



MONOBLOCK BURNERS FOR HEATERS

Oil and Gas Industry

E&M COMBUSTION



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E&M Combustion is a thermal engineering company that designs and manufactures “tailor-made”; industrial burners for the **oil and gas** industry, with the main objective of providing a technical response and specific solutions that its customers require.

Since 2004, our company has become an international benchmark in monoblock burners for **heaters and ATEX burners**.

Our specialized equipment are deployed in oilfield modernization processes in numerous countries, with burner applications designed to operate in critical areas.





1.

Overview of Heater Types

Heaters in the **oil and gas industry** are equipment used to heat fluids such as crude oil, natural gas, produced water, or refined products. Their main function is to optimize processes such as a phase separation, reduce crude oil viscosity, prevent hydrate formation, and improve transportation and refining efficiency.

Types of Heaters in Oil & Gas

Indirect Fired Heaters

- They use a thermal fluid (such as glycol or thermal oil) to transfer heat without direct contact with the combustion source.
- They prevent contact of the fluid with the flame, reducing risks of contamination or degradation of the product.
- **Applications:** heating of natural gas before pressure regulation stations, prevention of hydrates in gas pipelines.



Direct Fired Heaters

- Burners directly heat the fluid through coils or combustion chambers.
- They are more efficient in heat transfer but require greater emissions control.
- **Applications:** crude oil heating in pipelines, refining processes, produced water treatment.



Types of Heaters in Oil & Gas

Bath Heaters (Water Bath Heaters)

- They consist of a burner that heats a water or glycol bath, indirectly transmitting heat to a coil that transports the process fluid.
- They are used in gas pipelines to prevent ice formation and in upstream installations to heat crude oil or gas before separators.



Electrically Heated Heaters

- They use electrical resistors instead of combustion.
- They are used in emission-sensitive environments or where gas/fuel is not viable.



Key applications

1.

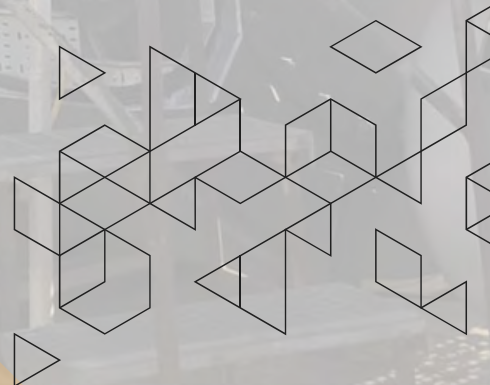
Upstream: Preventing hydrate formation in gas pipelines, heating crude oil before separation.

2.

Midstream: Viscosity reduction in pipelines, temperature maintenance in storage.

3.

Downstream: Heating in refining processes, stabilization of refined products.



2.

Features of Monoblock burners

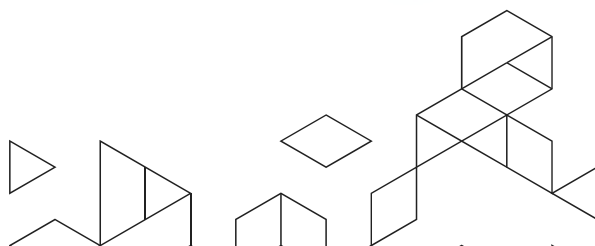
E&M Combustion monoblock burners are designed to offer maximum performance in industrial heaters.

Its compact construction and advanced technology guarantee efficiency, reliability and ease of installation.

Main features

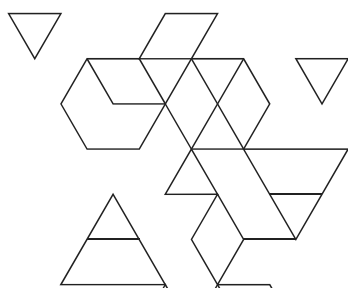
- **Compact design:** They integrate the motor and fan into a single unit, optimizing space and facilitating installation.
- **Wide power range:** Capable of reaching up to 25 MW of thermal power, adapting to different industrial needs.
- **Suitable for ATEX zones:** Designed to operate in environments at risk of explosion, complying with safety regulations.

