

ALZETA Innovative Energy Technology

Technologies that spark the imagination . . .

ALZETA is recognized worldwide as a leader in developing and producing advanced combustion solutions delivering optimized performance and superior efficiency with the lowest emissions.

Products that define our energy future



With demonstrated success across a wide spectrum of market applications, ALZETA is meeting the demanding energy and air pollution control needs of a changing world.

Semiconductors – ALZETA combustion technology helped transform the market for process gas abatement systems by completely destroying, with 24/7 reliability, a broad range of global warming, toxic and particulate-forming exhaust gases commonly used in semiconductor manufacturing.

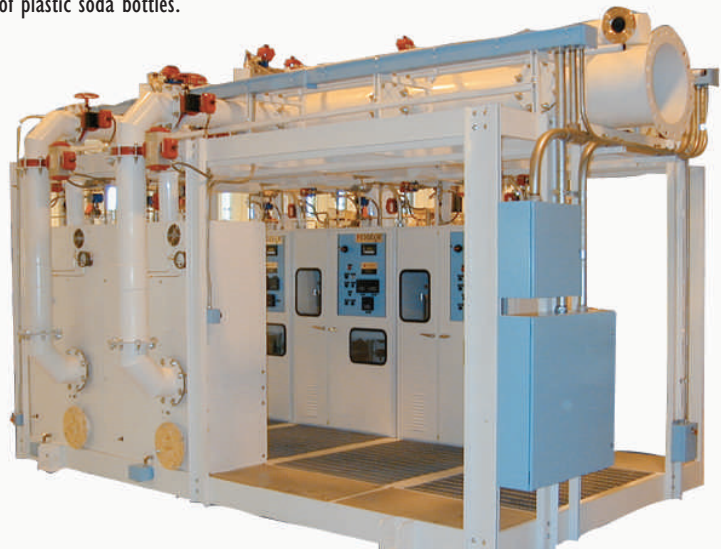
Industrial Process Heating – ALZETA led the way in developing industrial premix burners with ultra-low NO_x performance to satisfy increasingly more stringent environmental requirements. Combining new materials with control system simplicity has allowed seamless integration with existing boiler designs.

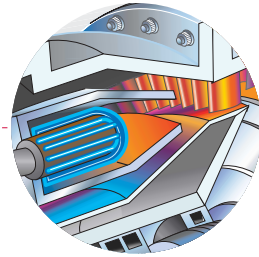
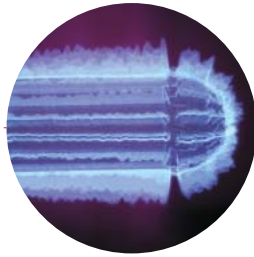
Commercial Heating – ALZETA radiant surface combustion burners helped establish market leadership for an OEM partner in the fast-growing market for high-efficiency, reliable commercial boilers by facilitating the use of new heat exchanger designs.

Paper Manufacturing – ALZETA radiant surface combustion burners created the opportunity to significantly increase paper mill productivity and efficiency without a major redesign by replacing conventional steam-heated drums with direct-fired drum dryers.

Plastics Molding – ALZETA low-emissions, premix burners and compact heat exchanger technology introduced the use of clean burning natural gas for efficient and cost-effective drying of resins used in the manufacture and recycling of plastic soda bottles.

*PFC Gas Abatement System
for Telecommunications
Device Manufacturing*





ALZETA continues to develop new products in key markets including Industrial Gas Turbines, Distributed Generation and CHP Systems, with a proven list of advanced and innovative technologies and strengths:

- **Pre-mix, surface stabilized combustion**
- **Specialty materials technology, including ceramic and metal fiber composites**
- **Unique manufacturing skills and capabilities**
- **Engineering teams with experience in advanced combustion applications**



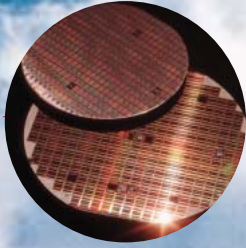
ALZETA is developing the combustion products of the future.



