SUMITOMO ELECTRIC

Connect with Innovation

Company Profile

Sumitomo Electric Industries, Ltd.

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https://sumitomoelectric.com

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SUMITOMO ELECTRIC GROUP

Our origin dates back more than 400 years.

Developing business globally in a wide variety of categories,
we have grown into a corporate group operating in
about 40 countries around the world and consisting of
approximately 280,000 employees.
Our origin, namely the Sumitomo copper business,
dates back more than 400 years.

In Japan, which was one of the world's
most prominent copper-producing countries in those days,
the cornerstone of Sumitomo was
laid by the development of the nanban-buki,
an innovative refining technique,
and the subsequent development of the Besshi Copper Mine.

Afterwards, electric light,
the telegraph and the telephone were invented,
raising demand for copper wires.
With this background, in 1897,
the Sumitomo Electric Group was established
as a company manufacturing electric wires
and cables using copper from Besshi.

With progress over time,
our forerunners took on challenges enthusiastically
to contribute to society through manufacturing.

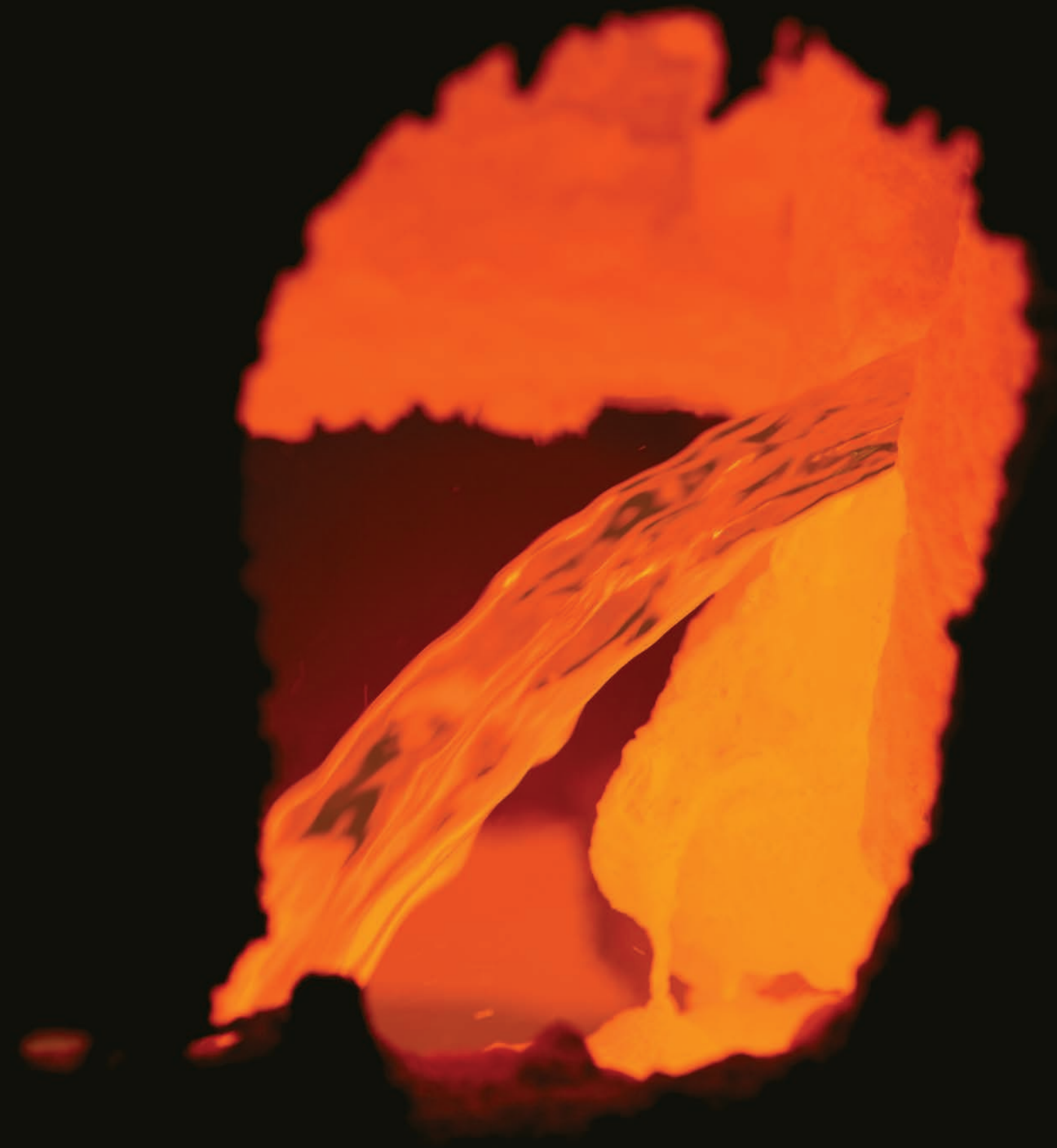


Photo: Present copper refining at the Osaka Works of Sumitomo Electric

Corporate Philosophy

Spirit Handed Down Over 400 Years and Respected to This Day

The Sumitomo Spirit

Business Principles

Article 1 Sumitomo shall achieve prosperity based on solid foundation by placing prime importance on integrity and sound management in the conduct of its business.

Article 2 Sumitomo's business interest must always be in harmony with public interest; Sumitomo shall adapt to good times and bad times but will not pursue immoral business.

(Quoted from the Sumitomo Goshi Kaisha Administrative Regulations, formulated in 1928)

萬事入精
Banji-nissei

Banji-nissei means "do your sincere best, not only in business, but also in every aspect of your life. " Originating from the preamble of Monjuin Shiigaki, it speaks of the importance of sincerity in all human endeavors. Banji-nissei is a pivotal teaching in the Sumitomo Spirit. Accordingly, Sumitomo personnel are expected to work not only to make money, but also to cultivate their character and grow into better human beings.

Monjuin Shiigaki※

信用確実
Shinyo-kakujitsu

The Business Principles Article 1 emphasizes the importance of integrity; that is, being worthy of the trust of others.

不趨浮利
Fusu-furi

In its first part, Article 2 speaks of the importance of working proactively, pursuing profit by quickly and appropriately responding to changes in society and not being content with the status quo.
At the same time, Article 2 emphasizes the importance of harmonizing business gains with the public interest and scorns reckless or careless actions in pursuit of easy gain.
While "furi" means easy, temporary or short-term gain, the term also implies unfair profit obtained through dishonest means.

Sumitomokahou※

In addition, the Sumitomo Spirit also includes the following principles:

Attaching Importance to Technology, Respect for Human Resources, Long-Range Planning, Mutual Prosperity, Respect for the Public Good

※Photos courtesy of Sumitomo Historical Archives

The Sumitomo Electric Group Corporate Principles

Each company of the Sumitomo Electric Group shall:

- **Offer the very best goods and services to satisfy customer needs.**
- **Build technical expertise, realize changes and strive for consistent growth.**
- **Contribute to creating a better society and environment, with a firm awareness of our social responsibility.**
- **Maintain high corporate ethics and strive to become a company worthy of society's trust.**
- **Nurture a lively corporate culture that enables employee self-improvement.**

History

History of Challenges and Innovation Over More Than 120 Years

1900
Supplied the Japanese Ministry of Communications with silicon copper wires

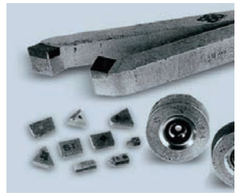
1908
Started production of power cables

1916
Started production of enamel wires

1922

Manufactured and installed 21 km of submarine power cable, the world's longest at that time

1931



Started production of cemented carbide tools, IGETALLOY™

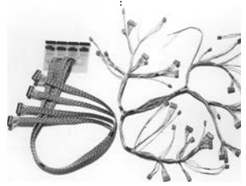
1932

Started production of special steel wires

1943
Started production of anti-vibration rubber

1948
Started production of sintered powder metal products

1949



Started automotive wiring harness business
Entered into the business of construction of overhead conductors

1958

Started production of air spring for railroad vehicles

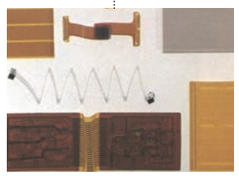
1964

Started production of electron beam irradiated products (tubes/electric wires)

1968

Started traffic control system business

1969



Started flexible printed circuit (FPC) business

1970
Started production of compound semiconductors
Started CATV business

1973
Started production of coated aluminum (SUMIFLON™)

1976

Received an order for a large telecommunications network project in Nigeria

1978

Started operation of the world's first bi-directional fiber optic CATV system (Hi-OVIS)

1981
Supplied the world's most advanced fiber optic LAN system (10 Mbps token ring type)

1982

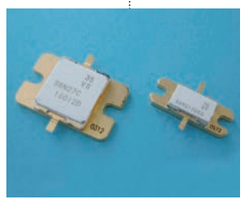
Succeeded in producing the world's-largest-class synthetic monocrystal diamonds (1.2 carats)

1996
Developed a technology for producing long-length oxide high-temperature superconducting wires

2003

Started mass-production of the world's first gallium nitride (GaN) substrates

2006



Succeeded in the world's first mass production of high-performance gallium nitride transistor (GaN HEMT)

Electric transmission via superconducting cables started on utility power grid for the first time in the world

2015

Started a demonstration test of the world's-largest-class redox flow battery system

