

Technical Specifications

Gas Chromatograph:

We require a Gas Chromatograph with following specifications.

General Features of GC

- Fully automated with programmable pneumatic control (digital control) for injector, detector and purge gas. .
- Instrument should be compatible to computer and software should be Windows 10 or latest.
- Basic system with EPC/AFC/PPC control for carrier/detector zone gases.
- EPC/ PPC/AFC should provide optimum performance with all types of columns and detectors
- All parameters should be stored as a part of method for better analysis reproducibility
- System must have touch screen user interface for easy instrument operation

Gas Flow control

- Must come standard with programmable pneumatic control
- Digital Pneumatic Control for setting column flow with pressure, flow and linear velocity.
- Minimum Two - ramps pressure program should be available.

Inlet configuration and usability

- Injectors should be controlled by EPC/PPC/AFC.
- Removable glass liner for trapping non-volatile residues.

Capillary Injector

- Operating Temperature range 50 °C to 450 °C in 1 °C increments
- PPC pneumatics include automatic control of split vent by split flow or split ratio

Packed-column injector

- Removable glass liner for trapping nonvolatile residues
- 50 °C to 450 °C in 1 °C increments

GC Oven Characteristics

- Volume: approximately 10 Litres or more for easy fixing and removing different types/dimension of columns without compromising rate of heating or cooling of oven.
- All temperature and time functions should be micro-processor controlled and displayed on the screen, column over-heat

protection, should be settable up to 450 °C, set point resolution must be at least 1 °C and cool down time from 250 °C to 50 °C 4.8 min or less

- The oven should have excellent temperature control and fast cool down system.
- Oven must accommodate up to two 30m × 0.25 mm id capillary columns.
- Maximum achievable temperature ramp rate should be 45 °C/min or more
- Temperature ramps should be 3 or more.
- Time settings: It should be 1 min increments for values 0 to 999 minutes or wider
- Detectors should be controlled by EPC/PPC/AFC.

Detector

Flame Ionization Detector- 1 No.

- Operating temperature: 100 °C to 450 °C in 1 °C
- Minimum detectable quantity: $< 3 \times 10^{-12}$ g C/sec Octane
- Linearity: $> 10^7$
- Makeup gas: Not required

Thermal Conductivity Detector- Optional

- Operating temperature: 100 °C to 350 °C in 1 °C increments
- Minimum detectable quantity : Typically < 1 ppm of Nonane
- Linearity: $> 10^5$
- Sensitivity: 9 μ V/ppm Nonane at 160 mA
- Filament protection: Self-limiting and resetting after transient overloads in either channel
- Software performing data analyses at least as per DIN/ISO/US-EPA, calibration, blank correction, data import, export, handling and reporting, quality control protocols, computer-based training
- License copy of Software should be supplied along with/ pre-loaded on PC and GC system.

Software

Power Supply Accessories

- 230 VAC $\pm 10\%$ @ 50/60 Hz
- Suitable computer with B/W printer should be provided along with the system
- Gas Cylinders with Regulators and Purifications for all required gases.

Optional Item:

- General Purpose 30 mtr capillary column and packed column
 - Auto Sampler capable of injecting both the injector ports

without any physical adjustment or removing hardware.

- Vial capacity – 100 plus
- Vial size - 2ml
- Waste and wash vial size - 4 ml
- Sampling volume - Capable to inject from 0.1 μ l to 50 μ l
- Sample pre-rinse - Prepares the auto sampler syringe in advance of the GC becoming ready

- **Conditions**

- 1) Should submit test reports no, test reports date, name of laboratory
- 2) 1 year on-site warranty
- 3) The quoted model must have last 5 years of working experience in any government organization with performance certificate
- 4) Minimum 10 instrument performance certificate in Gujarati in last 5 years
- 5) Before finalization of order supplier has to arrange working demonstration of the instrument.