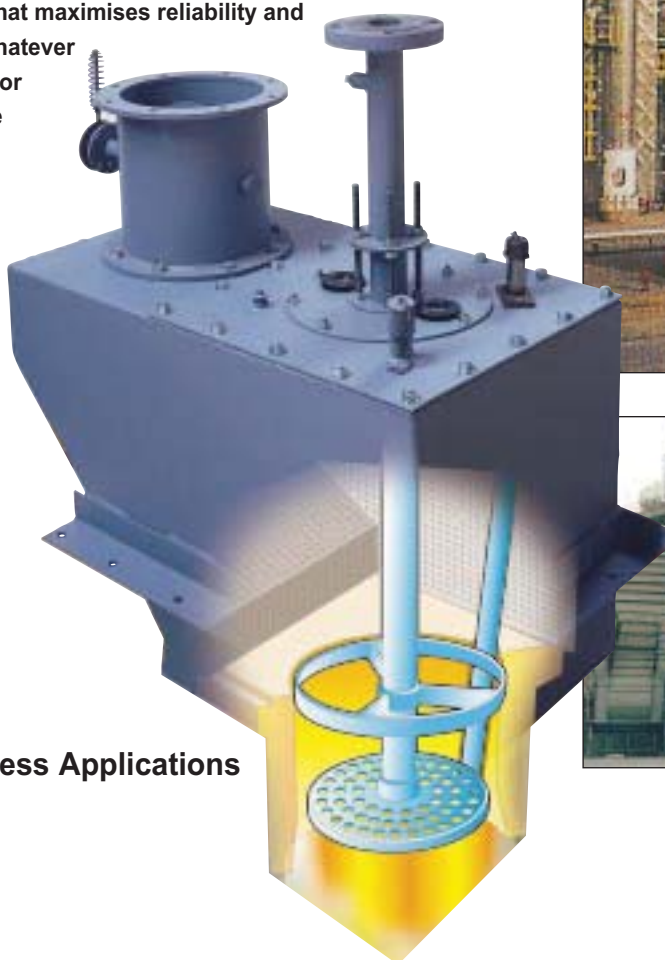


Since 1981 Lanemark Combustion Engineering has played a leading role in the specialised field of fired heaters for petrochemical, refining and related applications.

Today the company's International Combustion Division has developed close working relationships with the leading companies in this industry, and can demonstrate technology which maximises both hydrocarbon processing performance and environmental protection.

In all cases the burner design is centred around the 'Thermimax' matrix burner head which provides the optimum mixing of fuel and combustion air to meet the specific requirements of each application.

This, coupled with Lanemark's commitment to combining research and development with practical experience, delivers equipment that maximises reliability and efficiency whatever the process or performance objectives.



## Typical Process Applications

- Hydrogen
- Methanol
- Ammonia



## Burner Operating Features

Advanced patented design provides –

- Multi-fuel combustion on a single burner head
- Optimum combustion efficiency
- Low emission and noise levels
- Adjustable flame profiles
- Combustion air temperatures up to 500°C
- Wide range of pressures for both fuel and combustion air
- Complete flame stability under all operating conditions
- Direct spark or pilot flame ignition – portable or permanent
- Robust construction with no moving parts
- Induced Draught options available