2016
Started sales of the world's highest fiber count optical cable (3456 fibers)

2017
Broke the world record of low transmission loss of optical fibers (0.1419 dB/km, wavelength: 1560 nm)

(Photo courtesy of Sumitomo Historical Archives)

Around1600
Perfected nanban-buki, a copper refining technique for separating silver from copper ore containing silver

1690
Discovered the Besshi Copper Mine (opened the mine in the following year)

(Photo courtesy of Sumitomo Historical Archives)

1897
Started as the Sumitomo Copper Rolling Works

1911
Established Sumitomo Electric Wire & Cable Works

1916
Opened the Osaka Works

1920
Reorganized into Sumitomo Electric Wire & Cable Works

1941
Opened the Itami Works

1946
Opened a branch office in Tokyo (now the Tokyo Head Office)
Opened a local office in Nagoya (now the Chubu District Office)

1961
Opened the Yokohama Works

1969
Established the first overseas production base (Siam Electric Industries Co., Ltd.) in Thailand

1997
Celebrated the 100th anniversary by establishing the Sumitomo Electric Group Corporate Principles

2006
Acquired a German automotive wiring harness manufacturer (now Sumitomo Electric Bordnetze SE)

2007
Made Sumitomo Wiring Systems, Ltd. a wholly owned subsidiary
Made Nissin Electric Co., Ltd. a consolidated subsidiary

2008
Established Sumiden Friend, Ltd. (a special subsidiary)

2011
Formulated the Global HRM* Policy, the clarified fundamental HR policy
*HRM: Human Resource Management

2019
Made Techno Associe Co., Ltd. a consolidated subsidiary

2021
The Sumitomo Electric Group's target for its greenhouse gas emission reduction was approved by the Science Based Targets initiative (SBTi)

Business Development of Sumitomo Electric

Five business segments established through the development of proprietary technologies and endeavor to create new businesses

Sumitomo Electric developed an extensive range of products including power cables, telecommunication cables and electric wires based on the Company's bare copper wire manufacturing technologies.

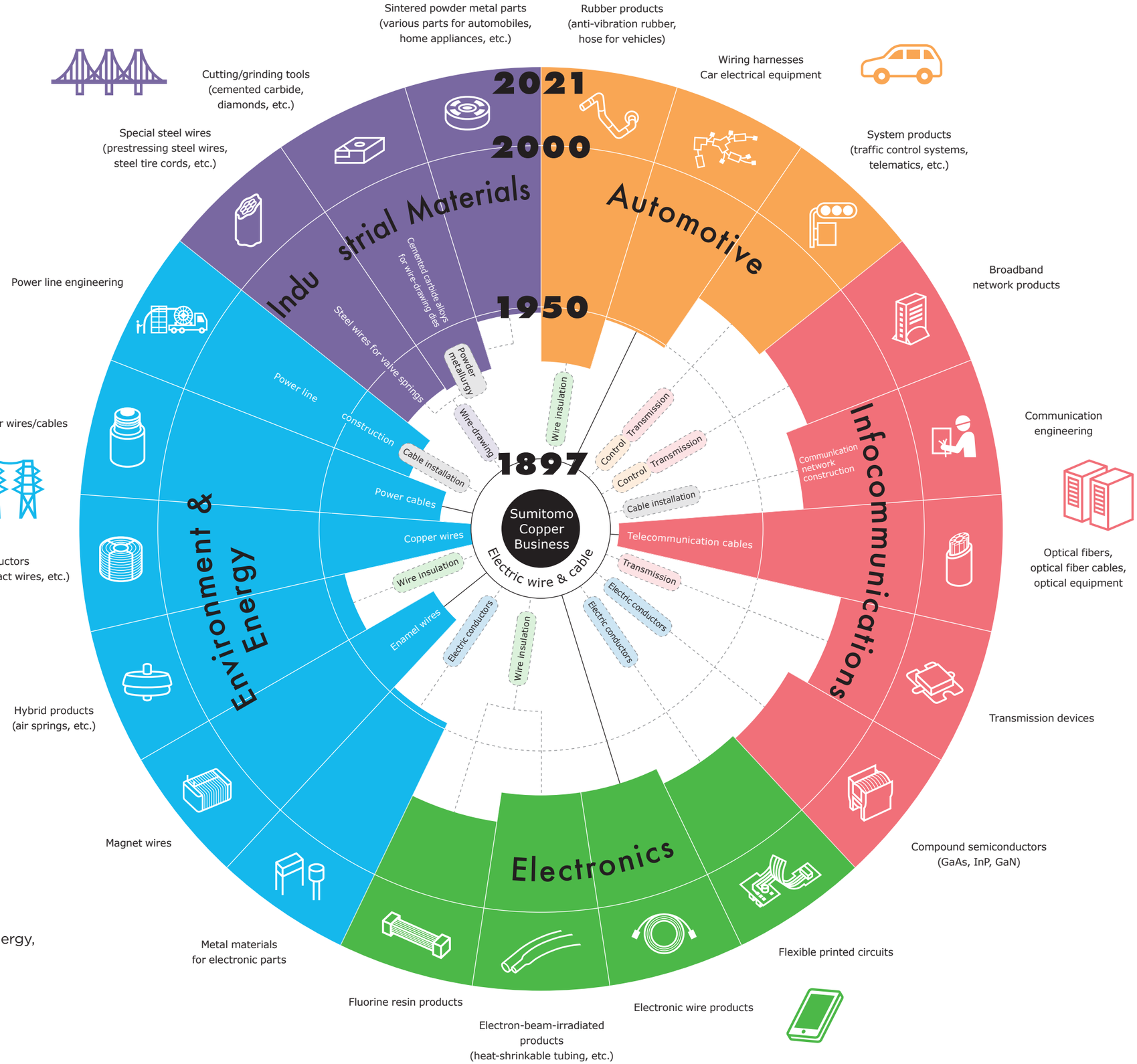
These wire-drawing technologies were applied to develop special steel wires, while the in-house fabrication of wire-drawing dies led to the development of cemented carbide tools, enabling the Company to venture into non-electric wire sectors.
The powder metallurgy technology used to develop these tools was also applied to offer sintered powder metal parts to the market.

Meanwhile, the copper wire conductor technology led to the production of compound semiconductors and flexible printed circuits.
The wire insulation technology enabled the development of electron-beam-irradiated products, rubber products, and hybrid products.

Additionally, Sumitomo Electric expanded its business to system products and other similar fields by applying wire and cable manufacturing-related control and transmission technologies.

Currently the Company has five established business segments: Automotive, Infocommunications, Electronics, Environment & Energy, and Industrial Materials & Others.

Based on these technologies, Sumitomo Electric will meet the challenges of innovative business fields and contribute to building a better society.



Operating in a wide variety of business fields, we create joy of connectivity and excitement of transmission.

We do so through, for example,
power cables installed across mountains,
valleys and the sea, in order to supply electricity;
cutting tools underpinning manufacturing at
factories all over the world;
wiring harness laid throughout automobiles and
functioning like human blood vessels and nerves;
flexible printed circuits contributing to reducing size and
enhancing performance of mobile terminals; and
optical fiber, an indispensable part of
infrastructure for an advanced information society.

The Sumitomo Electric Group manufactures a
wide variety of products that are
absolutely essential to society today.
Our technology is used behind the scenes.
For further connectivity and further transmission,
we are taking on new challenges.

Business Segment

Five business segments as Sumitomo Electric's technological solutions to social issues

Business 01

Contributing to accelerating improvement delivered by CASE and to the evolution of mobility

Automotive

Global automotive sales are growing. Sales of eco-friendly vehicles are also growing in line with tightening environmental regulations.
The improvement delivered by CASE* is accelerating and new entrants from other industries are entering the market, taking the automotive industry to the verge of a major period of change. Against this backdrop, Sumitomo Electric is committed to contributing to the evolution of mobility by making the most of the resources of the Sumitomo Electric Group.

* CASE: A term for the trends in the automotive industry; an acronym for Connected, Autonomous, Shared, and Electric

Endeavoring to realize high-speed, high-capacity telecommunications, meeting the challenge of the increasing data traffic volume

Info-communications

Data traffic has been increasing dramatically due to the expansion of cloud services and the increase in the scale of data centers, which support AI- and IoT-related demand, and the advent of the 5G communication system, which plays a key role in increasing the network speed. With its strength in the development capabilities and manufacturing technologies for optical fibers and cables, transmission devices, compound semiconductor substrates, and access devices, the Sumitomo Electric Group will achieve large-capacity, high-speed communication and lead the era of digital transformation.

Business 02

Supporting further evolution of mobile devices, automobiles and aviation equipment

Electronics

Data transmission volumes of mobile devices are increasing exponentially, accelerating the development of new functionalities and new standards.
Also, there are increasing needs for car electronics in electric and autonomous vehicles and for aviation equipment.
Sumitomo Electric intends to support these growing markets and become a top global supplier of unique high-performance cables, components and materials.

Business 03

Business 04

Building new energy systems for expanded use of renewable energy

Environment & Energy

We see the unveiling of major international grid-interconnection projects in Europe and the growth in electrical power infrastructure demand in emerging nations. The wealth of experience and technology of the Sumitomo Electric Group active in the environmental and energy sectors are sought after against the backdrop of increasing introduction of renewable energy and widespread use of EV. With a solid foundation and impressive track record of achievements among Japan's top-tier businesses, Sumitomo Electric will play a significant role in the global market. We will aim to build a stronger global presence.

