Where energies make tomorrow

Side Wall Burner

Premix radiant wall burner firing solution

T.EN TECHNIP ENERGIES

Developing combustion solutions for tomorrow

Fired heaters play a key role in the hydrocarbon industry. The demands on the burners in these heaters are increasing as users and regulators require higher efficiency and more stringent NOx emission limits.

With many shapes and sizes, Technip Energies Side Wall Burners (TSWB®) are used in steam reforming, steam cracking, refining and other processes. With more than 20,000 burners installed during the last 20 years, we have a large base of knowledge about burner technology. We were the first to apply flat-flame side wall burners that direct the flame radially across the face of the refractory, creating a more even heat flux. The method improves tube life and heater on-stream time. Further developments produced these features and benefits:

Features	Benefits
Flat-flame radiant wall design	Combustion zone expands from burner block to the refractory Uniformly distributed radiant heat flux Lower radiant tube wall temperatures
Secondary air staging	Additional capacity Low NOx
Robust design (single-burner block and use of high-grade tip materials as standard)	Reliability Low maintenance
Multi-fuel flexibility	Burner can be used for wide range of processes and fuels
Shielded fuel staging lance	Avoids overheating No coking or plugging Clean tips
Adjustable and uniform flame heat release profile	Heat release matching process requirements
Easy constructability	Versatility for new and revamp projects

These features optimize the furnace performance. Plus, in certain applications and regions, the burner can be a cost-effective replacement for expensive DeNOx systems that are based on selective catalytic reduction.

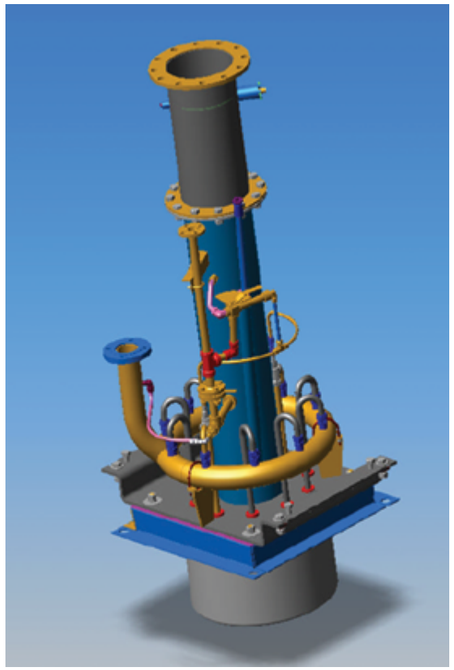
Russia – steam cracker reference for Technip Energies sidewall burners

Diverse firing configurations

The Side Wall Burner is placed in a furnace sidewall (side-firing) arrangement and can be applied to different process heating applications and natural-draft and reduced-draft combustion air supply modes. While the burner is suitable for a wide range of fuel gas compositions and firing configurations, it is particularly suited to retrofit projects where replacing existing units can add capacity and reduce NOx emissions.

A side-firing arrangement can be combined with our Large Scale Vortex (LSV®) burners, which can be applied for various process heating applications, fuel compositions (refinery fuels) and common burner firing configurations. The LSV is a natural-draft flame burner that can be either top or bottom-fired mounted.

Burner tip



The LSV burner can be applied for various process heating applications, fuel compositions (refinery fuels), and common burner firing configurations.

Field results support our claim to best-in-class low NOx burner technology:

- Ultra low NOx emissions
- Uniform flame heat release profile
- Compact flame
- Increased coil lifetime
- Trouble-free operating in plant
- In specific cases, the technology abates the need for Selective Catalytic Reduction systems
- Operation at low excess air

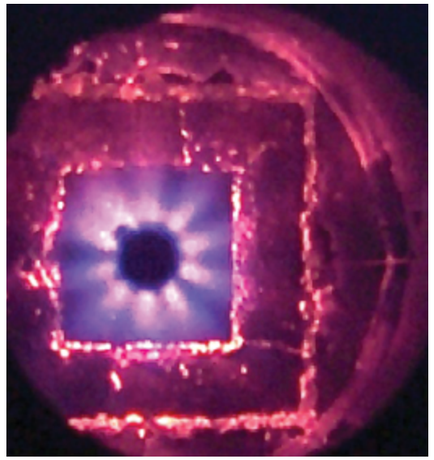
Russia – cracking furnace with Technip Energies sidewall burners

Research and development

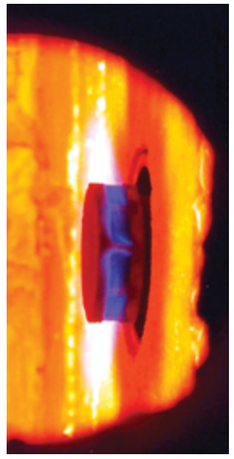
We continuously research the performance of our Side Wall Burners in a radiant firebox environment such as an ethylene furnace. We apply our proprietary Computational Fluid Dynamics – NOx simulator to accurately predict flame shape, flue gas temperature, flow profiles, radiant coil heat flux profiles and NOx.

We also have developed a low NOx version of the Side Wall Burner, which is being implemented.

TSWB test furnace



TSWB front view



TSWB side view

TSWB installed in cracking furnace

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