– features that embody quality, reliability and flexibility

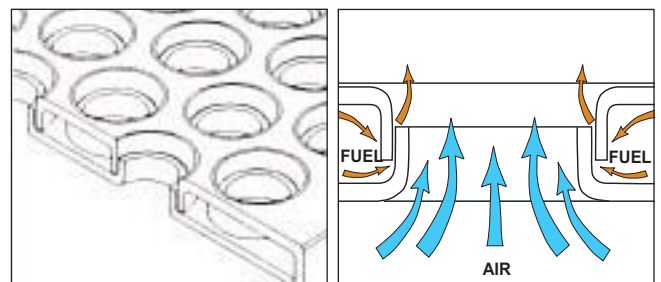
## Technical Specification

- Operation over a wide range of gaseous fuels
  - Burner capacity 50 kW – 7.5 MW
  - Fuel gas supply pressures from 10 mbar – 4 bar g
  - Combustion air pressure drop 2 mbar – 60 mbar
  - Excess air levels from 0.5% to 500%
  - Combustion air temperature from ambient to 500°C
  - NOx emission <45 ppm reference to 3% O<sub>2</sub> (dry)
  - CO emission <10ppm
  - Noise (sound pressure level) <70 dB(A) measured one metre radially from the back of the burner
- Fuel turn-down with combustion air modulation – up to 10 : 1
- Fuel Turn-down with fixed combustion air – up to 4 : 1

## Operating Principle

Central to the performance of the Lanemark HC burner range is the “Thermimax” matrix burner head.

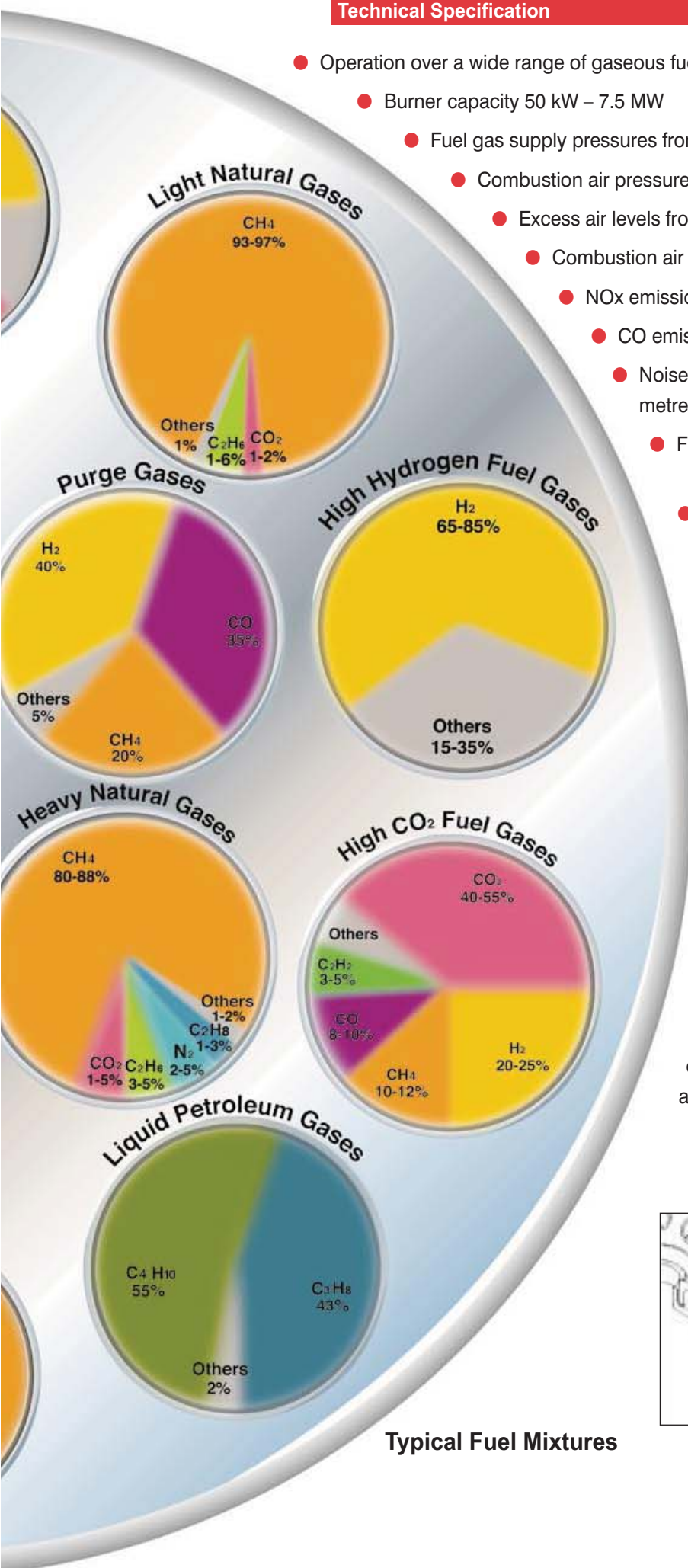
Constructed from two high temperature alloy plates, this unique design creates a gallery system through which gaseous fuels are passed and then discharged through the matrix ports. Combustion air passes through each matrix port from behind the burner head and mixes immediately with the discharged fuels, creating a controlled and intimate mixture of the fuel and combustion air across the entire burner. Clean, efficient and stable combustion over a wide range of operating conditions is achieved – a characteristic of all Lanemark’s “Thermimax” matrix burner heads.



