

## GROUND SYSTEM

THERMOENGINEERING offers a wide range of advanced Ground system: Open and Enclosed



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Open Ground Flares are featured by the following main characteristics:

- > Suitable for elevated quantity of emergency gas discharge
- > Smokeless functionality at any instant flow rate
- > Versatile functions

The External Gas Distribution system relevant to each flare stage is composed of a set of automatic and manual valves completed with a safety system (burst disc or pin valves) and the relevant block valves. These components are located outside of the flare protection shield in a free access area.

The Internal Gas Distribution system is composed of a set of underground or protected gas header distributors.

### Burners

Each stage is equipped with a set of burners including ignition and continuous pilots, strategically located in the center of a dedicated and protected area in order to optimize the system functionality.

### Protection shield or embankment

The ground flare area is protected by a shield or embankment in order to completely surround the flame.



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[1] Closed Ground Flare // Client: Sabic // Place: Riyadh (Saudi Arabia)

[2-3-4] Different Types of Open Ground Flare // Client: Wintershell // Place: As-Sarah (Libya)

Enclosed Ground Flares are suitable for managing low and medium gas flow rates and are developed as per specific residence time allowing to a very high combustion efficiency under any atmospheric conditions.

Enclosed Ground Flares are equipped with a vertical combustion chamber designed to operate by natural air draft which can be used for gas, liquid or combined emergency combustion.

Combustion chamber insulation materials are selected according to the flue gas velocity and operating conditions:

- > Ceramic fiber with different density, for medium flue gas exit velocity
- > Refractory cement, for high flue gas exit velocity
- > Refractory bricks, for high flue gas exit velocity and particular corrosive conditions

FPSO (ship for gas/oil extraction and treatment) represents a particular application of the Enclosed Ground Flare.



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- [5] Enclosed Ground Flare // Client: Hyundai // Place: Doha (Qatar)
- [6] Burnes for Enclosed Ground Flare for FPSO // Client: Hyundai // Place: Doha (Qatar)
- [7] Burnes for Enclosed Ground Flare for FPSO // Client: Hyundai // Place: Doha (Qatar)
- [8] Burnes for Enclosed Ground Flare for old FPSO // Client: Saipem // Place: Brindisi offshore
- [9 -10] Burnes for Enclosed Ground Flare for FPSO // Client: Saipem // Place: Brindisi offshore