

## High-Grade Metal Products and Materials

**Creating an uninterrupted stream of high-performance materials by combining innovative ideas with core technologies developed through proven tradition.**

The Hitachi Metals Group maintains two long-trusted core technologies: technology for manufacturing high-grade specialty steel, represented by the YSS™ brand, and casting technology used in the manufacture of rolls.

In combining each technology with forward-looking ideas, the Group delivers a range of high-performance materials that anticipate the needs of each era. A supplier to a variety of target markets, Hitachi Metals is active in basic industries including steel, automobiles, energy and industrial machineries electronics-related fields that demand constant innovation. In amorphous metals, we are bolstering our lineup of eco-friendly products to help curtail the energy consumption of devices and reduce CO<sub>2</sub> emissions.

### High-Grade Metal Products and Materials

Business	Principal Manufacturing Bases / R&D Bases		
<b>High-Grade Metals Company</b>			
Specialty Steel	<ul style="list-style-type: none"> <li>Yasugi Works</li> <li>Hitachi Metals (Suzhou) Technology, Ltd.</li> <li>Hitachi Metals Taiwan, Ltd., Five Ace Factory</li> </ul>	Metallurgical Research Laboratory	Production System Laboratory
Rolls	<ul style="list-style-type: none"> <li>Hitachi Metals Wakamatsu, Ltd.</li> </ul>		
Amorphous Metals	<ul style="list-style-type: none"> <li>Metglas Yasugi Works</li> <li>Metglas, Inc.</li> </ul>		

### Business Overview

	Manufacturing Bases	Group Companies
<b>High-Grade Metals Company</b>		
<b>Specialty Steel</b> <b>A history of innovation in advanced metallurgical technology and materials development</b> True to our tradition, we strive to consistently refine our material development capabilities. With the same intensity required to create <i>tama-hagane</i> —a high-value-added material produced by the <i>tatara</i> foundry method—we enhance the full luster of the materials we produce. While enhancing steel purity through stringent raw material selection methods, we continue to support the development of a variety of industries by providing highly functional materials.	<ul style="list-style-type: none"> <li>Yasugi Works (Japan) (Yasugi Works and the Metallurgical Research Laboratory are located within the same grounds)</li> <li>Hitachi Metals (Suzhou) Technology, Ltd. (China)</li> <li>Hitachi Metals Taiwan, Ltd. Five Ace Factory (Asia)</li> </ul>	<ul style="list-style-type: none"> <li>Hitachi Metals Tool Steel, Ltd. (Japan)</li> <li>HMY, Ltd. (Japan)</li> <li>NEOMAX MATERIALS Co., Ltd. (Japan)</li> <li>Hitachi Metals Nanotech Co., Ltd. (Japan)</li> <li>Hitachi Metals Precision, Ltd. (Japan)</li> <li>Hitachi Metals MMC Superalloy, Ltd. (Japan)</li> <li>Hitachi Metals (Dong Guan) Specialty Steel Co., Ltd. (China)</li> <li>Hitachi Metals Korea Co., Ltd. (Asia)</li> <li>Others</li> </ul>
<b>Rolls</b> <b>Advanced roll technological capabilities</b> We boast a wealth of leading brands including HINEX™ rolls for steel mills. We are also engaged in the manufacture of injection-molding machine cylinders, ceramics, and steel-frame structures as well as related component processing.	<ul style="list-style-type: none"> <li>Hitachi Metals Wakamatsu, Ltd. (Japan)</li> </ul>	<ul style="list-style-type: none"> <li>SinterMet, LLC (North America)</li> <li>Baosteel Hitachi Rolls (Nantong) Co., Ltd. (China)</li> </ul>
<b>Amorphous Metals</b> <b>Contributing to energy conservation through innovative materials</b> Demand is on the rise worldwide for our Metglas® amorphous metals for use in power transformers, an area with increasing needs for energy conservation.	<ul style="list-style-type: none"> <li>Metglas Yasugi Works (Japan)</li> <li>Metglas, Inc. (North America)</li> </ul>	

## Magnetic Materials and Applications

**We supply unique products based on advanced new material development and original component design technology.**

Cars now contain more and more electronics, their performance is becoming more environmentally friendly, and their various devices have become more energy efficient. We continue to meet these kinds of needs by manufacturing unique products using the materials sector expertise we have developed related to magnetic materials and ceramics.

