

Elementární analyzátor Flash IRMS

Popis nabízeného zařízení :

1. Elementární analyzátor Flash bude dodán v konfiguraci pro stanovení CHNSO jak v pevných tak kapalných vzorcích.
Přístroj pracuje na principu Dumasovské chromatografie, což znamená, že vzorek je spálen při vysoké teplotě, prochází přes oxidačně redukční katalyzátory a vzniklé plyny jsou separovány na chromatografické náplňové koloně. Systém je rozdělen do 2 větví, na jedné probíhá stanovení C-N-S a na druhé O-H. Identifikace probíhá na TCD
2. Přístroj je vybaven 2 nezávislými větvemi, na jedné bude probíhat stanovení CNS a na 2. větví O-H
3. Široký dynamický rozsah pro stanovení C-N-S v rozsahu 0,01 % - 100% podle charakteru vzorku. Maximální nastavitelná teplota je až do 1100°C, lze kontrolovat hoření kukátkem - vizualizace zážehu, chromatografická kolona, TCD detektor,
4. Stanovení O a H na druhé pyrolytické peci, koncentrační rozsah 100ppm – 100%, maximální teplota 1450 °C
5. Pro lepší separaci síry se používá teplotní gradient na GC koloně, který je nastavitelný v rozmezí 50 – 240 °C
6. Přístroj šetří nosný plyn He. Při analýze C-N-S je jeho spotřeba maximálně 1,5litru na vzorek a pro analýzu O-H je spotřeba cca 1,1 litru na vzorek
7. Přístroj je vybaven unikátní technikou umožňující automatické přepnutí po naměření vzorků na spalovací peci (C-N – S) na pec druhou umožňující stanovení O-H – bez zásahu člověka a opačně
8. Přístroj je osazen 2 samplery po 32 vzorcích, jeho kapacitu lze zvýšit 125 vzorků na jedné peci, tudíž 250 vzorků na obou pecích
9. Nabídka obsahuje kity na 1000 C-N-S-H-O analýz
10. Přístroj je připraven pro hardwarové i softwarové propojení s IRMS DeltaV pomocí plynového interface (kontinuální průtok plynů – flow control solutions)



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Nabídka MV.N 21-044



Číslo dokladu: MV.N 21-044
Referent: Magdalena Voldřichová

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Platební údaje:

Způsob úhrady: Bankovním převodem
Požadovaná záloha: 0,00 Kč
Úrok: 0
Splatnost dní: 30

Obchodní údaje:

Doprava: dodavatelem

EA Flash pro stanovení CHNSO, spotřební a instalační materiál,

Popis	Číslo	Množství	Cena za jedn.	Cena bez DPH	DPH	Cena celkem
elementární analyzátor Flash IRMS pro analýzu CNS/OH, CNS na jednom reaktoru a OH na druhém reaktoru, 2x autosampler na 32 vzorků, GC kolona	0723642	1 Ks	2 060 000,00	2 060 000,00	21% 432 600,00	2 492 600,00
smartEA option - vyrovnávání intenzit prvků pro MS	BRE0006543	1 Ks	42 000,00	42 000,00	21% 8 820,00	50 820,00
spotřební materiál pro CNS analýzu	19003750	1 Ks	31 000,00	31 000,00	21% 6 510,00	37 510,00
spotřební materiál pro O/H analýzu	1290340	1 Ks	24 000,00	24 000,00	21% 5 040,00	29 040,00
instalace, zaškolení		1 Ks	50 000,00	50 000,00	21% 10 500,00	60 500,00
dopravné, balné		1 Ks	10 000,00	10 000,00	21% 2 100,00	12 100,00
Celkem:		6 mj		2 217 000,00	465 570,00	2 682 570,00

záruka 24 měsíců.
Dodání 3 měsíce.

V případě objednání uvádějte číslo této nabídky. Objednávku, prosím, zasílejte na pragolab@pragolab.cz.

