CHROMOS
engineering

Excellence and Strength:
Solution of analytical needs

Laboratory Gas Chromatography System

CHROMOS GC

chromosGC.com

Chromos GC

The Chromos GC Chromatographic System is designed for qualitative and quantitative analysis of organic and inorganic gaseous, liquid and some solid samples of various objects of natural and industrial origin.

Chromos GC Chromatographic performance:

- Retention Time Repeatability: 0.1% RSD (FID, High Sensitivity PID, ECD, MSD with manual inject).
- Peak Area Reproducibility: 1% RSD (FID, High Sensitivity, ECD with manual inject).
  4% RSD for MSD with manual inject.

The System scope includes:

- Industry (inspection of raw materials and finished products, inspection of process media, etc.).
- Environment (monitoring of environmental parameters, such as air, water, soil, food, consumer goods, etc.).
- Power industry (monitoring the state of oil-filled equipment at power facilities).
- Medical industry (control of pharmaceutical drugs).
- Forensic science (forensic and other types of examination).
- Science (use for research and educational purposes)

System Capability: Support simultaneously

Sample injections up to	8
Detector up to	4
Heating zones:	13
Gas valves:	10
GFC units (flow/pressure controllers):	16
Screen LCD:	Built-in

Column Oven:

Operating Temperature range:	(Tamb. +2) to 450 °C
With column oven cooling system:	-30° to 450 °C
with cryogenic cooling device:	-100 to +450
Maximum Heating Rate, °C/min:	140
Oven Cooling down (25 ambient °C)	
From 400 – 50:	4 min
Programming speed setting increment, °C:	0.01
Deviation of average steady-state oven	
temperature from setpoint, %	±0.15
Support oven ramps:	UP to 999
Maximum run time:	Up to 999
Overall dimensions of chromatograph without additional devices and packaging:	
(Width x depth x height), mm, max:	
HAS 2.320.003 (column oven volume 14.2 dm3):	390 x 570 x 480
HAS 2.320.003-01 (column oven volume 18.9 dm3):	390 x 630 x 480
HAS 2.320.003-02 (column oven volume 5.3 dm3):	360 x 450 x 430

Universal Gas Flow controllers (GFC):

Pressure measuring unit:	Bar, Psi
Working mode:	Constant (pressure, flow and velocity)
	Programable (pressure, flow and velocity)

Number of pressure/flow program ramps:	UP to 999
Maximum pressure:	10 Bar (150 Psi)
Pressure setpoint resolution:	0.01 kPa
Flow setpoint resolution:	0.01 ml/min

Inlets: Up to 3 inlets:

Packed Column Inlet:

Separation Column Suitability:	Packed columns, micro-packed columns
Gas Control:	Automated
Maximum Temperature:	450 °C
Maximum pressure:	10 bar (150 Psi)
Total Flow:	800 ml/min

Split/Splitless Inlet:

Separation Column Suitability:	Capillary, micropacked and packed column
Operating mode:	Split, Splitless
Maximum Temperature:	450 °C
Maximum Split Ratio:	1:1000
Maximum pressure:	10 bar (150 Psi)
Total Flow:	1000 ml/min
Electronic Septum purge flow	Available
Gas saver mode:	Available
Inlet leak check	Available

Programmable Vaporizer Inlet:

Separation Column Suitability:	Capillary, micropacked and packed column
Operating mode:	Split, Splitless, Direct On-Column, large injection volume
Maximum Temperature:	450 °C
Maximum Split Ratio:	1:1000
Maximum pressure:	10 bar (150 Psi)
Total Flow (He, H2):	1000 ml/min
Electronic Septum purge flow:	Available
Gas saver mode:	Available
Inlet leak check:	Available
Max heating rate, °C/min:	500

Detector: up to 4 detectors

Flame Ionization Detector (FID):

