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.
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, NOx 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
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.
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.