Starting with our NEOMAX® brand magnets—which have world-class magnetic properties—we offer magnet product lines for practical applications. Furthermore, our unique products in the soft magnetic materials sector include Metglas® amorphous metals and FINEMET® nanocrystalline magnetic materials. As a world-leading supplier of magnetic materials, we offer pioneering products for use in vehicles, for electromagnetic compatibility and noise measures, and in components for solar power generation, putting the materials' special characteristics to best use.

### Magnetic Materials and Applications

Business	Principal Manufacturing Bases / R&D Bases		
<b>Magnetic Materials Company</b>			
Magnets	<ul style="list-style-type: none"> <li>Kumagaya Works</li> <li>Saga Works</li> <li>NEOMAX KINKI Co., Ltd.</li> </ul>	Magnetic Materials Research Laboratory	Production System Laboratory
Soft Ferrite and Other Soft Magnetic Materials, and Their Applications	<ul style="list-style-type: none"> <li>Yamazaki Manufacturing Dept.</li> <li>Hitachi Ferrite Electronics, Ltd.</li> <li>Hitachi Metals Hong Kong Ltd., Pan Yu Factory</li> <li>Hitachi Metals (Thailand) Ltd.</li> </ul>		

### Business Overview

	Manufacturing Bases	Group Companies
<b>Magnetic Materials Company</b>		
<b>Magnets</b> <b>As a world-leading supplier of magnetic materials, Hitachi Metals Group supports industry's foundations with its NEOMAX® brand</b> We boast an extensive line of magnets, including ferrite magnets and NEOMAX® rare earth magnets, and offer products for use in the automotive, electronics, household appliance sectors, among others. As a magnetic materials pioneer, we take on the challenges related to new materials and production technologies to meet customers' various needs and also contribute to achieving energy conservation in our societies.	<ul style="list-style-type: none"> <li>Kumagaya Works (Japan)</li> <li>Saga Works (Japan)</li> <li>NEOMAX KINKI Co., Ltd. (Japan)</li> </ul>	<ul style="list-style-type: none"> <li>NEOMAX ENGINEERING Co., Ltd. (Japan)</li> <li>NEOMAX KYUSHU Co., Ltd. (Japan)</li> <li>Hitachi Metals North Carolina, Ltd. (North America)</li> <li>PT. NX INDONESIA (Asia)</li> <li>San Technology, Inc. (Asia)</li> <li>Dongguan Sumitok-Super Electronics Co., Ltd. (China)</li> <li>Pacific Metals Co., Ltd. (Asia)</li> <li>Hitachi Metals (Thailand) Ltd. (Asia)</li> <li>Others</li> </ul>
<b>Soft Ferrite and Other Soft Magnetic Materials, and Their Applications</b> <b>We develop lines of soft magnetic materials products with distinctive characteristics</b> Together with our soft ferrite materials—of which we boast many years of successes—we offer Metglas® amorphous metals, FINEMET® nanocrystalline magnetic materials, and other distinctive products to many different industry sectors and uses that include everything from portable handsets, IT devices and other electronic components, to car antennas, electromagnetic compatibility and noise reduction components, and solar power generator parts.	<ul style="list-style-type: none"> <li>Yamazaki Manufacturing Dept. (Japan)</li> <li>Hitachi Ferrite Electronics, Ltd. (Japan)</li> <li>Hitachi Metals Hong Kong Ltd. Pan Yu Factory (China)</li> <li>Hitachi Metals (Thailand) Ltd. (Asia)</li> </ul>	<ul style="list-style-type: none"> <li>Hitachi Metals (India) Private Limited (Asia)</li> </ul>