Separation Column Suitability:	Capillary, micropacked and packed column
Minimum detectable level (MDL)	FID $1.3 \cdot 10^{-12}$
in hydrocarbons (heptane, propane) Gs/s.	High-sensitivity FID $1.0 \cdot 10^{-12}$
Linear dynamic range:	10^7
Maximum Temperature:	450 °C
Gas control:	Automated
Flame ignition/reignition:	Automated

Thermal conductivity detector (TCD):

Separation Column Suitability:	Capillary, micropacked and packed column
Minimum detectable level (MDL)	
Flow TCD for heptane, propane, nitrogen, helium carrier gas, g/cm^3	$8.0 \cdot 10^{-10}$
Flow TCD, for hydrogen, argon carrier gas, g/cm^3	$1.0 \cdot 10^{-10}$
High-sensitivity flow TCD, for heptane, propane, nitrogen He carrier g/cm^3	$3.0 \cdot 10^{-10}$
High-sensitivity flow TCD, for hydrogen, (argon carrier gas), g/cm3	$8.0 \cdot 10^{-11}$
Linear dynamic range:	10^5
Maximum Temperature:	450 °C
Filament type	Tungsten & gold

Micro Thermal conductivity detector (TCD):

Separation Column Suitability:	Capillary column
Minimum detectable level (MDL):	
Micro-volumetric TCD, for heptane, propane, nitrogen He carrier g/cm^3:	$1.0 \cdot 10^{-9}$
Micro-volumetric TCD, for hydrogen, (argon carrier gas), g/cm^3:	$7.0 \cdot 10^{-9}$
Micro-volumetric Valco TCD, for heptane or propane He carrier g/cm^3	$5.0 \cdot 10^{-10}$
Linear dynamic range:	10^5
Gas control:	Automated
Filament type:	Tungsten or Gold

Thromoionic Detector (TID):

Separation Column Suitability:	Capillary, micropacked and packed column
Minimum detectable level (MDL) For phosphorus in metaphos, G/s:	$1.4 \cdot 10^{-14}$
Linear dynamic range for phosphorus	10^4
Maximum Temperature:	450 °C
Gas control:	Automated

Flame Photometric Detector (FPD):

Separation Column Suitability:	Capillary, micropacked and packed column
Minimum detectable level (MDL) For sulfur in metaphos. g/s:	$1.3 \cdot 10^{-12}$
For hydrogen sulfide in nitrogen, g/s:	$1.0 \cdot 10^{-12}$
Linear dynamic range:	103 (S), 104 (P)
Maximum Temperature:	450 °C
Gas control:	Automated
Flame ignition/reignition:	Automated

Electron-capture detector (ECD):

Separation Column Suitability:	Capillary, micropacked and packed column
Minimum detectable level (MDL) For lindane in hexane, g/s	$1.7 \cdot 10^{-14}$
Linear dynamic range:	10^4
Maximum Temperature:	450 °C
Radioactive source:	Ni^{63}

Halogen selective detector (HSD):

Separation Column Suitability:	Capillary column
Minimum detectable level (MDL):	
For lindane in hexane, for dichloromethane, chloroform, dichloroethane, carbon tetrachloride, trichloroethylene tetrachloroethylene, g/s:	$2.0 \cdot 10^{-12}$
Linear dynamic range	
Maximum Temperature:	450 °C
Gas control:	Automated

Catalytic combustion detector (CCD):

Separation Column Suitability:	Capillary, micropacked and packed column
Minimum detectable level (MDL)	
For hydrogen, g/cm^3	$5.0 \cdot 10^{-11}$
For Oxygen, g/cm$^{3:}$	$5.0 \cdot 10^{-11}$
Maximum Temperature:	450 °C
Gas control:	Automated

Photoionization detector (PID):

Separation Column Suitability:	Capillary, micropacked and packed column
Minimum detectable level (MDL) (KrRV lamp), for benzene, g/s	$2 \cdot 10^{-13}$
Linear dynamic range:	10^7
Maximum Temperature:	450 °C
Gas control:	Automated
Light Source:	(KrRV) lamp

Pulsed discharge detector (PDD):

