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Development of New Annealing Technology for Stainless Coils

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Extended Abstract

BAF, an stainlses steel annealing facility, requires a CPL (Continuous Preparation Line) process as a vertical installation method of the coil, and CAF (Continuous Annealing Furnace) is horizontal installation method. We developed a convective circulation type CAF (CAF Plus) facility for the shortcomings when Stainless 430 wide width coil annealing is impossible due to the underheating of the edge due to direct fire. The concept is to apply convective heating by separating the annealing chamber and the combustion chamber and circulating the combustion gas directly. Through the CFD and production test, wide width coil can be annealed once a day. The material also has a hardness of 77.1 and satisfies the standard hardness of 88 and we intend to secure productivity and facility stability by optimizing heating patterns for various types of coils in the future

The main characteristics of the newly developed annealing furnace are as follows.

- Uniform annealing: Separation of annealing/combustion chamber and development of gas circulation concept (convection circulation type direct annealing)
- High speed heating : High speed convection heating by designing coil side gas nozzle shape
- High speed cooling : Development and design of high-speed cooling concept by heat exchanger/Fresh Air by cooling temperature
- Low NOx emission: Development of combustion control technology by low NOx burner, dual burner capacity, and gas circulation

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