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Cover Story

Tanaka Kikinzoku International (Malaysia) Sdn.Bhd. (Malaysia TKI), the Malaysian subsidiary of Tanaka Kikinzoku International K.K. (TKI), was established in Penang, Malaysia in April 2011. Malaysia TKI's establishment was made in order to create a sales system closely related to local customers in Penang, Kedah, and Perak states in Malaysia. As a subsidiary, Malaysia TKI imports and exports products by the Tanaka Kikinzoku Group. The company started full-scale operations in Dec. 2011.

Malaysia embarked on a new growth strategy in 2010, aiming to join the ranks of high-income economies by 2020. Malaysia's gross domestic product (GDP) in FY2010 increased 7.2 percent and the country's economy has been posting steady growth. Malaysia expects a growth of 6.0 percent in FY2011 despite the impacts of the global economic recession.

On the back of the economic expansion, TKI has established a local sales system for handling all products of the Tanaka Kikinzoku Group, anticipating steady expansion of sales channels in



On the cover of AEI January are executives of Tanaka Kikinzoku International K.K. (TKI), Tanaka Kikinzoku International (Malaysia) Sdn.Bhd. (Malaysia TKI), and Tanaka Electronics (Malaysia) Sdn.Bhd. (TEM) at Malaysia TKI's headquarters in Penang. (From left), Yasutaka Ihara, General Manager, ASEAN, US & Europe Regional Sales, TKI and Vice President, Malaysia TKI; Gabriel Ch'ng Chin Chee, Senior Executive, Malaysia TKI; Yukio Sodeyama, Director & General Manager, International Sales Division, TKI and Representative Director, President, Malaysia TKI; Tan Chee Siang, Manager, Malaysia TKI; Yoshinori Numai, Representative Director, President, TKI; Kazuo Meguro, Sales Advisor, Malaysia TKI; Shigeru Iseki, Managing Director, TEM; Woo Weng Fu, Senior Executive, Malaysia TKI; Kentaro Hiruma, Managing Director, Malaysia TKI.

the future.

Kentaro Hiruma, Managing Director of Malaysia TKI, says, "Until now, we have primarily handled bonding wires and platinum alloys used in the magnetic layers of hard discs, mainly targeting existing local customers....

The local sales system has now been established. We will sell all industrial precious metal products, including materials for semiconductors, which the Tanaka Kikinzoku Group deploys, in Penang, Kedah and Perak states, where the semiconductor industry for automobiles and light-emitting diodes (LEDs) is flourishing, targeting Japanese and multinational companies. Down the road, we will position lead-free silver pastes, which are used as conductive adhesives for power semiconductors, as mainstay products in our efforts to expand sales."

Furthermore, amid the progress in the replacement of bonding wires from gold to copper, Hiruma said, "Malaysia TKI will sell substitute materials, including copper wires, in Malaysia, with the aim of expanding its sales area across Malaysia in the future."

With the full-scale operation of Malaysia TKI, Tanaka Kikinzoku International now has a total of 10 sales bases in Chinese and other Asian markets, including Taipei, Kaohsiung, Seoul, Shanghai, Hong Kong, and Bangkok.

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Advanced Power Devices Get Lift from Tanaka's Bonding Wires

Tanaka Kikinzoku Group has been contributing to the development of various industries by offering precious metals for 126 years since its establishment. Precious metals can be used for a wide variety of purposes and offer infinite potential.

For 50 years since its establishment in 1961, Tanaka Denshi Kogyo K.K., the core of Tanaka Kikinzoku Group's companies, has been supplying bonding wires used for semiconductor devices to chip manufacturers around the world. The company's key product is gold bonding wires. As a comprehensive supplier of bonding materials, however, the company also manufactures aluminum wires and aluminum ribbons for power devices, which recently have been used for hybrid vehicles and energy-saving home electric appliances.

Power Device Market Trends

Amid calls around the world for the realization of a low-carbon society, the effective use of limited resources and the implementation of measures against global warming are now being required. Moreover, cutting-edge innovations in renewable energy technologies, as represented by solar power and wind power, are also being called for. Among the familiar examples of power devices include sophisticated power control units built in home electric appliances and battery charging and discharging systems employed for electric vehicles. In the power device field, diverse technology innovations are under way.



Figure 1: Typical example of Tanaka Denshi Kogyo's bonding products

Tanaka Denshi Kogyo's aluminum wires have been adopted for these power devices for a long time now. They are now installed in electric vehicles, hybrid vehicles, mobile phones, major appliances, and other products in all kinds of fields.

In recent years, the demand for products in the power device field is accelerating, and such products are required to support smaller power devices with larger currents, while meeting low cost requirements.

As one of the leading bonding wire companies, Tanaka Denshi Kogyo also focuses on the development of products in the power device field by anticipating customers' actual needs based on the trust it has earned from customers over the years.

From Aluminum Wires to Ribbons

Tanaka Denshi Kogyo's TANW aluminum bonding wires have been used for a variety of power devices. Customers worldwide prefer these products because of their excellent corrosion resistance and high bondability. The company's TABR aluminum ribbons, manufactured based on the TANW aluminum bonding wires, have the same excellent corrosion resistance and good bondability as aluminum wires. In addition to these characteristics, aluminum ribbons also have enhanced heat radiation and lower ON-resistance characteristics, effective for low power consumption, and thus highly valued by customers.

