

GROUND FLARES



INTRODUCTION

Ground flares vary in physical size and shape but all conform to the general requirement that flaring and disposal may take place at low level. In remote locations low level open flaring has been employed. In populated areas ground flares are now used to burn gas without smoke and with no visible flame. This has led to the development of a range of equipment based on the furnace designs in which combustion is shielded from view thereby avoiding nuisance to neighbours.

The flared gases often contain hydrocarbons that would burn with a smoky flame without additional energy. For this reason, the ITAS staging system and the burner design use the pressure in the waste gas at the burners (to inspire sufficient quantities of free air for smoke suppression) and forced air or steam for those conditions where the pressure falls too low.

Bottom fired or side-fired burners may be used and selected in accordance with the design and geometry of the ground flare, taking into account the quality of the flared gases. The flare burners are manifolded in grouped stages, with each stage containing the required number of burners. The relief system has an open first stage burner with no-automated valve. The burners are designed to fire into the combustion chamber, causing circulation and improved mixing. This gives a shorter flame and ensures even distribution of the combustion in the chamber.



GROUND FLARES

TYPES OF GROUND FLARES



Waste gas flow to all of the stages is controlled (open or closed) through fast-acting, high performance valves. These "staging" valves are actuated by the Staging Control System consisting of flow or pressure transmitters, which input to a programmable controller to ensure proper sequencing and coordination. The staging valve rack is located outside the windfence of the ground flare system.

Sufficient pilots are provided to ensure proper ignition. The ITAS burner design easily cross-lights from one burner to the adjacent one horizontally or vertically. The pilot interlock logic is that at least one pilot must be proven on each stage to allow the stages to open. Additionally, the failure of any pilot would sound an alarm for operator intervention and lock-out any unused stage.

The enclosed ground flare is usually lined with one of two different types of refractory:

- ceramic fibre;
- refractory castable.

Both systems are designed for a hot face temperature of 1.200°C minimum.

The windfence is designed to diffuse any wind from impinging directly on the burner windows, and to assist in distributing air around the unit. The windfence is designed for a very low pressure drop, under the full flow conditions. It also shields against radiation from the flare.

The windfence is internally lined with a high temperature ceramic fibre material to protect the surface from the high radiation and also to attenuate the noise from the combustion.



- TOTALLY INVISIBLE FLARING SYSTEM
- HIGH PRESSURE MULTI TIPS FLARE
- AIR INDUCED ENCLOSED FLARE
- PRESSURE STEAMLESS GROUND FLARE
- STEAM ASSISTED GROUND FLARE
- CONTROLLED COMBUSTION GROUND FLARE