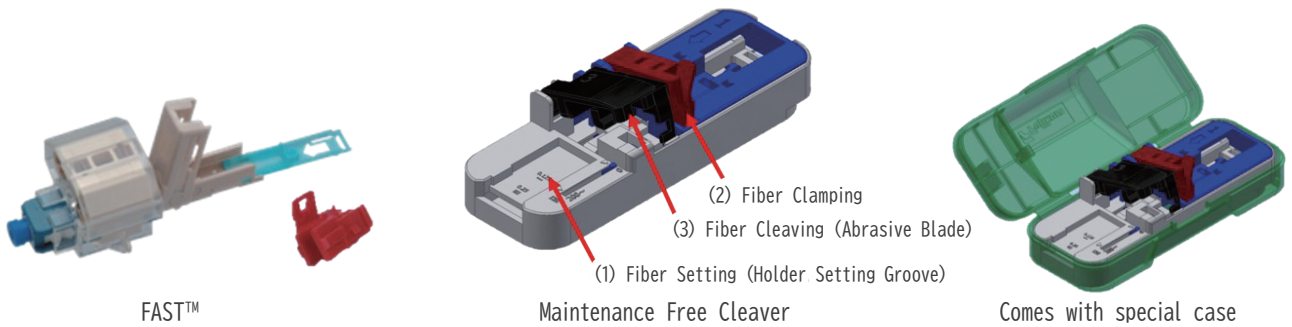


Introduction to Maintenance Free Cleaver for FAST™

FAST™ is a field-assembled optical connector founded on mechanical splicing technology, employing V-grooves to align and secure optical fibers. It facilitates easy assembly through the utilization of optical fiber tools and assembly jigs.

During the fiber cutting process for FAST™ assembly, a fiber cleaver for fusion splicing machines is commonly employed. Presently, we are pleased to introduce a new alternative: the Maintenance Free Cleaver for FAST™



Features of the Maintenance Free Cleaver

● **Easy Installation -**

- With just 3 actions
- (1) Fiber Setting
- (2) Fiber Clamping
- (3) Fiber Cleaving
- the fiber can be easily cleaved.

● **Failsafe Design**

The cleaver part uses an abrasive blade, which ceases to cut fibers when worn beyond a certain level. This prevents connector assembly on unstable fiber cleaved ends (failsafe design).

● **No Blade Maintenance Required**

While typical fiber cleaver requires periodic blade maintenance, the Maintenance Free Cleaver for FAST™ requires no blade maintenance until the specified number of cleaving.

● **Lightweight**

The weight is about 1/4 of standard fiber cleaver, making it lightweight. Additionally, it comes with a dedicated case for easy portability.

■ **Points relevant to the 17 SDGs**

We are committed to continually enhancing the workability of optical communication construction and fostering the development of high-quality optical network infrastructure.



✉ Optical Component Division : telcon@jp.fujikura.com

The effectiveness of 60 GHz millimeter-wave wireless communication module was demonstrated in backhaul of local 5G communication system

We provided wireless devices equipped with a 60 GHz millimeter-wave wireless communication module (Outdoor Evaluation Kit) to ABiT Corporation (now Magna Wireless Corporation) at the Remote Construction Demonstration event (Construction DX Challenge 2023) sponsored by the Ministry of Land, Infrastructure, Transport and Tourism. The demonstration was held on November 20, 2023, at the Construction DX Experimental Field in Tsukuba City, Ibaraki Prefecture, aiming to advance construction technology.

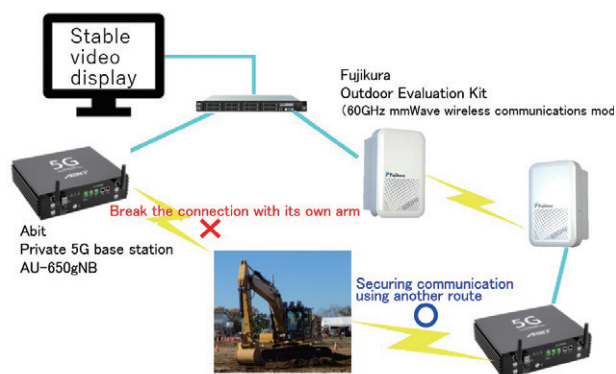
Using our Outdoor Evaluation Kit as backhaul*, ABiT Corporation (now Magna Wireless Corporation) built a “seamless wireless network” with high reliability and low latency in the field through multiple local 5G base stations. Low latency video transmission through these stations enabled the smooth operation of construction machinery from remote locations. This has demonstrated the effectiveness of our 60 GHz millimeter-wave wireless

communication module, which features long-distance, high-capacity, and low-latency communication, as a wireless backhaul for local 5G communication system. Generally speaking, the construction of a local 5G communication system requires field installation work such as optical fiber cables for backhaul. On the other hand, the wireless connectivity can significantly reduce costs instead of optical fiber cable.