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- **Advanced Automation:** Compatible with customer PLC control systems, ensuring precise and efficient regulation.
- **Built-in Silencer:** Reduces noise levels for quieter, more comfortable operation and compliance with applicable regulations.
- **Multi-Fuel Compatibility:** Works with a wide variety of liquid and gaseous fuels, offering great versatility.
- **Easy maintenance:** Accessible design to minimize downtime and optimize operability.
- **Low emissions and high efficiency:** Advanced technology that reduces the environmental footprint and maximizes energy efficiency.
- **On-demand continuous pilot system:** Optional according to customer needs, ensuring reliable ignition and flame maintenance in any type of operation.



3.

Advantages of E&M Combustion burners in this type of applications



Robustness and durability: Constructed with high-strength materials and reinforced sheet metal thicknesses, ensuring a long service life even in extreme conditions.



Adaptability to different types of fuel gas: Designed to operate with refinery waste gases, including those with high corrosion rates.



Custom manufacturing: Customized to the client's specific requirements, ensuring maximum flexibility and adaptation.



Painted to exacting standards: They meet the most rigorous customer procedures in terms of corrosion resistance and durability.



Customized ATEX certification: Equipment adapted to the different safety levels required for each type of installation.

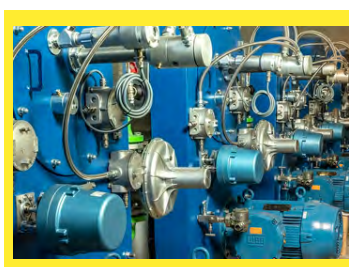
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Equipment for ATEX zones

Our burners are designed to operate safely in **explosive atmospheres** (zones classified as ATEX), complying with European **ATEX 2014/34/EU** regulations and international safety standards. These burners feature **certified** electrical and mechanical components **to prevent**

accidental ignition, ensuring reliable operation in environments where the presence of **flammable gases, vapors, or combustible dust poses a risk**. Furthermore, we adapt our burners to different **ATEX**

protection levels (Zone 1, Zone 2, EExd, EExde), ensuring compatibility with the specific requirements of each industrial facility.



E&M Combustion ATEX burners are built with certified materials and designed to operate safely under these conditions, guaranteeing:

- **Ignition protection in explosive atmospheres.**
- **Compliance with international safety regulations.**
- **Electrical and mechanical components specially designed for ATEX zones.**

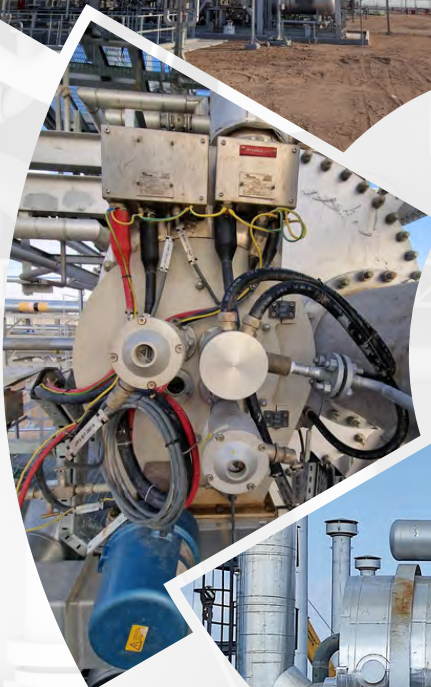
5.

References

**Tri Ethyl Glycol Reboiler
– Jurassic Park JPF4,
Kuwait Oil Company
(Kuwait)**



**Twin Furnace
Heater treater at
Mehsana, ONGC
(India).**



**IDBH, Nandasan field,
ONGC (India)**

**Indirect Bath Heaters
– Nandasan field,
Mehsana, ONGC
(India)**

**Indirect Bath
Heater, Oilfield Al
Jahra (Kuwait)**

**TEG Reboiler at
Basrah Gas Company
(Iraq)**



**Indirect Bath
Heater Mehsana
field, ONGC
(India)**



**Heater Treater
Mehsana field,
ONGC (India)**



**Oil Heater DNO at
Erbil (Iraq)**

6.

Duobloc burner options

In addition to monoblock burners, **E&M Combustion** offers **duoblock burners**, ideal for applications requiring the use of **preheated air** to improve energy efficiency and optimize combustion.

Advantages of Duoblock burners

Compatibility with preheated air, increasing thermal efficiency and reducing fuel consumption.

Ideal option for systems with two fans in parallel, allowing one to operate and the other to remain on standby, ensuring redundancy and continuity in the process.

High adaptability, with customized configurations according to the specific operating conditions of each industry.





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