THE AC RANGE OF LANDFILL GAS FLARE STACK

The AC Range of open flare stack provides techniques that allow a degree of control over the combustion process in an elevated flame burner. The burner tip arrangement is based upon the principle of pre-aerated combustion giving the option of a short, sharp, non-luminous flame, as opposed to the yellow-tipped, long, lazy, flame typical of diffusion burners. In the latter system, air is mixed with the combustion gases after exiting the burner port. Flame temperatures are controlled in the range of 850 to 1,000ºC, depending upon the methane concentration, flow rate and prevailing wind conditions. The increased aeration reduces flame yellowing, which in turn reduces radiant heat, allowing a shorter flare without an increase in ground temperatures.

KEY FEATURES

HIGH-INTENSITY, LOW-LUMINOSITY FLAME

BOOSTER TURN-DOWN TO ZERO FLOW WITHOUT SURGING

MANUAL FLAME TEMPERATURE CONTROL

DERs > 98%

FULLY STAINESS STEEL CONSTRUCTION AS AN OPTION

SKID-MOUNTED FOR EASE OF MOVEMENT AROUND SITE

A RANGE OF OPTIONAL INSTRUMENTATION INCLUDING FLOW RATE AND GAS CONCENTRATION MEASUREMENT

REMOTE ACCESS AND DATALOGGING OPTIONS

DIRECT SPARK IGNITION, REMOVING THE NEED FOR A PILOT

SPECIFICATION DATA

Flow rate in this standard range:
100 to 15,000 cubic metres per hour

Pressure rise across gas booster:
150 mbar

Flame temperature:
850 to 1000^{o}C

Retention time:
Not specified

Minimum methane concentration for combustion to be sustained:
20%

Number of inlets:
The standard unit is fitted with 2 flanged inlets

Flow rate is controlled by a chemical duty butterfly valves

Additional inlets available upon request

Pipework finish:
Hot dip galvanised to industry standard

Burner material:
High temperature stainless steel

Flame arrestor:
On gas booster inlet and outlet

Flame detection:
Self-checking UV sensor

Colour:
Battleship Grey or to customer's specification

The control function is performed by a comprehensive control panel which, as a standard, has the option to fit programmable timers, gas analysis alarms, and telemetry indications of power failure, flame failure, high oxygen, etc. Ignition is automatic upon start up and re-ignition upon flame failure will be automatic for an operator settable period.

The unit may be run as a dispersal and vent station, should gas levels be such that combustion cannot be maintained. The operator has the further option of running the unit in the "run on" mode. Upon flame failure the unit will attempt re-ignition for an operator set period and then continue running as a vent, should re-ignition not be successful. This latter feature is particularly useful when methane levels are dropping and it is important to keep migration control active regardless of whether combustion is occurring or not.

The pipework is fully galvanised as a standard and is designed to facilitate various types of flow meter, dependent upon budget and preference. Instrumentation includes pressure and temperature gauges, at appropriate locations in the flow stream, as well as access points for hand held anemometers and pitot static flow meters.

The inlet knock out pot is fitted with a filter de-mister element to provide primary protection to the gas booster and ensure that no pipeline debris can be carried into the impeller chamber. The unit is skid mounted for ease of transport and on site manoeuvring. It can be fitted with any one of the standard options that are for use with all flare systems supplied by Organics Ltd. See Data Sheet ODSF07.

Whilst this unit is designed to provide greater control over the combustion process it is not able to provide the flame temperature control that is required by certain standards now coming into force.

With an elevated flare there is essentially no control possible over secondary combustion air, that air mixing with the combustion gases after the burner port, and the dilution factor will vary with, for example, wind conditions.

In certain ambient conditions a flame temperature of 1,000^{o}C (1,800^{o}F) can be held with reasonable stability but, if methane percentage is low and wind speed is high, it will be very difficult to approach this figure. It is certainly not possible to obtain extended residence times at elevated temperatures with an elevated flare. This is a factor governing all types of elevated flare system.

Destruction Efficiency Ratings (DERs) of greater than 98% can reliably be obtained, ensuring that this flare meets basic minimum standards for the USA.

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