Advanced manufacturing techniques used in production of sintered metal fiber composites



Unsurpassed quality assurance



Semiconductor Manufacturing Exhaust Gas Management System

Challenge: Develop the next generation of semiconductor manufacturing process tool exhaust abatement systems, ensuring the safe, reliable and effective destruction of hazardous gases used by this industry. This will protect the health and safety of personnel, prevent damage to capital equipment, reduce maintenance costs, and enable good stewardship of the environment.

Solution: In 1995, BOC Edwards in collaboration with ALZETA and SEMATECH, commercialized the Thermal Processing Unit (TPU) exhaust management system. Utilizing core technology under license from ALZETA, the TPU family of products now sets the industry standard by cost-effectively and reliably destroying even the most challenging of process exhaust gases used to manufacture semiconductors.

Semiconductor Manufacturing Exhaust Gas Management System, **TPU®**

Courtesy BOC Edwards



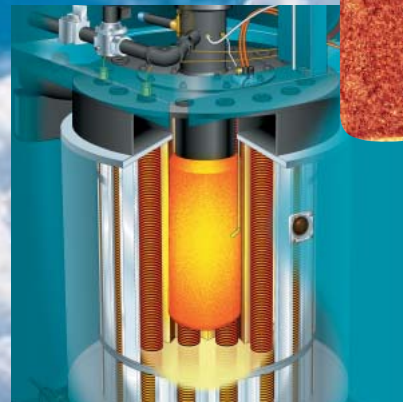
High Efficiency, Low Emissions Commercial Water Heater

Challenge: Integrate advanced combustion system designs to support the introduction of new, high efficiency and low emissions commercial boilers to meet changing market needs.

Solution: Working closely with ALZETA, Burnham Corporation introduced the Evolution® in 1997, a high-efficiency, low-emissions commercial hot water boiler now sold by Thermal Solutions, a Burnham subsidiary. Utilizing finned copper tube heat transfer surfaces, ALZETA's Duratherm™ ceramic radiant burner technology, and the latest in web-enabled controls and monitoring, these boilers provide commercial and institutional building heat with excellent performance and reliability.

High Efficiency Water Boiler, **Evolution®**

Courtesy Thermal Solutions



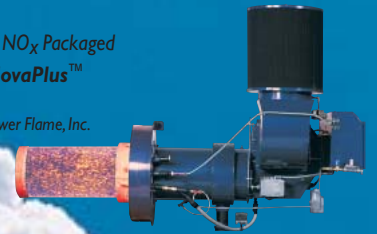
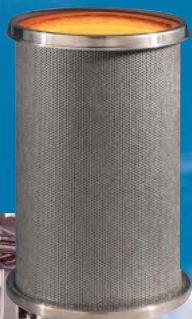
Ultra-Low NO_x Packaged Burner

Challenge: Meet the increasingly stringent regulations for smog-producing NO_x emissions from commercial and industrial boilers, by going beyond the limited performance enhancement remedies available by simply refining and optimizing fuel/air mixing techniques in "nozzle-mix" burners.

Solution: Using 20 years of experience in premix combustion technology, ALZETA teamed up with Power Flame, Inc. to supply ALZETA's CSB ultra-low NO_x combustion technology nationwide. Utilizing the CSB's pre-mixed, porous metal firing head technology, PFI's NovaPlus™ burner systems deliver single digit NO_x performance for commercial, industrial and process heating applications.

Ultra-Low NO_x Packaged Burner, **NovaPlus™**

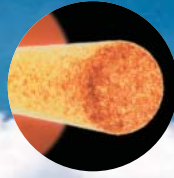
Courtesy Power Flame, Inc.



