OFFSHORE
Products and Services
Up to the offshore challenge.

At Zeeco, our decades of combustion experience with the most challenging offshore flaring projects in the world drives us to develop innovative solutions. Because these systems are complex, it is critical to choose a provider with proven expertise in the design, installation, and commissioning of the equipment. Zeeco has both the extensive engineering experience and intensive testing capabilities required to ensure a superior offshore or FPSO solution. Our offshore and FPSO flare systems operate around the world, including in the South China Sea, South America, India, Africa, and the North Sea. Trust in Zeeco’s undisputed position as a worldwide leader in combustion technology and our truly global manufacturing, sales and service capabilities. And, trust your flare will be designed to meet the pressure, flow, and gas composition ranges you need safely and smokelessly.

Protecting people and equipment.

Offshore flaring presents unique challenges such as space availability, heat radiation, noise, and environmental pollution. We understand employee safety is an operator’s number one priority due to the close proximity and heat radiation of the equipment. Zeeco’s engineered offshore flare systems are fully evaluated and designed to safely

ZEECO Offshore Liquid Flaring System

and reliably handle even your largest potential relief scenario, while still reducing radiation and increasing operating turndown. We evaluate your process information and design each new flare system or flare tip replacement specifically for the application.

Extreme environments expected.

Offshore and FPSO flare systems often exist in extreme environments, resulting in design challenges our engineers enjoy solving. ZEECO® flare tips are engineered with specific metallurgy to meet environmental and operational application parameters. In addition, our tips initiate the flame above the tip exit, reducing destructive flame lick and burn-back. Designed for maximum life expectancy, Zeeco flare tip assemblies provide years of reliable, efficient service in highly oxidizing atmospheres. Zeeco’s available offshore flaring solutions include both high pressure and low pressure systems for gas or liquid flaring applications.

Sonic Utility (UFX) and Multi-Jet (MJ) Sonic Flare Systems

Zeeco’s high pressure flare tips use the energy in the gas stream to improve smokeless performance while achieving a 98.5% or higher destruction efficiency. The UFX single-point sonic tip provides a low cost, highly efficient smokeless flaring solution. Zeeco’s UFX is also recommended for operators downsizing systems due to field depletion or to meet zero flaring applications.
The high pressure MJ Flare System delivers superior flame stability and high destruction efficiency for 15 psig (1 barg) or higher applications requiring smokeless flaring and low radiation levels. MJ flare tip assemblies may have either a fixed or variable exit area. These flares are commonly designed to be combination high and low pressure systems, incorporating LP reliefs within the flame envelope of the HP gases.

Smokeless Single-Point and Multi-Jet Gas Assisted Flares
Zeeco’s Multi-Jet and Single-Point Gas Assisted flare tip assemblies safely burn low pressure, heavy hydrocarbons. Zeeco’s gas assisted flare tip assemblies are commonly used for applications associated with the flaring of low pressure or medium pressure gases from separators, where no steam is available to use for smokeless burning of heavier hydrocarbon gases.

Utility Flare
The ZEECO® Utility Flare (UF) series flare tip assembly utilizes a unique arrangement of proprietary flame stabilization tabs to ensure stable and high-efficiency flaring through the entire design range of flows, from maximum emergency flaring to purge gas flow rates. The flame stabilization tabs create a low-pressure zone at the perimeter of the flare tip gas exit point and work in conjunction with continuous pilots to ensure proper ignition of the waste gas. Zeeco’s flame stabilization tabs are made from investment castings mounted to the flare barrel using plug welds, eliminating stress risers and cracking associated with linear welding in high heat zones.

VariJet Flare System
The ZEECO Variable Jet (VariJet) flare tips are a variation on the MJ tip. VJ flare tips capitalize on high exit velocities and their superior air-fuel mixing driven by high gas to air surface area ratios. Each arm of the VJ tip incorporates a self-actuated variable exit area assembly that opens as required when triggered by internal pressure to ensure operation at consistently high exit velocities over a wide range of flow rates. By maintaining operation at a high exit velocity and allowing the variable pressure of the waste gas coming into the flare to determine the number of tips needed, the flare does not require any additional assist media to operate smokelessly.

