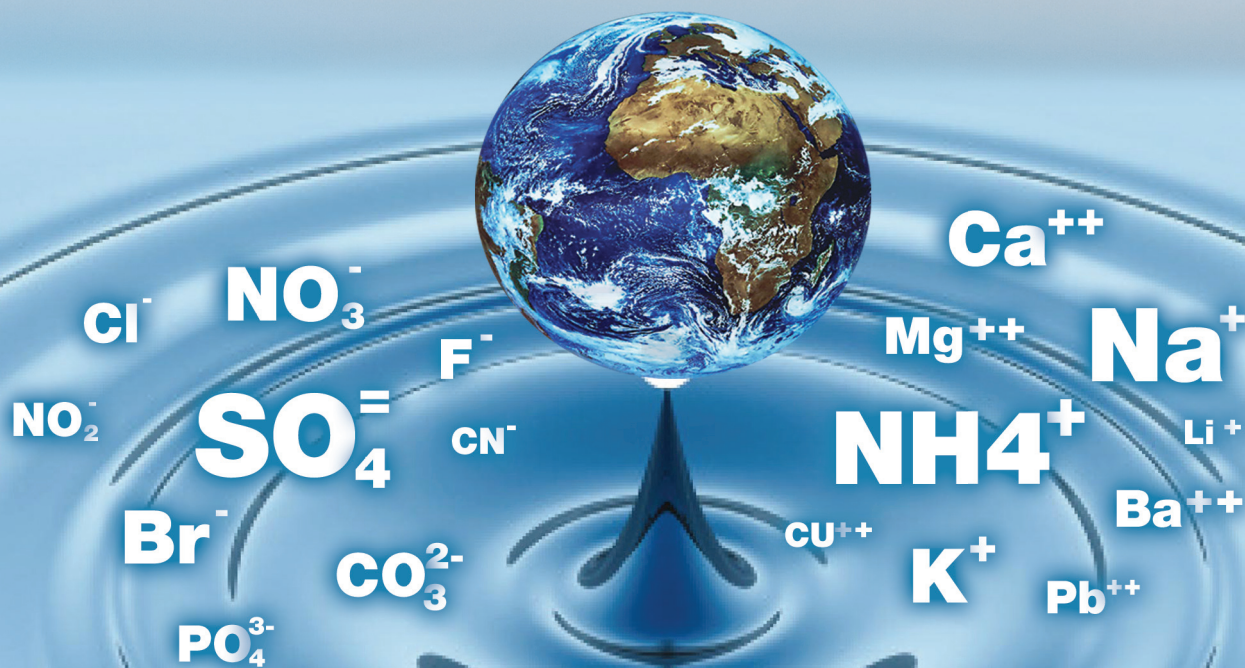




KONIK IC 590 PLUS

ANION, CATION, AND POLAR SUBSTANCES ANALYZER



**Oxalate, Acetate, Formate,
Tartrate, Arsenate, ...**

Designed for:

All IC modalities

Advanced, Flexible, Robust, and High Sensitivity Suppression.
Highly Inert, Integrally Polymeric Pump and Fluidic System.
Conductivity, Electrochemical, and UV-Vis Detector Options

PASSION FOR INNOVATION, FOCUS AND EXPERTISE IN CHROMATOGRAPHY GIBNIK'S DRIVING FORCE!

The team behind the GIBNIK-KONIK instrument development programme has been active in Chromatography **since 1978** when the KONIK 2000 A GC purposely designed for capillary chromatography was introduced.

In 1985 the same team developed the first low pressure mixing, gradient forming HPLC that among other options could perform, with the limitations at the time, ion analysis.

In 1997 developed the first multimodal robotics and autosamplers for GC (HS, P&T, SPmE;...) and HPLC .

in 2002 the first multimodal Quadrupole MS with exchangeable sources optimized for EI/CI GC-MS and ESI/APCI HPLC-MS.



WHY GIBNIK'S ENTERS ION CHROMATOGRAPHY NOW?

