

# VAPOR COMBUSTION UNIT (V.C.U.)

## | GENERAL INFORMATIONS |

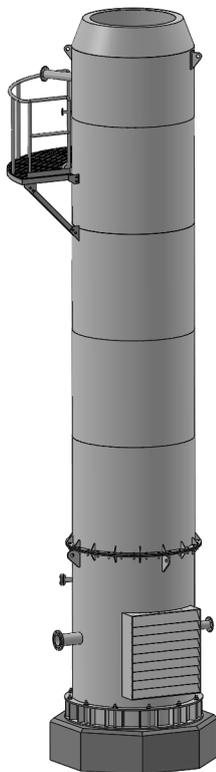
JSE's enclosed flare systems use a vertical, cylindrical and self-supported refractory lined stack. The flame is completely hidden inside the combustion stack. The refractory used is designed for cold start-up. The refractory is designed to withstand shrinkage from exposure to high temperature.

Volatile Organic Compounds (VOCs) destruction efficiencies of up to greater than 99% can be achieved by using JSE's VCU.

JSE's anti-flashback burners are designed to allow for safe operation and stable combustion at wide range of vapor flow rates and concentrations.

JSE manufactures continuous and energy efficient pilots designed for reliable flame stability during any operating condition including bad weather and extremely high wind speed. JSE can provide single or multi burner system for VCU by the client's various requirements.

VCU consist of anti-flashback burner, flame combustion stack, external removable spark ignition pilot assembly, ignition & control system and required ancillary equipment such as assist air blower, gas booster, flame arrester, shut off valve and all refractory ( ceramic fiber or brick ) with 1300 °C temperature rating.



## FEATURES

- Anti-Flashback System.
- Working platform for maintenance.
- Provide high turn down ratio over 10: 1.

## APPLICATIONS

- Rail & truck terminal.
- Marine terminal.
- Landfill / Bio-gas.
- Reactor & process vents.

## | ADVANTAGE |

JSE VCU systems are available in a range from 350kWh to 170 MWh (vapor flow rate 200 m<sup>3</sup>/hr ~ 15,000 m<sup>3</sup>/hr ) and JSE can provide the system greater than 170 MW depend on client's requirements.

JSE offers a full combustion engineering service for any process, including design, construction, installation, commissioning and personnel training.

JSE designed energy saving type ignition pilot burner as little as 1.5 kg/hr fuel gas and ignition can be done with high voltage ignition transformer and igniter.

The operating temperature is controlled via dilution air ( quenching air ) dampers by set value ( 650 °C ~ 1000 °C ) depending on user's requirements.

The combustor shall sustain stable combustion with 20% to 50% methane concentration at maximum flow rate, while maintaining the operating temperature, without requiring any burner adjustment.

## | ANTI-FLASHBACK SYSTEM |



### Anti – flashback Burner

1. JSE anti-flashback burner works to distinguish a flashback the similar technology a detonation / flame arrestor does by absorbing the heat of the flame into an element especially designed for distinguishing flame propagations.
2. Burner Nozzle designed under MESP (Maximum Experiment Safe Gaps) of Hydrogen.
3. Pre-mix or nozzle-mix type can be applied with this burner system and make shot flame to achieve compact system.
4. Burner design to insure that flame from the combustor will not reach the vapor head.
5. Can be applied single or multi nozzle burner by VOC's flow rates and concentrates.
6. Provide high turn down ratio over 10: 1.

## Detonation Arrestor / Liquid Seal Knockout Drum

1. Detonation / Flame arrestors are supplied for secondary flashback protection.
2. If VOCs contain oxygen, are in the explosive range, and/or there are extended pipe runs or multiple bends in pipe, a detonation arrestor may be used to prevent flashback upstream of the VCU.
3. In the case of process vents and/or some situation, the liquid seal with fluid barrier can be provided instead of flame arrestor to prevent flashback.
4. Knockout drums are provided in situation where liquid separation is likely in the VOCs stream and will collect any liquid in the stream before reaching the VCU.