Vystavil Ing. Magdalena Voldřichová

Thermo Scientific EA IsoLink IRMS System

Reach higher peaks with your EA-IRMS

Introduction

The Thermo Scientific™ EA IsoLink™ IRMS System (Figure 1) is built on 60 years of scientific, engineering and manufacturing excellence and a proven, world-wide installed base of Thermo Scientific™ Flash™ Elemental Analyzers and Thermo Scientific™ Isotope Ratio Mass Spectrometers. In a watershed moment in Elemental Analysis Isotope Ratio Mass Spectrometry (EA-IRMS), Thermo Fisher Scientific™ introduces temperature ramped gas chromatography (GC), a technique used in GC-MS and GC-IRMS for many decades, and a Helium Management (He^M) Module to the EA-IRMS workflow.

Delivering outstanding analytical performance on low µg and high mg sample matrices, complete workflow automation from sample introduction to publishable results, low cost per sample analysis with short acquisition times and very low helium consumption, the EA IsoLink IRMS System is an all-in-one solution for CNSOH weight% determinations and isotopic analyses for any laboratory and application field.

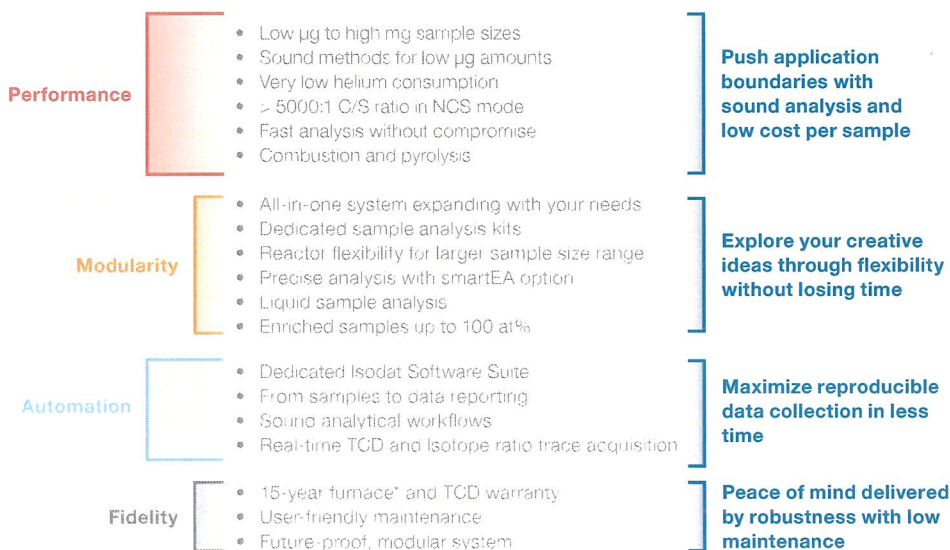


Figure 1. The Thermo Scientific EA IsoLink IRMS System.

The modular hardware design provides an unrivalled flexibility for a seamless approach to changing application demands and is completely supported by the Thermo Scientific™ Isodat™ Software Suite.

Driving productivity and cost of ownership through innovation is at the heart of the EA IsoLink System in all application areas using Elemental Analysis Isotope Ratio Mass Spectrometry (EA-IRMS).

Experience the Benefits



*Combustion and reduction furnaces only

EA IsoLink IRMS System workflow principle

The EA IsoLink IRMS System delivers reproducible weight% and stable isotope ratio measurements for CNSOH using combustion and pyrolysis processes and a fully automated workflow (Figure 2). The combustion process is a modified Dumas method for carbon, nitrogen and sulfur analysis, and the pyrolysis process is a high temperature conversion process for hydrogen and oxygen analysis. Samples can be introduced to the reactors as solids or liquids from the Thermo Scientific™ MAS Plus Autosampler or the Thermo Scientific™ AI/AS 1310 Autosampler, and are carried through the analytical pathway in a continuous flow of helium gas.