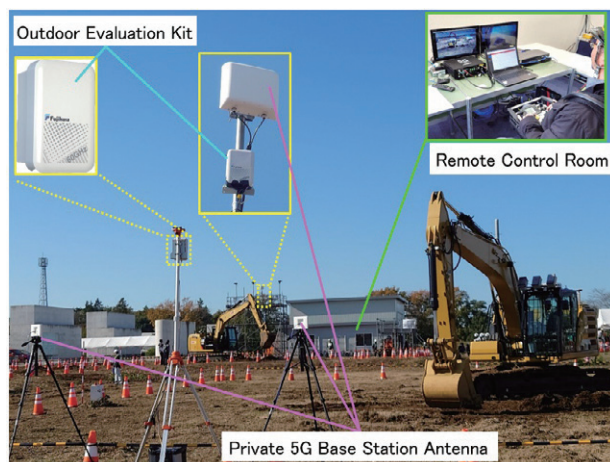
Local 5G communication systems are expected to be an indispensable tool for addressing local community challenges through DX, as they offer ultra-high speed, high reliability, low latency, and multiple simultaneous connections under optimal conditions for each user. We will continue to contribute to the expansion of local 5G communication systems by providing these modules.

*Backhaul: Relay lines connecting base stations and backbone networks in communication networks.

■ Figure 1: Demonstration Overview



■ Figure 2: Demonstration Scene



■ Points relevant to the 17 SDGs

Our millimeter-wave communication module enables gigabit-class backhaul communication infrastructure in a short period of time and at low cost, even in places where field installation work is not easy or in the event of a disaster.



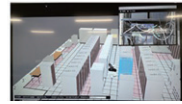
Participation in NTEast's "IOWN Lab"

We have participated in the IOWN Lab (opened on January 24, 2024), which was established by Nippon Telegraph and Telephone East Corporation (NTEAST) to jointly demonstrate the creation of use cases using IOWN technology.

We conducted a joint demonstration experiment with NTEast, NTT COMWARE Corporation, and TeraPixel Technologies, Inc., focusing on building a high-speed video transmission environment, which is one of the same use cases, by combining All-Photonics Network (APN) and millimeter-wave technology for low-latency, high-capacity transmission.

The demonstration experiment utilized our 60 GHz band millimeter-wave wireless communication module to transmit video images from an automated patrol robot in a data center.

Millimeter-Wave Product Site
<https://mmwavetech.fujikura.jp/ja/>



Digital Twins and Robotics



60 GHz Millimeter-Wave Wireless Communications Module



(Outdoor Evaluation Kit)



(Indoor Evaluation Kit)



Video Equipment

Demonstration Photos
 (Our Company, NTT COMWARE, TeraPixel Technologies)

Points relevant to the 17 SDGs

Utilizing our company's 60 GHz millimeter-wave wireless communication module, we will contribute to the realization of next-generation ICT infrastructure.



✉ Electronic Technologies R&D Center : mmwavetech@jp.fujikura.com

Development of Multiple Layers Cold Plates

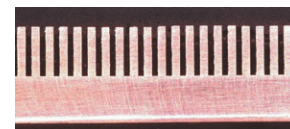
In order to address the heat generation challenges in High-Performance Computing (HPC) and Hyperscale Data Centers (HSDC), we have developed a multiple layers cold plate with a unique structure as a cooling component for next-generation CPUs/GPUs.

In recent years, along with technological innovations in generative AI and big data analysis, the performance of supercomputers and servers has improved dramatically, leading to increased heat generation in CPUs/GPUs, making thermal management a crucial issue. Cold plates with a microchannel fin structure circulating water or coolant have been widely used to cool high-performance CPUs/GPUs, and attempts have been made to improve performance by thinning the microchannel fins and increasing their numbers. However, there are physical limitations to thinning the fins, and new cooling technologies are required.