Like aluminum wires, these aluminum ribbons come in a variety of sizes required by customers, allowing those who have been using aluminum wires to greatly simplify material evaluations performed prior to the wires' introduction. This is one of the most attractive aspects of the company's aluminum ribbons.

Recently, the company searched for a way to wrap a longer material onto a single reel than previous models. As a result, the No. 120 reel model was developed, featuring a larger diameter and width than traditional reels. With this reel, the company has been able to propose a reduction in production costs achieved through continuous production with reduced reel replacement.

These products are expected to con-



Ribbon Size: w2.0×t0.2(mm)
Loop Length: 10mm

Figure 2. Sample use of aluminum ribbons

tinue to support a wide range of products into the future from discrete products to hybrid vehicles and electric vehicles.

Commitment to Future Power Devices

In the highly demanded market of power devices, the essential factors for achieving higher efficiency and handling of larger currents, include ultra-low loss power elements, in which silicon carbide (SiC) or gallium nitride (GaN) are used. As SiC and GaN can operate at a higher temperature than conventional silicon (Si), they can simplify the cooling mechanism of chip packages. For this reason, it is possible to create smaller and higher-density power devices than those made from Si, by using SiC or GaN, and today, these elements are attracting great attention.

As the heat-resistant temperature has been dramatically improved in SiC power devices, it is said that conventional aluminum wires would not be able to maximize the performance of SiC. Naturally, materials that can replace aluminum wires are attracting attention, and the use of ribbons and Cu clad are being considered as viable options.

Tanaka Denshi Kogyo is committed to the development of new bonding materials for the next generation of power devices. The company is facing the high cost as an immediate issue resulting from the complex process involved in the development of such materials.

The company will continue with its development of new low-cost bonding material products, with more excellent properties.

It is committed to the development and enhancement of bonding wires and ribbons for power devices. □

<http://www.tanaka-bondingwire.com>

Precious Metals Technology : Your Gateway to the Future.

Technology to develop new forms of energy and products is the key to solving a variety of the problems faced around the world today.

Established in 1885, Tanaka Precious Metals Group has contributed to the development of a wide range of industries through its precious metals technology.

Adhering to the beliefs we have held since our inception, we continue to lead the way in green technology innovation by realizing the full potential of precious metals in order to realize an affluent society.



Green Technology

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 **TANAKA**
The Future is Precious.



Tanaka Makes Proactive Stance on Malaysia's Potentials



Kentaro Hiruma, Managing Director, Malaysia TKI

In order to promptly seize the prospects of the IC, power electronic, and industrial machinery markets in Malaysia, Tanaka Kikinzoku International (Malaysia) Sdn.Bhd. (Malaysia TKI) started its operations on full scale last Dec. 1. Malaysia TKI, which has its base in Penang, is the Malaysian subsidiary of Tanaka Kikinzoku International K.K.

Giving his prospects for the company, Kentaro Hiruma, Managing Director, Tanaka Kikinzoku International (Malaysia) Sdn.Bhd., says, "Malaysia TKI was established with the intention to rapidly make available all industrial precious metals, which the Tanaka Kikinzoku Group handles. These include materials for semiconductors in Penang, Kedah and Perak states, where the semiconductor industry for automobiles and light-emitting diodes (LEDs) is flourishing, in this way, the company can maintain close relationships with Japanese and global companies in the local market. We target monthly sales of 120 million Malaysian ringgit (about US\$0.6 million) in FY2012."

Hiruma says, "In Malaysia, at present, power electronics products, including high-lumen LEDs, have been expanding

The country's steady economic growth has given the company the confidence in putting up a base and to eventually expand the market for industrial precious metals.

on full scale, in addition to automotive equipment and industrial equipment that require large current. At the same time, the elimination of lead in the packaging of electronics components is required."

Ready to Meet Market Needs

The company is fully equipped with providing these markets with their requirement with its broad lineup of product offerings. As main products, the company offers silver pastes, which accommodate lead-free processing, as conductive adhesives for power semiconductors. Malaysia TKI also provides research and development assistance that meets the needs of customers in Malaysia to expand sales.

Malaysia TKI was established in April 2011 as a local subsidiary. It has primarily handled platinum alloys used in the magnetic layers of hard discs and bonding wires that connect integrated circuits and external electrodes for the semiconductor industry. On the back of the steady growth of the Malaysian economy, Malaysia TKI intends to establish a sales system that would handle all products of the Tanaka Kikinzoku Group and then expand sales throughout Malaysia.

Support from Local Staff

Hiruma says, "I assumed a post in the Asian region six years ago and from there acquired experiences in sales. Then I moved to Malaysia to start from zero. I came here building on my past experiences. Although it has been a difficult start because of the impacts of the flooding in Thailand, we expect that operations will be restored by full scale around April this year. We have been able to secure competent local staff. We hope to achieve our sales target with their cooperation. I want to build a foundation and nurture human resources that would enable us in the future to operate the company with local staff only." □



Lineup of the Tanaka Kikinzoku Group's industrial products



Platinum alloy target for hard discs



Substitute material for gold wire (Cu wire)