PRESS RELEASE

September 13, 2011

Tanaka Precious Metals
TANAKA HOLDINGS Co., Ltd.

Tanaka Precious Metals Expands Lineup of Electron Beam Welding Materials
Seven New Products Released for Automotive Sensors

Effective for the installation of sensors on electric vehicles in response to diverse needs such as lower costs and longer life spans, enabling customers to choose the appropriate materials

TANAKA HOLDINGS Co., Ltd. (a company of Tanaka Precious Metals, Head office: Marunouchi, Chiyoda-ku, Tokyo; President & CEO: President Hideya Okamoto) today announced that Tanaka Kikinzoku Kogyo K.K. (Head office: Marunouchi, Chiyoda-ku, Tokyo; President & CEO: President Hideya Okamoto), which operates the Tanaka Precious Metals' manufacturing business, has expanded its product lineup of electron beam welding materials used in sliding contacts (*1) on various automotive sensors.

The seven new types of electron beam welding materials each combine five precious metals (contact metals) and two copper-based materials (base metals) according to the application, expanding the lineup from one product to a total of eight.

Electron beam materials are highly reliable cladding materials (contact materials) able to function by combining metals with different properties when precisely welding the base metal and the contact metal together by using an electron beam as the heat source. In particular, it is most effective using the minimum amount of precious metal required in the manufacture of cladding material in functional shapes such as edge-lay and through-lay (See Figure 1) because it is possible to perform precision welding with material that has a higher purity than in arc welding (welding using radiated heat) which is currently the mainstream method.

Lineup of Electron Beam Welding Materials

Low-end products that are optimal for general-purpose rotary encoders(*2) and potentiometers(*3) AgPd30, which lowers bullion costs by 30 percent because it contains less palladium than the existing product, and AgPdCu, which is able to provide excellent sliding properties and lower bullion costs by 20 percent through the use of a three-element alloy. High-end products that are optimal for applications such as automotive accelerator pedal sensors (APS)(*4) and throttle position sensors (TPS)(*5) include precious metal materials such as SP-1, which boasts a 30 percent longer lifespan and higher heat resistance than the existing product by using a precious metal alloy containing platinum and gold, and AgPd50, which has improved abrasion resistance compared to AgPd30.

Furthermore, the addition of C1720 as a base metal, which has 20 percent more spring property (elasticity) than the generally springy existing MX215, will enable customers to make

flexible and rational choices of electron beam welding materials with spring and contact properties that match their applications according to their cost requirements.

Lineup Expansion Backdrop

Electron beam welding materials are currently used as automotive materials such as sliding brushes(*6) that require abrasion resistance and stable contact properties, and welding contact points used in the assembly of electric and electronic components. However, it has been difficult to provide electron beam welding materials that meet the required performance without excess or deficiency because it was difficult to process well-shaped plate materials due to differences in the properties of contact metals and base metals, and there were restrictions on the combinations of materials as a result. For example, a sliding brush using the existing product faced the problem of being unable to sufficiently withstand the required lifespan for the idling stop function which is becoming widely used in automobiles today, while positioning sensor brushes with excessive life performance were used in rotary encoders and potentiometers. As the cost of precious metal bullion such as the platinum and palladium used in electron beam welding rises, the automotive sensor market has a need for electron beam welding materials with the minimum necessary functionality.

Reducing the Cost of Materials in Electric Vehicle Sensors by Up to 30 percent

Against this backdrop, Tanaka Kikinzoku Kogyo has succeeded in increasing the combinations of electron beam welding materials by optimizing the welding conditions and optimizing the rolling and processing conditions. The company's position as a precious metals producer enables it to combine a variety of precious metals, and as a result it can provide a wide range of welding material options, in addition to providing electron beam welding materials in a variety shapes such as long materials and narrow elongated contact points.

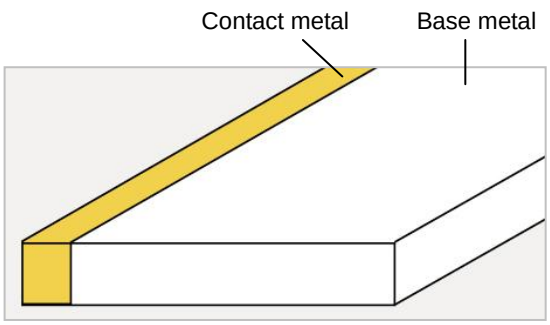
In particular, more electric power is required in electric vehicles, which are expected to become more widespread, than in gasoline-powered vehicles. As the contacts used in there are switched more frequently, contacts are subject to greater load. With the expansion of the lineup, customers are able to select electron beam welding materials that match the required characteristics of the contact from among a wide range of contact materials and shapes for use in the various automotive sensors in electric vehicles, which can reduce electric vehicle sensor material costs by up to 30 percent.