Contributing to the growth of industries and social infrastructure by developing and supplying high-functionality materials

Industrial Materials

There is growing demand for lightweight materials for EV development. In the medical and aviation industries, demand is also growing for Sumitomo Electric Group's products.
The Sumitomo Electric Group aims to become a leading global supplier of high-performance, high-functionality products by leveraging its world-class materials and process technology.

Business 05

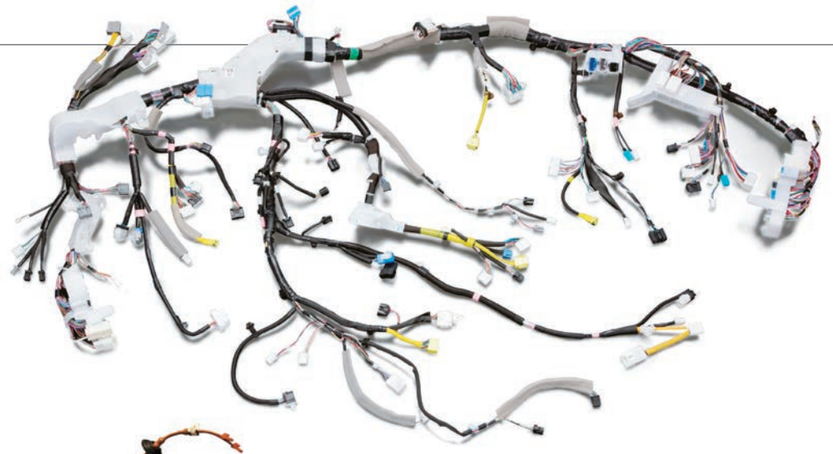
Automotive

Contributing to the evolution of the automotive industry, leveraging our strength to operate globally in 32 countries

Our main automotive products are wiring harnesses, which are laid throughout an automobile to transmit power and information. Wiring harnesses require advanced technologies to reliably send numerous pieces of information despite intense vibration and heat. In this respect, the Sumitomo Electric Group is way ahead of its competitors. With concerted efforts, Sumitomo Electric, Sumitomo Wiring Systems, Ltd. and AutoNetworks Technologies, Ltd. have established such a prominent presence in the market that one out of four automobiles in the world uses Sumitomo Electric's wiring harnesses. Steady advances in the use of aluminum wiring harnesses have been helping reduce automobile weight. Our connecting technologies are essential for realizing connected cars and autonomous driving, which must handle a huge amount of information, as well as for achieving widespread use of hybrid and electric vehicles. Sumitomo Electric intends to become a mega-supplier with the wiring harness business at the core for an excellent harmony between automobiles and society, in the next generation.

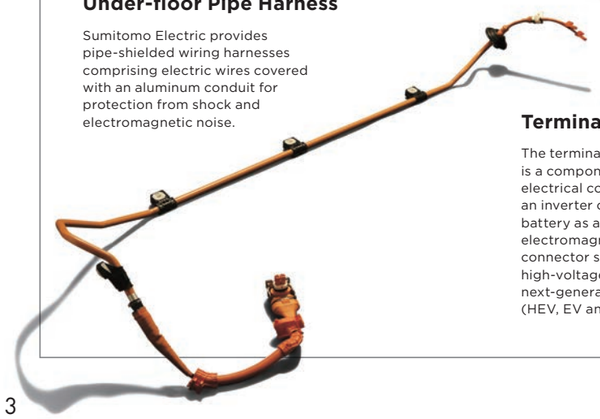
Wiring Harnesses

Wiring harnesses are laid throughout an automobile and play a key role in transmitting energy and information, similar to human blood vessels and nerves. They have become increasingly important components along with the expansion of electronic control functions in automobiles.



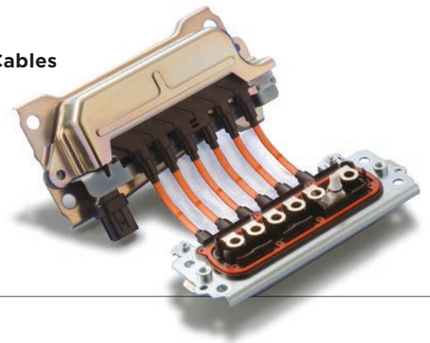
Under-floor Pipe Harness

Sumitomo Electric provides pipe-shielded wiring harnesses comprising electric wires covered with an aluminum conduit for protection from shock and electromagnetic noise.



Terminal Block Power Cables

The terminal block power cable is a component used to provide electrical connections between an inverter or motor and a battery as a waterproof, electromagnetically shielded connector suitable for high-voltage wiring in next-generation automobiles (HEV, EV and FCV).



Gateway (GW)

The gateway mediates and controls information exchange between several electronic control units (ECUs) that control the operation of in-vehicle equipment. The role of GW is similar to that of a communication base station.

Traffic Control System /Intelligent Mobility Management System

An intelligent transport system (ITS), which connects people, vehicles and infrastructure through information, helps create a new system that contributes to safety and the environment. For example, traffic control systems achieve a safe and smooth traffic flow by controlling the traffic signals. We offer various solutions, including the Eagle Sight™ vehicle operation management system that uses ITS/mobility-related technologies, to achieve the optimal flow of people, vehicles and goods.

Anti-vibration Rubber

Anti-vibration rubber is used to form essential functional parts for absorbing or suppressing vibrations from the engine and road surface, thereby ensuring safe and comfortable driving. In recent years, an increasing number of high-performance anti-vibration rubber products are electronically controlled.

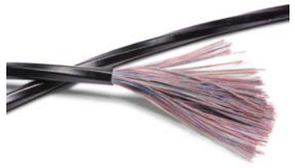
Infocommunications

Leading the era of large-capacity high-speed communication with the world-leading development capabilities and manufacturing technologies for optical fibers and cables

Communication infrastructure is an integral part of our social infrastructure. Optical fibers and cables as well as optical communication components and devices offered by the Sumitomo Electric Group play a key role. In terms of optical fibers, which we started to manufacture in the 1970s, we offer an extensive product lineup with superb transmission characteristics and high reliability. For example, our ultra-low-loss optical fibers (total distance: over 10,000 km), which were developed for an ultra-long-haul submarine system, set a world record in transmission loss. We have high technologies for connectivity, such as world-class development capabilities and manufacturing technologies for ultra-high-fiber-count optical cables for data centers, software development technologies for image and optical access devices, and collaborative development technologies for compound semiconductors for optical and wireless communication. We will lead the era of large-capacity high-speed communication by utilizing these proprietary technologies to develop unique products that "go beyond expectations" of various users.

Optical Fibers

Thin, hair-like glass optical fiber is a high-performance transmission medium that can carry optical signals within it and propagate them over dozens of kilometers. Optical fiber is free from electromagnetic induction noise and so features stable, high-speed communication over long distances.



Optical Fiber Cables

As increasing lengths of optical fiber cable are installed due to growing demand for optical networks, small-diameter optical fiber cables that offer improved housing efficiency at installation locations are playing an active role. Sumitomo Electric supports optical communication networks with a variety of products, including ultrahigh-fiber-count optical cables adapted to the demand for high-density wiring at data centers.

Compound Semiconductors (GaAs, InP, GaN)

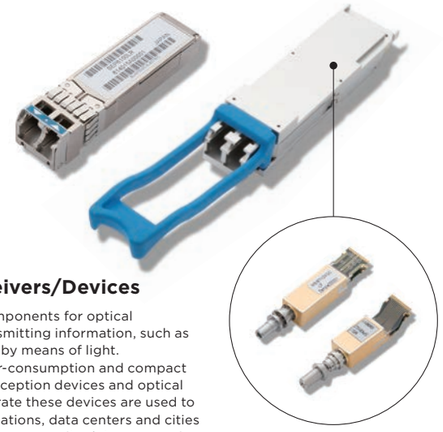
Compound semiconductors are used for laser oscillators and photosensitive elements of optical fiber communication systems; various types of transistors for mobile phones and other wireless communication systems; light sources of CD, DVD and Blu-ray disc devices; and white LEDs for lighting.

Optical Fiber Fusion Splicers

These products are indispensable for building optical networks. With the use of electrical discharge, fusion splicers connect optical fibers that are made of glass, quickly and easily. As the first fusion splicer in the world to incorporate AI technology, it can constantly achieve high-quality splicing regardless of the environment or user skills.

Broadband Network Systems and Equipment

We contribute to realizing a convenient information communication society by offering key devices for new communication and broadcasting services, such as optical access systems (EPON) and 4K set top boxes, and system integration services to comprehensively meet the needs of customers.



