

Study on Development of Non-Destructive Evaluation Technology for HRSG Fin Tube

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Heat Recovery Steam Generator (HRSG) is a combined cycle facility that rotates the steam turbine by generating steam by using it again without discharging the heat source generated from the gas turbine to the atmosphere. In addition, 150 gas turbine heat recovery boilers are currently in operation as energy-efficient and environmentally friendly facilities, and are evaluated as a facility that can solve the intermittent problem of renewable energy sources being installed to cope with global warming. Heat Recovery Boiler Fin tubes increase the cross-sectional area of the tube with the attachment of fins to store exhaust heat from the gas turbine for a long time, thereby increasing the heat transfer rate, as well as high heat exchange efficiency and large heat dissipation area. However, because there is no proper inspection method for tube damage due to the limited access of the pin attached to the outside, it is necessary to develop a heat recovery boiler fin tube non-destructive inspection device to solve this problem using a robot equipped with a smart magnetic sensor, a technology of the 4th industrial revolution. In addition, the magnetic sensor developed based on previous research is applied to a tube with a diameter of 50mm or less, and is promoting the development of a multifunctional inspection device for the first time in Korea in combination with a miniaturized camera.