

Secondary Reformer Burner-Ammonia Plant

Product Coding
PXXXXXXXXX

Introduction

Secondary reformer burners are critical components in ammonia production plants, responsible for the controlled introduction and combustion of process air into the reformer outlet gas from the primary reformer. This step provides the nitrogen required for ammonia synthesis and completes the reforming reactions under high temperature conditions.

Euroslot Pars manufactures secondary reformer burners strictly in accordance with the detailed design packages, drawings, and process specifications provided by internationally recognized licensors. Our role focuses on precision manufacturing, fabrication quality, and inspection, ensuring full compliance with licensor requirements and long term reliability in severe operating environments.

Features

- Fabricated strictly based on licensor-approved drawings and technical data from leading licensors such as Casale, Haldor Topsoe, and Kellogg.
- High-temperature resistant alloys and materials suitable for severe thermal and chemical conditions.
- Precision manufacturing of nozzles, mixing chambers, flame arresting internals, and air injection elements.
- Excellent dimensional accuracy to guarantee correct flame shape, uniform heat release, and proper gas mixing.
- Rigorous quality control, including welding qualification, NDT inspection, dimensional verification, and final assembly checks.

Secondary Reforming Process Overview

In the ammonia process, partially reformed synthesis gas exits the primary reformer containing hydrogen, carbon monoxide, carbon dioxide, methane, and steam. In the secondary reformer, preheated process air is injected through specially designed burners, supplying the stoichiometric nitrogen for downstream ammonia synthesis.

Inside the secondary reformer, the combustible components react rapidly with oxygen at temperatures typically exceeding 1,000°C, completing methane conversion and establishing the proper H₂:N₂ ratio. The burner design ensures uniform mixing, stable flame geometry, and minimal pressure drop, while maintaining safe and controlled combustion across the entire operating envelope.



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Experience

Euroslot Pars has built a strong reputation in the manufacture of critical equipment for ammonia plants by strictly adhering to licensors designs while leveraging its in-house fabrication expertise.

Our secondary reformer burners have been successfully manufactured and supplied for major Iranian ammonia complexes, including:

- Lordegan petrochemical
- Shiraz petrochemical
- Razi petrochemical

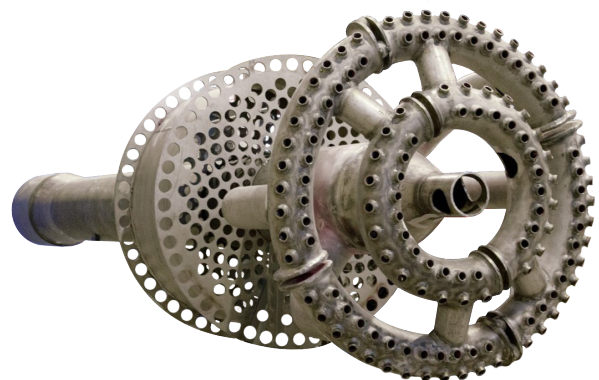
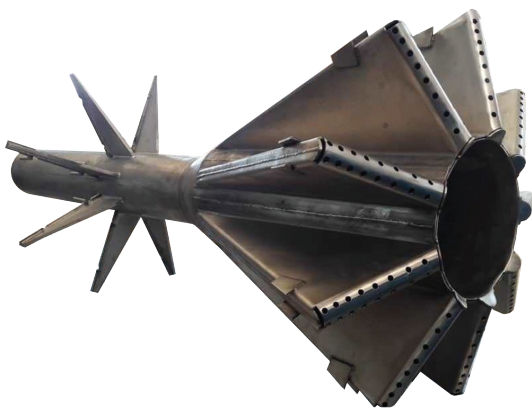


Function

The secondary reformer burner is the heart of the secondary reforming stage and plays a decisive role in the overall efficiency, safety, and stability of the ammonia production process. Its primary function is to inject precisely metered process air into the hot effluent gas from the primary reformer, ensuring immediate and uniform mixing under controlled hydrodynamic conditions.

By creating a stable and well-distributed flame front, the burner promotes complete combustion of residual methane, hydrogen, and carbon monoxide, thereby raising the gas temperature to the required level for final reforming reactions. At the same time, the burner establishes the correct nitrogen-to-hydrogen ratio for downstream ammonia synthesis, which is critical for achieving optimum conversion efficiency in the synthesis loop.

The burner design also minimizes local hot spots, reduces thermal stress on refractory linings, and maintains low pressure drop across the secondary reformer, ensuring long-term operational reliability and safe continuous operation of the ammonia plant.



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