

# PROVEN SOLUTIONS FOR THE BIOGAS INDUSTRY

## Proven Solutions and Services for the Biogas Industry

- » Gas Conditioning and Compression Packages
- » ZTOF® Enclosed Flares
- » ZULE® Ultra Low Emissions Flares
- » ZBRID Hybrid Thermal Oxidizer
- » ZEF™ Elevated (Open) Flares
- » ZNIX™ Hydraulic Elevated (Open) Flares
- » ZES Evaporator Systems
- » Blower Skids
- » Aftermarket, Rental and Service
- » Research and Design

## Additional Capabilities

- » KES Institute<sup>SM</sup> accredited training classes
- » Worldwide offices and sales representatives
- » Global fabrication for international projects
- » Carbon credit projects

## Superior Performance and Trusted Experience

Customers worldwide look to John Zink Hamworthy Combustion for solutions they can count on, and we deliver, with industry-leading products that have been proven in thousands of installations worldwide.

For the biogas industry, our experience dates back to our first installation in the 1970s. Since then, we've been a leader in research and development, manufacturing, advanced testing and skillful field installation, helping customers optimize their entire biogas system to meet even the toughest environmental regulations.

## Every John Zink Hamworthy Combustion System is Backed By:

- » An uncompromising commitment to helping you improve the performance and efficiency of your operations
- » Unrivaled experience gained from field-proven and tested systems in the biogas industry
- » Research, development and testing at the largest, most comprehensive R&D test center of its kind
- » 24-hour parts and service support and worldwide field technicians for installation supervision, start-up and training



ZTOF® ENCLOSED FLARE

## ZTOF® Enclosed Flare

- › Field proven and tested with systems in operation since the 1970s
- › Capacities up to 6,000 SCFM at 50% methane
- › 10:1 or greater turndown without external adjustments, rumblings or vibrations
- › Greater than 98% destruction rate efficiencies expected
- › Off gas from siloxane systems, VOC engine exhaust and condensate injection capabilities

## ZULE® Zink Ultra Low Emissions Flare

- › Field-proven and tested with systems in operation since 1998
- › Capacities up to 6,000 SCFM
- › Lowest achievable NOx in the industry, tested as low as 3-4 ppm
- › Greater than 99.5% destruction efficiencies expected
- › Near-zero CO emissions for temperatures as low as 1,200° F
- › Patented technology

## ZEF™ Elevated (Open) Flare

- › Unique skid-mounted ZNIX hydraulic design to eliminate the need for a crane during start-up and maintenance
- › Up to 20:1 instantaneous turndown without adjustments
- › Engineered windshield design to increase turndown and stability
- › Adjustable thermocouples for optimum temperature control

## ZBRID Hybrid Thermal Oxidizer

- › Field-proven design and technology with more than 10 years of operating history
- › Oxidizes low BTU off gasses (typically less than 15% CH<sub>4</sub>) from CO<sub>2</sub> stripping processes and landfill perimeter wells
- › Cost-effective alternative to traditional thermal oxidizers to effectively destroy low methane waste gas streams
- › Greater than 98% destruction efficiencies expected

## Digester Applications

- › Enclosed, elevated and ultra low emission flares for the agriculture, industrial and municipal waste water markets

## Gas Conditioning and Blower Skid Packages

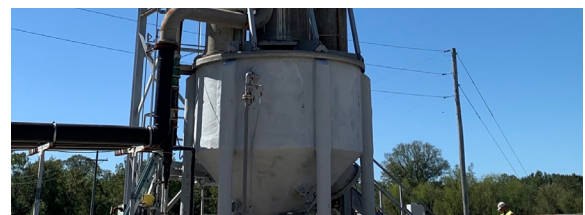
- › Pre-piped and pre-wired system to minimize field installation
- › Skid capacities up to 15,000 SCFM for multiple flare systems
- › Shop tested prior to shipment
- › Dehydration, compression and conditioning equipment skid packages available

## ZES Evaporator Systems

- › Capacities up to 50,000 gallons per day using landfill gas or Natural Gas as fuel
- › Continuous hands-free operation with automatic filling of leachate or waste water
- › Enhanced design for lower operational costs, less maintenance and lower power requirements
- › Blowers and controls are skidmounted, pre-piped and pre-wired to minimize field installation

## Aftermarket and Service

- › Rental flares, both enclosed and elevated
- › 24-hour parts and service
- › Technicians worldwide
- › Preventative maintenance programs
- › Full staff of controls engineers and project managers to handle the most complicated retrofit



EVAPORATOR SYSTEM

Koch Engineered Solutions (KES) is a global solutions provider that encompasses products, services and expertise across a wide range of industries. KES companies design, manufacture and install process, pollution control and sustainability solutions for industries and cities around the world. More information is available at [KochEngineeredSolutions.com](http://KochEngineeredSolutions.com).

