandong Nikkei Conglin Automotive Parts Co., Ltd. 
- Nikkei (Shanghai) International Trading Co., Ltd. 
- Nikkei (Shanghai) Body Parts Co., Ltd. 
- Toyo Aluminium International Trading (Shanghai) Co., Ltd. 
- Suzhou Toyo Aluminium Ekco Household Products Co., Ltd. 
- Toyo Aluminium Ekco Trading (Suzhou) Co., Ltd. 
- Nikkei MC Aluminum (Kunshan) Co., Ltd. 
- Toyo Precision Appliance (Kunshan) Co., Ltd. 
- Changchun Nikkei Railway Vehicle Equipment Co., Ltd. 
- Hunan Ningxiang JiWeiXin Metal Powder Co., Ltd. 
- Guangxi Zhengrun Nikkei High Purity Aluminium Technology Co., Ltd. 
- Toyal Zhaoqing Co., Ltd. 
- Nonfemet International Aluminium Co., Ltd. 
- NI Nikkei Shenzhen Co., Ltd. 
- Sam-A Aluminium Co., Ltd. 

- CMR Nikkei India Pvt. Ltd. 
- Toyal MMP India Pvt. Ltd. 
- Nikkei Siam Aluminium Ltd.   
- Fruehauf Mahajak Co., Ltd. 
- Nikkei MC Aluminum (Thailand) Co., Ltd. 
- Toyal (Thailand) Co., Ltd. 
- Nikkei Panel System Vietnam Co., Ltd. 
- Nikkei Singapore Aluminium Pte. Ltd. 
- PT. Nikkei Trading Indonesia 
- Centro Nippon Fruehauf Cooltech Inc. 

**North America and Europe**

- Toyal America, Inc. 
- Nippon Light Metal North America, Inc. 
- Nippon Light Metal Georgia, Inc. 
- Nikkei MC Aluminum America, Inc. 
- T.S.T. Nikkei Metales S.de R.L. de C.V. 
- Toyal Europe S.A.S.U. 



Nikkei (Shanghai) Body Parts Co., Ltd.



Shandong Conglin Fruehauf Automobile Co., Ltd.



Toyal America Inc.



Nikkei MC Aluminum America, Inc.



Toyo Precision Appliance (Kunshan) Co., Ltd.



CMR Nikkei India Pvt. Ltd.