## High-Grade Functional Components and Equipment

**With unparalleled casting technologies nurtured from age-old tradition, Hitachi Metals supplies highly functional casting components and equipment.**

In the field of highly functional automotive casting components, the Hitachi Metals Group's unique materials development, global product development, and production and marketing network has helped supply products that meet local market needs in diverse nations throughout the world. In piping components, represented by products under the  $\text{G}$ ™ (Gourd brand), the Group has led the industry in product development. Hitachi Metals continues to introduce new materials that are highly durable and easy to handle.

### High-Grade Functional Components and Equipment

Business	Principal Manufacturing Bases / R&D Bases		
<b>High-Grade Functional Components Company</b>			
<b>Casting Components for Automobiles</b>	<ul style="list-style-type: none"> <li>• Waupaca Foundry, Inc.</li> <li>• Kyushu Works</li> <li>• Moka Works</li> <li>• Kumagaya Works</li> <li>• AAP St. Marys Corp.</li> <li>• Hitachi Metals Automotive Components USA, LLC</li> <li>• Namyang Metals Co., Ltd.</li> <li>• HNV Castings Private Limited</li> </ul>	Casting Technology Research Laboratory	Production System Laboratory
<b>Piping Components</b>	<ul style="list-style-type: none"> <li>• Kuwana Works</li> <li>• Hitachi Metals FineTech, Ltd.</li> <li>• Hitachi Metals Precision Instruments (Shenzhen), Ltd.</li> </ul>	Kuwana Works R&D Center	

### Business Overview

	Manufacturing Bases	Group Companies
<b>High-Grade Functional Components Company</b>		
<b>Casting Components for Automobiles</b> <b>Global development of eco-friendly products</b> Drawing on its roots that date back to Tobata Foundry Co., Hitachi Metals has applied malleable cast iron manufacturing technologies to produce casting components for automobiles. In recent years, we developed HERCUNITE™ heat-resistant exhaust casting components and are striving to meet the growing need for eco-friendly products.	<ul style="list-style-type: none"> <li>• Waupaca Foundry, Inc. (North America)</li> <li>• Kyushu Works (Japan)</li> <li>• Moka Works (Japan)</li> <li>• Kumagaya Works (Japan)</li> <li>• AAP St. Marys Corp. (North America)</li> <li>• Hitachi Metals Automotive Components USA, LLC (North America)</li> <li>• Namyang Metals Co., Ltd. (Asia)</li> <li>• HNV Castings Private Limited (Asia)</li> </ul>	<ul style="list-style-type: none"> <li>• Auto-tech, Ltd. (Japan)</li> <li>• Moka Technos, Ltd. (Japan)</li> <li>• Kyushu Technometal Co., Ltd. (Japan)</li> <li>• Seitan, Inc. (Japan)</li> <li>• Alcast, Ltd. (Japan)</li> <li>• Others</li> </ul>
<b>Piping Components</b> <b>Development of <math>\text{G}</math>™ (Gourd brand) gas and water piping components</b> When the Tobata Foundry Co., the forerunner of Hitachi Metals, Ltd., shipped its first product in 1910, it bore a $\text{G}$ ™ (Gourd) symbol. This symbol bore the hopes and aspirations that products would be "tougher, smoother, and aesthetically pleasing." Since this time, the Gourd brand has been widely used in industrial and household fields, as well as overseas markets. Today, the $\text{G}$ ™ (Gourd brand) is well respected throughout the world.	<ul style="list-style-type: none"> <li>• Kuwana Works (Japan)</li> <li>• Hitachi Metals FineTech, Ltd. (Japan)</li> <li>• Hitachi Metals Precision Instruments (Shenzhen), Ltd. (China)</li> </ul>	<ul style="list-style-type: none"> <li>• Hitachi Valve, Ltd. (Japan)</li> <li>• Ward Manufacturing, LLC (North America)</li> <li>• Others</li> </ul>

