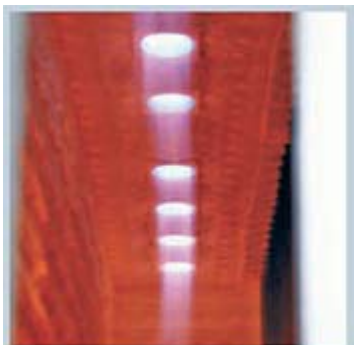


LANEMARK

COMBUSTION ENGINEERING



In applications from crude oil refining (desulphurisation) to the production of technical and commercial gases, Lanemark HC gas fired, round flame burners provide the process heat required to initiate the reaction which 'reforms' the reformer feed stock – typically natural gas or naphtha - resulting in the production of hydrogen.



The burners' stable, tightly controlled flame profile allows high calorific value fuels such as natural gas and refinery gas to be fired – either on their own or in combination with low calorific off gas from the process Pressure Swing Absorption unit (PSA). This process off gas is known as PSA off gas, PSA purge gas or PSA tail gas which typically contain hydrogen, methane, carbon monoxide and high levels of carbon dioxide. The burners' intimate mixing properties ensure that permanent pilot burners are not necessary and natural gas or refinery fuel gas trim fuel flow rates can be minimised thus saving both operating cost and the use of potential feed stock. Burner ignition can be by portable spark ignitor, portable pilot or, if the client's start up philosophy requires, then by fixed pilot burners which can be manual or automatic. Low NO_x, CO and noise emissions combine with high levels of flexibility to ensure burner stability in all conditions.



Hydrogen reformer burners can be supplied in induced draft or forced draft mode. In forced draft mode high combustion air temperatures can be accommodated in the burner design. This enables optimum waste heat recovery combined with varying excess air levels to be achieved, thereby optimising process steam generation from the reformer convection section.



A single Lanemark 'Thermimax Matrix' head can accommodate both high and low calorific fuel gases either as single fuels or as combined/mixed units upstream of the burners in any available proportion. This means only a single pipeline distribution system to the penthouse, to each burner row and to each individual burner is required – helping to minimise equipment, installation and maintenance costs.



The Lanemark 'Thermimax Matrix' burner head produces both fuel rich and fuel lean zones resulting in low NO_x emissions without impacting on turndown, flame stability or CO emissions. Low noise emissions result from low to medium combustion air pressure drop and the low fuel gas pressure drop/intimate mixing properties of the matrix design – avoiding the need for external burner acoustic insulation.

Flame lengths of less than 3 m with diameters of under 0.7 m, low excess air operation at design/ normal burner loads and high excess air at low load, start up, warm standby and plant upset conditions all mean that the Lanemark burners provide a high level of flexibility, reliability and availability.