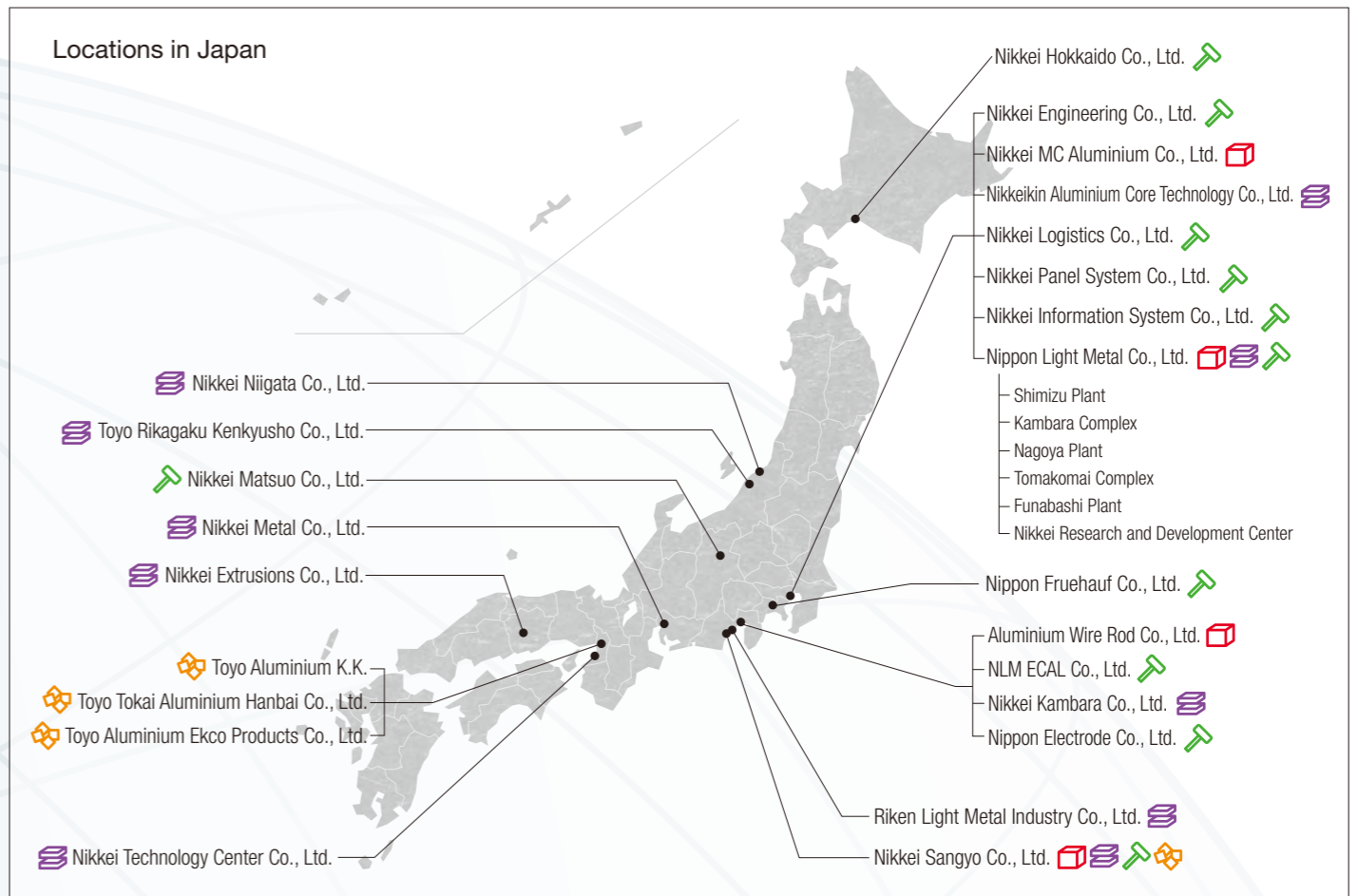
Fruehauf Mahajak Co., Ltd.








Toyal Europe S.A.S.U.



Nikkei Siam Aluminium Ltd.



-  Aluminum Ingot and Chemicals
-  Aluminum Sheet and Extrusions
-  Fabricated Products and Others
-  Aluminum Foil, Powder and Paste
-  Sales and Marketing Site

# The NLM Group's Global Reach

The NLM Group is broadening its worldwide presence to keep pace with the globalization of its customers.

## Corporate Profile

**Trade name** Nippon Light Metal Holdings Co., Ltd.

**Headquarters** Urbannet Uchisaiwaicho Building,  
1-1-13 Shimbashi, Minato-ku, Tokyo  
105-8681 Japan

**Date of establishment** October 1, 2012

**Capital** 46,525 million yen

**Sales** 465,946 million yen (consolidated)

**Employees** 13,611 (consolidated)

\*The data shown above is for fiscal 2019, or current as of the end of March 2020.

## Executives (As of June 24, 2020)

### Directors

<b>President and CEO</b>	Ichiro Okamoto	<b>Director</b>	Toshikazu Tanaka
<b>Director</b>	Toshihide Murakami	<b>Director</b>	Masahito Saotome
<b>Director</b>	Yasunori Okamoto	<b>Director</b>	Masato Ono <sup>1</sup>
<b>Director</b>	Kaoru Kusumoto	<b>Director</b>	Ryoichi Hayashi <sup>1</sup>
<b>Director</b>	Hiroyasu Hiruma	<b>Director</b>	Haruo Ito <sup>1</sup>
<b>Director</b>	Sho Adachi	<b>Director</b>	Toshihito Hayano <sup>1</sup>
<b>Director</b>	Yoshihiro Tomioka	<b>Director</b>	Keiko Tsuchiya <sup>1</sup>

