



Equipment Fabrication Case Study

Situation: Fabricate a 2205 Duplex S.S. Steam Vessel Housing
For a large production pulp mill.

Challenge: Design & Fabricate a Steaming Vessel Housing from 2205 Duplex S.S. to ASME specifications.
An industry first!

Evaluation:

- Historically, the design of pulp mill steaming vessels consisted of a carbon steel body construction for strength clad with stainless steel for corrosion protection. This construction is prone to leaks.
- While in operation at a pulp mill, a leak was found and the unit was shutdown for repair. Upon further inspection, a serious corrosion problem was found throughout the lower portion of the carbon steel housing. A major concern, from both an operations and safety perspective.



Solution:

- Fabricate a steaming vessel housing that would withstand cladding cracking and housing corrosion during operation. Tristar undertook this challenge by fabricating a complete housing from Duplex S.S., a modern alloy providing enhanced strength as well as corrosion resistance. *a first ever attempt by a pulp equipment supplier.*
- Establishing a qualified manufacturing team: working together with Tristar's engineering team, the Boiler Branches of both BC and Ontario, and the engineering team at the mill, and reviewing all of the relevant ASME codes, calculations, operating parameters, a design was created.
- Upon successfully receiving all required approvals, manufacturing began. $\frac{5}{8}$ " plate was used for construction, and completed according to AMSE boiler & pressure code Sec VIII, Div 1. The vessel was constructed and inspected using radiographic procedures and mag particle testing, with the inspections by the Boiler Branches. The final step of manufacturing included all welds being pacified for cleaning and the removal of any remaining weld impurities.



Benefits: A Steaming Vessel, applicable to pulp mill environments that resisted corrosion and the cracking of the cladding, significantly lengthening the life of the vessel. Gains in reduced downtime and reduced maintenance were also achieved.

Conclusion: Success, Tristar manufactured the worlds first Steaming Vessel in 2205 Duplex S.S., taking a step forward in the use of new technology and modern materials in the manufacture of equipment for the pulp and paper industry.



For more information or other case studies: Please call 1-800-663-5606 or visit [.tristarind.com](http://www.tristarind.com)

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