



АНАЛИЗАТОР КИСЛОРОДА / АЗОТА / ВОДОРОДА

ELEMENTRAC ONH-p 2

The new ELEMENTRAC ONH-p is a powerful and robust elemental analyzer for measurement of oxygen, nitrogen and hydrogen concentrations in inorganic materials like steel, iron, copper or ceramics. The highly sensitive NDIR and thermal conductivity detectors reliably detect element concentrations from low ppm content to high percentages.

The innovative sample port system with pulsed chamber rinsing and vertical sample drop allow for user-friendly and comfortable analysis of rod-shaped, granular or powdery samples with a weight of up to 2 grams.

The ELEMENTRAC ONH-p elemental analyzer meets or exceeds the requirements of all relevant international standards such as ASTM E 1019 or DIN EN 3976.



[Смотреть видео](#)

Видео о приборе

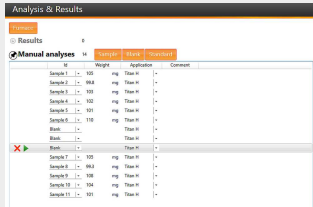
АНАЛИЗАТОР КИСЛОРОДА / АЗОТА / ВОДОРОДА ELEMENTRAC ONH-P

- | Low gas consumption and high sensitivity due to closed gas system
- | Easy application of pins, powders and granules
- | Inexpensive argon as carrier gas possible
- | Short analysis time
- | Powerful impulse furnace with 8.5 kW
- | Optional Autocleaner
- | Reliable ONH elemental analysis of inorganic samples like steel, non-ferrous metals, ceramics, slags, ores, etc.

ELTRA

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OPERATION AND ANALYSIS PROCESS



Step 1: Logging the sample into the ELEMENTS software

The sample ID is logged into the software and the weight is automatically transferred (see step 2).

Step 2: Weighing and introduction of sample into the port

The ELEMENTRAC ONH-p analyzes volumes from a few mg up to 2 grams safely and precisely. Rod-shaped or granular samples can be applied directly. For the elemental analysis of powders, a capsule is recommended which does not have to be sealed.

Step 3: Analysis

The empty graphite crucible is then placed on the lower electrode and the elemental analysis is started via the ELEMENTS software. The software controls all subsequent process steps.

Step 4: Data output and export

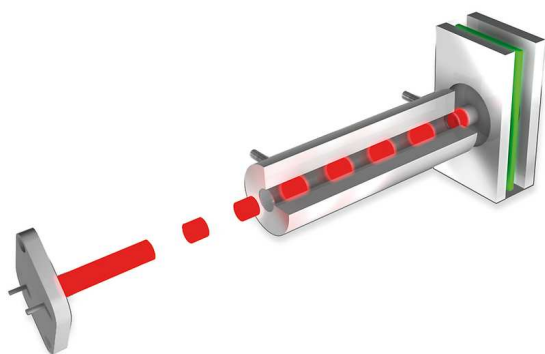
120 to 180 seconds after the analysis has started, the measured concentrations are available for export as a report or via LIMS.

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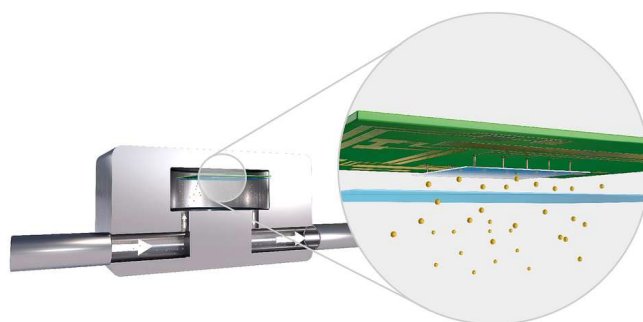
CONFIGURATIONS

The ELEMENTRAC ONH-p elemental analyzer is available as a single-element analyzer for oxygen, nitrogen or hydrogen only, or in a multi-element configuration for measuring ON, OH, NH, or ONH. Whereas oxygen is determined as CO₂ in up to two infrared cells, nitrogen and hydrogen are detected in their elemental form in a thermal conductivity cell. The ELEMENTRAC ONH-p elemental analyzer uses an ON mode with helium carrier gas (optionally argon) and an OH mode with nitrogen carrier gas to take advantage of the sensitive thermal conductivity cell.

CUVETTE WITH VARIABLE LENGTH



THERMAL CONDUCTIVITY CELL WITH HIGH SENSITIVITY



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INTEGRATED STANDARD SOLUTIONS

The chemicals and filters required for the operation of the ELEMENTRAC ONH-p elemental analyzer are arranged conveniently on the front panel and can be concealed behind a removable door during routine operation. This arrangement significantly reduces the time required for maintenance and increases user-friendliness. In addition, innovative details considerably improve the reproducibility of measurements.