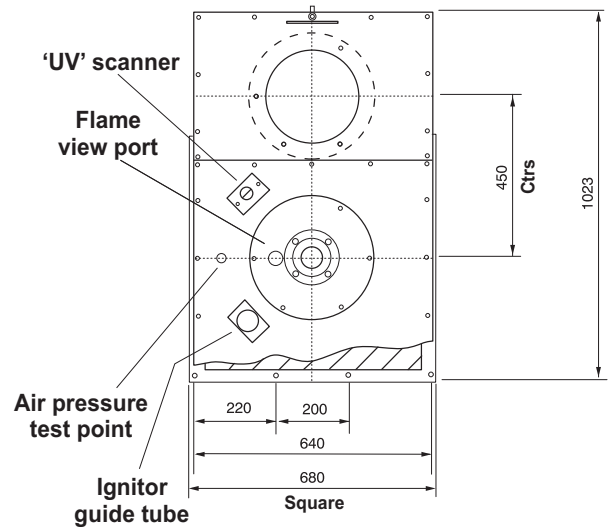
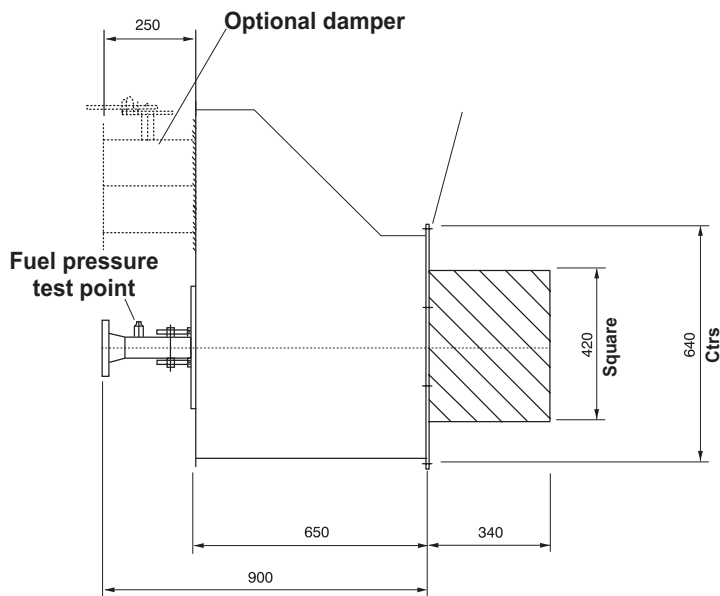
Gallery system

