

vario MACRO cube



Macro Performance in a Compact Form

The vario MACRO cube is designed for high sample weight elemental analysis of carbon, hydrogen, nitrogen, sulfur and oxygen. High sample weights are required to achieve representative samples of inhomogeneous natural, industrial or environmental materials. Large sample weights also enhance the measurement of very low concentrations.

ELEMENTAR, the pioneer in elemental analysis, previously developed the world's first analyzer for simultaneous analysis of CHNS in macro samples up to 1 gram sample weight. Based on this extensive experience we are now introducing the next generation of this instrument class.

The "cube" platform is today widely recognized as the benchmark for elemental analyzer design, operation and analytical performance.

The vario MACRO cube is a newly developed premium product which combines the most modern mechanics and micro electronics with field proven design principles. The vario MACRO cube considerably increases the range of applications as well as the performance of analyses.

Even larger concentration range

Large sample weights can be used even for samples with a high carbon concentration. Samples with 150mg absolute carbon and nitrogen up to 100mg are within the vario MACRO cube's capability. A new detector also allows for large range chlorine determination.

Even lower detection limits

As a result of newly developed detectors, determinations can be made for only a few micrograms of e.g. carbon or sulfur. This results in detection limits in the ppm range for natural samples.

Even more compact design

Due to the cube platform a 50% economy of space and weight has been achieved.

Even higher degree of automation

Shorter times of analysis, an automatic sampler with up to 120 positions and option for automatic liquid injection.

Even easier operation

The completely new vario cube software has improved operation functions and powerful diagnostics features.

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CF- Hybrid Gas Streaming for even lower costs per analysis

The vario MACRO cube is the first analyzer which is available with Continuous Flow Hybrid Gas Streaming technology (CF-Hybrid GS). CF-Hybrid GS technology is a revolutionary ELEMENTAR development. In N or CN mode it allows for the possibility to stream a portion of the combustion gasses for reduction and detection. This can result in a several times longer life for the NO reactor, allowing up to 1,000 determinations on a single tube filling.

The hybrid concept allows the user to optimize analyzer precision and efficiency. In the standard configuration, from N/CN to CHNS mode, the complete combustion gasses are analyzed. Whole gas analysis provides the highest sensitivity and precision and is particularly well suited for slowly combustible samples.

CF-Hybrid GS works according to the "Continuous Flow" (CF) principle (patent applied for) and avoids an intermediate step of a discontinuous filling of a ballast tank (and the associated large oxygen consumption). This results in a simple design with maintenance-free operation. By altering the streaming ratio, precise analyses of even slowly combustible samples are possible.

CF Hybrid GS is an easy and inexpensive upgrade. Conversion from standard mode to streaming can be done in minutes.

The Only Macro Analyzer for C, H, N, S, O and Cl

Operation modes:	CHNS, CHN, CNS, CN, N, O with TCD as standard Cl, S, O with sensor IR detection optional		
Detection ranges*:	C:	0-150 mg (or 100%)	O: 0-6 mg
	N:	0-100 mg (or 100%)	Cl: 0-2 mg
	H:	0- 15 mg (or 100%)	
	S:	0- 18 mg (or 100%)	
Detection limits*:	C, N with TCD	< 10 ppm (in 300 mg soil)	
	S with IR	2 ppm	
Precision*:	< 0.2 % rel. (100 mg glutamic acid)		
Sample weight*:	up to 500 mg organic material or 1.5 g soil		
Analysis time*:	self-optimizing according to element content and sample weight CN 8 min (10 mg wood) CHNS 10 - 12 min		
Autosampler:	60 positions in one magazine as standard, optional 80 or 120 samples < 100 mg sample weight		
Dimensions:	42 × 55 × 55 cm (W × D × H)		

* depending on sample type and analysis conditions