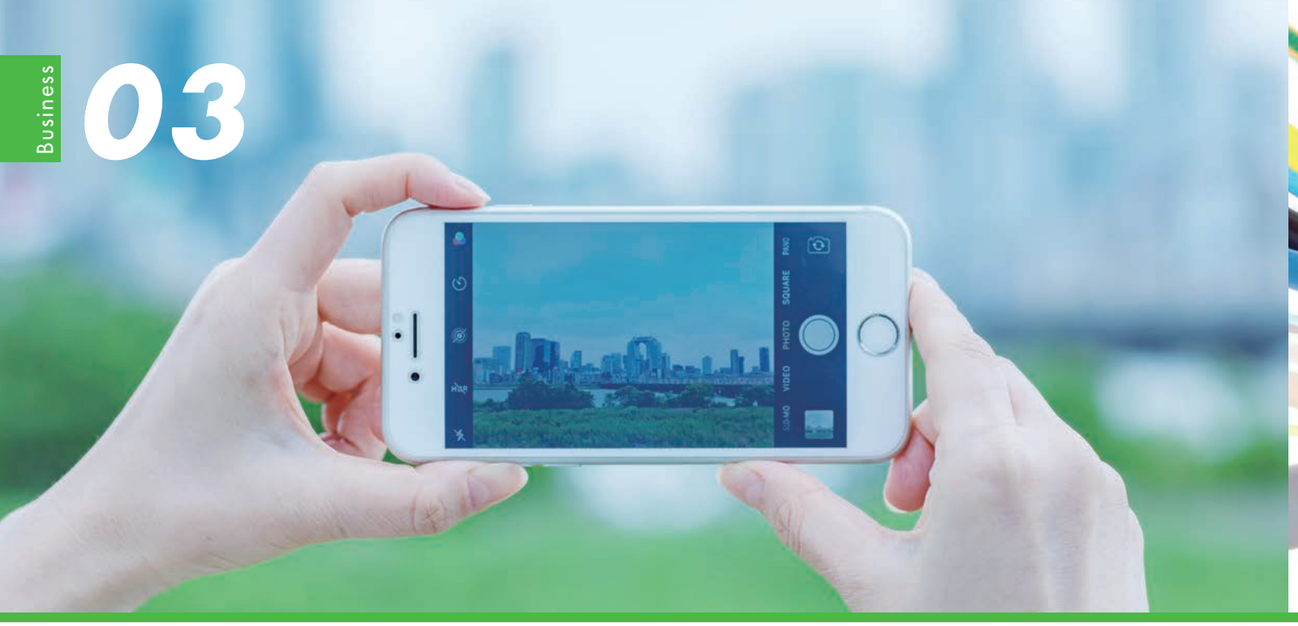
Optical Transceivers/Devices

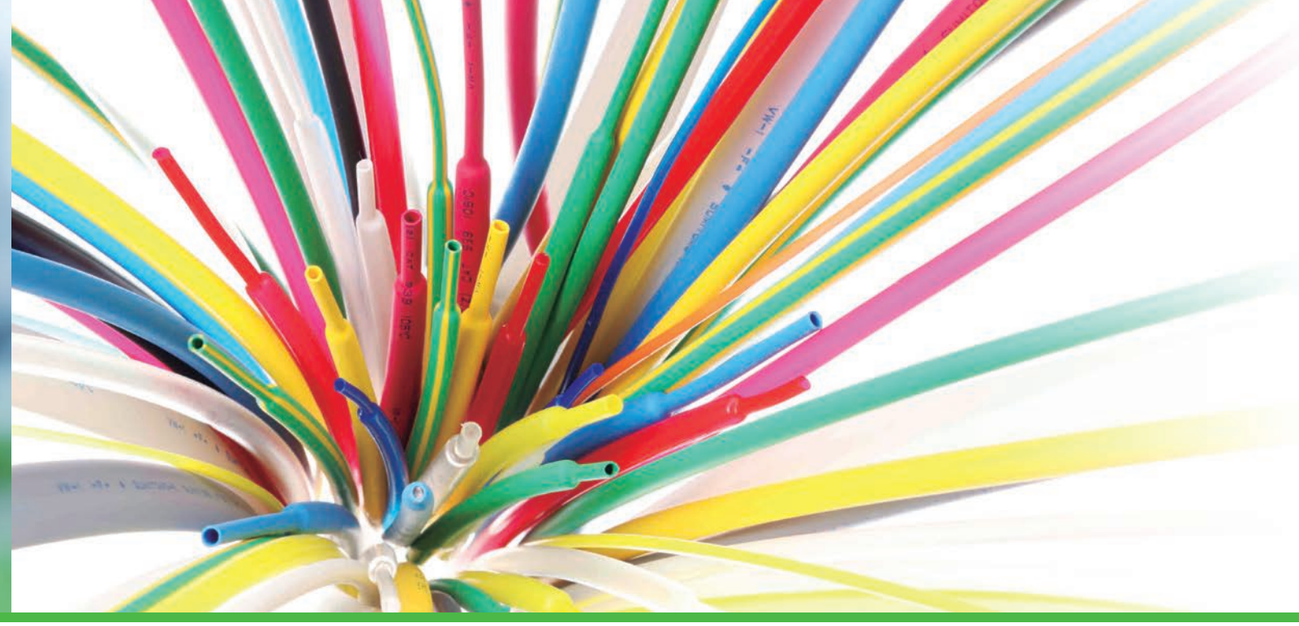
These are essential components for optical communication in transmitting information, such as videos and audio data, by means of light. High-speed, low-power-consumption and compact optical transmission/reception devices and optical transceivers that integrate these devices are used to connect households, stations, data centers and cities to achieve long-haul large-capacity data communication.

Electronic Devices

These are important components to achieve wireless communication. They are used for base stations of 5G mobile communication systems, which are required to be more power-efficient and compact, satellite communication, which are required to ensure high reliability, and radar for air traffic control, vessels and meteorological observation.

"Blu-ray" is a trademark of Blu-ray Disc Association.

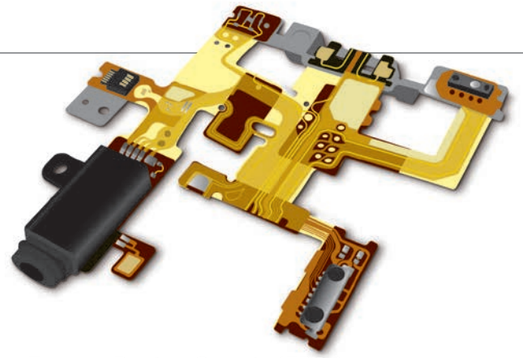




Electronics

Helping further the evolution of smartphones and other mobile devices, automobiles and aviation equipment throughout the world

The diverse range of raw, wiring and other materials supplied by the Sumitomo Electric Group have supported the evolution of various electronic equipment at the core. Flexible printed circuits (FPC) are one of the main products of the Group. Their versatility in forming high-density circuits in a small area makes them a wiring material adaptable to all kinds of increasingly complex equipment. We have electron beam irradiation technology used to produce electric wire products and heat-shrink tubing, and fluorine resin processing technology applied to printer toner fixing rollers. In addition to these proprietary material development, design and processing technologies, we are experts in high-speed data transmission technology, constantly creating products to meet demand for sophisticated functionality. Sumitomo Electric aims to become a global supplier of high-performance cables, components and materials by refining these technologies and strengthening our supply chain to be successful in global competition.

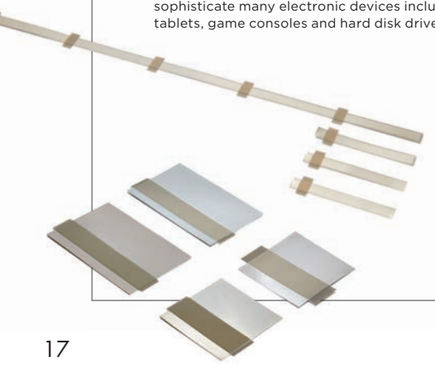


Flexible Printed Circuits (FPCs)

FPCs are wiring materials made by printing electrical circuits on an extremely thin insulated film. Owing to their outstanding features, such as light weight, high heat resistance and flexibility, FPCs offer versatility in high-density electric circuit design. This product helps downsize and sophisticate many electronic devices including smartphones, tablets, game consoles and hard disk drives.

Flexible Flat Cables (SUMI-CARD™)

SUMI-CARD™ is a flat cable ideal for high-density mounting, with an easy single plug/unplug interface for connectors. The flexible flat cable is used in all kinds of everyday electronic devices such as TV sets, office automation equipment and game consoles.
Its adaptation to high-speed transmission standards such as USB 3.1 and V-by-One US and to high-temperature environments over 125°C is under way to support sophistication of final products.



Tab Leads

Tab leads are leads designed to supply electricity from pouch Li-ion batteries used in smartphones and electric vehicles. Sumitomo Electric's tab leads have an insulation layer formed by subjecting the conductor to direct surface treatment to reduce thermal deformation. They offer outstanding durability and sealing reliability, helping improve battery performance and service life.

Thunderbolt™ 4 Cable

Thunderbolt™4 is the latest standard for high-speed transmission compatible with USB4, the latest USB standard. Thunderbolt™4 cables developed by Sumitomo Electric use proprietary high-performance ultra-fine electric wires. Due to their flexibility and superb flex resistance, they enable large-capacity communication in various applications, such as 4K displays and gaming PCs, which require space-saving wiring.

