HORIBA Scientific

NEW

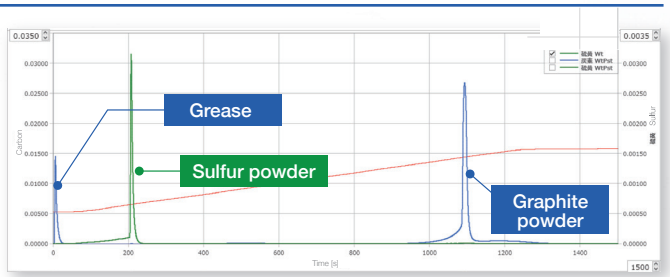
The New Carbon/Sulfur Analyzer
EMIA-Step

In addition to the "EMIA-Pro/Expert" series of high-frequency induction furnace type analyzers, the "EMIA-Step" tubular electric resistance heating furnace analyzer has just been added to our Carbon/Sulfur Analyzer lineup. Determination of free/combined carbon and sulfur is made possible thanks to the precise temperature-controllable furnace, enabling programmed temperature increases along the analysis. HORIBA's original NDIR technology allows for accurate and sensitive quantitative analysis of trace amount of carbon and sulfur.

1 Enables temperature control starting at a low temperature range

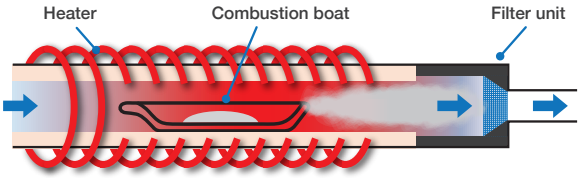
EMIA-Step provides good temperature stability from low to high temperatures. This broadens the application range to samples containing substances that are easily decomposed and burned at low temperatures.

<Temperature rise control from 300 °C to 900 °C>
You can easily see the decomposition combustion of organic matter and inorganic matter respectively.



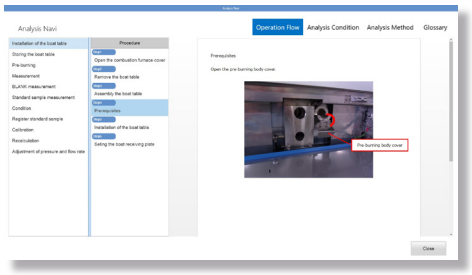
2 New dust-filter provides easy maintenance capability

EMIA-Step adopted the proven dust-filter mechanism in the high frequency induction heating models. The filter unit collects the dust generated by combustion at high temperature. This prevents the dust from adhering to piping after the combustion furnace, and reduces adsorption of CO_2 and SO_2 gases by dust. This mechanism makes highly accurate and sensitive analyses possible.



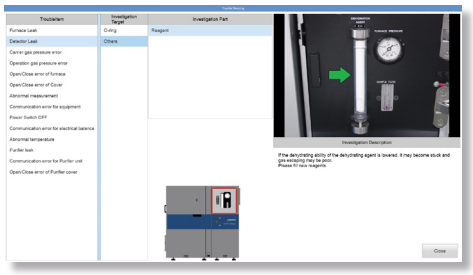
<Schematic of tubular electric resistance heating furnace>

3 User-friendly software navigation functions facilitate the operation



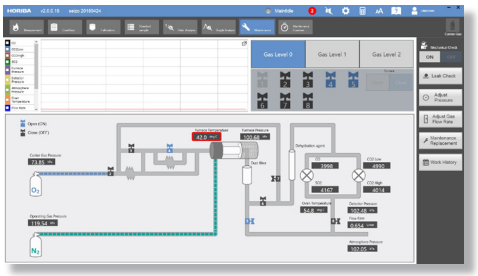
<Analysis Navigation>

Recommends the best measurement flow and analysis conditions based on our experience.



<Troubleshooting Navigation>

Pinpoints the location automatically, and notifies the operator with the recovery procedure when any fault occurs.

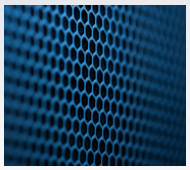


<Maintenance Navigation>

Daily maintenance menus are listed and the videos and photos of the maintenance procedures are displayed.

Applications

Because the EMIA series can analyze trace amounts of carbon and sulfur with high accuracy, it is widely used for R&D and quality control in various fields such as:

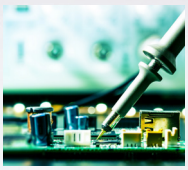


Chemicals

Catalyst
Rubber
Carbon black
Ceramics

Resin materials

FRP
(Fiber-Reinforced Plastic)
Film
Pellet



Electronic materials

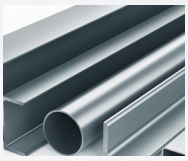
Solder
Li-ion batteries
MLCC
(Multi-Layer Ceramic Capacitor)

Minerals

Coke
Limestone
Coal

Steel

Automotive steel plates
Tools
Building materials



Non ferrous alloys

Copper
Nickel
Alumina

Please ask your sales engineer for more detailed application notes from HORIBA.

