

Gas Chromatograph 2191

- Micro Controller based
 - Modular Design
 - Rigid Construction
- Protection Circuits for Safe Operation
- Prompt after Sales Service



Mak Analytica high sensitivity Gas Chromatograph model 2191

2191 is next version of 'MAK GC 911M'. The MAK ANALYTICA 2191 is designed out of our varied experience in the field of analytical instrumentation and Gas Chromatography in specific. Our team comprises of specialists from engineering, electronics, application and other related disciplines, who constantly strive to improve the performance of our instruments.



The MAK ANALYTICA 2191 is suitable for Quality control, R & D, routine analytical requirements, & most of the applications. The modular concept for additional accessories, facilities, detectors and serviceability.

Temperature Control

The oven, Injector Detector and auxiliary channel temperatures are controlled precisely by user friendly Microcontroller with 4 line alphanumeric display,

has facility of 9 step temperature profile for oven heating and over 60 methods storage capacity with alphanumeric naming.

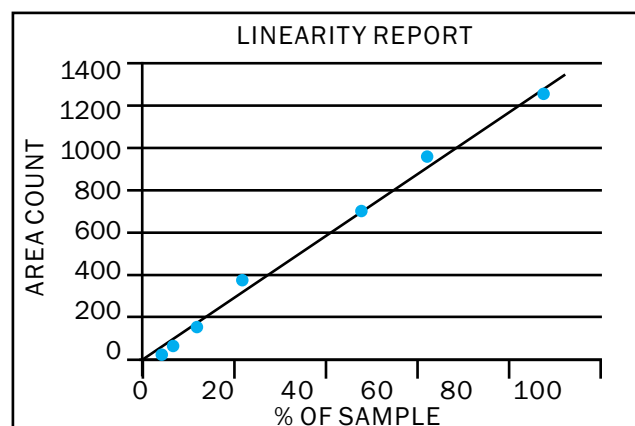
All the parameters, (set and actual), are displayed. The higher temperature cut off (adjustable) are provided for all the channels.

Flame Ionisation Detector is designed to give high sensitivity, while Thermal Conductivity Detector is with minimum cell volume to get maximum sensitivity.

Modular construction makes the instrument versatile to upgrade with add-on modules as and when required. This also makes it convenient from service point of view so as to keep the down time to the minimum.

The Machine is tested to ruggedness and robustness. % RSD is found to be less than 2% under test conditions.

With our prompt after-sales service and application support, we have wide customer base in all kinds of industries.



Microcontroller Panel



Pneumatic Panel

Gas Chromatograph 2191

TECHNICAL SPECIFICATIONS

COLUMN OVEN

Dimensions:

- 300 x 250 x 150, (WxHxD)

Capacity:

- Any type of two columns

Operating Temperature:

- 50°C to 400°C

Temperature stability:

- ± 0.1°C
- Accuracy ±0.5°C
- Temp Profile 9 steps,
- Method Storage : more than 60 files,
- Heating rate- 0.1°C/min to 40°C/min.
- Column limit temp. adjustable
- With over heat protection
- Auto cooling.

INJECTORS:

- Dual

Operating Temperature:

- 50°C to 400°C
- Adapters for, Off-column with quartz liner for 1/8" SS column, On-column for 1/8" SS, 1/4" glass columns, Split/split less with quartz liner for capillary/mega bore columns.

DETECTORS :

- Flame Ionisation Detector (FID) : Dual
- Operating Temperature : 50°C to 400°C
- Sensitivity: > 0.022 coulombs/gm,
- MDL: <5x10⁻¹² gm c/sec Xylene
- LDR: 10⁷,
- Electrometer Amplifier sensitivity: 1x10⁻¹² Amps/mV,
- Thermal Conductivity Detector (TCD) : Dual pass
- Operating Temperature : 50°C to 400°C
- Filaments: Tungsten-Rhenium,
- TCD control: Constant filament temperature mode (Adjusts current as per carrier gas TC, +over-load protection for filament safety),

OTHER AVAILABLE DETECTORS :

- NPD, ECD, DID, FPD, PID.

PNEUMATICS :

- Carrier pressure switch for safety
- Pressure controllers & gauges for, carrier, H₂, Air
- Shut-off valves for H₂, air
- Flow controllers (Options)
Fine needle valves, DFC, EPC

Out-put signal (options)

- Analog : 0-1 volt
- USB with chromatography software

Power:

230V ac - 50Hz, 2KW

Dimensions:

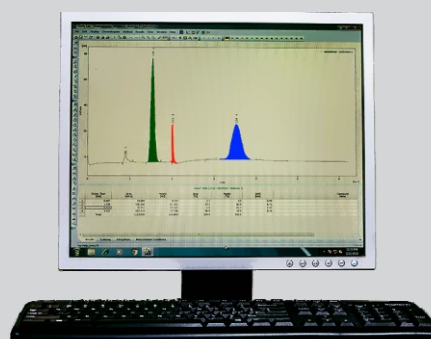
- 565 x 475 x 485 (WxHxD)

Weight:

- 45 Kg.



OTHER PRODUCTS AND ACCESSORIES



GC ACCESSORIES

- ❑ Capillary Columns
- ❑ Packed Columns
- ❑ Glass Columns
- ❑ Syringes
- ❑ Syringe Cleaner
- ❑ Septum
- ❑ Pneumatic Fittings
- ❑ Flow Controllers DFC / EPC
- ❑ Gas Sampling Valve
 - manual
 - auto
- ❑ Gas Filer Stations

ALLIED EQUIPMENTS

- ❑ Methaniser
- ❑ Pyrolyser
- ❑ Head Space Sampler
- ❑ Thermal Desorption System
- ❑ Sampling System for LPG (ASTM)

DEDICATED GAS ANALYSER

- ❑ Binary Gas Analyser*
- ❑ Multi Gas Analyser*
- ❑ THC Analyser*
- ❑ LPG Gas Analyser
- ❑ Natural Gas Analyser
- ❑ Oxygen Meter
- ❑ Dew point /moisture meter

SOFTWARE

- ❑ Chromatography data Acquisition software*
- ❑ Laboratory Information Management System
- ❑ Instrument / Method Validation Software
- ❑ Calorific Value Calculator for LPG & CNG
- ❑ Customised Software

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