Poreflon™ Membrane Wastewater Treatment System

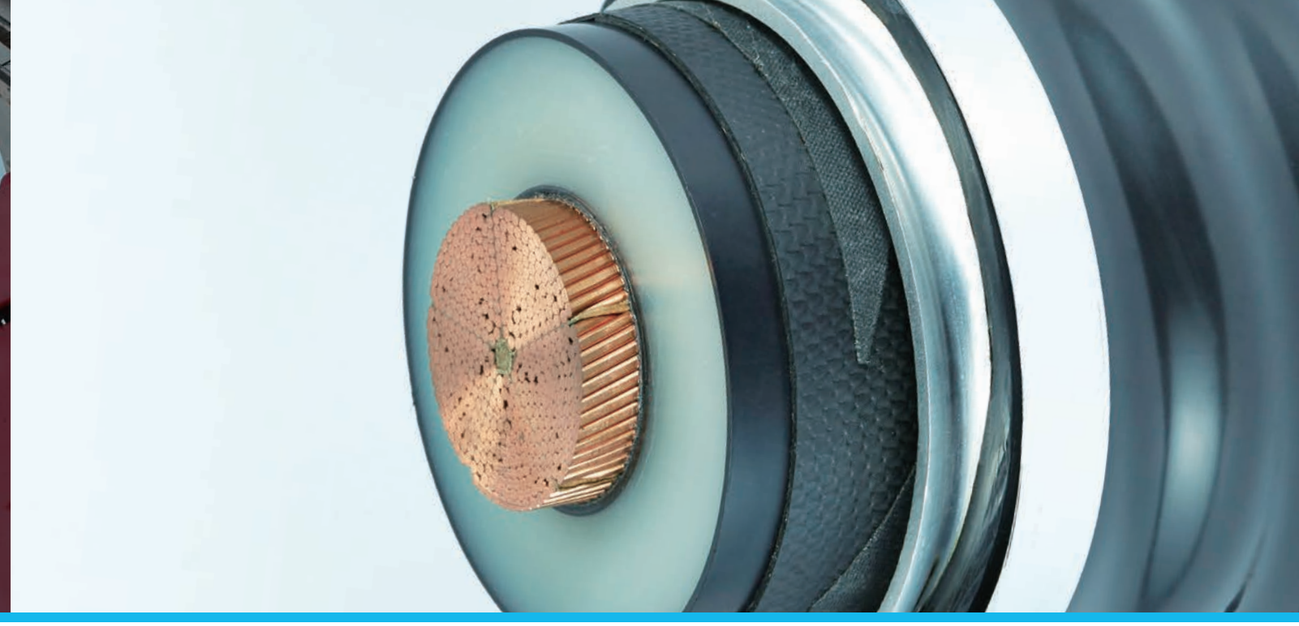
Sumitomo Electric has developed a hollow fiber membrane module for wastewater treatment based on the Company's proprietary technology to create porous polytetrafluoroethylene (PTFE).
The membrane module features high strength and resistance to soiling by oil and other contaminants. The wastewater treatment system using this module recycles wastewater, saves space in installations and reduces the labor required for maintenance. It has a track record of installation for treatment of sewage and various types of industrial wastewater at more than 650 sites in Japan and other countries.

Heat Shrink Tubing (SUMITUBE™)

SUMITUBE™ is heat shrinkable tubing, which when heated shrinks radially inward. This tubing is used for various purposes, such as insulation, protection, waterproofing and bundling of electric wires and harnesses in household electric and electronic appliances, automobiles, aircraft and other apparatuses.

(Polyimide) Tube Rollers for Printer Toner

Extremely tough and heat-resistant, these products are used as a toner fixing device for laser printers and other office automation equipment.



Environment & Energy

Deploying our business resources and technical expertise as a general power cable manufacturer to help build energy systems on a global scale

In a word, we smelt, solidify and roll copper. Sumitomo Electric's electric wire and cable products evolved from its copper wire production since the Company was established. With a solid foundation and proven track record of achievements among Japan's top-tier businesses in the category of low to ultrahigh voltage electric wire and cable products, Sumitomo Electric supports energy infrastructure throughout Japan. Currently, the technical expertise of the Sumitomo Electric Group is required for the construction of new energy systems in line with trends such as international grid interconnection projects, primarily in Europe, infrastructure development in emerging economies, increasing use of renewable energy and widespread use of electric vehicles. We aim to build a stronger global presence drawing on the Company's strengths such as diverse high-value product families and associated services, project-planning expertise, overall capabilities involving affiliate companies in the heavy electrical machinery and engineering fields, and end-to-end system development from raw material to finished product.

Power Cables

Sumitomo Electric provides various types of electric wires and cables that are used for electric power transmission and distribution networks between power generation plants and consumers. The demand for ultrahigh voltage submarine DC cables has increased, particularly for grid interconnections between electric power companies and between countries, as well as for large-scale offshore wind power generation. Sumitomo Electric contributes to the stable supply of electric power by manufacturing and laying these cables.

Magnet Wires

Magnet wires are used to convert electrical energy into magnetic energy. It is widely used for motors and coils of hybrid vehicles, electric vehicles, electric home appliances and electronic devices.

Copper Wire Rods

The history of Sumitomo Electric's copper wire rod production can be traced back to the time of its establishment. Since then, the Sumitomo Electric Group has developed a variety of products based on its copper wire rod production technology. Wire rods are the base materials for many of our products, such as high-voltage, large-capacity underground or submarine cables; wiring harnesses that function as the blood vessels and nerves of automobiles; and magnetic wires used for various motors and coils.

Porous Metals (CELMET™)

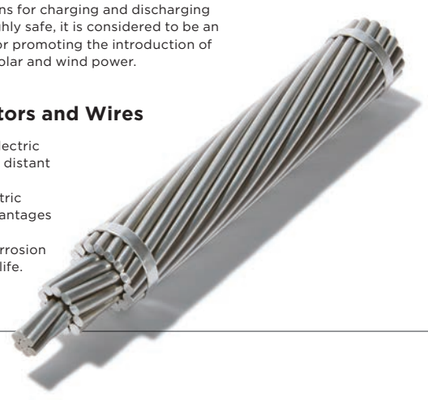
CELMET™ is a family of porous metals that have a three-dimensional network structure. In addition to nickel (Ni), alloys such as nickel-chrome (Ni-Cr) and nickel-tin (Ni-Sn) are also used to make CELMET™. Applications of porous metals include positive electrode current collectors for nickel-metal hydride batteries for hybrid vehicles, fuel cell components and electrodes for hydrogen generators, thereby substantially contributing to energy saving and reduced environmental burden.

Redox Flow Batteries

The redox flow battery is a storage battery that uses ionic reduction/oxidation reactions for charging and discharging electricity. Long-life and highly safe, it is considered to be an indispensable technology for promoting the introduction of renewable energy such as solar and wind power.

Overhead Conductors and Wires

Overhead cables transmit electric power from power plants to distant consumer areas through substations. Sumitomo Electric cables come with many advantages including reduced power transmission losses, high corrosion resistance and long service life.

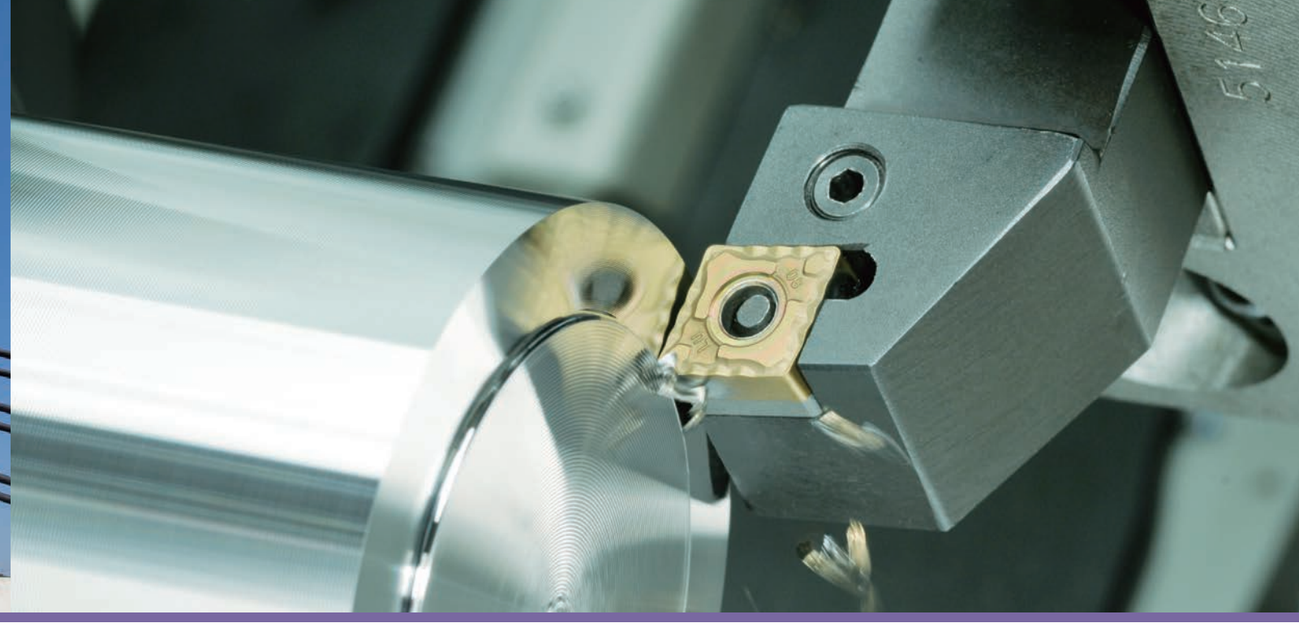


Air Spring for Railroad Vehicles

These products are widely used around the world in subways, commuter trains and high-speed trains like the Shinkansen. Our air springs enable faster railroad services and can provide a stable and comfortable ride by absorbing the vibrations of a running train.We utilize highly reliable rubber for air springs based on our electric wire coating technologies.