<sup>1</sup> Outside director

### Audit & Supervisory Board Members

<b>Audit &amp; Supervisory Board Member</b>	Nobuo Matsumoto
<b>Audit &amp; Supervisory Board Member</b>	Kotaro Yasuda
<b>Audit &amp; Supervisory Board Member</b>	Masahiro Yoshida
<b>Audit &amp; Supervisory Board Member</b>	Yoshiki Sato <sup>2</sup>
<b>Audit &amp; Supervisory Board Member</b>	Shintaro Kawai <sup>2</sup>
<b>Audit &amp; Supervisory Board Member</b>	Jinseki Kim <sup>2</sup>

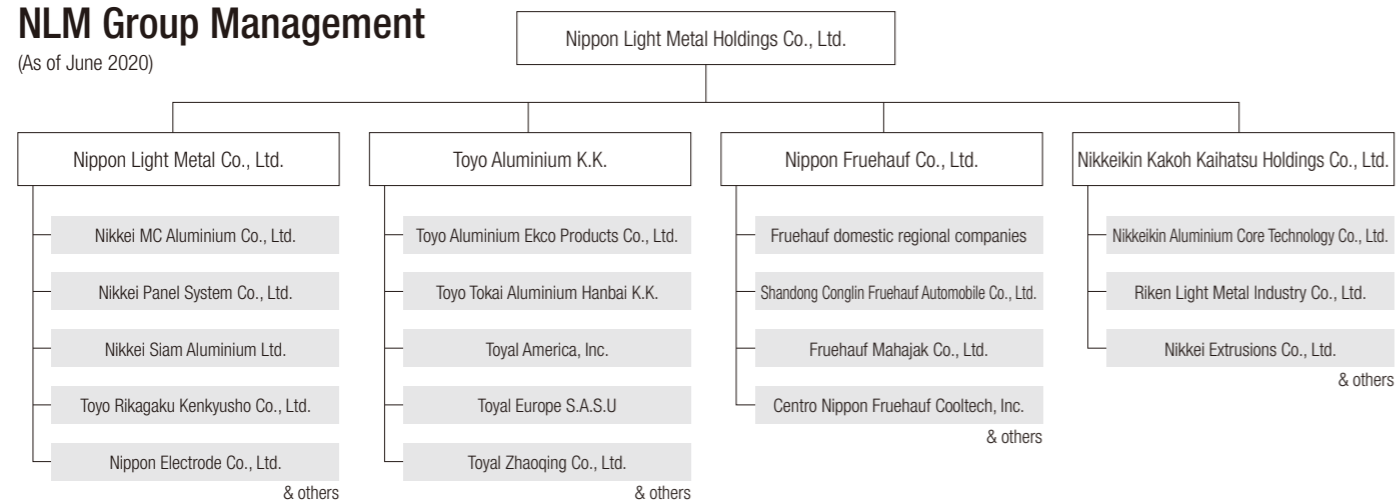
<sup>2</sup> Outside member

### Officers

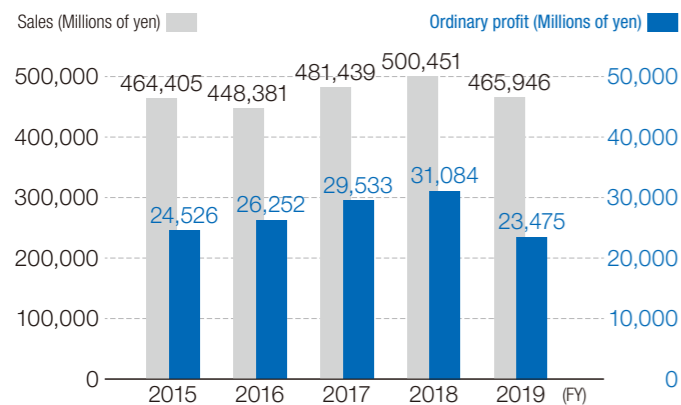
<b>Officer</b>	Minoru Sotoike
<b>Officer</b>	Kazuto Sanada
<b>Officer</b>	Masakazu Ichikawa
<b>Officer</b>	Kazuyoshi Sugiyama
<b>Officer</b>	Satoshi Aso

## NLM Group Management

(As of June 2020)