Liquid Flaring System
Zeeco’s Liquid Flaring Systems are designed for both smokeless and non-smokeless waste fluid combustion. Smokeless flares require specialty systems designed to use either an outside source or assist media to achieve smokeless burning (such as steam, air, gases, or water). High pressure may also be utilized in the incoming
fluid stream to atomize the wastes and promote smokeless combustion.

Flare Gas Recovery Systems (FGR)
As a world leader in the design and supply of Flare Gas Recovery systems, Zeeco designs systems to work with your existing flare to achieve zero flaring. With the properly engineered and designed system in place, waste gases are processed, recovered, compressed, and returned to the plant to be reused as fuel rather than flared, reducing both fuel and flare maintenance costs. Our FGR systems will pay you back and help your plant meet current and future regulations by dramatically reducing CO₂ platform emissions.

General flare applications.

- Smokeless, low radiation combustion with the lowest environmental impact for high to medium pressure streams
- Utility Flare, Gas Assisted Flare, and Air Assisted Flares to smokelessly combust low pressure separator or blowdown relief streams
- HP/LP Dual Flare Systems reduce the required number of pilots, simplify the ignition system, and reduce radiation and smoke from LP gases
- Enclosed flares available for FPSO applications
- Engineered vent tips and snuffing systems available for intermittent or low volume relief streams

Hurricane-proof pilots.

In order to maintain a safe and reliable ignition source with flame stability, Zeeco recommends offshore operators use continuous pilots. The ZEECO® HSLF Flare Pilot utilizes investment castings – rather than welded seam fabrication – to maximize the pilot’s operating life. To guard the orifice and prevent weather from disrupting gas flow, we fortify our pilots with a pilot mixer assembly boasting an integrated weathershield. The HSLF Pilot is hurricane-tested* to withstand the toughest conditions at sea. In addition, the HSLF pilot can be retrofitted to competitor flare systems.

Unparalleled aftermarket support.

Zeeco Aftermarket Service is simply unparalleled in the industry. Whether you need replacement flare tips, gas tips, ignition systems or pilot parts, Zeeco’s parts and service team is ready to help. When you call, you talk to an experienced combustion expert. Zeeco’s team of service engineers are available 24/7 and are Zeeco employees, not independent contractors. Our engineers are fully offshore certified and trained in the latest standards and certifications, including NORSOK, ATEX, SANS, BOSIET, and PED to meet your emissions requirements.

Comprehensive service and support, plus dedicated manufacturing facilities in Houston, TX, USA; the United Kingdom, Saudi Arabia, and India means we can better serve our offshore customers.
wherever in the world they operate. Zeeco uses a separate, fast-track workflow to refurbish and replace existing flare tips, resulting in quick turnarounds for quotes, fast shipping for parts, and top-notch diagnostics and service. Many customers also depend on Zeeco training for operators to prolong equipment life, reduce long-term maintenance costs, and protect employees.

Big claims backed by solid research.

Our standard approach is anything but “standard.” We use advanced Computational Fluid Dynamics (CFD) to model your specific process conditions against actual equipment design, allowing us to accurately simulate flame behavior and interaction under varying wind and weather conditions, fuel types, and flows. We use wind tunnel testing to accurately predict how wind will affect a flare’s live performance. The result? Combustion solutions with reliable, superior results and a system that lasts significantly longer.

The same commitment to excellence applies to our complete combustion testing process. Our Combustion Research and Test Facility, one of the largest in the industry, was the first in the world to become ISO 9001-2000 certified, and our staff stays ahead of rapidly changing regulations and emission requirements. With our flare testing facilities and multi-fuel capabilities, from natural gas to butadiene and more, Zeeco can simulate flare system performance in a variety of conditions.

The Zeeco difference.

Our only business is the combustion business. By concentrating on what we do best, Zeeco has grown into a worldwide leader in combustion 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. We are lean, efficient, and able to make prompt decisions 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 to travel anywhere in the world to discuss upcoming projects firsthand and to ensure every existing project runs seamlessly.
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ZEECO® combustion solutions are designed and manufactured to comply with applicable local and international standards as defined by our customers.