Innovative sample port & pulsed chamber flushing

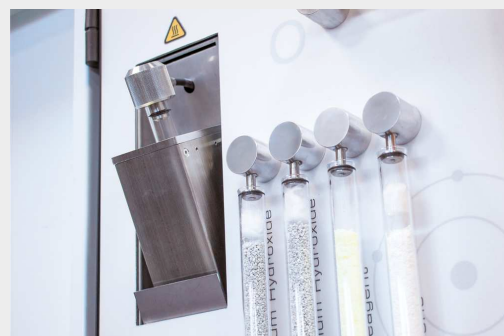
The new sample port of the ONH-p elemental analyzer ensures comfortable operation and reproducible measured values. Differently shaped samples like solid pieces, granules or powder in capsules can be applied up to a weight of 2000 mg, and are quickly freed from the surrounding atmosphere with the help of pulsed carrier gas flushing in the sample port. Then they drop vertically into the preheated graphite crucible for analysis.



- Robust against dust development
- No closing of capsules required
- Direct application of up to 2000 mg granulate
- Low in maintenance and wear

Powerful catalyst

During elemental analysis in the graphite crucible, carbon monoxide (CO) is produced which is converted to carbon dioxide (CO₂) in the catalyst and subsequently detected in the IR cells. The easy-to-maintain catalyst with copper oxide filling ensures complete oxidation and thus, reliable oxygen analysis even of difficult materials such as oxides.



Closed gas management

The ELEMENTRAC ONH elemental analyzer series uses a closed gas system in overpressure. This ensures that always 100% of the released sample gas is fed to the detectors which guarantees low detection limits and good reproducibility.

АНАЛИЗАТОР КИСЛОРОДА / АЗОТА / ВОДОРОДА ELEMENTRAC ONH-P OPTIONS

In addition to the integrated solutions of the ELEMENTRAC ONH-p, further options are available to increase efficiency and extend the application range of your elemental analysis.

НОВИНКА: Autoloader

High-capacity automated sample loading is becoming an increasingly important factor for fast and robust O/N/H analysis in metals. The new autoloader for the ELEMENTRAC ONH-p features a sample carousel with 32 positions, as well as a correspondingly designed crucible magazine.



[Смотреть видео](#)

Autocleaner

By melting the sample in a graphite crucible at temperatures of up to 3000 °C deposits are generated at the upper electrode and in the furnace chamber which may affect the reproducibility of ONH measurements in a negative way.

The new optional Autocleaner reliably removes these deposits, enabling precise elemental analysis even



for high throughputs. Additionally, an efficient gas calibration and cleaning furnace for thorough carrier gas pre-cleaning are available for the elemental analyzer.

ELEMENTRAC ONH-p Glovebox

With the new **ELEMENTRAC ONH-p Glovebox variant**, we are expanding our portfolio with powerful solutions for controlled-atmosphere analysis. The model is engineered for seamless glovebox integration, ensuring precise, reliable results while protecting both sensitive samples and users.



ПРОГРАММНОЕ ОБЕСПЕЧЕНИЕ ELEMENTS

The comprehensive Windows-based ELEMENTS software is an essential part of all ELEMENTRAC generation elemental analyzers.

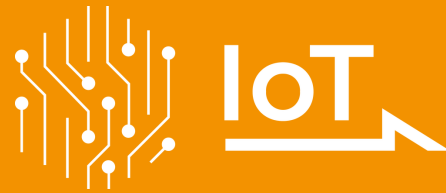
A central window (analysis and results) is the starting point from which all functionalities required for the daily routine are easily accessible. From here it is possible to group and export analyzed samples, or register and analyze new ones. The user may call up various subordinate functionalities like application settings, calibration, diagnosis, or status.



IOT - INTERNET OF THINGS

THE PLATFORM FOR REMOTE ACCESS TO YOUR DEVICES

All ELTRA analyzers seamlessly integrate with the Verder Scientific IoT platform, providing enhanced functionality, seamless connectivity, and additional benefits:



- | **Real-time Monitoring:** Gain insight into the status of your machines at any time thanks to immediate access to important data.
- | **Live Notifications:** Stay up to date on the status of your devices with instant notifications.
- | **Effortless Backup:** Whether you need to back up a single device or an entire fleet, back up your data effortlessly and minimize downtime.
- | **Automatic Software Updates:** Verder Scientific IoT keeps your device software up to date, optimizing performance and reliability.
- | **Access to Analyses Data:** ELTRA analyzers offer remote access to analysis data. This allows you to conveniently access important data while on the move.
- | **Autoloader Efficiency:** Get the most out of remote analysis preparation with our autoloader feature, which ensures uninterrupted operation and increased productivity for all instruments equipped with it.

