

News Release

January 27, 2023

Proterial, Ltd.

The Fiber-optic Warning System for Contact Wire Wins Masuda Award of Grand Prize at the 65th of the Best 10 New Products

Proterial, Ltd. (formerly Hitachi Metals, Ltd.; "Proterial," hereafter) has won the Masuda Award of Grand Prize at the 65th of the Best 10 New Products organized by Nikkan Kogyo Shimbun for its fiber-optic warning system for contact wire. The award was jointly received by Central Japan Railway Company ("JR Central," hereafter). The award ceremony was held on January 26 at Keidanren Kaikan.

1. Details of the Award

Awarded Product: Fiber-optic warning system for contact wire
 Award Details: Masuda Award of Grand Prize
 at the 65th of the Best 10 New Products*
 organized by Nikkan Kogyo Shimbun



* The Best 10 New Products

The awards were established by the Nikkan Kogyo Shimbun newspaper in 1958 with the aim of encouraging the development of excellent new products and helping to improve the technology level of Japanese industry. Each year, 10 new products commercialized and released that year carefully selected for awards. The awards are highly regarded in industrial circles and are currently recognized as the most prestigious awards in the field. Among them, the highest ranking Masuda Award is a vaunted honor given to particularly outstanding products, and is so distinguished that in some years no products qualify. This is the 18th time Proterial has won a Best 10 New Products award since its first win in 1981 for a polarization-maintaining optical fiber when operating under its former name Hitachi Cable, Ltd., but this marks the first time it has won the Masuda Award.

2. Product Overview

Shinkansen bullet trains and other rolling stock run by receiving power from contact wires above the track through pantograph units fitted to their rooftops. Due to the structure where pantographs and contact wire are in contact, in the worst cases the contact wires break due to the effects of friction, preventing trains from running. To prevent this, conventional warning systems place a metal detection line inside the contact wire and monitor friction based on the



Fiber-optic warning system for contact wire

presence or absence of a flowing current.

However, this approach means that detection can only be performed at night when no noise is produced by running trains.

The fiber-optic warning system for contact wire that JR Central and Proterial jointly succeeded in commercializing uses fiber-optics for the detection line, making it possible to constantly monitor the state of contact wires and ascertain the progression of friction in real-time. This makes it possible to prevent contact wire breakage incidents before they occur.

Proterial will continue to respond to increasingly diverse needs as it strives to develop the high-performance materials that support social infrastructure.



Recipients of the Masuda Award at the award ceremony

(from left: President Imizu, The Nikkan Kogyo Shimbun; Vice President Mori, JR Central; and Chairperson Nishiyama, Proterial)

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