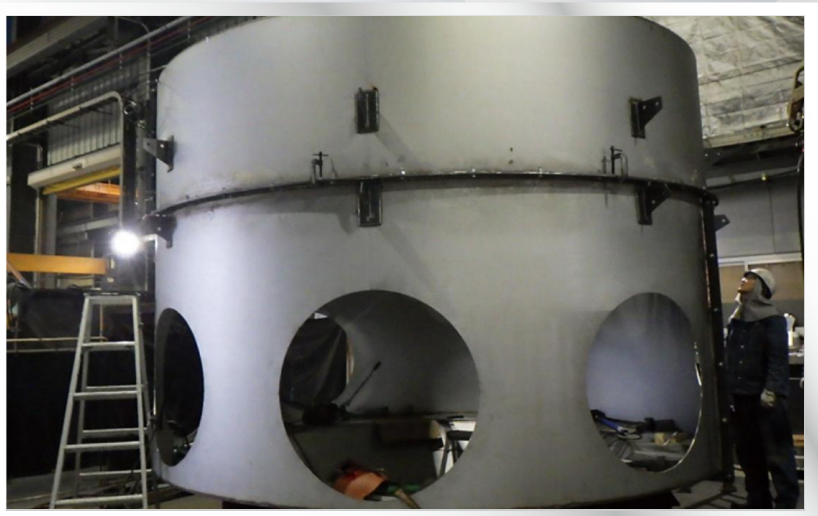
Contributing to extended equipment service life. A fabrication case study using “SUS304N2” and “SUS316L” to meet the demanding conditions of a cement manufacturer.

SEIKOH’s best solutions for “high-temperature wear” and “sulfuric acid corrosion,” derived from operating environment data and market availability.

A cement manufacturer consulted us regarding the fabrication of three critical pieces of equipment used within its plant: air ducts, coal hot-air headers, and a bifurcated duct. To achieve both longer service life and cost benefits, we thoroughly analyzed the operating environment of each component with manufacturer support, selected the optimal steel grades, and brought the solutions to completion.



① Air Duct Fabrication
② Coal Hot-Air Header Fabrication (Material: SUS304N2)

◆ [Challenge] Premature wear of conventional “SUS304” due to severe abrasion in high-temperature environments

We received a serious inquiry from our client stating, “Conventional SUS304 lacks sufficient wear resistance, and the equipment wears out very quickly.” The air ducts and coal hot-air headers in this project were to be installed in harsh areas where powder and hot air strike the equipment intensely and temperatures reach extremely high levels.

Materials that were merely hard risked becoming brittle under high-temperature conditions. To avoid this risk, we proposed “SUS304N2,” which maintains stable performance even in high-temperature environments while delivering high strength and wear resistance far exceeding that of SUS304. Through this precise material selection, we achieved robust air ducts and headers capable of withstanding both heat and wear.

③ Bifurcated Duct Fabrication (Material: SUS316L)

◆ [Challenge] Countermeasures for a severe corrosive environment caused by sulfuric acid and selection of the optimal steel grade

At the same time, we were consulted on a separate project regarding the fabrication of a bifurcated duct used in exhaust lines and similar applications. This component is exposed to an environment with an extremely high risk of sulfuric acid corrosion, and the client sought our technical advice on which steel grade should be selected.

With manufacturer support, we began verification based on the detailed operating environment data provided by the client. While other special steel grades existed that met the required conditions, we focused not only on meeting performance requirements but also on availability in the market and cost. As a result of our verification, we determined that “SUS316L”—which offers excellent corrosion resistance, is widely available on the market, and provides significant cost benefits—was the optimal solution for the client, and we proposed it. It was officially adopted as the best choice, satisfying both performance and budget requirements