Expiration of key patents in suppression technology and long time positive experience of inert thermoplastic materials such as Polyether Ether Ketone (PEEK), with excellent mechanical properties and chemical inertness, that GIBNIK uses for a long time in other designs of their current product programme, encompassed with the experience gained in the development and manufacturing of other related instruments such as the KONIK HPLCs and GCs, facilitated GIBNIK to enter the ion chromatography selected group of manufacturers. We did this with confidence, likewise we did with the other instruments to date, adding value to the "IC turn key solution packages" that we are currently offering and those that we will continue to develop in the near future.

GIBNIK IS DRIVEN BY EXCELENCE, QUALITY AND PERFORMANCE

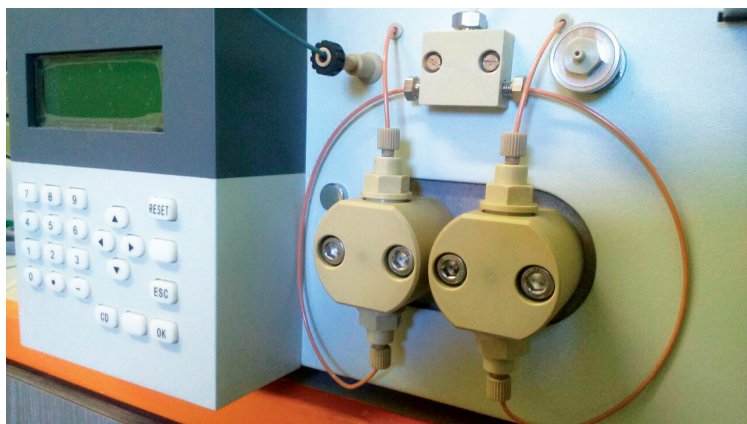
In fact there are a few technologies integrated in modern IC,s that GIBNIK did care to optimize at every level based on their life long experience of near 40 years of designing and manufacturing advanced analytical equipment. Among these technologies the pump and fluidic parts play a key role, the multiple types of available columns and column oven compartment too, the conductivity, electrochemical, and photometric detectors, as well as the optional suppression technologies, all play significant roles in Ion Chromatography.

In the **KONIK IC 590 Plus** we have integrated what matters most under a user's point of view:

- **PERFORMANCE, ROBUSTNESS AND RELIABILITY:** Derived from strict quality controls in place
- **FLEXIBILITY, MODULARITY AND EASY OF USE:** Streaming from the innovative designs made
- **SENSITIVITY AND LOW DETECTION LIMITS:** Result of the proprietary technologies developed
- **WARRANTY AND GUARANTEE OF SATISFACTION:** Based on our unique "Turnkey-Zero Risk" policy including training of end users in Barcelona prior delivery of the systems and commissioning by factory qualified engineers. **More information in page 7.**

The KONIK IC 590 Plus PEEK Pump

Purposely **designed for ION Chromatography** all wetted materials are totally chemically inert. Pump head and flow path are integrally made of PEEK and non-metallic materials. The whole system is inert and resistant over the whole range of pH: 0-14



With a **flow rate of 0.01 to 5.00 ml/min.** and a **pressure limit of 35 MPa (5.000 psi)** this pump is suited for optimal applications in Ion Chromatography. It is designed with main and auxiliary pump heads connected in series following the **KONIK HPLC 500 Isokinetic Flow Delivery System** patented back in 1985, with a piston diameter of 1/8".

This new sophisticated pump unit achieves precise and reproducible isocratic

flows with utmost reliability, safety and precision. **Backwashing of pistons is standard** (Plunger cleaning: double plunger with continuous automatic cleaning). **Pump maintenance** is also now easy as seals, washers, and pistons are easy to disassemble. **Degassing is included** to prevent bubble formation (Single, or Dual optionally, automatic online)

The KONIK IC 590 Pump is supported by KONIKROM PLUS software, but can be independently controlled by the pump front panel as well, with its own display and elegant keyboard and cursor.

