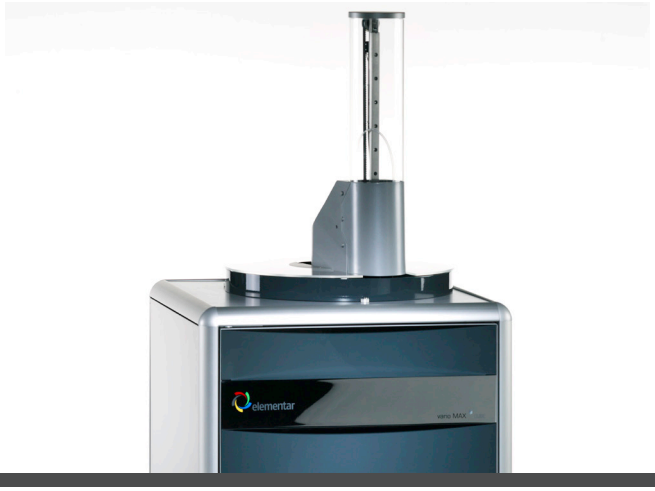
vario MAX cube

elementar
EXCELLENCE IN ELEMENTS

An innovative universal instrument allowing determining the nitrogen, sulfur and carbon content from a single sample simultaneously in organic and most inorganic solids. The vario MAX cube is developed for the analysis of large sample amounts such as: soil, plants or other substances which show inhomogeneities or need low detection limits. Sample weights range from approx. 5 g / 5 ml in resusable crucibles with automatic ash removal. Argon may be employed as alternative carrier gas.



System Data Sheet

Elemental combustion analyzer

Analyzer

concentration analysis of	carbon, nitrogen, sulfur, TIC in solids*
operating modes	CNS, CN, N, TIC in solids
Design	Compact benchtop with single power supply
Sample introduction	Vario Sample System
Furnace design	Triple furnace system
Gas separation	Patented purge & trap technology
Detector type	High sensitivity thermal conductivity detector, infrared*
Control	fully digital via external PC (no additional control panel required)

Sample Introduction

Construction	One block, auto-aligned integrated turret
Access	On air, inert gas free easy access
Movement control	Fully electrical
Turret type	Non-stacked 90 position random access
Sampling system	Radial sample turret with central rotating sample insertion arm
Sample container	Both reusable steel and ceramic crucibles holding up to 5 g / 5 ml
Liquid sample handling	In standard crucibles with no additional liners, fillers, absorbers, etc.

Furnace

Type	Slide-out, triple vertical furnace system for usage of both 28 mm inner diameter quartz and steel*,**reaction tubes
Furnace	Resistive heater element with 1200°C maximum temperature
Electrical supply	48 Volt safety design
Control	Automatic power output adjustment (no hardware change required)
Combustion/reduction reactor	Separated straight quartz**or steel** combustion and quartz reduction tube
Post-combustion reactor	Straight steel tube with copper oxide and platinum catalyst filling
Ash removal	Quartz easy removal ashfinger
Reactor stability	No need for cooling down during routine maintenance
Carrier gas	Helium, argon
Connections	Quick swap clamp connections for fast changing with no tools required

Sulfur analysis

weighing range**	up to 5 g / 5 ml for simultaneous, single sample CNS determination
combustion reactor	Straight quartz tube filled with tungsten trioxide
combustion temperature	1150°C
detection	both TCD and infrared*

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Gas separation	
Type	Dynamically heated chromatographic separation system for aliquot-free whole gas analysis
No of Columns	2**
Retention time control	N_2, no control, all other gases user defined computer control
Recovery rate	100%
Detectors/electronics	
Type	Thermal Conductivity Detector (TCD)
Design	Thermistor, oxygen proof, imbalanced flow, double channel
Type	SO_2 specific infrared*
Design	Built-in, software controlled switching to TCD for alternative element detection**
Detection limit**	< 100 ppm (TCD)
Calibration	Multipoint, multirange, matrix-independent calibration
Analysis time**	~3/4 min per element
	self-optimizing according to element content and sample weight
Electronics	Fully digital, fully integrated in unit
Security norms	CE-mark, EN 61010-1, EMV 73/23/EEC
Software	
Operating system	Windows® 8, Windows® 7, minimum XP, other systems upon request
Analyser software	Winvar proprietary software
Features	Automatic leak finding software
	Error indicator
	Auto sleep and wake-up
	Statistical calculations
	Indication service cycle
	LIMS integration
	21 CFR part 11 compliant*
	User controllable 3 D flight through instrument for fast part identification
Data Storage	Non manipulated storage of experimental raw data and peak graphics
Balance	Automatic read out from weighing data*

* requires optional configuration

** depending on sample type, analysis mode and configuration

Measuring Range and Technical Specifications

C:	0 - 500 mg absolute or 0 - 100 %	standard deviation**:	< 0.1 % absolute (100 mg glutamic acid)
N:	0 - 500 mg absolute or 0 -100 %	weight:	approx. 75 kg
S:	0 - 15 mg absolute or 0 - 100 %	electrical connections:	100/110/200/230 V, 50/60 Hz, 1.8 kW
		oxygen consumption**:	approx. 0.4 l / analysis
		required gases:	carrier gas and oxygen only
		dimensions:	55 x 55 x 61 cm (W x D x H)

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