Experience the power of the Verder Scientific IoT platform today and unlock the full potential of your ELTRA analyzers!

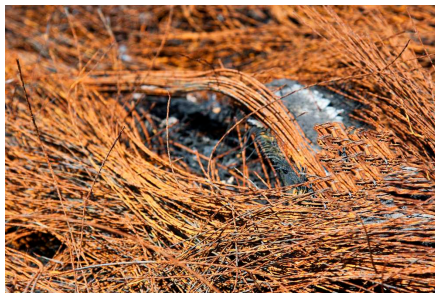


**FREE SOFTWARE
DOWNLOAD**

АНАЛИЗАТОР КИСЛОРОДА / АЗОТА / ВОДОРОДА ELEMENTRAC ONH-P

ТИПИЧНЫЕ ОБРАЗЦЫ МАТЕРИАЛОВ

сплавы, алюминий, зола, карбиды, чугун, керамика, медь, ферросплавы, железо, металлы, руды, огнеупоры, кремний, сталь, ...



АНАЛИЗАТОР КИСЛОРОДА / АЗОТА / ВОДОРОДА ELEMENTRAC ONH-P

ПРИНЦИП РАБОТЫ

The measuring principle of the ELEMENTRAC ONH-p elemental analyzer allows for a wide measuring range. To analyze the sample, it is weighed and placed on the sample port. Flushing with carrier gas prevents atmospheric gas (oxygen and nitrogen) from getting into the furnace.

The graphite crucible is outgassed in the impulse furnace of the analyzer to reduce possible contaminations (e.g. residual hydrogen). After a stabilization phase the sample is dropped into the crucible and melts. Carbon monoxide is produced by the reaction of carbon in the graphite crucible and oxygen of the sample. Nitrogen and hydrogen are released in its elemental form. The carrier gas (helium) and sample gasses pass through a filter before entering a copper oxide catalyst which converts the CO to CO₂.

The CO₂ is measured by the infrared cells to determine the oxygen content. CO₂ and water are removed chemically and the nitrogen content is measured in the thermal conductivity cell. In the case of hydrogen analysis, nitrogen carrier as well as sample gas pass through a Schuetze reagent instead of a copper oxide catalyst. As an option the less expensive Argon can be used to determinate the oxygen and nitrogen content during analysis.

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ХАРАКТЕРИСТИКИ

Измеряемые элементы	азот, водород, кислород
Материал проб	неорганические материалы
Направление ввода пробы в печь	вертикальная
Подача пробы в печь	графитовый тигель
Область применения	керамика, разработки / электроника, сталь / металлургия
Печь	импульсная печь (максимальная мощность 8,5 кВт*) с температурой до 3.000 °C
Принцип детектирования	метод инфракрасной абсорбции для кислорода, метод теплопроводности газов для азота и водорода
Типичное время анализа	120 - 180 с
Требуемые реактивы	гидроксид натрия, оксид меди, перхлорат магния, реагент Шутце
Требуемый газ	сжатый воздух, гелий качества 99.995% или лучше, азот качества 99.995% или лучше, аргон качества 99.995% или лучше (опционально), все газы с давлением 2 - 4 bar
Требование к электропитанию	3 фазы 400 В, 50/60 Гц, макс. 8,500 Вт
Размеры (Ш x В x Г)	56 x 78 x 64 см
Вес	~ 165 кг
Требуемое оборудование	ПК, монитор, весы (точность 0.0001г)
Опции	внешний чиллер, печь очистки газа-носителя, устройство газовой калибровки
Ярлык АТМ	* мощность программно ограничена на уровне 6.8 кВт

www.eltra.com/onhp

ИНФОРМАЦИЯ ДЛЯ ЗАКАЗА

ELEMENTRAC ONH-P

(Пожалуйста, закажите отдельно управляющий компьютер, монитор, весы и расходные материалы (стартовый набор, ангидрон, гидроксид натрия, оксид меди II, реактив Шутца))

Measuring ranges at 1,000 mg sample weight (further measuring range combinations on request)

2)