Other KONIK IC 590 Pump Technical Parameters

- Accuracy of flow rate (1ml/min. 12MPa H₂O) $\pm 2,5\%$
- Repeatability of flow rate (1ml/min. 12MPa H₂O) $\pm 0.2\%$ RSD
- Accuracy of pressure measurement $\pm 2\%$
- Adjustable lower pressure limit 0.0 – 35.0 MPa (protection) the lower
- Adjustable upper pressure limit 1.0 – 40.0 MPa
- Limit can be set lower than the upper limit. If it exceeds set limit, the pump automatically stops.
- Setting of components concentrations* 0.0 – 100.0 %.
- Communication RS485, Optional USB

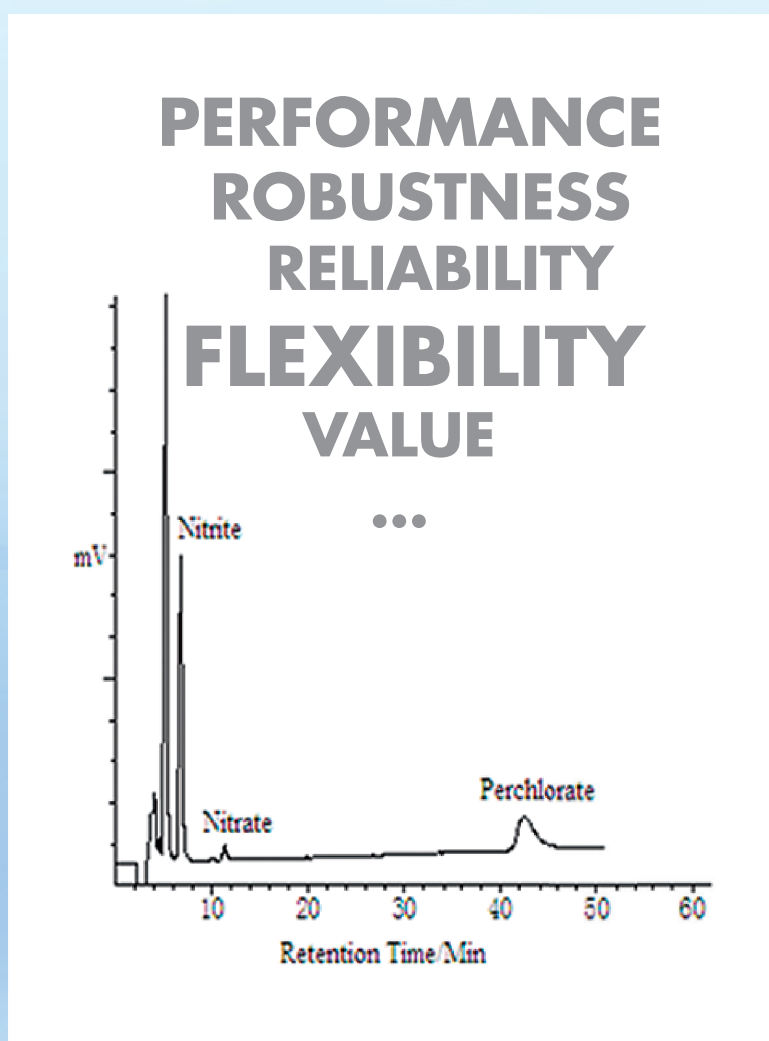


Designed for optimal, high sensitivity

Compact, all in one system, includes PEEK pump, oven, inert (anion and cation) suppressor modules. Optional Anion and Cation suppressor modules. Operating pressure 60 MPa .Compact

Example of Anion analysis

Br⁻
Cl⁻
CN⁻
CO₃²⁻
F⁻
NO₂⁻
NO₃⁻
PO₄²⁻
SO₄²⁻
Acetic
Arsenic
Formic
Oxalic
Tartaric
...



Designed for optimal sensitivity and reproducibility for both anion and cation analysis. The 590 IC incorporates a novel electrochemical suppressor that reduces drastically the background noise thus increasing sensitivity in both anion and cation analysis.



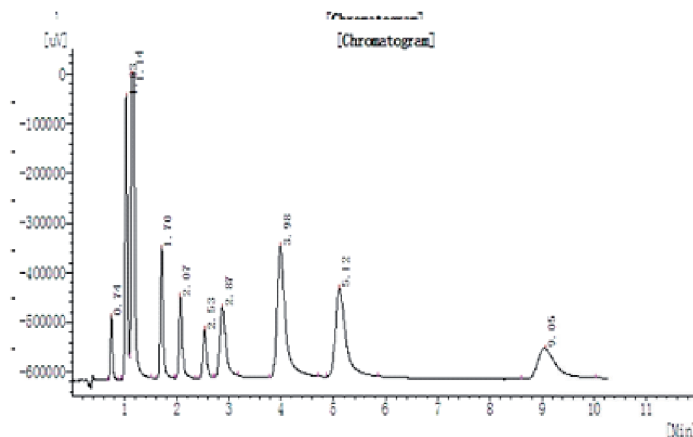
ty, low detection limits of any ions.

