

Selas Fluid

Ethylene Furnaces

State of the Art Technology

Cracking furnaces are the most important piece of equipment within ethylene plants, as they define the product yield of the entire plant. Selas Fluid supplies the highest capacity ethylene furnaces available in this industry.

A pioneer in the ethylene industry in the 1950's, Selas Fluid is a subsidiary of The Linde Group. Selas Fluid and Linde Engineering together provide ethylene furnaces that are 'top in class' with respect to:

- ✓ Cracking selectivity
- ✓ Energy efficiency, heat recovery and emissions
- ✓ Operability and run length
- ✓ Furnace capacity
- ✓ Availability and maintainability

Linde's proprietary PyroCrack® technology optimally meets our customer requirements for the full spectrum of feedstocks – from light hydrocarbons (ethane, propane and butane) through naphtha up to heavy liquid feedstocks such as gas oils and hydrocracker residues. Linde's exclusive short-residence time coil designs achieve maximum olefin yields and excellent furnace run lengths.

Never taking a standard design from the shelf, but rather optimizing our furnace designs to fulfill the specific needs and objectives of our customers, Selas Fluid/Linde can be counted on to provide the latest advances in furnace designs to maximize olefin yields. Our radiant coils feature mechanical robustness for long life.



Did you know...

Selas Fluid has over five decades of ethylene furnace experience.

Selas Fluid also offers:

- Revamp Studies
- Detail Engineering, Procurement, Fabrication
- Field Construction
- Commissioning and Operator Training
- Upgrades for Increased Performance
- Replacement of Tubes, Manifolds, Burners, and other parts



Highest Furnace Capacities

Our twin radiant cell design – a cracking furnace set-up consisting of two radiant cells with a common intermediate convection section – have been designed with ethylene production capacities of up to 250 metric tons per annum. These capacities allow us to supply today's mega-crackers, minimizing the number of furnaces provided for these plants. As a result, our furnace capacities set the benchmark regarding capital and operational expenditure for cracking furnaces.

Model of seven mega-crackers.
Project currently under execution.

Technically Advanced Features

Inherent in the twin radiant cell design is the flexibility for independent cracking of different feedstocks in one furnace. We have even designed twin cell furnaces for 'cell decoking', in which one radiant cell is on decoke-mode while the other cell is still in cracking-mode, providing our customers enormous operational flexibility.

Our patented radiant coil design is another example of technically advanced feature incorporation. Due to its unique layout, stress forces are minimized and guide pins attached to the bottom return bends are not required.



High Performance

Selas Fluid/Linde's ethylene furnaces are designed for maximum availability and reliability. A PyroCrack[®] radiant coil can be connected to any conventional quench exchanger type as well as to the most modern linear type transfer line exchangers (LQE) ensuring low pressure loss, highest selectivity, and minimum maintenance.

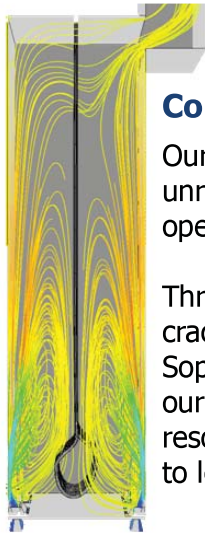
We have experience with all possible firing concepts. Today's furnaces are either equipped with a combination of floor and sidewall burners, or up to 100 % floor firing, depending on our customer's preferences and the optimum configuration for each individual project.

Safety is one of our highest priorities; hence firing systems are designed to comply with most recent safety standards. Sophisticated burner management systems ensure safe and easy operation which, if requested, may even encompass complete remote operation of the units.

Low Emission Designs

Selas Fluid's/Linde's furnaces have consistently fulfilled their guarantees regarding thermal efficiencies and emissions. Our commitment is to provide ethylene furnaces that comply with all environmental requirements and are therefore low on emissions. Our furnaces are equipped with state-of-the-art low-NO_x or ultra-low NO_x burners, or – if necessary - we design them with an SCR system incorporated in the convection section.

Our furnace designs minimize particulate emissions during decoking. This is accomplished either by re-routing the effluent gas back to the firebox for combustion, or by installation of a separator such as a cyclone to meet applicable regulations.

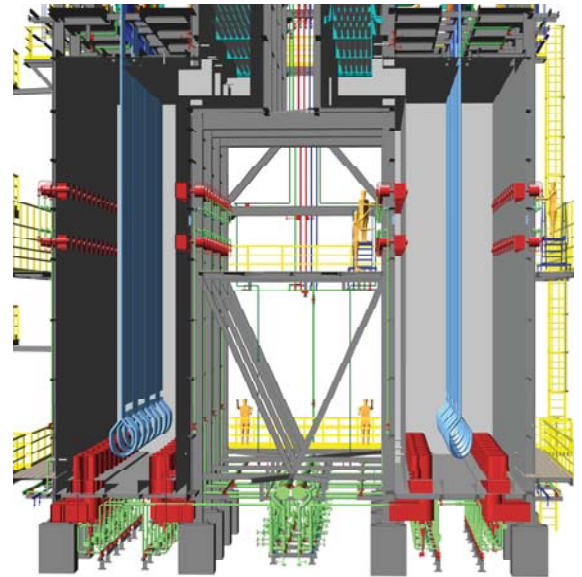


Selas Fluid/Linde in-house CFD modeling capabilities verify new design concepts.

Continuous Technological Development

Our continued success providing pyrolysis furnaces for the production of olefins has afforded us unrivalled experience. Selas Fluid's/Linde's commitment to continually improve the technology and operating efficiencies of our furnace design is the cornerstone of our success.

Through Linde's Research and Development facilities we have access to pilot plant data for cracking of any feedstock. We gather operating data on a regular basis from our installed units. Sophisticated computer programs such as Computational Fluid Dynamic (CFD) modeling enable our engineers to simulate fluid flow, combustion processes and heat transfer. Together, these resources lead us to improved furnace designs and provide the basis to address increasing needs to lower emissions and improve efficiency and operability of our ethylene furnaces designs.



The 3D design tools utilized by Selas Fluid allow clients to visualize the furnace as it is designed.

Selas Fluid Processing Corporation is a wholly-owned subsidiary of The Linde Group. Since 1946, we have provided over 1,000 cracking furnaces world-wide.

Call us today to learn more about our ethylene technologies, or visit us online at www.selasfluid.com

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