Compliant standards

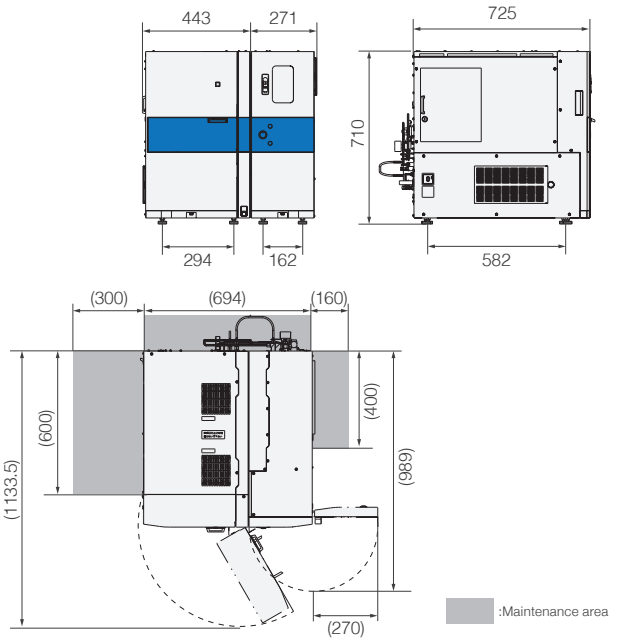
ASTM	Material to be analyzed	Title	Carbon	Sulfur
E1019	Steel, iron, nickel, cobalt alloys	Standard Test Methods for Determination of Carbon, Sulfur, Nitrogen, and Oxygen in Steel, Iron, Nickel, and Cobalt Alloys by Various Combustion and Fusion Techniques	O	-
E1587	Nickel	Standard Test Methods for Chemical Analysis of Refined Nickel	O	O
E1941	Refractory metals	Standard Test Method for Determination of Carbon in Refractory and Reactive Metals and Their Alloys by Combustion Analysis	O	-
E1915	Ores and related materials	Standard Test Methods for Analysis of Metal Bearing Ores and Related Materials for Carbon, Sulfur, and Acid-Base Characteristics	O	-
D1552	Oil and petroleum	Standard Test Method for Sulfur in Petroleum Products by High Temperature Combustion and Infrared (IR) Detection or Thermal Conductivity Detection (TCD)	-	O
D4239	Coal and coke	Standard Test Method for Sulfur in the Analysis Sample of Coal and Coke Using High-Temperature Tube Furnace Combustion	-	O
D5016	Coal and coke combustion residues	Standard Test Method for Total Sulfur in Coal and Coke Combustion Residues Using a High-Temperature Tube Furnace Combustion Method with Infrared Absorption	-	O
D1619	Carbon black	Standard Test Methods for Carbon Black—Sulfur Content	-	O
ISO	**Material to be analyzed**	**Title**	**Carbon**	**Sulfur**
TR 15349-1:1998	Unalloyed steel	Determination of low carbon content -- Part 1: Infrared absorption method after combustion in an electric resistance furnace (by peak separation)	O	-
TR 15349-3:1998	Unalloyed steel	Determination of low carbon content -- Part 3: Infrared absorption method after combustion in an electric resistance furnace (with preheating)	O	-

Specifications

Detection method		NDIR (Non-Dispersive InfraRed)
Required sample amount		1.00 ± 0.10 g
Minimum reading		0.000001% (m/m) for both Carbon and Sulfur
Carbon	Measurement range	0.0003 ~ 6.0% (m/m)
	Accuracy (Repeatability)	σ_{n-1} ≦ 0.00015% (m/m) or RSD ≦ 0.75%
Sulfur	Measurement range	0.0004 ~ 1.0% (m/m)
	Accuracy (Repeatability)	σ_{n-1} ≦ 0.00020% (m/m) or RSD ≦ 2.00%
Setting temperature range		0 (room temperature) - 1450°C
Dimensions [W x D x H]		Combustion unit: 443 × 725 × 710 mm Measurement unit : 271 × 725 × 710 mm
Mass		Combustion unit: 77 kg, Measurement unit : 53 kg
Power		200/220/240 V, 5 kVA *Excluding peripheral devices
Carrier gas		Oxygen: Purity 99.5%, Pressure: 0.30~0.33 MPa
Operation gas		Nitrogen: Purity 99.5%, Pressure: 0.35~0.38 MPa *Dry air excluding moisture and oil content can be used as the operation gas only for the standard model
Data processing and operation		PC with Windows® 10
User interface		Touch panel/Keyboard/Mouse

* Windows is a registered trademark or trademark of Microsoft Corporation in the United States and/or other countries.

Dimensions (unit: mm)



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