Home-Use Lithium-Ion Storage Battery Unit POWER DEPO™IV

This is a household lithium-ion power storage system that can be connected to photovoltaic power generation systems and the grid of electric power companies. It can be installed indoors and can be used without photovoltaic power generation systems. Thus, it can be used at multi-unit housing complexes, including condominiums.



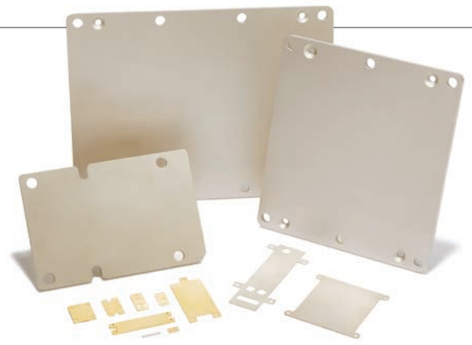
Industrial Materials

Innovating tangible solutions to social challenges by leveraging our world-class materials technology

Materials produced by the Sumitomo Electric Group have evolved on the basis of its thin copper wire-making technology. Our cutting and grinding tools made of materials such as diamond, cubic boron nitride and cemented carbide alloys support all fields of manufacturing throughout the world. Additionally, special steel wires that reinforce concrete structures and tires and sintered powder metal parts used primarily in automobiles are essential for the growth of society and industries. In response to the growing demand for lightweight automotive materials and the growth in the medical and aviation industries, Sumitomo Electric will offer tangible forms of innovative solutions for customer and social challenges, drawing on the Company's world-class materials development capabilities and production technologies.

Cutting Tools (IGETALLOY™, SUMIBORON™ and SUMIDIA™)

Cutting tools are used in various metalworking processes such as cutting, shaping and drilling. Sumitomo Electric provides a wide variety of cutting tools including IGETALLOY™, a cemented carbide alloy characterized by hardness rivaling diamond or cubic boron nitride and steel-like toughness, as well as SUMIBORON™/ SUMIDIA™, whose cutting edges are made from cubic boron nitride or ultrafine diamond particles. With these cutting tools, the Company has long contributed to enhancing productivity and reducing costs in the field of machining.



Heatspreader Materials

Copper molybdenum, copper tungsten, ceramics, diamonds and other high-performance heatspreader materials are used to dissipate heat from high-power semiconductor devices installed in electric and hybrid electric vehicles, power converters, communication equipment and LED lighting modules.

Grinding Wheels

Super-abrasive grinding wheels, which use diamond or Cubic Boron Nitride(CBN) called super-abrasive, achieve high-efficiency and high-quality machining and are supporting wide industrial manufacturing such as the automotive industry, aircraft industry, machinery industry, medical devices industry, semiconductor parts industry and so on.

Sintered Powder Metal Parts

Powder metallurgy technology is a method of producing parts by baking compacts that are molded by compressing metallic powder (sintering). The technology enables the production of parts with high dimensional accuracy and is suitable for volume production of parts featuring complex geometry. Thus sintering is used to make automotive engine components and drive train parts, as well as air conditioner parts.

Special Steel Wires

Special steel wires include wires for valve springs in automobile engines and steel tire cords used to reinforce radial tires. They ensure your driving comfort, meeting the automotive industry's need for energy saving, stability, safety and comfort. Additionally, prestressing steel wires are used to improve the strength and durability of concrete structures, LNG tanks and crossties, among others. They play a fundamental role extensively in society.

Meeting people's wishes in a cross-sectoral, global manner

Present-day social challenges are
beyond the capability of technologies
in just one field, one company,
or one country.

The world is looking for a sustainable,
secure, safe and comfortable life.
It is time for the Sumitomo Electric Group
to unite its technologies refined
in different fields,
using its worldwide network.

Having marked its 120th anniversary in 2017,
the Sumitomo Electric Group will
integrate the strengths of the entire group
for permanent social development.

Photo: Loading a cargo ship with the world's highest voltage 400 kV DC XLPE insulated cable for use in the International UK-Belgium Interconnector Project

President's Message

To become a "Glorious Excellent Company"

At the Sumitomo Electric Group,
we adhere to the Sumitomo Spirit and
the Sumitomo Electric Group Corporate Principles
as the immutable values representing our corporate identity.
While doing so, we are striving to realize our ideal
vision of development into a “Glorious Excellent Company”
to contribute to society through the Group’s growth
and development.

With the progress in technological innovation and
fusion in the fields of mobility, energy and communications,
the world today is at the dawn of a revolutionary era.
As a result of the proliferation of IoT and the creation of
sophisticated energy networks, a wide variety of things,
including electrically-powered vehicles,
are connected with one another.
This will lead to the creation of new services,
which will make people’s daily lives
sustainable, safe, secure, rich and comfortable.

Taking this revolutionary era as
an opportunity for our growth,
we will marshal all of the forces within
our corporate group, leverage our connectivity and
transmission technologies developed since
our establishment and promote innovation,
thereby providing new technologies,
products and services.
By doing so, we will strive to realize further growth
and contribute to an even better society.

In this regard, we look forward to receiving
continuous support and guidance from all of you.

President
Osamu Inoue

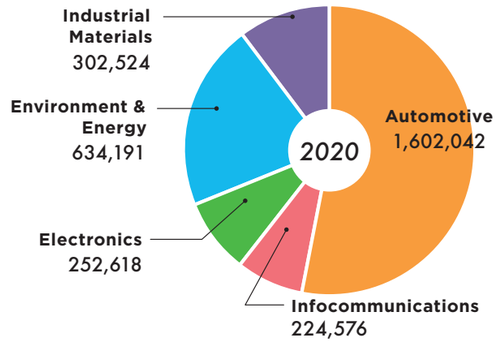
Company Profile

Company Name	Sumitomo Electric Industries, Ltd.
Head Office	4-5-33, Kitahama, Chuo-ku, Osaka, Japan
Established	April 1897
Capital Stock	99,737 million yen
President	Osamu Inoue
Employees	Non-consolidated 6,136 Consolidated 286,784(as of the end of March 2021)

Sales by Business Segment

※Following data includes intersegment sales and so their total differs from net sales data.

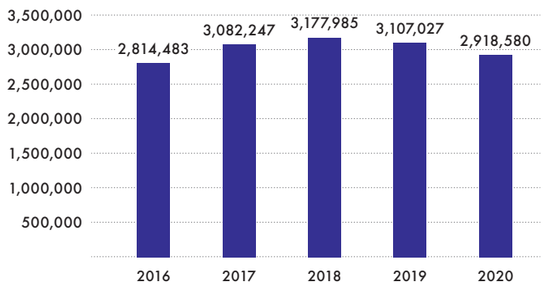
(Millions of Yen)



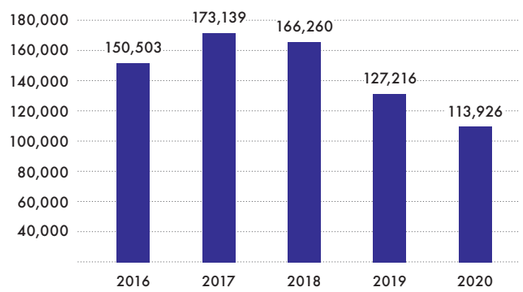
Performance Trend (consolidated)

(As of the end of March 2021)

Amount of Sales (Millions of Yen)

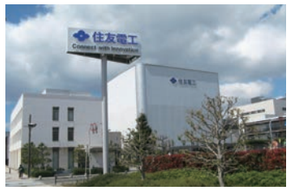


Operating income (Millions of Yen)



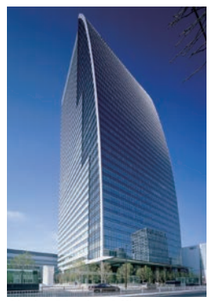

Head Office（Osaka）


Head Office（Tokyo）


Osaka Works


Itami Works


Yokohama Works


Chubu District Office

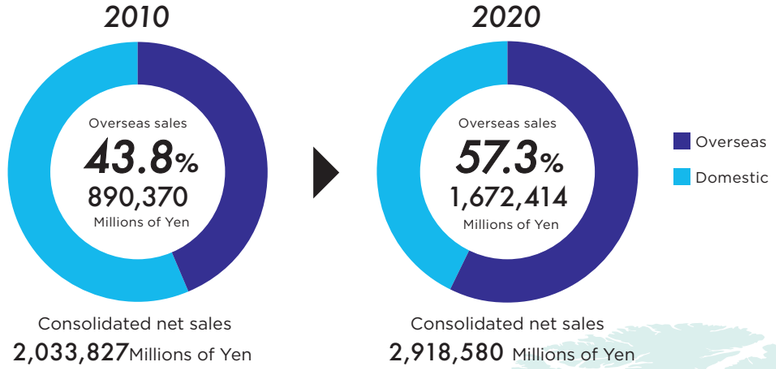
Global Network

Sumitomo Electric Group Operating Globally and Underpinning Society

Operating in approx. **40** countries around the world

With **415** subsidiaries and affiliates

Consisting of approx. **280,000** employees



Consolidated net sales
2,033,827Millions of Yen

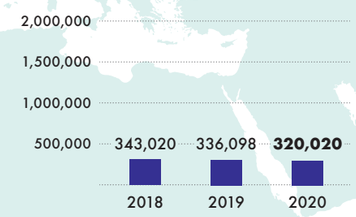
Consolidated net sales
2,918,580 Millions of Yen

Europe and Others

71 Companies

Australia (2), Belgium (1), Bulgaria (1), Czech Republic (2), Egypt (2), France (2), Germany (12), Hungary (3), Italy (2), Moldova (1), Morocco (4), Netherlands (2), Poland (4), Republic of Albania (1), Romania (3), Russia (4), Saudi Arabia (1), Serbia (1), Slovakia (2), South Africa (2), Spain (1), Switzerland (1), Tunisia (5), Turkey (4), Ukraine (1), United Kingdom (7)

Net Sales (Millions of Yen)



[TOPIC]

Wiring Harnesses of the Same Best Quality Worldwide

Wiring harnesses are used to transmit electric power and information in automobiles. The Sumitomo Electric Group has developed wiring harnesses for which aluminum, rather than copper, is used as an electric wire material, thereby realizing a considerable weight reduction. For our daily manufacturing, we are striving to ensure that products from every production site around the world have the same and highest quality. This policy is always followed in production and *kaizen* activities, even in Morocco, the largest production center in North Africa.