Matrix port

Typical Fuel Mixtures



## Standard Forced Draught Burner Dimensions (HC 224 & HC 260)



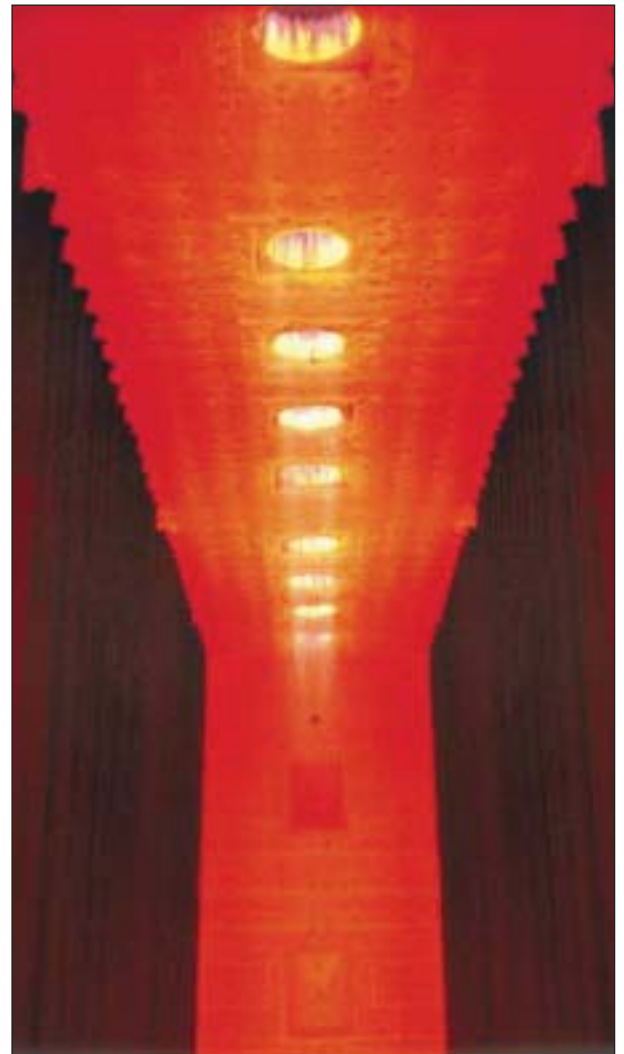
All dimensions are in mm and can be varied to suit application requirements

### HC Burner Features

- A single, purpose-designed burner head accommodates all combinations of gaseous fuels and operating cases without the need to change burner components
- Smooth, reliable ignition across the burner head under all operating conditions
- Excellent flame stability due to the 'Thermimax' matrix design
- Direct, portable spark ignition for burners up to 3MW – no pilot burners necessary
- One piece pre-fired refractory quarl/tile
- All burners are manufactured in accordance with ISO 9000 Quality Assurance procedures – including flow testing of each burner head
- Burners are supplied as three main sub-assemblies to facilitate rapid and easy installation

### Patented Design

Patents for the design and application of the "Thermimax" matrix burner head are held by Lanemark.





# HC SERIES MATRIX BURNERS

Lanemark burners have been specified by many of the world's leading Petrochemical Process Design Houses and Constructors, including –

**Linde AG**  
**Selas Linde GmbH**  
**Selas Fluids Processing Corporation**  
**Jacobs Engineering**  
**Humphreys and Glasgow**  
**Technip/KTI**  
**Lurgi Öl Gas Chemie**  
**Kvaerner Process Technology**  
**Davy Process Technology**  
**John Brown Constructors**  
**Krupp UHDE**  
**Foster Wheeler**  
**Howe-Baker**  
**Mahler AGS**



## Additional Burner Products

The Lanemark HC 260 and HC 224 burners illustrated in this brochure are purpose designed to meet specific requirements within the industry. Additionally, Lanemark can supply alternative petrochemical burners – including the HC 177, the HC 140 and the KS Series – which meet the vast majority of capacity, specification and performance requirements.

Induced draught versions of all HC burners can be supplied.

A range of accessories, including flame safeguards, alternative ignition equipment and an appropriate range of spare parts can be supplied to enable users to tailor Lanemark equipment for their specific application.

## Additional Support Services

Lanemark Combustion Engineering's quality products are backed by comprehensive support services including –

- In-house computer software to assist burner design and selection
- All products and services are supplied to ISO 9000 Quality Assurance standards
- Complete, engineered burner packages to facilitate ease of installation, commissioning and maintenance
- Professional engineering and supervisory staff being available at all stages of the project, including commissioning
- Spare parts supply to maintain optimum burner performance and reliability



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