Therefore, we developed a new type of cold plate with a unique structure using our advanced thermal design technology and metal bonding technology. The new cold plate, which is created by stacking metal thin plates with numerous short flow path patterns using a diffusion bonding method, has an internal structure with numerous narrow and short flow path patterns in three dimensions, resulting in high heat transfer rates and a large effective heat transfer area per volume. We expect that it will contribute to various heat generation

challenges in HPC and HSDC by achieving a reduction in thermal resistance of over 20% compared to conventional cold plates of the same size, enabling efficient cooling in a compact space.

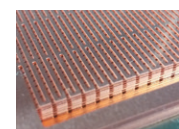
As the importance of thermal management in electronic devices continues to grow, we remain committed to addressing our customers' thermal challenges with the technical expertise and experience we have cultivated in cooling electronic devices, including heat pipes and cold plates.



Conventional Microchannel Fin



Novel Stacked Cold Plate



Stacked Cold Plate Internal Flow Structure

Points relevant to the 17 SDGs

We will enhance cooling system performance to contribute to the development of environmentally friendly next-generation high-performance computing.



✉ Thermal Tech Division : netsu-info@jp.fujikura.com

Commercialization of Water-Proof High-Voltage Fire-Proof Cables

In recent years, there has been growing interest in the water resistance and environmental durability of high-voltage power cables, and documents^{*1*2} issued by the Ministry of Economy, Trade and Industry in June 2021 and December 2023 recommend taking appropriate measures based on cable performance when water is present in the installation environment.

There is also a growing need for high-voltage fire-proof cables with long-term high reliability, even in installation environments where they may be affected by water or similar factors.

Fujikura Dia Cable has recently commercialized a water-proof high-voltage fire-proof cable: 6600V NH-FP (WP)-T (WP: Water Proof) (Figure 1), which excels in water resistance, environmental durability, and fire resistance performance, and obtained fire resistance certification (certification number: JF26099) (Figure 2) based on Fire and Disaster Management Agency Notification No. 10. The product is scheduled for release in April 2024. The cable structure features a water shielding layer that blocks water and chemicals from entering from the outside, and

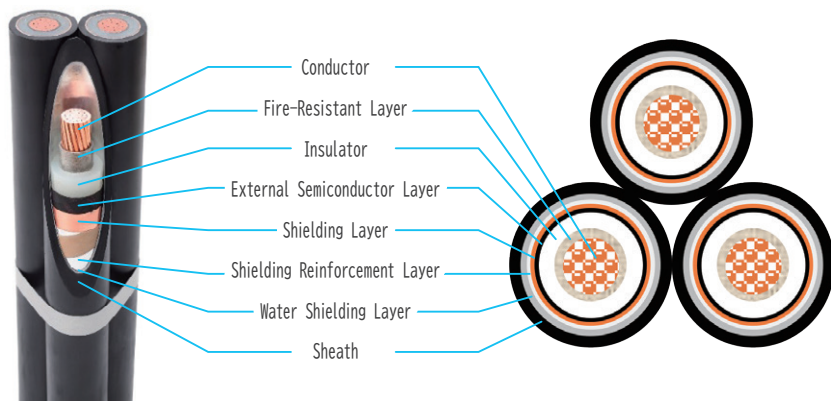
electrically connects the shielding copper tape to the water shielding layer via a shielding reinforcement layer. Thus, even in the event of a potential cable ignition event, such as the breaking of the shielding copper tape during operation, the water shielding layer acts as an electrical bypass, preventing accidents.

Owing to its long-term reliability in various environments, this water-proof high-voltage fire-proof cable is expected to contribute to the strengthening and safety improvement of electrical infrastructure and disaster prevention equipment.

*1. "Alert regarding water tree phenomenon in high-voltage cables that have not reached the recommended renewal period"
Kinki branch of Chubu Kinki Industrial safety and Inspection Department (Ministry of Economy, Trade and Industry)
National Institute of Technology and Evaluation

*2. Supplementary public announcement on "Alert regarding water tree phenomenon in high-voltage cables that have not reached the recommended renewal period"
Electric Power Safety Division (Ministry of Economy, Trade and Industry)

■ Figure 1: Diagram of Water-Proof High-Voltage Fire-Proof Cable



■ Figure 2: Certificate of Water-Proof High-Voltage Fire-Proof Cable



■ Points relevant to the 17 SDGs

We will create new products to meet our customers' needs and contribute to the strengthening and safety improvement of electrical infrastructure and disaster prevention equipment.



✉ Fujikura Dia Cable Ltd. : <https://www.fujikura-dia.co.jp/contact>