PEEK injection valve, conductivity detector and independent
Cation suppressor/column and detector valve switching . Max.
compact Tower design.

Example of Cation analysis

Separation of Alkali Metal and Alkaline Earth Metal in One Run by IC

[Analysis Result]		<Quantitation Based on: Peak Area>			
Peak No.	Component Name	Retention Time (Min)	Peak Height	Peak Area	Content (mg/L)
1	Li	0.74	127672	377332	0.5000
2	Na	1.03	571654	1804180	2.0000
3	NH ₄	1.14	614282	2737204	2.5000
4	K	1.70	262539	1042365	2.5000
5	Rb	2.07	163313	749025	2.5000
6	Cs	2.63	97106	503282	2.5000
7	Mg	2.87	140761	1127316	5.0000
8	Ca	3.98	262768	2953968	10.0000
9	Sr	5.12	177950	2430012	15.0000
10	Ba	9.05	61120	1483590	15.0000
Total					57.50



Ba²⁺
Ca²⁺
Cu²⁺
K⁺
Li⁺
Mg²⁺
Na⁺
NH₄⁺
Pb²⁺
Sr²⁺
...

KONIK IC 590 Ion Chromatograph general specifications with standard conductivity detector and suppressor:

Detection range: level of ppb to ppm. Detection limit: 0.1 ppb (as Cl⁻) 5.0 ppb (as Na⁺). Dynamic Range: 10³. The linear correlation coefficient: 0.9998 (in accordance with Cl⁻ and Na⁺). Baseline noise ≤ 0.05mV/30min. Anionic baseline drift: ≤ ± 1.5mV/30min. Cation: ≤ ± 0.5mV/30min. Specifications subject to change without prior notice.

ALL-IN-ONE INTEGRATED SUPPRESSOR, ELUENT AND COLUMN OVEN



The heating/cooling column oven with a big compartment room can accommodate up to **2 columns and the suppressor (anion and/or cation)**. Unit is controlled by keypad or via RS232. Precise temperature control enhances separation and reproducibility while improving the quality of analysis. Peltier technology offers the possibility of heating and cooling shielding the unit from room temperature variations.

ELECTROCHEMICAL SUPPRESSOR

Suppression mode: recycling

Inhibiting amount: Anionic 100mmol NaOH

Equilibration time: <15min

Anion suppressor current control: 0-200mA, with 1mA increments.

ELUENT GENERATOR

Eluent concentration range: 0.1-50mM

Eluent species: OH⁻, CO₃, 2-/HCO₃⁻, MSA

Incremental concentrations: 0.1mmol / L

Flow rate range: 0.5-3.0mL/min

Operating temperature: -40 °C temperature

Operating Humidity: 5% -85% relative humidity, non-condensing.



IC CONSUMABLES

IC COLUMNS AND PRECOLUMNS



HPLC SOLVENT
FILTERS

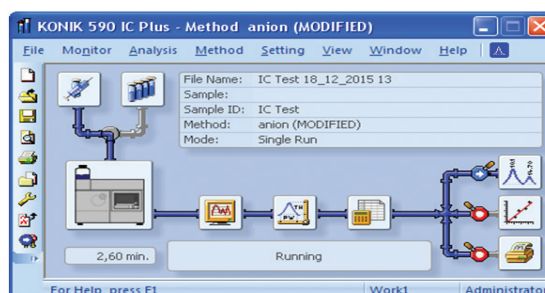
SAMPLE FILTERS



AUTOSAMPLER VIALS



KONIKROM DATA SYSTEM



IC, HPLC & HPLC MS INTENSIVE TRAINING COURSES in Barcelona

KONIK IC 590 Plus DETECTORS

HIGH SENSITIVITY KONIK IC 590 CONDUCTIVITY DETECTOR



The IC 590 Conductivity Detector is an integrally digital, microprocessor controlled, detector. The conductivity cell can be operated at up to 10 kHz. It features a wide dynamic and measuring range from 0 to 15000 μ S. The conductivity cell temperature can be set by the user anywhere for room temperature to 60 °C. Temperature Stability is ≤ 0.005 60°C. The small volume (<1 μ L) conductivity cell, likewise the rest of fluidic parts of the KONIK 590 IC Plus, is made integrally of PEEK.