## Wires, Cables, and Related Products

**We continue to pursue the technology needed to transmit energy and information.**

In the realm of wires, cables, and related products, we continually pursue technologies related to energy and information technology. Our business scope is expanding to areas such as wires and cables, automotive products and information systems. Our lineup is diverse, from wires and cables used for data transmission and supplying electric power that support social infrastructure to internal wiring products designed to achieve miniaturization and increased functionality in devices of all kinds. We also provide automotive brake hoses and electrical components that improve automotive safety, energy conservation, and overall convenience, as well as IT network devices to support telecommunications infrastructure, thereby contributing to society with superior technologies.

### Wires, Cables, and Related Products

Business	Principal Manufacturing Bases / R&D Bases	
<b>Cable Materials Company</b>		
<b>Electric Wires and Cables</b>	<ul style="list-style-type: none"> <li>• Takasago Works</li> <li>• Hitaka Works</li> <li>• Toyoura Works</li> <li>• Densen Works</li> </ul>	Cable Materials Research Laboratory
<b>Automotive Products</b>		
<b>Information Systems</b>		

### Business Overview

	Manufacturing Bases	Group Companies
<b>Cable Materials Company</b>		
<b>Electric Wires and Cables</b> <b>Supplying a wide range of products that contribute to improvements in social infrastructure and moves to downsize equipment and upgrade performance</b> The Cable Materials Company mobilizes its outstanding achievements and rich experience accumulated over the years to build a diverse range of wire products that improve the social infrastructure as well as products that support moves to decrease size and boost performance. This ranges from adoption in electric power facilities to general construction and industrial use. We provide customers with the optimum support by supplying these products.	<ul style="list-style-type: none"> <li>• Takasago Works (Japan)</li> <li>• Hitaka Works (Japan)</li> <li>• Toyoura Works (Japan)</li> <li>• Densen Works (Japan)</li> </ul>	<ul style="list-style-type: none"> <li>• Tonichi Kyosan Cable, Ltd. (Japan)</li> <li>• Hitachi Magnet Wire Corp. (Japan)</li> <li>• Tohoku Rubber Co., Ltd. (Japan)</li> <li>• Hitachi Cable Fine Tech, Ltd. (Japan)</li> <li>• Hitachi Cable (Johor) Sdn. Bhd. (Asia)</li> <li>• Thai Hitachi Enamel Wire Co., Ltd. (Asia)</li> <li>• Hitachi Cable Philippines, Inc. (Asia)</li> <li>• Hitachi Cable Vietnam Co., Ltd. (Asia)</li> <li>• Hitachi Cable (Suzhou) Co., Ltd. (China)</li> <li>• Shenzhen Hitachi Cable Co., Ltd. (China)</li> </ul>
<b>Automotive Products</b> <b>Contributing to better automotive safety, energy savings and convenience</b> On a solid foundation of precisely targeting market needs and mobilizing the materials properties, we develop, manufacture and sell products with guaranteed quality on a global scale, meeting customer requirements. The products we offer include a range of efficient, reliable sensors and power supply harnesses that transmit energy or signals, as well as brake harnesses and hoses.		<ul style="list-style-type: none"> <li>• HC Queretaro, S.A. de C.V. (Central and South America)</li> <li>• Hitachi Metals (Thailand) Ltd. (Asia)</li> </ul>
<b>Information Systems</b> <b>Offering distinctive products and solutions for telecommunications infrastructure</b> We offer a wide variety of cutting-edge products, technology and solutions, such as information network equipment and mobile phone base station antenna systems.		<ul style="list-style-type: none"> <li>• Hitachi Cable Networks, Ltd. (Japan)</li> </ul>