

Business Briefing Electronics Component Materials business

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FURUKAWA ELECTRIC CO., LTD.

Forward-Looking Statements

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- Changes in exchange rates of the U.S. dollar, euro, and Asian currencies.
- Furukawa Electric Group’s ability to respond to rapid advances in technology.
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FURUKAWA ELECTRIC CO., LTD.

- 1. Mid-term Management Plan basic policy and strengths**
- 2. FY2020 results and full-year forecast**
- 3. Future strategy**

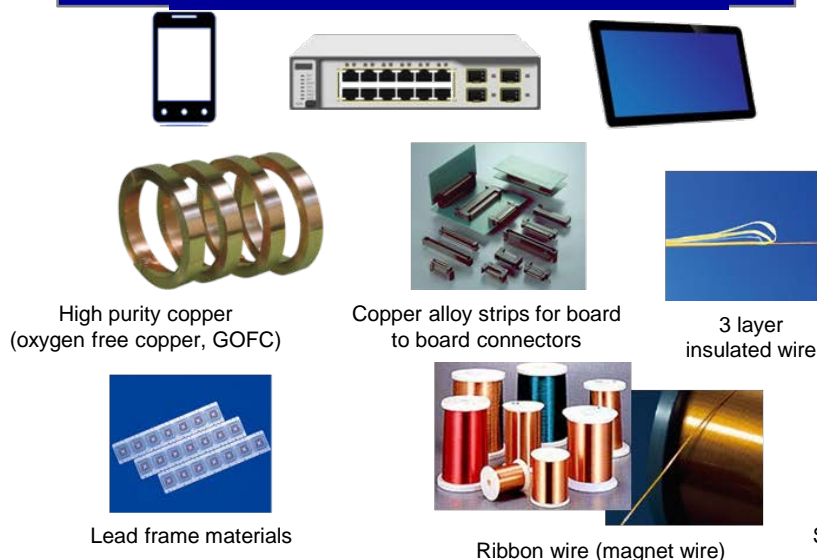
1. Mid-term Management Plan basic policy and strengths

Furukawa G Plan 2020 Basic policy

Contribute through the development of unique materials that meet customer needs in the automotive and electronics markets

View the recovery in the electronics and automotive markets and the advances in new digitalization (IoT, AI, etc.) and CASE (vehicle electrification, autonomous driving, etc.) as a business opportunity, and strengthen sales of high value-added products that respond to the changing material requirements for communications devices, control devices, sensors and passive components, which are expected to grow in the future

Products for the electronics market



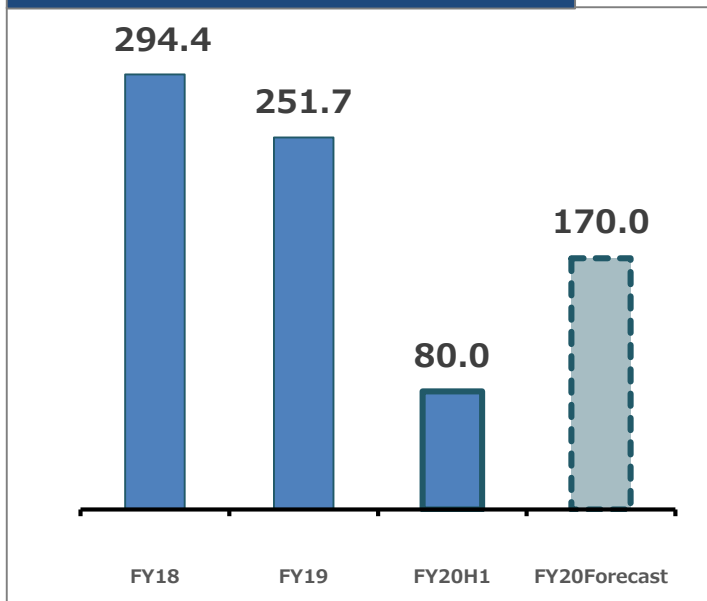
Products for the automotive market



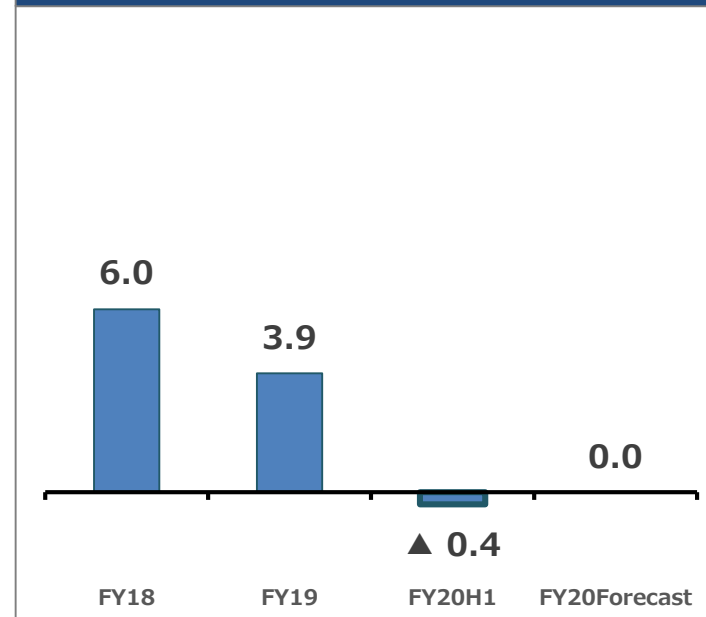
2. FY2020 results and full-year forecast