Core Technologies

Product/Benefits

Ceramic Fiber Matrix Pre-Mix Radiant Combustion



Duratherm™ Burners

- Low NO_x and CO emissions
- Uniform heat flux
- Quiet operation

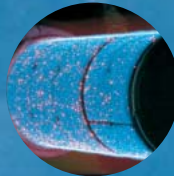
Inward Fired Pre-Mix Combustion



QR-TPU™ Exhaust Gas Abatement Systems

- Ability to destroy full spectrum of semiconductor process gases, including global-warming PFC gases
- Ability to handle SiO₂ producers
- Ability to handle high H₂ loads

High Flux, Metal Fiber Pre-Mix Combustion



CSB™ Burners

- Ultra-low NO_x and CO emissions — meets all BACT requirements
- Stable combustion from high to low fire
- Simple controls, modular design

Ultra-Lean, Surface Stabilized Pre-Mix Combustion



nanoSTAR™ Gas Turbine Injectors

- Flexible low NO_x performance from 15 ppm down to 2.5 ppm
- Reliable operation with no combustion dynamics
- Cost-effective and easy to implement

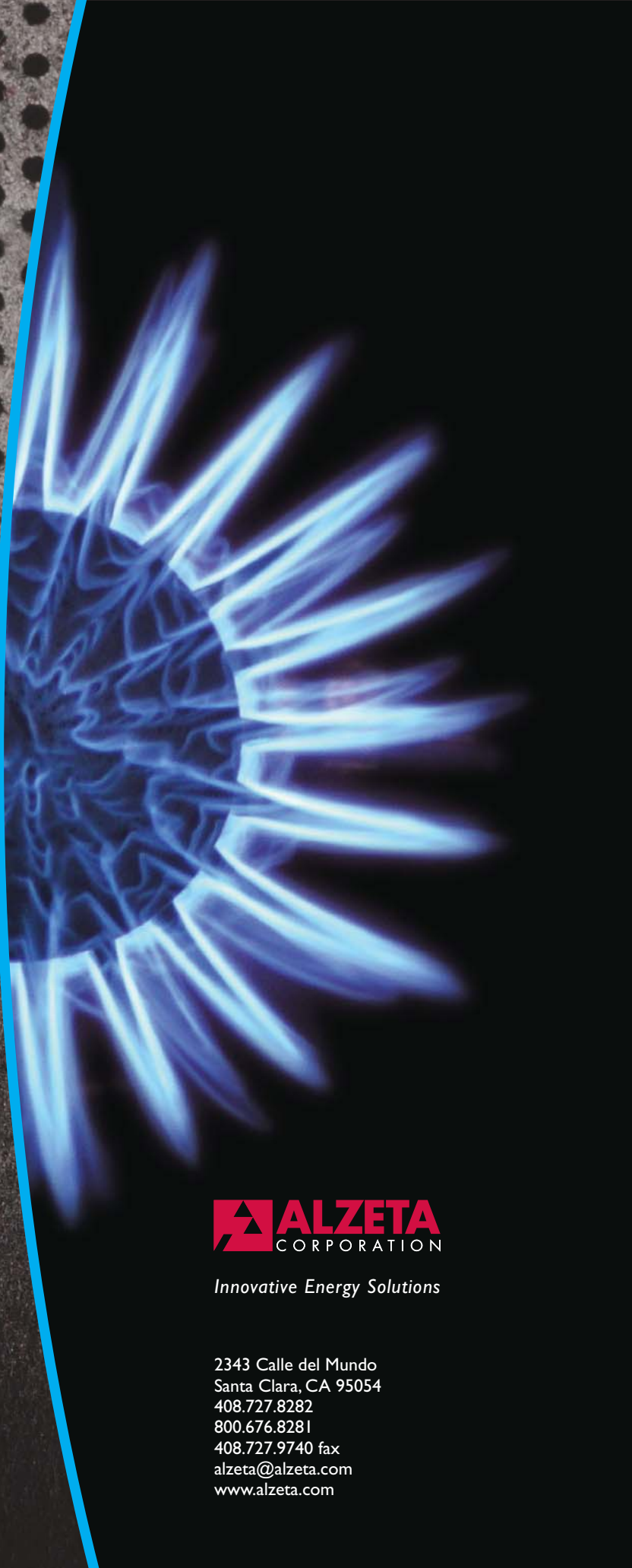
Working with ALZETA



ALZETA is committed to supplying our customers with the best in high-efficiency and low-emissions solutions.

If you're faced with changing market needs and increasing requirements for energy solutions, ALZETA stands ready to help.

Discuss your needs with one of our dedicated product support teams and see how ALZETA's products and technologies can spark your imagination.



Innovative Energy Solutions

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