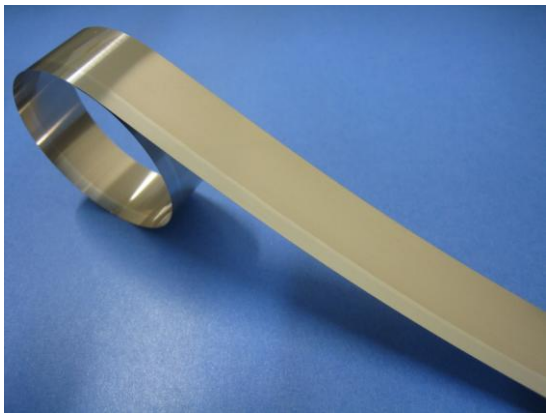
Tanaka Kikinzoku Kogyo is aiming for sales of 100 million yen per month by selling the electron beam welding material products mainly to manufacturers of automotive sensor components.

Figure 1

Edge-lay electron beam welding material

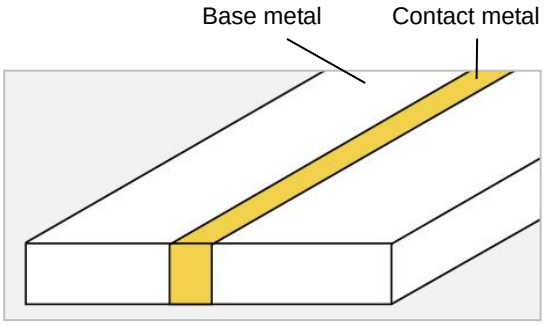
Other material is applied to one side or both sides of the base material

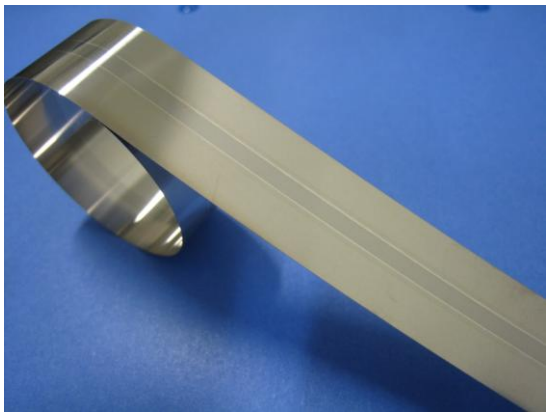




Through-lay electron beam welding material

A certain material is used to pinch another material from both sides





<Glossary>

(*1) Sliding contact

A contact that functions by sliding while in contact. Examples: rotary encoder, potentiometer, etc.

(*2) Rotary encoder

A positional sensor that converts mechanical rotary movement into digital information. It is used to measure the amount of rotation, the angle of rotation and the position of rotation.

(*3) Potentiometer

A standard voltage is applied to both sides of a resistive element, and a brush is mechanically moved around the resistive element. Each edge of the brush and the resistive element have an output voltage proportional to the relative position of the brush, which enables the amount of movement of the brush to be measured with great precision.

(*4) Accelerator pedal sensor

This is a sensor that uses an electric signal to communicate the amount the accelerator pedal is pushed to the electronic throttle.

(*5) Throttle position sensor

This is a sensor that detects how far the throttle valve is open. It is involved in the calculation of the basic injection quantity in an engine and the shift position in an automatic transmission.

(*6) Sliding brush

This refers to a contact that is under current while mechanically moving in relation to a static contact such as a connector in contrast to a switching contact such as a relay or a switch. Shapes include plate types, multi-wire types that are bundles of thin wires, and claw-like scratch types.