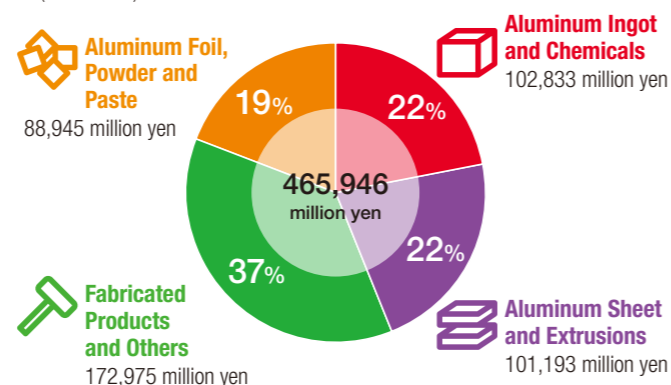


## Consolidated Business Performance



## Composition of Consolidated Sales

(Fiscal 2019)



## Corporate History

### 1939 ▶▶ First Founding

- 1939 · Nippon Light Metal Co., Ltd. incorporated jointly by Furukawa Electric Co., Ltd., and Tokyo Dento (currently TEPCO) to start aluminum smelting.
- 1940 · Aluminum smelting at Kambara Plant (currently Kambara Complex) started.
- 1941 · Aluminum production at Shimizu Plant started.
- 1945 · Nippon Electrode Co., Ltd. established.
- 1949 · Listed on the Tokyo Stock Exchange.

### 1952 ▶▶ Second Founding & Progress

- 1952 · Capital and technology cooperation with Aluminium Limited (currently Rio Tinto Alcan Inc.) of Canada established.
- 1962 · Nikkei Building (former headquarters building) completed in Ginza, Tokyo.
- 1963 · Technical ties with Fruehauf International Limited of the U.S. started. Nippon Fruehauf Co., Ltd. established.

### 1974 ▶▶ Fabrication Business Development

- 1974 · Merger with Nikkei Aluminium Co., Ltd.
- 1978 · Merger with Nikkei Aluminium Rolling Co., Ltd.
- 1984 · NLM Group construction material business integrated to establish Shin Nikkei Co., Ltd.
- 1985 · Nikkaru Extrusion Co., Ltd. merged into Nippon Light Metal Co., Ltd. (currently Nikkei Kambara Co., Ltd.).
- 1986 · Sales division of NLM Group's construction material department merged into Shin Nikkei Co., Ltd.
  - Nonfemet International Aluminium Co., Ltd. established in Shenzhen, China.
- 1989 · Nikkei Kako Co., Ltd. merged into Nippon Light Metal Co., Ltd.
- 1991 · Taishin Light Metal Co., Ltd. merged into Nippon Light Metal Co., Ltd.
- 1995 · Nikkei Techno-Research Co., Ltd. merged into Nippon Light Metal Co., Ltd. Nikkei Research and Development Center (NRDC) established.
- 1996 · NLM headquarters moved to Higashi-shinagawa, Shinagawa-ku, Tokyo.
  - Capital participation in Toyo Aluminium K.K. initiated.
- 1999 · Toyo Aluminium K.K. merged into Nippon Light Metal Co., Ltd.
- 2000 · Nikkei Shoji Co., Ltd. merged into Nikkei Sangyo Co., Ltd.
  - Shin Nikkei Co., Ltd. established as a 100% subsidiary.
- 2002 · Panel system division separated to establish Nikkei Panel System Co., Ltd.
  - Extrusion and light pressure fabricated products division (except Container section) separated to establish Nikkeikin Aluminium Core Technology Co., Ltd.
  - Toyo Aluminium division merged into Toyo Aluminium K.K.

