

The Zeeco Difference

Our engineering innovation is without parallel – and it shows in thousands of Zeeco installations across 74 countries. Choose a provider with the extensive engineering experience and testing capabilities to ensure your equipment performs as designed. With more than 20 global office locations, and five manufacturing facilities around the world, Zeeco continues to expand its global footprint to serve our customers – no matter where they reside.



ZEECO VariJet™ flare test



The Zeeco Difference

By concentrating on what we do best, Zeeco has grown into a worldwide leader in combustion and environmental solutions. We are a privately held company whose ownership stays highly involved in daily operations, with upper management comprised of the world's leading combustion experts.

When you call Zeeco, we answer. When you make a request, you get a quick, efficient response. We are lean and efficient, able to make decisions quickly, without bureaucracy and red tape. Our sales, engineering, and purchasing groups work hand-in-hand to deliver highly competitive quotes and heroic turnaround times. We stand ready and willing to travel anywhere in the world to discuss upcoming projects firsthand, and to ensure that every existing project runs seamlessly.



Visit zeeco.com/contact for additional Global Location contact information



Choose to work with our dedicated, flexible, and innovative team, and you won't be disappointed. Call or email us today to request a quote or to learn more about our proprietary combustion systems.

**COMBUSTION
RESEARCH & TEST
FACILITY**



**BURNERS | FLARES | THERMAL OXIDIZERS
VAPOR CONTROL | RENTALS | AFTERMARKET**

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Certification applies to
Zeeco Headquarters.



COMBUSTION RESEARCH & TEST FACILITY

World Class Test Facility

The most recognized names in the refining, production, LNG, power, biogas, and pharmaceutical industries have relied on Zeeco for nearly 40 years to keep them operating cleaner, safer, and smarter than ever. Located at our global headquarters near Tulsa, Oklahoma, Zeeco's 20-acre (81,000 m²) Research and Test Facility is the largest in the world and the first of its kind to become ISO 9001 certified.

Zeeco's engineering and development staff is dedicated to staying ahead of rapidly changing regulations and emission requirements. That's why we utilize our 17 full scale test furnaces to test a wide range of systems and conditions to meet our customers' specific requirements. In addition to burner testing, our facility is equipped to conduct flare testing and demonstrations, including air-assisted, steam-assisted, enclosed, and multi-point ground flares. Zeeco offers the fuel storage, supply, and blending capabilities to test for high-capacity relief flaring as well as a wide range of typical flare gas compositions and conditions.



Fuels

Our facility is capable of firing multiple liquid and gaseous fuels and blends to simulate virtually any plant fuel scenario under specific process conditions. A wide variety of fuel gases, from low to high heating values, are blended with natural gas, hydrogen (H₂), and propane (C₃H₈). These fuel gases are blended in proportions to closely match the specific gravity, molecular weight, and lower heating value (LHV) of actual fuel gases. Other fuel components can also be added upon request such as nitrogen (N₂), carbon dioxide (CO₂), propylene (C₃H₆), butene (C₄H₈), butane (C₄H₁₀), pentane (C₅H₁₂), and xylene (C₈H₁₀). Liquid fuels are generally simulated with no. 6 oil, no. 2 oil, naphtha, pentane, gasoline, and kerosene.

- Propane; 30,000 gallon (113,560 litre) liquid propane tank for storage
- Multiple 30,000 gallon (113,560 litre) tanks for additional fuel gas capacity
- Multiple 1,000 gallon (3,785 litre) deck tanks for propylene, butane, and pentane storage
- In-line fuel mixing capabilities

Burners

Our test facility engineers and technicians work hand-in-hand with you to provide quality combustion equipment and superior service for the long run. We're capable of testing a wide variety of mounting options and burner types – process, package, and power burners – to accurately simulate field conditions. Many of our 17 test furnaces can be used for simultaneous multiple burner testing.

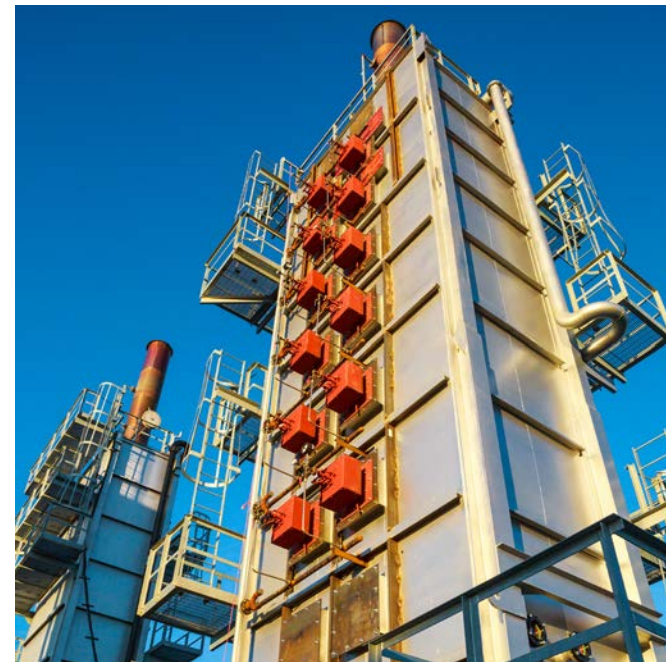
- Test Furnaces:
 - » Cabin style heaters
 - » Vertical cylindrical heaters
 - » Ethylene cracking test furnaces
 - » Down-fired reformer test furnaces
 - » Natural draft, induced draft, forced draft, forced draft preheated air, simulated turbine exhaust gas, FGR (flue gas recirculation)
 - » Fuel metering runs for each fuel component in a mixture
 - » Array of sight port sizes and locations on each furnace for adequate combustion viewing
 - » Extractive O₂, CO, NO_x sampling methods
 - » Noise emission measurement
 - » Radiant heat flux
 - » Extractive CO probing
 - » Suction pyrometer temperature measurement
 - » Variety of instrumentation to accurately measure pressures, temperatures, flow rates, and other required measurements
 - » Eco-friendly, "closed loop" self-sustained water cooling system
 - » Onsite boiler for heating, steam tracing, and steam injection capabilities



Zeeco engineer inspecting burner test



Customer flare test



Flares

Unlike many other facilities, Zeeco's Test Facility includes a 30,000 gallon (113,560 litre) propane tank, multiple 30,000 gallon (113,560 litre) vapor mixing tanks, and a 30-inch main flare header for large scale flare testing. Flares can be tested and optimized for smokeless capacity, flame length, and flame stability. From cross- light testing and extractive emission testing to radiation and noise evaluation, our facility provides the critical information needed prior to system installation. Zeeco offers the capability to simulate a wide variety of fuel gases, from low to high heating values.

Flare designs routinely tested at our Research and Test Facility:

- Utility flares
- High Pressure Air Assist (HPAAS™)
- Multi-Jet pressure-assisted
- Steam-Assisted
- Air-Assisted
- VariJet™ variable orifice pressure-assisted
- Enclosed ground flare
- Multi-Point ground flare
- Liquid flare

During flare testing, Zeeco can collect data such as flow rate, radiation, noise, flame characteristics, Ringelmann number, pressure, flame stability, emissions, combustion efficiency, and fuel sampling. Zeeco can also record drone video during flare test demonstrations to provide additional viewing.



Pilot testing rig that simulates hurricane force winds and rain, and exceeds API 537 pilot testing requirements

