

5E Series C/H/N Elemental Analyzer

Models Available

- ◎ 5E-CHN2200 to test Carbon, Hydrogen, Nitrogen content
- ◎ 5E-CH2200 to test Carbon, Hydrogen content
- ◎ 5E-TCN2200 to test Nitrogen/Protein content
- ◎ 5E-IRH2200 to test Hydrogen content
- ◎ 5E-IRC2200 to test Carbon content
- ◎ 5E-CN2200 to test Carbon, Nitrogen content

Standard Configuration

Computer	CO ₂ sorb reagent
Printer	Silica wool
Main analyzer	Lower crucible
Furnace reagent	Upper crucible
High purity copper	O-ring kit
N-Catalyst	Tool kit
H ₂ O sorb reagent	
Standard Reference Material(GBW)	

Optional Configuration

AR427 com-aid for liquid sample
 Additional 2-4 layers carousels
 4cm×4cm size tin-foil cup
 Bigger size hole carousel



Up to 140 samples
 Stackable auto loader
 to 4 layers

Application

5E Series C/H/N Elemental Analyzer is used to determine carbon, hydrogen, nitrogen/protein content in solid and liquid material, such as coal, coke, oil, petroleum, biomass, fertilizer, plastic, food, hydrocarbons, and plant tissue, leaves and tobacco, which is widely applied in power plants, coal mines, metallurgy, chemical industry, commercial inspection, scientific research, food industry, education etc.

Features

Maximum Efficiency

1. High throughput: standard auto loader for 35 samples per layer, stackable to 4 layers available.
2. Dual-stage furnace system with pure oxygen flow to ensure the complete combustion of all samples.

Good Environment Adaptability

1. Optimum gas circuit provides good gas tightness of the system.
2. O-ring free from heat resource.

Minimum Consumption

1. Independent detectors to determine C, H, N respectively (IR for C, H, TCD for N). Analysis of CH mode and CHN mode can be chosen on software. (For 5E-CHN2200)
2. Saving time, gas and reagent: only 5.5ml blended gas needed to be analyzed.

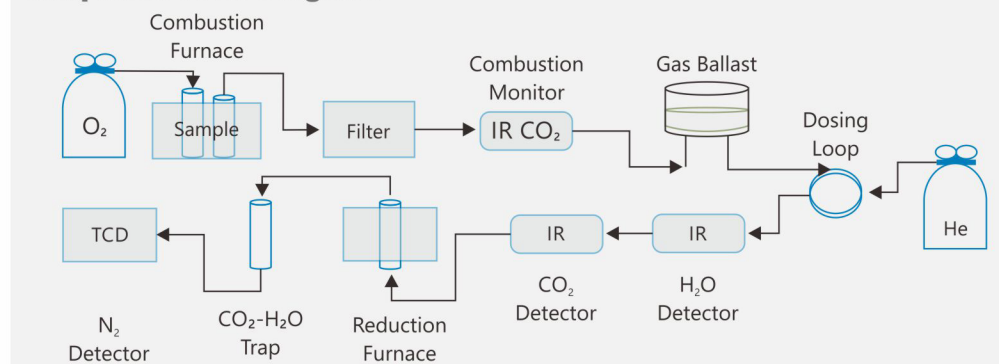
Unattended Operation

The operator is limited to just adding sample to auto sample loader. Then the instrument will finish the test, cool down and shut off automatically.

Working Principle

An encapsulated sample is placed into the loading head of the CHN2200, which is sealed and purged. The sample is then dropped into a hot furnace which contains high pressure pure oxygen, for very rapid combustion. Dust and ash are filtered before collection in the gas ballast. These collected gases are mixed, and then an aliquot dose is analyzed with IR detectors to give Hydrogen and Carbon value. All the gases pass through a reduction catalyst in order to form molecular nitrogen. Then CO₂ and H₂O trap ensure that only N₂ goes inside the TCD to be detected. The system is controlled by external PC using Windows based operating software.

Simplified Flow Diagram



Custom Configuration, Maximum Flexibility

	Carbon-IR	Hydrogen-IR	Nitrogen-TCD
CHN	✓	✓	✓
CH	✓	✓	
CN	✓		✓
H		✓	

Intelligent Software System

The screenshot displays the SE-CHN2200 software interface. The main window shows a list of samples with columns for No., Name, Weight(g), Cd(%), Hd(%), Nd(%), and Methods. A 'Calibration' window is open, showing a graph of detector response versus concentration for Carbon. The graph shows a linear relationship with a red line of best fit and several data points. The calibration parameters are: Current Coef: 1.065e-006, Cubic: -8.333e-005, Linear: 1.001e+000, Intercept: -6.441e-003, and SSE: 0.0455. Below the graph, there are buttons for 'Calibrate', 'Save', 'Standard', and 'Exit'. At the bottom of the screenshot, three chromatograms are shown: Carbon (C) with a peak at approximately 6.5 minutes, Hydrogen (H) with a peak at approximately 6.5 minutes, and Nitrogen (N) with a peak at approximately 10.5 minutes.

Specification

Model	5E-CHN2200		
Conforms to Method	ASTM D5291, ASTM D5373, ISO 29541, EN ISO 16948:2015-0, GB/T 30728, GB/T 30733, EN 15407		
Analysis Time	4-6mins, depending on sample combustion conditions		
Sampler Loader	Stackable auto loader, up to 140 samples by 4 layers		
Repeatability	Carbon(Cad)≤0.45%, Hydrogen(Had)≤0.10%, Nitrogen(Nad)≤0.05%		
Sample Mass	Up to 1000mg, depending on sample matrix		
Temp. Resolution	1°C		
Gas Required*	Helium, 99.99%, 0.25 ± 0.01Mpa		
	Oxygen, 99.5%, 0.25 ± 0.01Mpa		
	Nitrogen or compressed air, 0.25 ± 0.01Mpa		
Consumption	Helium 200ml/min		
Measurement Range	Carbon: 0.02mg-150mg	Hydrogen: 0.1mg-12mg	Nitrogen: 0.04mg-50mg
Furnace Type	Resistance furnace, max. temp 1050°C		
Power Supply	Single phase, AC220V±10% , 50/60Hz, 5.5kW		
Net Weight	110kg		
Dimensions(L×W×H)	690mm×750mm×720mm		

*Test Condition:

If N≤0. 5%, 99. 995% high purity oxygen is required.