- Decreased revenue mainly from products for automotive applications
(Products for automotive applications will bottom and gradually recover from the second half)
- Impact of the business reorganization (Transfer of the copper tube and heavy magnet wire businesses)

Changes in net sales (billion yen)



Changes in operating income (billion yen)



3. Future strategy

- Expand sales of oxygen free copper strips (GOFC, etc.) for power semiconductors and thermal dissipation materials
- Expand sales of original alloys that support higher performance electronic devices
- Expand sales of differentiated magnet wire for 5G communications infrastructure and inductors for servers
- Create a framework for steadily acquiring the demand for medical equipment incorporating NT alloy (nickel titanium alloy) products

Oxygen free copper strips:

As traction motors are increasingly used following the advances in PHV and EV and the demand for power modules grows, the equipping of power semiconductor devices for transforming and controlling that power is expected to dramatically increase.

Heat resistant oxygen free copper (GOFC) is used for the power module substrate and peripheral components. Contribute to securing quality stability and increasing labor efficiency through materials with high purity and excellent heat resistance.



NT alloy products:

Utilizing their excellent flexibility, they are broadly used in medical applications (catheter guidewires, stent tubes, etc.). Demand will increase as non-invasive medical treatment (treatment aimed at minimizing pain and bleeding during surgery, testing, etc.) using NT alloy medical equipment becomes more widespread. Currently, a new plant to steadily capture this demand is being built.



Guidewire using NT alloy wire in the core

NT alloy tubes



Stent machined from a tube

Exterior view of the No. 3 NT plant





Market

Automotive

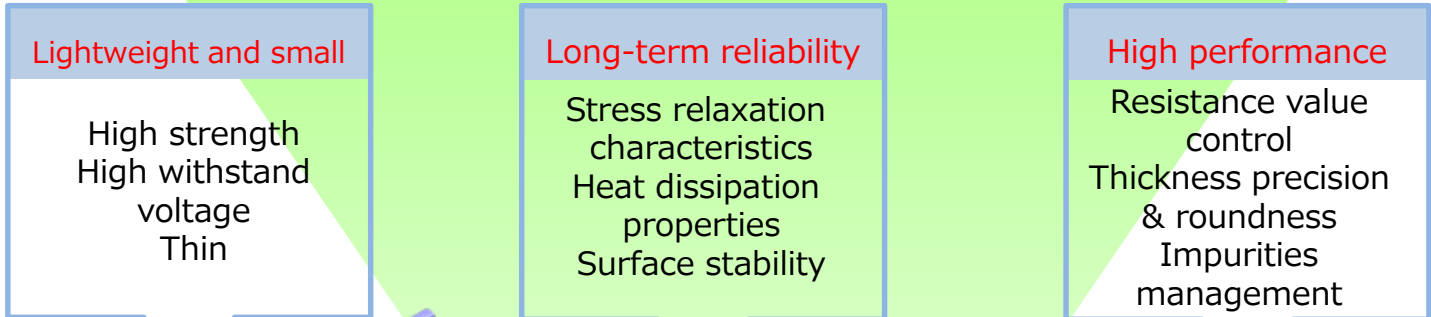
Trends

As a result of the requirements for **lightweight and small** in relation to the hybrid systems, which will become mainstream, advanced electronic control will be introduced, and the components will need to have further **long-term reliability**. Also, **high performance** sensing components will be essential for ADAS*.

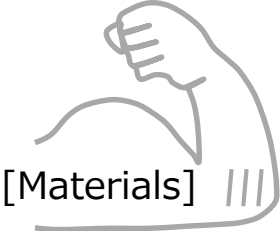
*Advanced Driver-Assistance Systems

Needs

Requirements



Strengths of Furukawa Electric



- High performance vehicle terminal strips (FAS series)

● Cu-Sn alloy plated strips

● Aluminum electrical wires
- High purity copper strips (oxygen free copper)

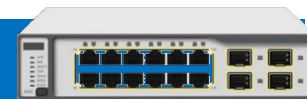
● High performance vehicle terminal strips (FAS series)

● Thermal resistance reflow tin plated strips
- Resistance materials (strips & wires)

● Oxygen free copper round wires

● Non-magnetic copper alloy strips

Utilize the strengths in components and materials, and develop the market through strategic solutions