88200-2212		ONH-p	2xN + 2xH	0.04 ppm – 3 % N 0.08 ppm – 0.25 % H
88200-2215		ONH-p	2xO + 2xN + 2xH	0.04 ppm – 1 % O 0.04 ppm – 3% N 0.08 ppm – 0.25 % H
88200-2228		ONH-p	2xO +2xN +2xH	0.04 ppm – 2 % O 0.04 ppm – 3 % N 0.08 ppm – 0.25 % H

ELEMENTRAC ONH-P GLOVEBOX

88200-2238		ONH-p	2xO 2xN 2xH	0.1 ppm O 50 ppm % O 0.1 00 ppm N 10 ppm 2 % N 0.1 ppm H 20 ppm % H
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REQUIRED ACCESSORIES

УПРАВЛЯЮЩИЙ КОМПЬЮТЕР, МОНИТОР, ВЕСЫ

71015-1000	Computer with Intel Core i5-8400 Processor, 256 GB SSD; 8 GB RAM; Windows 10 operating system; keyboard; mouse
88400-0584	Monitor, TFT (23.8")
88400-0645	Весы (разрешение 0.0001 г)

REQUIRED CONSUMABLES / CHEMICALS FOR FIRST OPERATIONS

88500-0020	ONH-Starter-kit for 500 analyses (400 graphite crucibles, 50 outer graphite crucibles, 200 inner graphite crucibles, 50 g glass wool, 50 g quartz wool)
90200	 Ангидрон (перхлорат магния), 454 г l)
90210	 Гидроксид натрия, 500 г l)

90270		Реактив Шутца, 100 г, for OH-p and ONH-p 1)
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90289		Оксид меди II, 100 г, for ON-p and ONH-p 1)
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88600-0021		Copper oxide wire (for older ONH 2000 analyzer) 1)
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FURTHER OPTIONS AND CONSUMABLES

ACCESSORIES (HARDWARE)

88200-2400		ONH-p Autoloader (incl. autocleaner and vacuum cleaner)
88200-2401		ONH-p Autocleaner (incl. vacuum cleaner)
88400-0467		Chiller (SMC, 5900 W)
27000-2021		Gas calibration unit ELEMENTRAC series (for calibrating hydrogen)
88200-9000		Carrier gas purification furnace, without filling (please order filling and quartz wool separately)
72080		Nitrogen regulator, 1 piece
72081		Pressure regulator, 1 piece
88400-0610		Barcode scanner

CRUCIBLES

88400-0471		Graphite crucibles, 400 pieces (recommended for autoloader operation)
90190		Graphite crucibles, 400 pieces (for copper, brass and steel analysis)
90180		Inner graphite crucibles, 100 pieces (requires outer graphite crucible 90185)
90185		Внешний графитовый тигель, 50 штук

TIPS

31360		Graphite tip, 1 piece (for crucibles 90190 and 90185)
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CAPSULES (REQUIRED FOR ANY KIND OF POWDER ANALYSIS)

90257		Nickel capsules, 3.2 x 7 mm, 100 pieces
90256		Nickel capsules, 4.5 x 10 mm, 250 pieces
88400-0066		Nickel capsules, pressed, 12.5 x 5 mm, 100 pieces
90252		Tin capsules, 5 x 18 mm, 100 pieces

BASKETS (REQUIRED FOR OXYGEN AND NITROGEN DETERMINATION IN REFRACTORIES)

90250		Никелевая корзинка, 1 г, 100 штук
88600-0012		Nickel baskets, high purity (low oxygen), 100 pieces, 1 g each

FLUXES (REQUIRED FOR SOME APPLICATIONS)

90251		Tin pellets, 454 g (for determination of hydrogen in titanium)
90800		Graphite, 50 g (improves oxygen determination)
90258		Nickel accelerator, 100 g (for analysis of high amount of refractories)

CHEMICALS (FILLINGS FOR GLASS AND QUARTZ TUBES)

88600-0028		Eltrasorb, 500g (black coloured sodium hydroxide)
90200		Ангидрон (перхлорат магния), 454 г 1)
90210		Гидроксид натрия, 500 г
90270		Реактив Шутца, 100 г, for OH-p and ONH-p
90289		Оксид меди II, 100 г, for ON-p and ONH-p

90426-1001		Filling for carrier gas purification furnace (suitable for one filling, ONH series)
90330		Кварцевая вата, 50 г
90331		Стекловата, 454 г
90332		Стекловата, 50 г
92610		Tube of high vacuum grease, 35 g

ELEMENTRAC - ADDITIONAL TOOLS

All ELEMENTRAC analyzers are equipped with a set of necessary tools

The following list provide part numbers for replacement of worn tools and some new tools to improve handling.