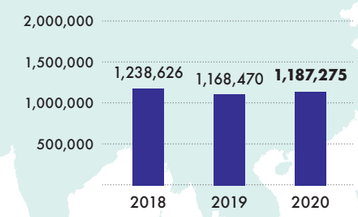
Production site in Morocco

Asia

189 Companies

Cambodia (1), China (97), India (7), Indonesia (14), Korea (7), Malaysia (6), Myanmar (1), Philippines (12), Singapore (5), Thailand (27), Vietnam (12)

Net Sales (Millions of Yen)



[TOPIC]

Construction of a High-quality Direct Current Power Transmission System

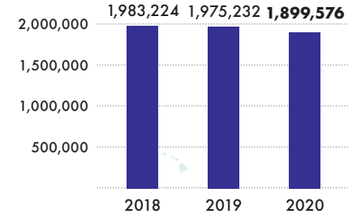
In March 2021, a direct current power transmission system (2,000 MW) constructed in southern India jointly by Sumitomo Electric and Siemens Energy, came into commercial operation. The two companies had been awarded a contract to construct the system, including underground cables, for the purpose of tackling the shortage of power supply and stabilizing power transmission in the area. The power transmission system constructed at this time is expected to improve the stability of power transmission, the quality of electric power and the efficiency of power supply in India.

Cable installation site in India

Japan

106 Companies

Net Sales (Millions of Yen)



[TOPIC]

Safe Redox Flow Batteries with Long Service Life

Large storage batteries are required to achieve widespread use of renewable energy, which is essential to attain the SDGs. Our redox flow batteries are characterized by long service life and high levels of safety. They are also expected to be used for grid stabilization against output fluctuations of wind power generation and photovoltaic power generation, for peak load shifting, and for microgrids. They are used by electric power companies in and outside Japan.

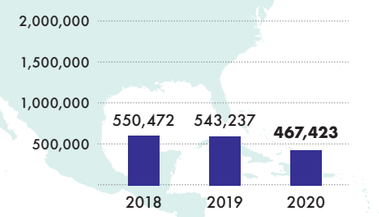
The latest redox flow battery (Osaka Works)

Americas

49 Companies

Brazil (7), Canada (2), Mexico (11), Paraguay (1), United States (28)

Net Sales (Millions of Yen)



[TOPIC]

Cemented Carbide Alloy Recycling to Reduce Environmental Burdens

Rare metals such as tungsten are precious resources, used as main raw materials for cemented carbide tools. For the purpose of securing a stable supply of raw materials and effectively using resources, the Sumitomo Electric Group has established a system to collect, melt and recycle used tools. In addition to Japan, the Group set up recycling facilities in the USA, making Group-wide efforts to contribute to the reduction of environmental burdens.

Plant in NY, U.S.A. with recycling system

Details of the major Group companies (by area and by segment)

https://sumitomoelectric.com/company/office_group_companies

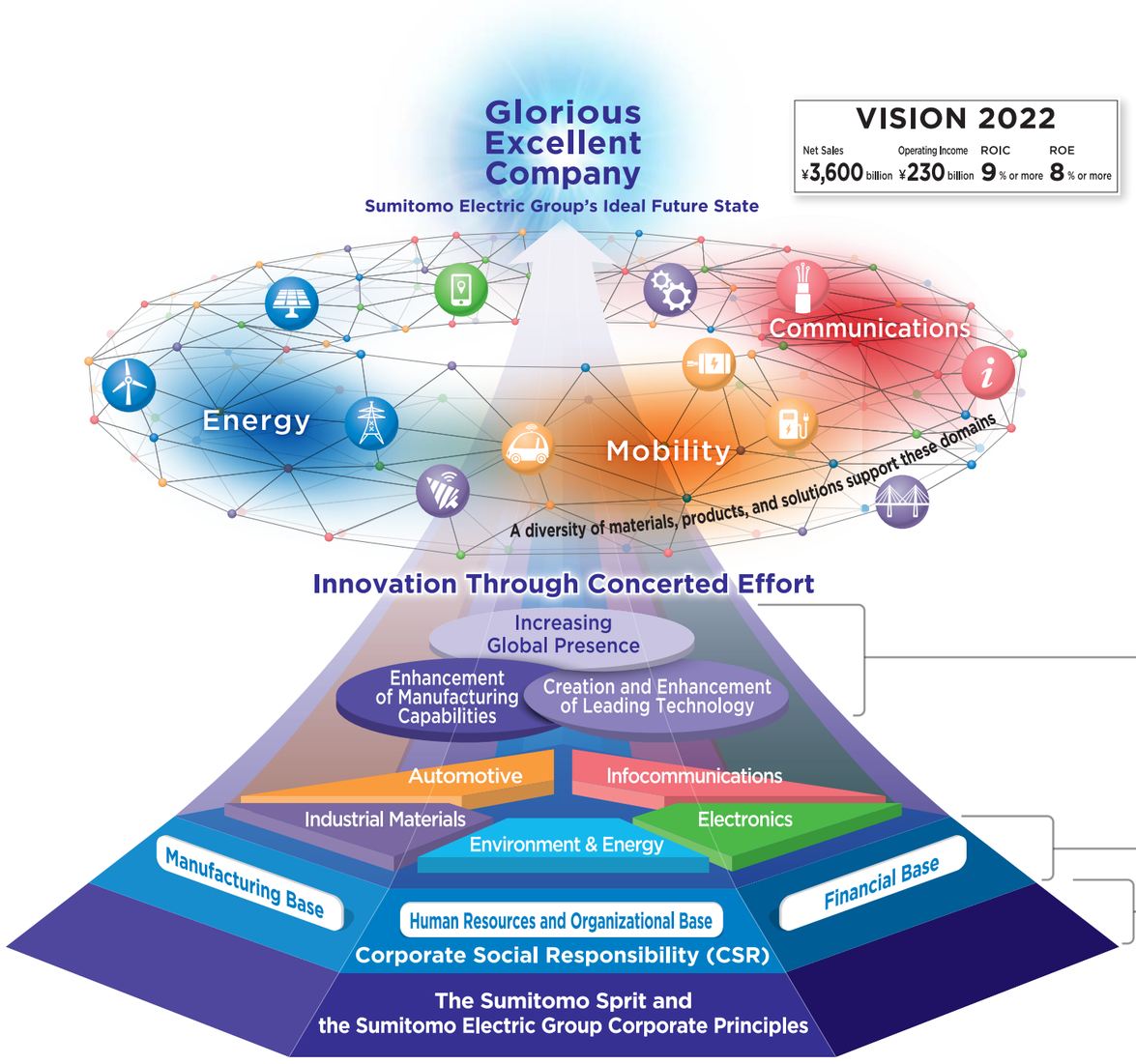
*The figures include internal sales between regions, and the sum of the sales by region accordingly differs from the total sales.

Total subsidiaries and affiliates: total of consolidated subsidiaries and method affiliates

Our Vision

VISION 2022 Mid-term Management Plan (2018～2022) Overall Concept

Contributing to a better society by leveraging our expertise in connectivity and transmission technologies through concerted efforts of the entire group.



VISION 2022 Growth Strategy

Enhancement and Expansion of Five Business Segments

Sumitomo Electric Group continues to strive for growth in five business segments focusing on Mobility, Energy, and Communications fields as well as materials, products, and solutions supporting these fields. We aim to grow every segment by strengthening revenue bases and improving capital efficiency and to achieve a balanced business portfolio.

Further Growth Through Innovation

In the wake of dramatic changes in the automobile industry, together with the renewable energy revolution and exponential growth in data usage worldwide, Sumitomo Electric Group will achieve further growth by enhancing innovation that builds on the diversity in technologies and business expertise we have cultivated over the years, offering new technologies, products, and services toward a better society.