Market

Electronics

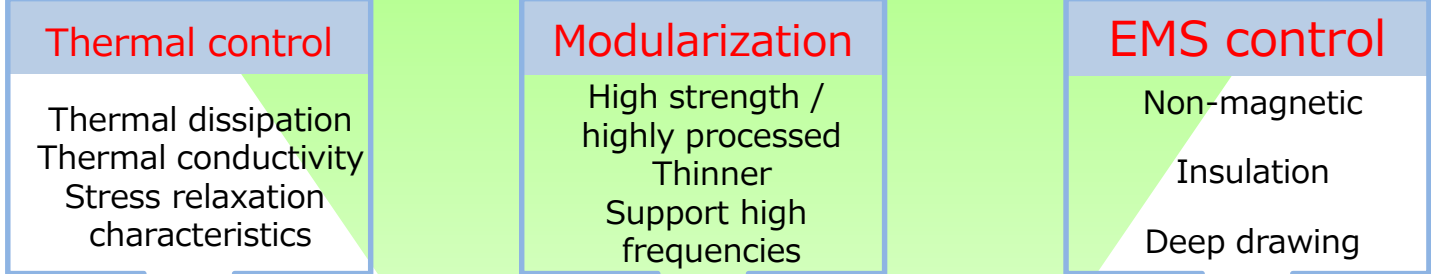
Trends

With the full-scale introduction of 5G, **thermal control** will become an issue for all devices from data centers to mobile terminals. Also, the **modularization** (unification of devices) of components will accelerate, and strict **EMS* control** will be necessary.

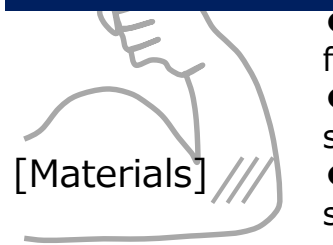
*EMS: Electro Magnetic Susceptibility

Needs

Requirements



Strengths of Furukawa Electric



- High purity copper (oxygen free copper, GOFC)
- Highly conductive connector strips (EFTEC-550, 700)
- High performance strips for shield cases

- High performance connector strips (EFCUBE)
- Rippon wire
- Strips and wires with various plating

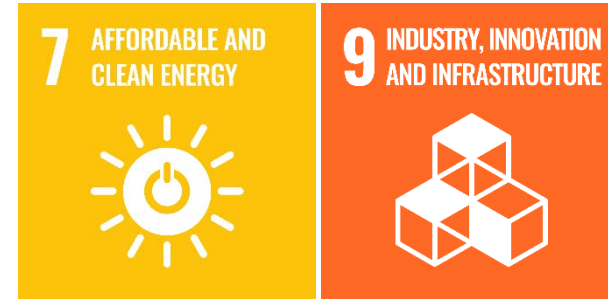
- Lead frame strips (EFTEC-64T, MF202)
- 3 layer insulated wire (TEX)
- High performance connector strips (EFTEC-97)

Cultivate new markets through value proposals and the development of materials that satisfy the market needs

Consideration of the priority SDGs topics: Oxygen free copper

<Maximize the positive impact>

Oxygen free copper products are used in electric and hybrid vehicles. Through the use of these products, contribute to increasing the efficiency of clean energy use and the realization of a carbon-free society.



<Minimize the negative impact>

In the manufacturing process, increase the ratio of copper that is recycled, and efficiently use the natural resources.



<Specific example>









Reduce CO₂ emissions through the use of renewable energy from hydroelectric power.

Hydroelectric power at Furukawa Nikko Power Generation Inc.
(Hosoo power station)

Thank you very much
for your attention.



Appendix - Product overview

	Conductive materials (magnet wire)				Copper strips	
	 					
products	<ul style="list-style-type: none"> •Copper wire, aluminum wire 	<ul style="list-style-type: none"> •Oxygen free copper wire 	<ul style="list-style-type: none"> •Thin magnet wire 	<ul style="list-style-type: none"> •TEX (3 layer insulated wire) 	<ul style="list-style-type: none"> •Copper & brass products and thin plates (strips) 	<ul style="list-style-type: none"> •Oxygen free copper strips •GOFC
applications	<ul style="list-style-type: none"> •Various cables •Wire harnesses 	<ul style="list-style-type: none"> •Magnet wire for alternators •Magnet wire for EV motors 	<ul style="list-style-type: none"> •Inductors for mobile phones •(General use, in-vehicle) relays 	<ul style="list-style-type: none"> •Mobile phone rechargers •Transformers for various power supplies 	<ul style="list-style-type: none"> •Terminals for mobile phones •Anti-corrosion terminals for automobiles •Semiconductor lead frames 	<ul style="list-style-type: none"> •Shielding strips •Thermal dissipation substrates •Heat pipes 
customers	<ul style="list-style-type: none"> •Electrical wire manufacturers (In-house / within the group) 	<ul style="list-style-type: none"> •Magnet wire manufacturers •Motor manufacturers 	<ul style="list-style-type: none"> •Electrical component manufacturers 	<ul style="list-style-type: none"> •Power supply manufacturers •Transformer manufacturers 	<ul style="list-style-type: none"> •Terminal manufacturers •Semiconductor component manufacturers (In-house / within the group) 	<ul style="list-style-type: none"> •Electrical wire manufacturers •Heat pipe manufacturers (In-house / within the group)