Tanaka Precious Metals' Lineup of Electron Beam Welding Materials

New Products

Name	Contact metal composition (wt%)	Base metal composition (wt%)
	Features	
AgPd30 / C1720	70% silver, 30% palladium	2% beryllium, 98% copper
	• Bullion costs can be reduced by 30% because the contact material contains less palladium than the existing product. • Sliding properties are more stable because the base metal material has 20% higher spring property than the existing product.	
AgPd50 / C1720	50% silver, 50% palladium	2% beryllium, 98% copper
	• Abrasion resistance of the contact material has been increased by increasing the palladium content compared to AgPd30. • Bullion costs can be reduced by 8% compared to the existing product • Sliding properties are more stable because the base metal material has 20% higher spring property than the existing product.	
AgPdCu / C1720	40% silver, 40% palladium, 20% copper	2% beryllium, 98% copper
	• The use of a three-element alloy is effective for severe sliding • Bullion costs can be reduced by 20% compared to the existing product • Sliding properties are more stable because the base metal material has 20% higher spring property than the existing product.	
SP-1 / C1720	10% platinum, 10% gold, 30% silver, 30% palladium, other	2% beryllium, 98% copper
	• The high-spec contact material provides a lifespan 30% longer than the existing product. • It provides abrasion resistance and heat resistance. • Sliding properties are more stable because the base metal material has 20% higher spring property than the existing product.	
SP-3 / C1720	0.5% platinum, 40% silver, 40% palladium, other	2% beryllium, 98% copper
	• The accomplished SP-3 is used in this material. • Sliding properties are more stable because the base metal material has 20% higher spring property than the existing product.	
AgPd50 / MX215	50% silver, 50% palladium	21% Nickel, 5% tin, other
	• Abrasion resistance of the contact material has been increased by increasing the palladium content compared to AgPd30. • Generally springy MX material is used as the base metal.	
AgPdCu / MX215	40% silver, 40% palladium, 20% copper	21% Nickel, 5% tin, other
	• The use of a three-element alloy is effective for severe sliding • Generally springy MX material is used as the base metal.	

wt%= percentage of weight

Reference: Existing Product

Name	Contact metal composition (wt%)	Base metal composition (wt%)
	Features	
SP-3 / MX215	0.5% platinum, 40% silver, 40% palladium, other	21% Nickel, 5% tin, other
	• The accomplished SP-3 is used in this material. • Generally springy MX material is used as the base metal.	

■TANAKA HOLDINGS Co., Ltd. (Holding company of Tanaka Precious Metals)
Headquarters: 22F, Tokyo Building, 2-7-3 Marunouchi, Chiyoda-ku, Tokyo
Representative: Hideya Okamoto, President & CEO
Founded: 1885 Incorporated: 1918 Capital: 500 million yen
Employees in consolidated group: 3,456 (FY2010)
Net sales of consolidated group: 891.0 billion yen (FY2010)
Main businesses of the group:
Manufacture, sales, import and export of precious metals (platinum, gold, silver, and others) and various types of industrial precious metals products. Recycling and refining of precious metals.
Website: http://www.tanaka.co.jp

■Tanaka Kikinzoku Kogyo K.K.
Headquarters: 22F, Tokyo Building, 2-7-3 Marunouchi, Chiyoda-ku, Tokyo
Representative: Hideya Okamoto, President & CEO
Founded: 1885 Incorporated: 1918 Capital: 500 million yen
Employees: 1,532 (FY2010)
Sales: 865.4 billion yen (FY2010)
Businesses:
Manufacture, sales, import and export of precious metals (platinum, gold, silver, and others) and various types of industrial precious metals products. Recycling and refining of precious metals.
Website: http://pro.tanaka.co.jp

<About the Tanaka Precious Metals>

Established in 1885, the Tanaka Precious Metals has built a diversified range of business activities focused on the use of precious metals. On April 1, 2010, the group was reorganized with TANAKA HOLDINGS Co., Ltd. as the holding company (parent company) of the Tanaka Precious Metals. In addition to strengthening corporate governance, the company aims to improve overall service to customers by ensuring efficient management and dynamic execution of operations. Tanaka Precious Metals is committed, as a specialist corporate entity, to providing a diverse range of products through cooperation among group companies.

Tanaka Precious Metals is in the top class in Japan in terms of the volume of precious metal handled, and for many years the group has developed and stably supplied industrial precious metals, in addition to providing accessories and savings commodities utilizing precious metals. As precious metal professionals, the Group will continue to contribute to enriching people's lives in the future.

The eight core companies in the Tanaka Precious Metals are as follows.

- TANAKA HOLDINGS Co., Ltd. (pure holding company)
- Tanaka Kikinzoku Kogyo K.K.
- Tanaka Kikinzoku Hanbai K.K.
- Tanaka Kikinzoku International K.K.
- Tanaka Denshi Kogyo K.K.
- Electroplating Engineers of Japan, Limited
- Tanaka Kikinzoku Jewelry K.K.
- Tanaka Kikinzoku Business Service K.K.

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