

## New Products

### 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. The documents<sup>\*1\*2</sup> issued by the Ministry of Economy, Trade and Industry in June 2021 and December 2023 states that the majority of high-voltage feeder cables that have experienced cascading accidents due to insulation degradation were installed underground in conduit routes. Therefore, if there is an influence of water on the installation environment, it is recommended to apply appropriate measures, considering the performance of the cable.

In high-voltage fire-proof cables as well, there are cases where they are used continuously as feeder cables in environments with water influence. Thus, there has been an increasing demand for high-voltage fire-proof cables that can maintain 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) based on Fire and Disaster Management Agency Notification No. 10. The product began its release in April 2024. The cable structure features a waterproof layer that blocks water and chemicals from entering from the outside, and electrically connects the shielding copper tape to the waterproof layer via a shielding reinforcement layer (A layer consisting of two metalized papers with their aluminum surfaces in contact with each other.) (Figure 2). 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.

### Reference

- \*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)

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### List of abbreviation and technical term

NH—Halogen-free

FP—Fire Proof Cable

The cable with a fireproof layer that maintains functionality for a specified period of time during a fire

T—Triplex

Twisted together three single-core conductors

Feeder cable—The cable that brings electricity from the Electric Power Company's utility pole directly to the factory or building where power is consumed

Metalized paper—Tape made by adhering kraft paper and flexible aluminum foil with adhesive.

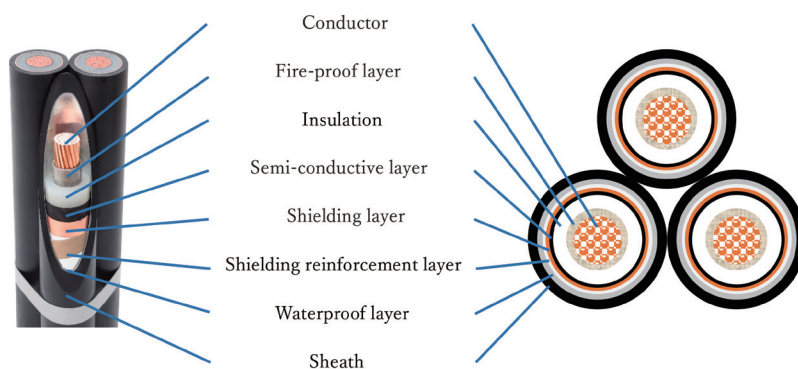


Figure. 1. Structure diagram of 6600V NH-FP(WP)-T

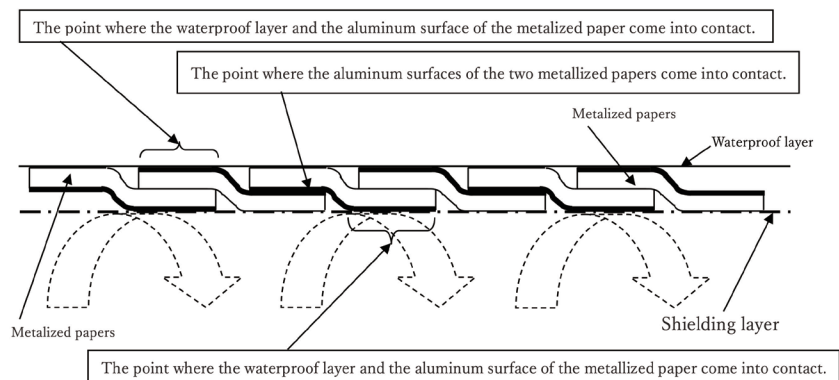


Figure. 2. Schematic diagram of electrical connections in the shielding layer-the Shielding reinforcement layer-the waterproof layer