Separation Column Suitability:	Capillary, micropacked and packed column
Minimum detectable level (MDL), for methane in helium, g/s	$2.2 \cdot 10^{-13}$
Linear dynamic range	10^5
Maximum Temperature:	450 °C
Gas control:	Automated

Plasma emission detector (PED):

Separation Column Suitability:	Capillary, micropacked and packed column
Minimum detectable level (MDL) For nitrogen, g/cm^3	$5 \cdot 10^{-11}$
For hydrogen, oxygen, methane, g/cm^3:	$1 \cdot 10^{-11}$
Linear dynamic range:	10^4
Maximum Temperature:	450 °C
Gas control:	Automated

Additional Units:

Valves:	Manual & automatic valves with 3,4,6,8,10 ports the valves are equipped with filter to prevent Blockage from solid particular. Temperature range up to 220 C
	Valco. Valves. The manual and automated, Switch valves of 3-,4-, 6-,8-,10-,12-,14-ports Temperature range up to 220 C
Liquid gas injection module:	For liquid and liquid gas samples under pressure (3 MPa) without degassing.
Methanizer:	Unit for Determination of trace CO, CO2 up to (0.2 ppm)

Digital Automatic liquid Sampler CHROMOS-DALS-23

Distinguishing feature:

- Autosampler control from the Chromos program.
- Removable carousel for vials (for washing from sample ingress.
- Ability to work with one autosampler for 3 evaporators.
- Medical industry (control of pharmaceutical drugs).
- Sample injection modes: simple injection, sandwich, solvent sandwich.
- Quick and easy syringe change.

Advantages:

- Modular design for easy rearrangement to other chromatographs Chromos GC-1000.
- Variable depth of immersion of the needle into the vial, allowing you to work with a small amount of sample.
- Variable depth of immersion of the needle into the evaporator.
- Variable speed of immersion and exit of the syringe needle into the vaporizer.
- Possibility to set the delay mode before dosing and after sample dosing.
- Possibility to set different syringe flush speeds depending on the viscosity of the sample.
- Flushing the syringe with several solvents.

Specification:

Type:	Carousel
Replaceable micro syringes:	Up to 250µl
Injection volume:	From 0.1 to 10 µl
Setting Resolution:	0.1 µl
Sample vial volume:	2.0 ml
Number of vials:	2.0 ml
Repeatability RSD%:	23
Power Requirements:	220V ±10%, 50/60Hz
Weight & Dimension:	3 Kg, (W=100, H= 460, D= 140) mm
Communication Interfaces:	Ethernet protocol

CHROMOS4 software:

Chromos 4 Software:	The Chromos software is designed to collect and process chromatographic data, control chromatographs, samplers, maintain a database of all analyzes in the laboratory or on the shop floor.
Data analysis:	Data are collected using remote analog-to-digital converters (ADCs) or chromatographs that support data exchange with a computer.
An intuitive interface:	The Chromos SW has an intuitive interface, simple and easy to use, which minimizes operator actions to achieve the desired effect. Available plugins expand the Chromos SW capabilities.
Communication Interfaces:	PC communicate via LAN interface, RS-232, USB, Ethernet protocol.

Ambient Conditions:

Ambient air temperature, ˚C:	+10 to +35.
Relative air humidity, %:	30-80.
Atmospheric pressure, kPa:	84-106.7

Certificates & safety standards:

CHROMOS Manufacture of laboratory, analytical and industry gas chromatography, analyzer, quality control boxes and metal structures according to the scope **ISO 9001:2015**

CHROMOS-GC has conformity certificate confirms the conformity of the product with essential safety requirements of the following EC/EU New Approach Directives as amended: **2014/35/EU** Low Voltage Directive **2O14/30/EU** Electromagnetic compatibility Directive Harmonized standards used for the conformity assessment: **EN 61010-1:2010/A1:2019/AC:2019-04**, **EN 61326-1:2013** **EN 61000-3-2:2014**, **EN 61000_3-3:2013**

For more information, please contact us at:
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