SPATULAS AND TWEEZERS

88400-0476		Micro spatula, 1 piece, XS size
23110		Spatula, 1 piece, M size
23111		Spatula, 1 piece, L size
88400-0475		Set with 6 spatula and 1 tweezers, for multiple weighing procedures
88400-0229		Пинцет (160 мм), скругленный, 1 штука, for transporting pins and baskets
88400-0472		Пинцет (145 мм), прямой, 1 штука, for removing samples out of the ONH-p furnace
88400-0213		Tongs for crucibles, 1 piece, for putting crucibles on the electrode tip

TOOLS FOR STORAGE, TRANSPORTING AND WEIGHING

88400-0477  Weighing boat, 1 piece, for weighing and usage of granulates

36121  Quartz boat, 74x22x10 mm, 1 piece, for weighing pins

TOOLS FOR CLEANING AND MAINTENANCE

27000-8007 O-ring set ONH-p (furnace)

27000-8008 Maintenance kit ONH-p

27000-8009 O-ring set ONH-p

71010  Brush, 16 mm, 1 piece, for cleaning balance from dust

88400-0500  Telescope mirror, 1 piece, for inspection of upper electrode of ONH-p/ONH-2000

88400-0473  Powder funnel (plastics), 1 piece, for easy filling of chemical tubes

88400-0489 Rubber plug 14x20x24 mm, 1 piece, for sealing small glass tubes like 88400-0006

88600-0027 Sodium hydroxide, Anhydron filter tube

71032  Composite brush, 1 piece, for cleaning upper electrode of ONH-p furnace

71035  Cleaning brush / furnace brush, 1 piece, for cleaning sample inlet of ONH furnaces

71031  Metal brush, 1 piece, for cleaning graphite tip and its holder

88400-0504  Cylinder brush, brass, for intensive cleaning of lower furnace

88400-0501  Micro brush, 1 piece, for cleaning of ONH series furnace outlet tube

61030 Allen key, 3 mm, 1 piece

61040 Allen key, 4 mm, 1 piece

61050 Allen key, 5 mm, 1 piece

CALIBRATION MATERIALS

**Calibration materials may show slight variations depending on the current lot.
To see the current certification please visit www.ELTRA.com.**

OXYGEN AND NITROGEN IN STEEL, PINS

91100-1001		Сталь, столбики 1 г, 100 штук, 25 – 40 ppm N
91100-1002		Сталь, столбики 1 г, 100 штук, 30 – 70 ppm N
91100-1003		Сталь, столбики 1 г, 100 штук, 150 – 250 ppm N
91100-1005		Сталь, столбики 1 г, 100 штук, 300 – 600 ppm N
91100-1007		Сталь, столбики 1 г, 100 штук, 70 – 130 ppm N
91100-1010		Сталь, столбики 1 г, 100 штук, >1000 ppm N
91100-1011		Сталь, столбики 1 г, 100 штук, 600-1000 ppm N

HYDROGEN IN STEEL, PINS

91400-1001		Сталь, столбики 1 г, 100 штук, 0.5 – 1 ppm H
91400-1002		Сталь, столбики 1 г, 100 штук, 1.5 – 4 ppm H

СТАЛЬ, ШАРИКИ (H)

91110		Steel, 100 balls, gold plated, 1 g each, >1.9 ppm H
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OXYGEN IN COPPER, PINS

91000-1003		Медь, столбики 1 г, 100 штук, ~200 ppm O
91000-1004		Медь, столбики 1 г, 100 штук, ~10 ppm O

OXYGEN, NITROGEN AND HYDROGEN IN TITANIUM, PINS

91205-1001		Титан, столбики 0,1 г, 100 штук, 10 – 35 ppm H
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91205-1002		Титан, столбики 0,1 г, 100 штук, 20 – 70 ppm H
91205-1003		Титан, столбики 0,1 г, 100 штук, 30 – 90 ppm H
91205-1004		Титан, столбики 0,1 г, 100 штук, 60 – 120 ppm H
91205-1005		Титан, столбики 0,1 г, 100 штук, 150 – 250 ppm H
91205-1006		Титан, столбики 0,1 г, 100 штук, 120 – 150 ppm H

HYDROGEN AND CARBON IN TITANIUM, PINS (250 MG)

91305-1001	Titanium, 100 pins, 0.25 g each, < 50 ppm H
91305-1002	Titanium, 100 pins, 0.25 g each, 50 -100 ppm H
91305-1003	Titanium, 100 pins, 0.25 g each, > 100 ppm H

Please note: Every analyzer requires PC, monitor, balance and some consumables (crucibles, chemicals) which have to be ordered separately