### 2003 ▶▶ Global Business Development

- 2003 · Alcan Nikkei Siam Ltd. (currently Nikkei Siam Aluminium Ltd.) established as consolidated subsidiary.
- 2004 · NI Nikkei Shenzhen Co., Ltd., a company for fabrication and sales of aluminum extrusion products for automobile parts, established jointly with Nonfemet International Aluminium Co., Ltd.
- 2005 · M.C. Nikkei Aluminium (Kunshan) Co., Ltd. (currently Nikkei MC Aluminium (Kunshan) Co., Ltd.) established.
- 2007 · Casting and die casting business merged with M.C. Aluminum Co., Ltd., a subsidiary of Mitsubishi Corp., to establish Nikkei MC Aluminium Co., Ltd., later becoming subsidiary.
  - Toyal Zhaoqing Co., Ltd. established in Zhaoqing, China by Toyo Aluminium K.K.
- 2008 · Nikkei (Shanghai) Body Parts Co., Ltd. established in Shanghai, China.
- 2010 · All shares of Shin Nikkei transferred to JS Group Corporation (currently LIXIL Group Corporation).
  - Nikkei (Shanghai) International Trading Co., Ltd. established in Shanghai, China.
- 2011 · Nikkeikin Kakoh Kaihatsu Holdings Co., Ltd., an intermediate stock holding company, established to control the group's extrusion and extrusion process business.
- 2012 · Nippon Light Metal Holdings Co., Ltd. established as a pure holding company for the Group.
  - Completion of raw materials shift from bauxite to aluminum hydroxide at Nippon Light Metal's Shimizu Plant.
- 2014 · Nippon Light Metal Co., Ltd. discontinues its electrolytic aluminum smelting business.
- 2015 · Toyo Rikagaku Kenkyusho becomes a subsidiary.
- 2018 · Nippon Light Metal Co., Ltd. makes Sumikei-Nikkei Engineering Co., Ltd. a consolidated subsidiary.
- 2019 · Headquarters relocated to Shimbashi, Minato-ku, Tokyo.
- 2020 · Sumikei-Nikkei Engineering Co., Ltd. changes its name to Nikkei Engineering Co., Ltd.

## List of Major Group Companies

### Nippon Light Metal Holdings Co., Ltd.

Urbannet Uchisaiwaicho Building, 1-1-13 Shimbashi, Minato-ku, Tokyo 105-8681 Japan

Tel: +81-3-6810-7100

Business content: Management and control of subsidiaries and all activities incidental or related thereto.

Group Business

- Manufacture and sale of alumina, aluminum hydroxide, various chemicals, and aluminum ingots/alloys
- Manufacture and sale of aluminum rolled products and aluminum extrusion products
- Manufacture and sale of transportation-related products, electronic materials, aluminum fabricated products such refrigerator/freezer panels, and carbon products, as well as services such as transportation, information processing, and insurance
- Manufacture and sale of foil and powder products

### Aluminium Wire Rod Co., Ltd.

5443 Kambara, Shimizu-ku, Shizuoka City, Shizuoka 421-3203 Japan  
TEL: +81-54-388-2662

### NLM ECAL Co., Ltd.

161 Kambara, Shimizu-ku, Shizuoka City, Shizuoka 421-3203 Japan  
TEL: +81-54-388-3555

### Nikkei Technology Center Co., Ltd.

1-11 Nishiki-kitamachi, Kaizuka City, Osaka 597-0092 Japan  
TEL: +81-724-23-9235

### Nikkei Engineering Co., Ltd.

Shin-ei Building, 2-35-13 Kameido, Koto-ku, Tokyo 136-0071 Japan  
TEL: +81-3-5628-8510

### Toyo Rikagaku Kenkyusho Co., Ltd.

1961 Somagi, Tsubame City, Niigata 959-1284 Japan  
TEL: +81-256-62-5175

### Toyo Tokai Aluminium Hanbai Co., Ltd.

Honmachi Yamamoto Building, 4-1-10 Minamihonmachi, Chuo-ku, Osaka City, Osaka 541-0054 Japan  
TEL: +81-6-6245-1071

### Toyo Aluminium Ekco Products Co., Ltd.

Orix Honmachi Builidng, 1-4-1 Nishihonmachi, Nishi-ku, Osaka City, Osaka 550-0005 Japan  
TEL: +81-6-6110-1301

### Toyo Aluminium K.K.

Midosuji Daiwa Building, 3-6-8 Kyutaromachi, Chuo-ku, Osaka City, Osaka 541-0056 Japan  
TEL: +81-6-6271-3151

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