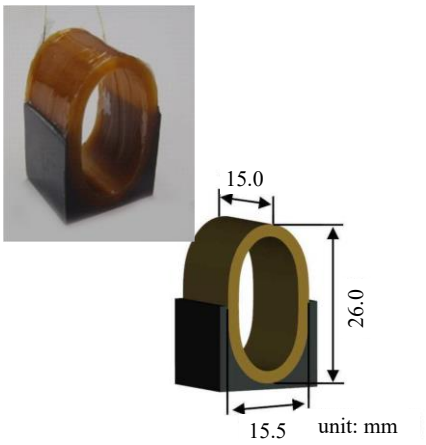
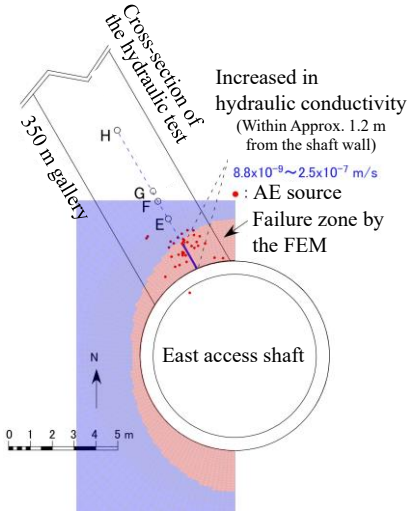
Optical AE Sensor

Keywords	Optical fibers, Doppler effect	
Technology overview	In AE measurement, sensors using piezoelectric elements (PZT) have traditionally been the mainstream. However, there are risks associated with environmental humidity and flammable gases. Therefore, a unique AE sensor using optical fibers was developed. Compared to PZT sensors, this new sensor requires no power supply and offers improved weather resistance and lightning resistance, enabling long-term operation.	Optical AE sensor shape: 
Applications	• Can be used for post-construction maintenance of tunnels • Can be used for long-term monitoring of HLW • Can be used without explosion-proof measures	
Know-how	Installation Methods for Deep Boreholes Noise Reduction (Excavation Machinery, Compressors, etc)	
Patent*	Japan_No.5350999	
Related technologies	AE measurement using PZT	
Examples	I. Hard rock formation 1_Granite (underground storage): 1 II. Soft rock formation 1_ Siliceous mudstone (URL): 1[*1]	Example of EDZ Evaluation Using Optical AE [*1]  Comparison of Measurement and FEM Analysis

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