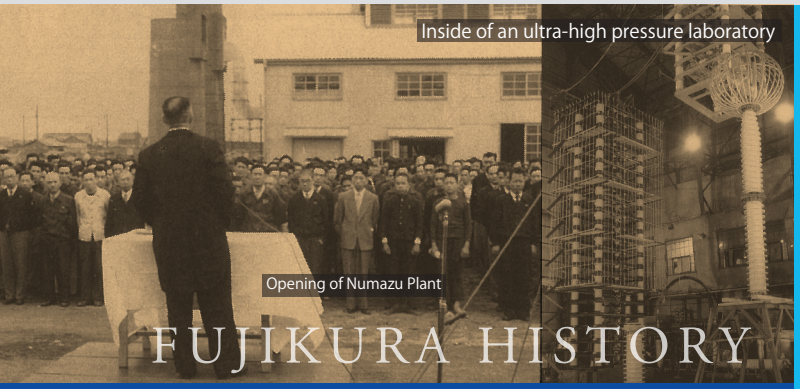
Fujikura



From postwar era to high growth period: Capital increase by doubling the company share amount for four straight years enabled expanding production and research facilities including new Numazu Plant and ultra-high pressure laboratory. In the mid-1950s, Japan entered the greatest prosperity period referred to as "The postwar period is over," and the industry and the company grew steadily as well.

Shaping the future with "Tsunagu" Technology.

FUJIKURA NEWS 2019 No.450 1

New Year's Greetings

President Masahiko Ito

Happy New Year.

We wish you the very best for continued success.

At the beginning of the new year, I would like to express my thoughts.

Last year, the Japanese economy as a whole remained on a gradual recovery path while corporate performance, employment, income and other areas continued to be improved. Overseas, U.S. President Donald Trump raised tariffs on and took other actions against Chinese products, making some believe his actions have gone beyond redressing trade imbalances and could change the existing global order. Concern is being expressed about the effect of these moves.

The average operating profit rate in the first half of the plan (fiscal 2016-18) was 4.7%. To fill the gap between this and the Mid-term Business Plan's target of 7.0% the following strategic responses are being taken.

・In the telecommunications business, we are increasingly focus on developing products that meet customers' needs in different regions and applications to provide the products with more added value. For SWR/WTC specifically, we have developed a WTC for air blown construction method for the European market. We have also started supplying highly flame-resistant WTC and ultra-high-fiber-count WTC with 6,912 fibers/200 μm.

・In the electronics business, we are striving to improve yields and increase profit rates, such as by raising automation ratios using internet-of-things (IoT) and artificial intelligence (AI) technology.

・In the automotive products business, we are trying to increase the earning power of our wire harness businesses in each block, and improve rates of return by strengthening our capabilities in non-EDS products and new energy vehicles (particularly EV) toward the next mid-term period.

We are continuing to make progress in selecting and focusing on R&D projects. We are concentrating development resources on projects that seem to produce promising business income, strengthening the technological bases of existing businesses, developing innovative products, and rapidly creating new businesses by building new technological foundations. We have already commercialized fiber lasers and will further develop technologies that will differentiate our products to make them even more competitive. For extremely high frequency technology, we are developing basic technologies and products with the aim of entering the market quickly, and are coming up with business models that maximize open innovation. In superconductivity, we are focusing on the development of mass-production technology to reach the market in fiscal 2020. In other R&D projects, we are collaborating with external institutions to promote development more efficiently and create distinctive, attractive products.

We will introduce our new technologies and products through Fujikura News again this year and also look forward to your continued support.

January 1, 2019

Power & Telecom

Release of Energy Harvesting LoRaWAN™ Sensor Nodes

Fujikura has developed energy-harvesting (EH) LoRaWAN™ sensor nodes, which uses LoRaWAN™ radio communication system, one of the LPWA (Low Power Wide Area) technologies, to enable IoT wireless sensing to be applied in wider area. These nodes are being released one after another from January 2019.

These sensor nodes contain a DSC (dye-sensitized solar cell), which is an EH device to efficiently obtain electric power from ambient light, as the power source. DSCs operate the sensor nodes properly even in low light such as that inside a room or in the outdoor shade since they can supply power more efficiently than existing solar cells. In addition, these products also serve as new IoT sensing devices without the need of wiring IoT sensing terminals or maintenance such as battery replacement, keeping both installation and running costs low. The sensing features of the nodes include temperature, moisture, illuminance, and pressure as a standard. The indoor sensor nodes accommodate these sensors plus a motion sensor to allow wide use of the nodes for environmental sensing. As an option, globe temperature sensors to determine heat indexes are also available.

An open communication standard, LoRaWAN™, has been introduced as the radio system. If installed in an area without obstacles toward a gateway, the nodes can communicate with it over a distance between several km and 10 km, enabling users to readily introduce IoT sensing covering a wide area. Fujikura can supply not only hardware but also cloud services, which visualize data and issue alerts, at once. We will continue to be committed to contributing to the spread of IoT sensing using our new technologies.