After reaction, the gases are carried by the helium through a single water trap and then onto the gas chromatography column, where each gas is separated. After separation, the gas passes through the Thermal Conductivity Detector, which provides weight% determinations, before being transferred to the Isotope Ratio Mass Spectrometer, via the ConFlo IV Universal Interface, for isotope ratio analysis.

The EA IsoLink IRMS System introduces two unique features to the EA-IRMS workflow: The Helium management (He^M) Module and temperature ramped gas chromatography. The He^M Module significantly reduces the helium consumption per sample, without compromise, redirecting the helium carrier flow from the reactor to the autosampler purge whilst the produced gases are being analyzed. The temperature ramped gas chromatography technique improves gas separation, peak shapes and reduces analytical time, delivering a reproducible approach even for the smallest sample amounts.

The EA IsoLink System workflow is automated by the Isodat Software Suite, from sample introduction through to data reporting, and is compatible as standard with the upgrade modules available for the EA IsoLink System.

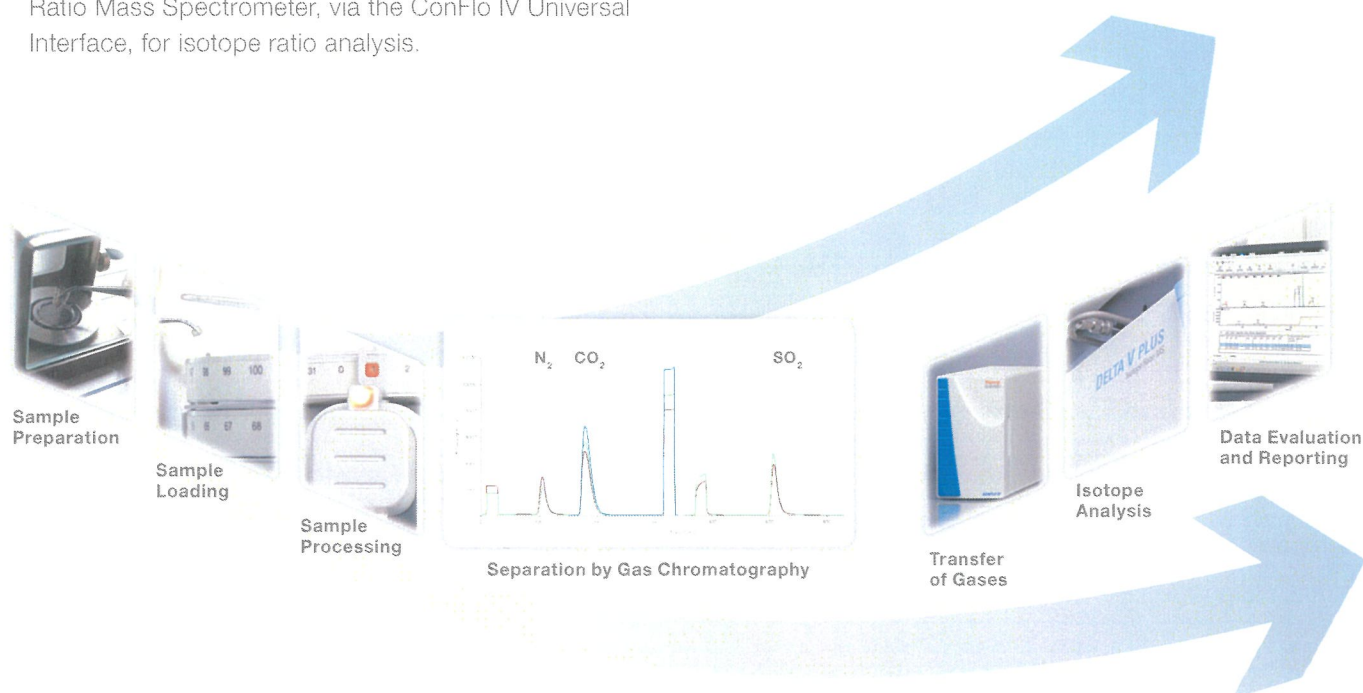


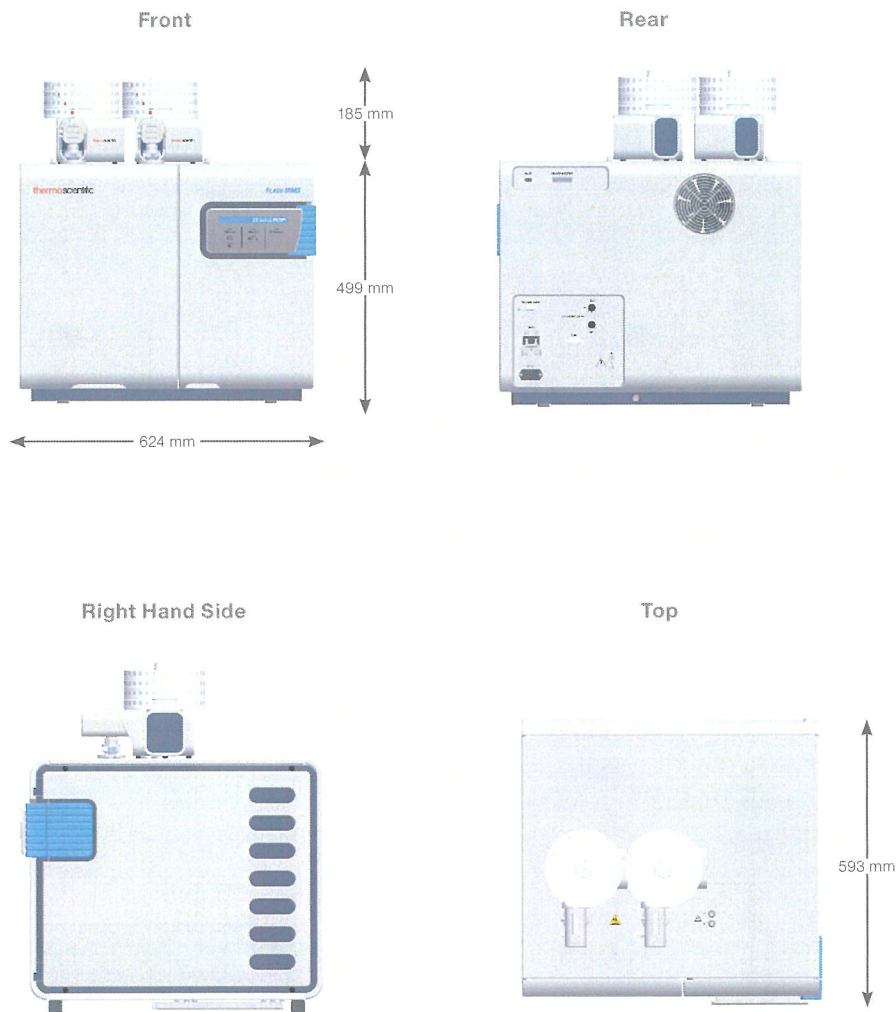
Figure 2. An example of an NCS analytical workflow on the EA IsoLink IRMS System.

EA IsoLink IRMS System for CNSOH

This system is designed for carbon, nitrogen and sulfur analyses by combustion, and oxygen and hydrogen analysis by pyrolysis, in single or simultaneous modes, for all application areas. The EA IsoLink CNSOH System provides fast, low cost and reliable weight% and stable isotopic determinations. With the temperature ramped GC module, outstanding analytical performance, including on low amounts of nitrogen and sulfur and on high C/S ratio samples, such as wood, in simultaneous NCS analysis is possible.