Our Priorities

Enhancement of Manufacturing Capabilities

Taking "SEQCDD" one step further

- Aim for the safest company in the world
- Create strong factories by continuous improvement (kaizen)
- Share technologies and best practices among group companies worldwide

SEQCDD:
S (Safety)
E (Environment)
Q (Quality)
C (Cost)
D (Delivery)
D (R&D)

Increasing Global Presence

- Work to increase market share with global customers
- Create new business models that anticipate market changes
- Enhance the efficacy of our marketing efforts

Creation and Enhancement of Leading Technology

- Continue to enhance core technologies from materials to processes
- Innovation that anticipates change in the automotive and energy fields and exploits commercialization opportunities with agility
- Challenge ourselves to create innovative technology that encourages social reform

The Three Bases

Manufacturing Base

Consolidating Our Manufacturing Base and Business Quality
Maintaining and building secure, safe, clean, reliable, and efficient production systems

Developing Personnel
Strengthening basic competence through group-wide education and fostering professional human resources through practical education

Human Resources and Organization Base

Promoting Diversity Management (realizing our Global HRM Policy)

Building a global common infrastructure for human resources and organization

Financial Base

By reinforcing our corporate structure, we strive to build on a robust financial footing.
We aim to keep our shareholders' equity ratio at 50%.
We aim to increase dividend payout ratio to approximately 40%.

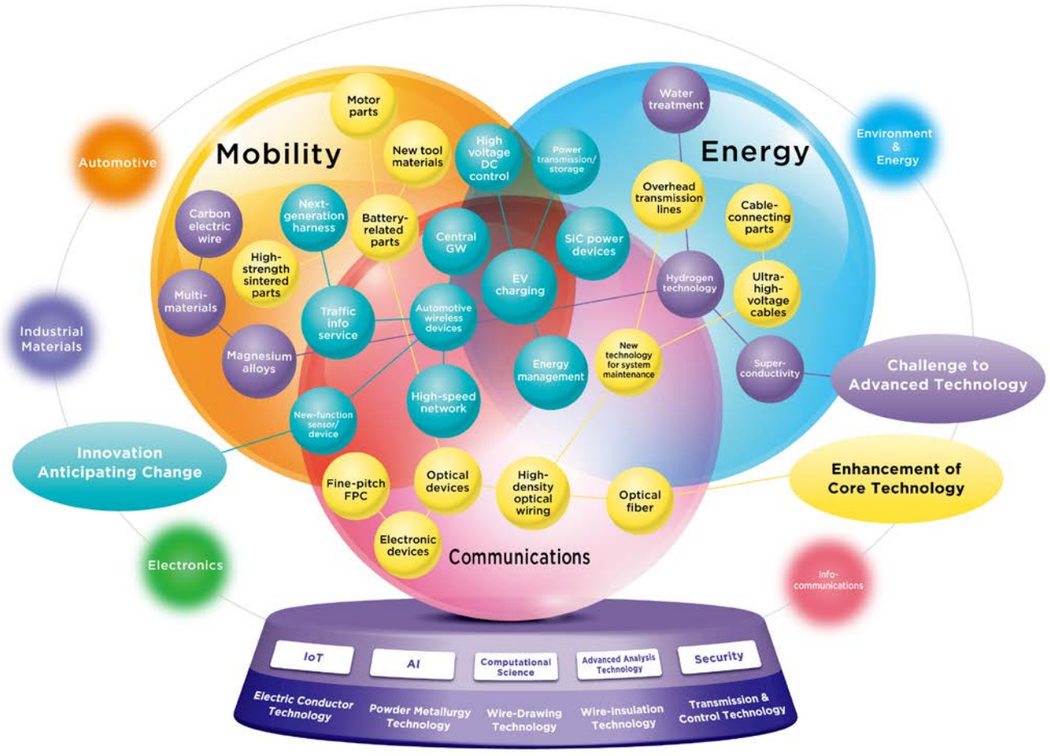
The Sumitomo Spirit and our Corporate Philosophy

With the above as our basic value standards, we will fulfill our social responsibilities as a corporate group through business operations.

Research & Development

Research and Development for the Next Generation

With our focus on the fields of mobility, energy and communications, we will take on the challenges of reinforcing a wide variety of our core technologies, generating innovations to respond to revolutions in the areas of automobiles and energy and to fusion of these areas, and creating innovative technologies expected to result in revolutionary social changes.



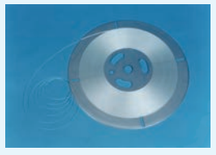
TOPICS

Research and Development Expenses (Consolidated) **118,800 million yen** (as of the end of March 2021)

01 A New Research Building at the Itami, CRystal Lab.

CRystal Lab., a new research building at the Itami Works, was built as part of our 120th anniversary commemoration project. By consolidating the R&D teams, which were separately organized within the Itami Works, and thereby improving the efficiency of R&D and promoting acceleration of cross-departmental activities, CRystal Lab. aims to create innovations that lead to new technologies, products and services.

02 New Business



Magnesium Alloy

We succeeded in applying the highly corrosion-resistant AZ91 alloy, one of the most lightweight magnesium alloys among the structural metals, to sheet materials by using a proprietary manufacturing method. It has been increasingly used for durable and lightweight PC enclosures. We will further enhance the attractive features of magnesium, whose reserves are abundant.

Bismuth-based superconducting wire

We are the first in the world to successfully mass-produce bismuth-based superconducting wire (DI-BSCCO™) with the properties of low loss (zero electrical resistance) and high current density (200 times higher than copper by cross-section ratio). Used for power cables and magnets, this product helps enhance energy efficiency, thereby contributing to an energy-saving society.

R&D Organization




Power Systems R&D Center

Develops technologies and products that meet technological changes in the electric power infrastructure field including the expansion of renewable energy usage and advancement of electric power infrastructure using infocommunication technologies.

Information Network R&D Center

Researches and develops optical and wireless fifth generation (5G) communication technologies for high-speed broadband networks, as well as millimeter-wave radar sensors for infrastructure, leveraging our wireless technology, vehicle probe data, next-generation traffic signal control systems using artificial intelligence (AI), and mobility services.

IoT R&D Center

In collective efforts with plants in our group, the Center is pushing ahead with the development of IoT/AI technologies, such as sensing systems, wireless communications, AI and big data analyses, to support our manufacturing, focusing on productivity improvement, automated inspection, predictive maintenance and work safety.

Cyber-security R&D Office

Develops cyberattack countermeasures for network-connected equipment at our businesses and, in cooperation with the National Institute of Advanced Industrial Science and Technology (AIST), researches advanced cyber-security technologies.

Analysis Technology Research Center

Underpins the Group's manufacturing capabilities and helps develop new products through advanced analyses and computer-aided engineering in three Japanese in-house bases and other external facilities such as Kyushu Synchrotron Light Research Center. There is also a research base in China to form our overseas technological foundation.

Advanced Materials Lab.

Creates unique metallic and inorganic materials and achieves process innovation using our original technologies such as ultra-high pressure and powder metallurgy.

Energy and Electronics Materials Lab.

Contributes to the development of new products and technologies in the Group's extensive business fields by leveraging our core technologies for metal, inorganic and polymer materials as well as for electrochemistry.

Optical Communications Lab.

Develops optical fiber-related technologies and highly functional products that are used in optical communication networks and data centers. The lab contributes to the development of a smart society through the applications of these technologies to consumer and industrial fields.

Transmission Devices Lab.

Develops advanced compound semiconductor materials and products for the two main markets in the information and communication field (optics and wireless) by harnessing compound semiconductor crystals, epitaxial growth and processing, and high-precision micro-assembly technology for optoelectronic parts.

Power Device Development Div.

Develops silicon carbide (SiC) crystals, epitaxial substrates and devices for commercialization. SiC is a promising material for next-generation power devices.

Frontier Technologies Lab.

Looking ahead to the impacts of the world's technological and social changes on our business, the lab conducts research and development on next-generation electric wires and hydrogen energy technologies with ongoing national projects.

Power Cable Development Promotion Office

Develops extra-high-voltage DC cables, cables for offshore wind farms and systems that support maintenance and monitoring of transmission lines to meet the growing demand for long-distance transmission and renewable energy.

FEX Development Office

Efforts are made to develop new products coated with cross-linked fluorine materials, which are characterized by a low friction coefficient and superb abrasion resistance, by combining fluororesins with electron beam irradiation, which is our proprietary technology.

R&D Planning & Administration Div.

Administrates plans and achievements of the R&D unit, and promotes initiatives to develop new technologies and expand business domains aiming to implement our mid-term management plan, VISION 2022.

Innovation Core SEI, Inc. (ICS)

Located in Silicon Valley, U.S., ICS is committed to investigating and researching new technologies and markets in the U.S., as well as discovering and nurturing future core technologies aimed at creating next-generation global businesses.

Using our connectivity and transmission technologies, we will contribute to creating an even better society.

With the advancement of AI and the Internet of Things,
the creation of sophisticated energy networks,
and the realization of electric and self-driving automobiles,
a wide variety of things are being connected,
ushering in a new era.

The Sumitomo Electric Group welcomes this era
with our dedication to relentless innovation.
Through a fusion of our extensive range of connectivity
and transmission technologies,
we will help create a safer and more secure society,
a greener society, a more comfortable and sustainable society.

We will aim even higher and continue to move forward.

SUMITOMO ELECTRIC

Connect with Innovation

Sumitomo Electric Group e-magazine "id"
https://global-sei.com/id/

Sumitomo Electric Group CSR Report
https://sumitomoelectric.com/csr-reports

Sumitomo Electric Group Integrated Report
https://sumitomoelectric.com/company/integrated