● Indoor sensor node

● EH Unit with indoor sensor node

● Combination indoor sensor node/ EH unit model

● Wireless environment field test in Chiba City, Chiba Prefecture

● Major specifications

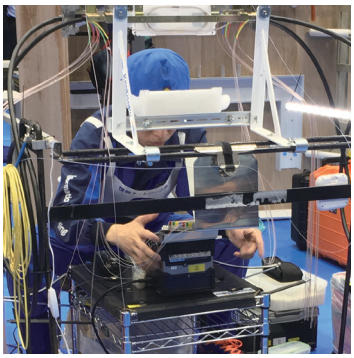
	Indoor sensor node	EH Unit	Outdoor sensor node
Dimensions *projections excluded	97 (W) ×70 (H) ×23mm (D)	97 (W) ×77 (H) ×23mm (D)	135 (W) ×155 (H) ×85mm (D)
Weight	about 75 g	about 85 g	about 720 g
Power source	Primary cell	Dye-sensitized solar cell	Dye-sensitized solar cell and primary cell
Operating environment	[Temperature] -10℃ to 50℃ [Moisture] 20%Rh to 85%Rh		[Temperature] -20℃to 50℃ [moisture] 20%Rh to 85%Rh [Waterproofness] IPX4

Total Solution Business Development Department ask-dsc@jp.fujikura.com

IN Information formation

56th National Skills Competition

Venue for No. 38 telecommunications network installation



Splicing with Fujikura fusion splicer

Ministry of Health, Labour and Welfare, Japan Vocational Ability Development Association and Okinawa Prefecture co-hosted the 56th National Skills Competition from November 2 (Fri) to 5 (Mon). In this competition, technicians at the ages of 23 and younger pit their skills against each other.

They competed in 42 events in the fields including electronic technology, telecommunications, machinery, metal, construction, and service and fashion at 15 venues in Okinawa Prefecture for the title of Japan's best technician. Fujikura, as a sponsor company, cooperated in the event of "No. 38 telecommunications network installation" by supplying materials and helping with the operation.

Precision Equipment Division info-splicer@jp.fujikura.com

Website dedicated to fusion splicer https://www.fusionsplicer.fujikura.com/jp

EX Exhibition hibition

Fujikura to Exhibit at 3rd Cloud Computing Expo Japan

Dates January 23 (Wed) -25 (Fri)
10:00～18:00 (last day until 17:00)

Venue INTEX OSAKA
Booth #10-53

Fujikura will be exhibiting at 3rd Cloud Computing Expo Japan to be held in January. This exhibition is one of the eight specialized trade shows that compose Japan IT Week Osaka, which is western Japan's largest trade show. Japan IT Week Osaka covers a wide range of IT fields, and thus it offers great opportunities to exhibitors and visitors aiming for business expansion in western Japan.

Fujikura focuses on "to be the most trusted partner in the field of Tsunagu (connecting) technologies." With this motto, we suggest optimal structured wiring solutions that are dedicated to data centers and deal with challenges in fiber optic wiring such as high-speed high-capacity transmission, reliability, cost reduction, wiring volume reduction, and network congestion problem.

Special features of this time include the display of wiring materials being used at datacenters in a 19-inch rack and the introduction of other solutions and products for congestion problem and maintenance and operation.

2019 Japan IT Week 関西 内
第3回 関西 クラウド コンピューティング EXPO

Engineering Department, Optical Cable System Division telcon@jp.fujikura.com

Power & Telecom

Release of 432F Air Blown Optical Fiber Cable

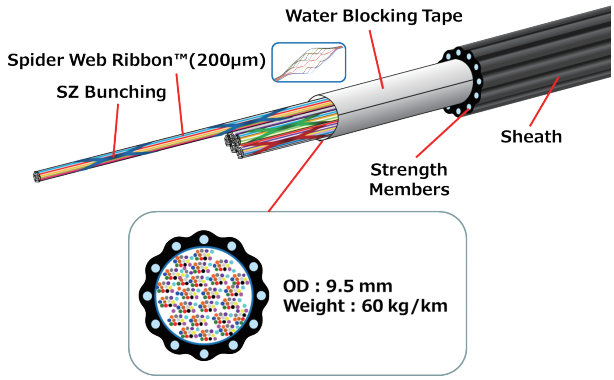
Fujikura Ltd. (President & CEO: Masahiko Ito) has released a new type of optical fiber cable, Air Blown Wrapping Tube Cable™ (WTC™) with Fujikura's original optical fiber ribbon "Spider Web Ribbon™(SWR™)".

Air blowing installation method is one of the cable installation methods and the cables are installed into the microduct with compressed air blowing technique. This blowing method is widely introduced in Europe and United State mainly. Loose tube type cable is well known as the conventional air blown optical fiber cable in the market, however it requires much time to splice because it consists of single fibers.

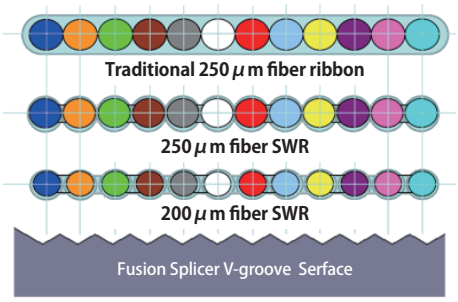
Whereas, the Air Blown WTC reduces splicing time drastically compared to loose tube type cable because the Air Blown WTC consists of 12F SWR and enables to splice 12F at one time. Also, the Air Blown WTC uses 200 μm fibers, so the Air Blown WTC is smaller diameter and lighter weight than loose tube cables. Even though 432 high fiber count design, the outer diameter is only 9.5 mm and weight is 60 kg/km. In addition, the existing mass fusion splicer, jacket stripper and cleaver can be used for splicing with 200 μm SWR and 250 μm SWR due to 200 μm SWR has same fiber pitch of 250 μm SWR. Of course it is available to splice 200 μm SWR each other.

In current years, while the advanced information society has been expanding rapidly, the infrastructure for telecommunication has been building expeditiously with various methods such as direct burial and blowing. Fujikura continues to develop innovative and various type of optical fiber cables that provide value to customer and society.

● Air Blown WTC Structure



● 12F SWR Fiber Pitch Structure



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