KONIK 580 UV-VIS v. IC PEEK



The version IC PEEK of this classic HPLC detector has continuously variable wavelength in the range of 190 600 nm and noise level is $\pm 3 \cdot 10^{-6}$ AU. It is easy to operate; light intensities for reference and sample channels are available for detector diagnostics as well as information on lamp operating hours. The detector performs automatic wavelength calibration after the lamp has been switched on. High standard deuterium lamp in a special socket enables easy exchange. Output signal is available in both digital and analogue form. Detector could be controlled, programmed and used together with KONIKROM PLUS software via RS232 or Ethernet interface. The cell can be easily removed from the front of the unit. All fluidic parts are PEEK for maximum chemical inertness.

ELECTROCHEMICAL DETECTOR

With a low dead volume the cell maintains the efficiency of the separation, while the mirror polished cell avoids hydrodynamic disturbances. Low noise electronics provides sensitive and selective detection in the picogram range. The electronic transfer between electrode and compound in solution occurs only if the working potential is held at the right value to oxidize or reduce the compound; the detector is blind when the compounds react above this value. The digital display shows all important parameters for efficient interpretation: volt or nA / V, output data, volt or nA / V, offset, potential, time constant, base line decay, sensitivity, chromatogram, etc.

GIBNIK WAY TO CUSTOMER SATISFACTION IS BASED ON "ZERO RISK SALES POLICY"

GIBNIK Zero Risk-Turnkey® Sales Policy is based on a five steps procedure.

Step 1: Clear assessment and definition of the customer need(s) or the problem(s) faced.

Step 2: Professional proposal and quotation of the optimum System configuration in accordance of the above.

Step 3: Evaluation of the specific training needs of the End Users. If required this will be done in the GIBNIK Training Centre of Barcelona with their own system prior to delivery. Might include method(s) adjustment with standards for chosen analytes, checking of any critical parameter (eg. Detection limits for any substance,...), etc.

Step 4: Installation and complementary training in the customer premises by a qualified GIBNIK Engineer. In addition to the above GIBNIK's Special Products Department will be proud to take the challenge to develop "Turnkey Specially Engineered Analytical Solutions" based on GIBNIK core technologies and specialization. A prior feasibility study might be occasionally necessary.

Step 5: 24 hours support via email with return tele or videoconference (skype) when necessary.



ANALYTICAL SOLUTIONS... AIMING TO MAKE THE WORLD A BETTER PLACE FOR ALL!



Headquarters

EUROPE, Barcelona

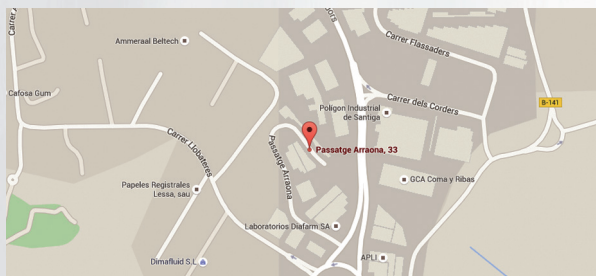
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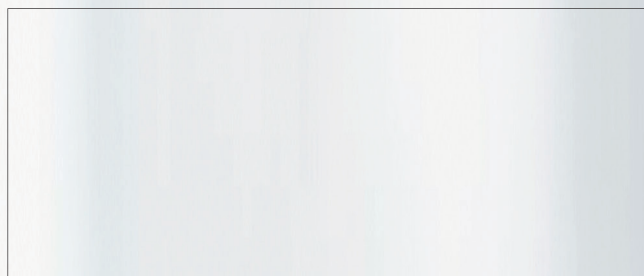
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GIBNIK meets most quality standards

Design, manufacturing and commercialization of analytical instruments, laboratory equipment, consumables and accessories.



Local Distributor



For more information on our products and services, please visit our website at:
www.gibnik.com or contact: **sales@gibnik.com**

SOME CUSTOMER REFERENCES

