



Fusion Master ONH

Oxygen, Nitrogen and Hydrogen Analyser



- MADE
- IN
- GERMANY

Fusion Master ONH

Oxygen, Nitrogen and Hydrogen Analyser

Electrode Furnace

- PC programmable power
- Pressurised system for low gas consumption
- Water cooled electrodes



PC Controlled Analysis

- Loss-free data transfer
- Multilingual user-friendly operation software



**Analyser**

- Stable metal housing
- Configurable from 1 up to 6 measuring ranges
- Maintenance friendly design

Thermal Conductivity Detector

- High sensitivity for oxygen and hydrogen determination
- Low noise

Infrared Detector

- Up to 2 independent detector units for low and high oxygen determination
- Established German infrared technology



**Technical support
free of charge**

Analyser Features

Analysis Method



The sample, filled in a graphite crucible, will be fused in the electrode furnace. Nitrogen and hydrogen gases are being released from the sample into the carrier gas and the oxygen is reacting with the carbon of the graphite crucible to CO. The CO is oxidised to CO₂ afterwards.

The analytical gas will then be led to the thermal conductivity cell for the determination of nitrogen and hydrogen and afterwards to the infrared cell for the determination of oxygen.

From the received data of the detectors the PC is calculating the concentrations of oxygen, nitrogen and hydrogen.

Electrode Furnace

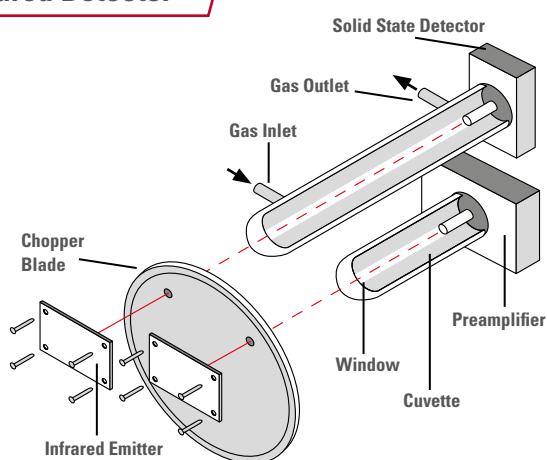


A graphite crucible will be pressed between two electrodes and heated up, in the furnace by using max. 1000 A power. The temperature of the furnace is PC controlled and might reach up to a maximum of 3000 °C.

Programmed temperature profiles for fractional analysis can be pre-set in the operation software.

The sealed up sample drop ensures a minimal carrier gas consumption.

Infrared Detector



The infrared system is designed for a precise operation with low maintenance. The constantly active infrared emitter is providing a low-noise signal.

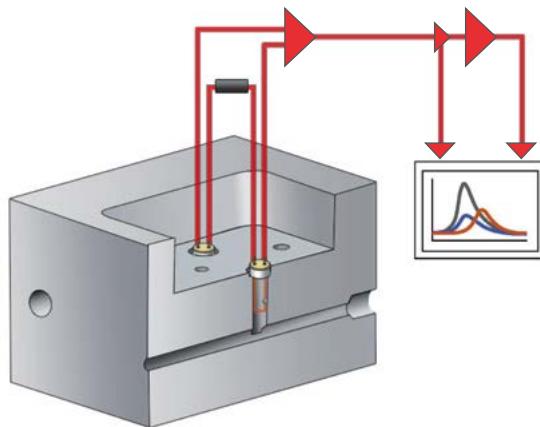
It is possible to extend the analyser with up to 2 independent detector units for a wide analytical range.

The design of the cuvette allows easy cleaning.

A temperature controlled environment ensures a long-time stability of the analyser's performance.



Thermo Conductivity Detector



The TC detector provides high sensitivity for the detection of nitrogen and hydrogen with a low background noise.

The semi-conductor thermistor produces a rapid signal to guarantee a low detection limit.

The design of the TC detector itself is maintenance free.

Software Features



The NCS operation software is designed for the easy operation of our elemental analysers. It incorporates a desktop for the sample analysis with data transmission as well as the set-up of different methods and user profiles.

The password protected service area shows all important operation parameters of the instrument.

A remote access for one of our service engineers is also available.

Applications

Steel Production



Oxygen, nitrogen and hydrogen can affect the steel properties immensely.

The Fusion Master ONH is the ideal analyser to control the entire steel production from pig iron to the finished product. Due to its robust metal housing the analyser can even be used close to the production site.

Aviation



A consistent quality is necessary in order to ensure the high strain of the components in the aviation industry. Therefore precise measuring instruments are required to determine the concentrations of oxygen, nitrogen and hydrogen.

The Fusion Master ONH has been developed to fulfill the high demands of the aviation industry. It has the required precision and reproducibility to support the production of these components.

A special focus has been put on the documentation of the results as well as on the data exchange with other quality assurance programmes.

Copper Products



It is necessary to monitor a production process in detail to produce the requested quality and to avoid discard. Therefore it is necessary to precisely determine the oxygen concentration in the copper production from the raw material up to the finished product.

With its 2 IR cells the Fusion Master ONH can determine both the high oxygen concentrations of the input materials as well as the low concentrations in the oxygen-free copper wire precisely and reproducible. Its low-maintenance operation supports a continuously growing number of analysis.

Partner for the Laboratory

The Combustion Master CS for carbon & sulphur analysis and the Fusion Master ONH for oxygen, nitrogen & hydrogen analysis.



Measuring range	Oxygen Low range 0 ppm - 0.01 % High range* 0.01 % - 2 %	Nitrogen 0 ppm - 0.01 % 0.01 % - 2 %	Hydrogen 0 ppm - 0.005 % 0 % - 0.5 %
*Using sample weight of 1000 mg, with reduced sample weight up to 100 %			
Sensitivity / Precision	Oxygen 0.1 ppm / \pm 0.3 ppm	Nitrogen 0.1 ppm / \pm 0.3 ppm	Hydrogen 0.01 ppm / \pm 0.05 ppm
Furnace	PC controlled electrode furnace. Power: 10 kVA Maximum.		
Detection method	Solid state infrared absorption with up to 2 independent detector units for oxygen and a thermal conductivity detector for nitrogen and hydrogen.		
Typical sample weight / Analysis time	1 g / 90 s		
Reagents	Anhydrous magnesium perchlorate, sodium hydroxide, rare earth copper oxide		
Gas connection	Helium and Nitrogen 5.0, 2 bar, compressed air 6 bar (min, oil free)		
Power supply	400/230 VAC (+/-10 %), 50/60 Hz, 32 A, 10 kVA max.		
Dimensions	W, H, D: 670 mm, 870 mm, 800 mm, weight: 165 kg		
For operation needed	PC and monitor (included in the scope of supply), balance (resolution 0.0001g)		

Norm-Conformity ASTM	Steel, Iron, Nickel and Cobalt: E-1019, E-1587 Refractory Metals: E-1409, E-1569, E-1447, E-1937 Copper and Copper Alloys: E-2575
Norm-Conformity ISO	Iron and Steel: 10720, 15351, 17053 Titanium and Titanium Alloys: 22963



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