

OKAZAKI MANUFACTURING COMPANY

<COMPANY PROFILE>

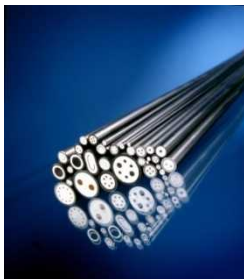
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Website	http://www.okazaki-mfg.com/en/
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Number of employees	277 persons (as of March 2017)
Capital	¥86,500,000.-
Incorporated on	January 26, 1954
President	Kazuo Okazaki (Chairman) Kazuhide Okazaki (President)

<BUSINESS>

Manufacture and sales of temperature sensors, industrial electric heaters, and MI cables for measurement, control and heaters

<TECHNOLOGY>

Reliable technology for the future! MI cables and thermocouples



Okazaki Manufacturing Company has always pursued technology for measuring temperature and generating heat, and is continuously striving to improve its technology. It is a comprehensive manufacturer of products related to temperature measurement and heat, boasting over 50% of domestic market share in industrial temperature sensors, and the world's greatest production capability of mineral insulated (MI) cables. An MI cable is a core part of industrial temperature sensors, and is made up of metal conductor(s) insulated with inorganic insulators (magnesium oxide, etc.) coated with stainless or heat-resistant metal. It is resistant to heat, corrosion, bending and impacts, and mostly unaffected by radiation.

A thermocouple is an MI cable that includes two different metal conductors. By creating a circuit by connecting the tips of the two different kinds of metal conductors, and heating part of the joints, a temperature difference arises between the joints and a weak voltage ("thermal electromotive force") is generated in the circuit. The thermocouple is a kind of temperature sensor that makes use of this principle. Using different combinations of metal conductors, one can measure temperature ranging from -260°C to 1260°C. Thermocouples are used widely in industrial fields including automobiles, food, textile, iron/steel, electricity and rocket engineering, and can be found in fuel cells, environmental equipment and medical devices.

As Japan's only certified manufacturer of common components for space development, and as a company that created the world's thinnest MI cable (outside diameter of 0.08 mm; recognized in the Guinness World Records), Okazaki is actively promoting further technology development and making efforts to contribute to industrial progress and social advancement.

【Behind the scenes of development】

When Okazaki was a trading company, the current Chairman, Kazuo Okazaki, saw an MI cable made in the United States and knew by intuition that it would "change the world." He immediately made a contract with the American manufacturer to become an exclusive agent in the Far East, and started import and sales of MI cables. He then continued research on his own and changed Okazaki into a manufacturer. At first the company was an agency selling American-made cables, but finally he succeeded in concluding a technical assistance contract and achieved domestic production of MI cables in 1972. Since then Okazaki has been the world-leading maker of MI cables with an annual production amount of 10,000 km of cable. Okazaki, by acquiring the aforementioned American manufacturer via a tender offer, expanded its business overseas in 1980. While pursuing its goal from the time of its founding, "to be the

leader in the field of MI cables,” the company is also working towards the development of new technology.

【Unique features】

By tackling difficult challenges in cutting-edge fields such as nuclear power and aerospace development, Okazaki Manufacturing Company has continued to improve its unique technical skills and established its own manufacturing methods. The company focuses not only on design technology but also on production technology, and has adopted the integrated production system – every process, from R&D, production of basic materials (components), assembly and inspection is conducted by the company and its group companies. Making machinery processing equipment on their own, Okazaki can deal with its customers’ diverse orders such as high-mix, low volume, special products, or shorter delivery time.

【Future development】

To make the best use of the technical skills achieved via involvement in the aerospace field and the development of the world’s thinnest temperature sensor, the company established a new Main Manufacturing Factory, which has been in operation since 2012 in Kobe High-tech Park, by gathering all of its divisions related to production. Okazaki will continue to pursue the further potential and unlimited application of MI cables through technical development and capital investment. The company is aiming to develop new industrial fields by seeking the ultimate in temperature and heat technology, both of which are essential in our daily lives.

<TOPICS>

The European Space Agency has acknowledged the product quality

Temperature sensors supporting space development both in Japan and around the world



Aerospace Division in the Main Manufacturing Factory

In 1986, the company received a suggestion from the National Space Development Agency of Japan (NASDA; present-day Japan Aerospace Exploration Agency JAXA) to develop a temperature sensor. Okazaki was selected from among five companies, and in 1994, its temperature sensors were mounted on Japan's first domestic rocket, the H-II. Many sensors are mounted on the H-IIA and H-IIB rockets which are in operation now. In 2011, seven of Okazaki's sensors for artificial satellites were registered on the European Preferred Parts List (EPPL) by the European Space Agency (ESA), an international space development and research institution. Thus Okazaki is contributing to space development industries both at home and abroad.

From aerospace to fuel cells and environmental equipment

Participation in trade shows to discover the needs of the next generation



Exhibition booth

Okazaki is actively participating in trade shows, seeking to promote the unlimited potential use of MI cables in various fields. One field where significant growth is expected is the “development of aerospace devices” that will lead the domestic economy. Recently, highly-efficient and environmental-load-reducing “next-generation thermal power generation systems” have also been attracting attention in the pursuit of a low-carbon society. Another high-profile field is “fuel-cell systems” represented by hydrogen-fuel cells. Okazaki is always trying to exploit new promising business markets.

<HISTORY>

- 1954 Established as Okazaki Trading Company, engaged in the import and sale of the chromel-alumel thermocouple of Hoskins Manufacturing Company, U.S.A.
- 1959 Manufacturing department established to start production of thermocouples
- 1960 Concluded a Far East sole agency contract with Aero Research Instrument Company, U.S.A.
Started import and sale of AEROPAK® Mineral Insulated Thermocouple
- 1963 Developed the RESIOPAK® metal sheathed ceramic insulated resistance thermometer
- 1966 The name of the company was changed to Okazaki Manufacturing Company
- 1969 Started manufacture of cables (compensating cables for thermocouples, lead cables for RTDs, etc.)
- 1972 Concluded a technical assistance contract on MI cables with ARi Industries, Inc. and started their manufacture in Japan
- 1980 Acquired ARi Industries, Inc. by purchasing all of its stocks
- 1990 Succeeded in the development of a space temperature sensor, and received official approval as common components for space development
- 1998 Received approval of the Ministry of International Trade and Industry as a certified company that carries out temperature calibration that is traceable to national standards
- 2012 The Main Manufacturing Factory was relocated from Akashi to Kobe