Component	Description
Flash IRMS Elemental Analyzer	
Instrument description	<ul style="list-style-type: none"> Built-in helium and oxygen pressure regulators Temperature regulated electronic flow controllers 99.999% purity helium and 99.995% purity oxygen required Automated Leak Test, Standby-By, Wake-Up and Shut-Off Modes Automatic switching valve to switch between furnaces for continued operation Can be connected with any current Thermo Scientific™ Isotope Ratio Mass Spectrometer Power: 230 V, 50/60 Hz, 1400 VA Dimensions: 620 x 580 x 500 mm (W x D x H) Weight: 67 kg
MAS Plus Autosampler	<ul style="list-style-type: none"> 32 samples as standard (solid and liquid samples), with up-to 125 samples using additional trays Sample reloading during analysis without stopping analytical sequence Helium purged autosampler with very low blank Fully-motorized with complete software control Dedicated viewer into reactor Power supply: 24 V; 0.7 A max. Dimensions: 172 x 245 x 130 mm (W x D x H) Weight: 1.8 kg
Furnaces	<ul style="list-style-type: none"> Two furnaces: one for combustion/reduction reactor and one for pyrolysis reactor Maximum temperature: 1100°C with electronic temperature regulation under complete software control Maximum temperature (pyrolysis): 1450°C with electronic temperature regulation under complete software control 15-year warranty for combustion and reduction furnace Unique serial number for each furnace
Adsorption filter	<ul style="list-style-type: none"> Single filter for H₂O and CO₂ removal as an option Fast connectors for tool-free maintenance Single filter for H₂O and/or CO₂ (pyrolysis) Easy maintenance without need to cool furnaces
Gas Chromatography	<ul style="list-style-type: none"> Isothermal GC oven operating up-to 190°C Continuous flow design on one analytical channel Long-life time GC column
Temperature Ramped GC	<ul style="list-style-type: none"> NCS analysis: <10 minutes C/S ratios > 5000:1 Temperature set-point resolution: 1°C Power: 350 V A Dimensions: 287 x 447 x 497 mm (W x D x H) Weight: 9 kg (including enclosure)
Thermal Conductivity Detector (TCD)	<ul style="list-style-type: none"> Housed in GC oven for temperature stability and noise cancelation 15-year warranty Zero maintenance required
Helium Management (He^m) Module	<ul style="list-style-type: none"> First commercially available helium saving module in EA-IRMS No compromise on analytical performance Greater than 50% helium saving in NC mode (uses less than 1.0 liter per sample) Greater than 60% helium reduction per sample in NCS mode (uses less than 1.5 liters per sample with ramped GC oven module) Greater than 30% helium saving in OH mode (uses less than 1.1 liters of helium per sample) Complete optimized software control with option to disable Manual adjustment of flow-rate available for user optimization
ConFlo IV Universal Interface	
	<ul style="list-style-type: none"> Space for managing 6 gases (N₂, CO₂, SO₂, H₂, CO and He) Simultaneously connect up-to 3 peripherals as standard Unattended automated switching between peripherals via Isodat Software Suite Automated Stand-By Mode for reduced gas consumption Open-split gas transfer principle (no valves used in gas transfer) Automated stability tests for diagnostic testing Automated linearity determination Automated H₂⁺ factor determination Auto-dilution of sample and reference gases, from 0 to 99%, increasing system dynamic range Dimensions: 470 x 180 x 315 mm (W x D x H)
Isotope Ratio Mass Spectrometer	
Thermo Scientific™ Delta™ Series IRMS	Please refer to product documentation for the Delta IRMS
Thermo Scientific™ MAT 253™ IRMS	Please refer to product documentation for the MAT 253 IRMS
Thermo Scientific™ 253 Plus™ 10 kV IRMS	Please refer to product documentation for the 253 Plus 10 kV IRMS

Thermo Scientific Flash IRMS Elemental Analyzer Dimensions



Certification

Low Voltage Directive
2014/35/EU

Electromagnetic Compatibility Directive
2014/30/EU

Standard

EN 61010-1:2010
EN 61010-2-010
EN 61010-2-081
CAN/CSA C22.2 No. 61010 -1-12
UL 61010-1:2012

Standard

61326-1:2013

Find out more at thermofisher.com/EAlsoLink