



To,

INTRODUCTION TO CSL GAS CHROMATOGRAPHS

COMPANY PROFILE

Chemtron Science Laboratories Pvt. Ltd. is an ISO 9001: 2000 by BSI, a part of fastest growing industry i.e. chemical and electronics industry. Established in the year 1992 CSL has annual growth rate of 25%.

We are well equipped with advanced technology lab equipments, testing and inspecting facilities, which makes our products one of the best in the industry. CSL has a team of trained qualified engineers in its R & D Department, which constantly seeks to innovate, specialized products as per customer's requirement.

CSL PRODUCTS

Gases Division	Instrumentation Division
Speciality Gas Mixture Pure Gases Gas Handling Equipment's a) Gas regulators b) Manifolds c) Sampling Bomb d) Closed/Open type sampling system	Thermal Conductivity Detector Assembly Flame Ionization Gas Detector Assembly Electron Capture Detector Assembly Ultra Sensitive SF6 Leak Meter (PPT Level) Transformer Oil Gas Analyser Binary Gas Analyser Hydrocarbon Gas Analyser Supercritical CO2 Extraction Fodder Machines

CSL detectors in GCs

Detector	Type	Support gases	Selectivity	Detectability
Flame ionization (FID)	Mass flow	Hydrogen and air	Most organic cpds.	100 pg
Thermal conductivity (TCD)	Concentration	Reference	Universal	1 ng
Helium Ionization Detector (HID)	Concentration	Helium	In organic Gases	50 Ppb
Electron capture (ECD)	Concentration	Make-up	Halides, nitrates, nitriles, peroxides, anhydrides, organometallics	50 fg
Flame photometric (FPD)	Mass flow	Hydrogen and air possibly oxygen	Sulphur, phosphorus, tin, boron, arsenic, germanium, selenium, chromium	100 pg
Photo-ionization (PID)	Concentration	Make-up	Aliphatics, aromatics, ketones, esters, aldehydes, amines, heterocyclics, organosulphurs, some organometallics	2 pg

Maintenance & Service Division

We currently take care of service and maintenance contracts for various Gas Analysers and Instruments from companies like ABB-Nasik & Baroda, S & S Power Switchgear Ltd.- Baroda and Crompton Greaves-Nasik.

Sales and Support Network

To cater specific needs of our customers who are scattered in all parts of India, CSL has developed an efficient well connected marketing team consisting of Dealers operating in all four corners of India. Though most of the marketing takes place through direct personal customer contact, CSL also participates and advertise regularly in various Fairs and Exhibitions, Journals related to Analytical Instruments.

CSL CUSTOMERS

Our customers belong to the following categories: Petrochemical Refineries, Steel, Fertilizer, Cement, Power, Oil & Gas, Instrumentation & Research Institutes.

CSL products are used in the above industries mainly in quality control and instrumentation departments for calibration of various instruments like process analysers, gas chromatograph, toxic gas monitors & flammable gas analysers.

We are supplying our products to various ISO-9000 Companies, Government and Semi Government Organizations like Enron Oil & Gas India Ltd., Reliance Petroleum Ltd., Hyundai and Indian Petrochemicals Corp. Ltd., Oil & Natural Gas Corp. Ltd., Rashtriya Chemicals & Fertilizers Ltd., Department of Atomic Energy, ACC and Bureau of Indian Standards.

CSL TEAM

Consisting of well trained qualified chemists with **education qualification of B.Sc., M.Sc.** and have more than 9-10 years experienced engineers and senior quality control inspectors. Apart from that we also have assistance from various consultants.

The Managing Director of the company Dr. O.P. Srivastava has been awarded PhD. Degree from University of Wales-U.K. in the field of Gas Chromatography, has been associated for more than 30 years in developing G.C.'s, Process Control Instruments, etc. As a retired BARC scientist, his expertise and experience value added to all our activities.

Advantages

TECHNICAL

Complete in-depth technical knowledge of working & manufacturing GC's, Gas Analysers in terms of Electronics and Analytical capability. Trained Chemists, in house availability of Std. Gas Mixtures and well-equipped Analytical Lab. enables to fulfill all calibration standardization needs of the instruments. Qualified Engineers already experienced in installation, repair and maintenance of Instruments.

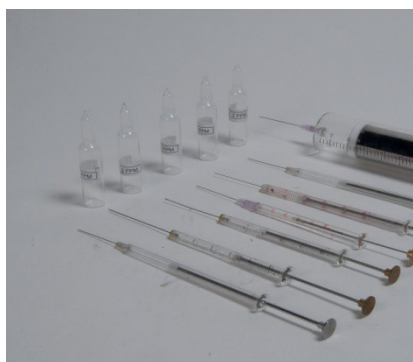
COMMERCIAL

Well established contacts in industry in the field of instrumentation over the past eight years. Good infrastructure with latest communication facilities. Registered with various consultants, projects and system houses, in most of the government /non government institutions in all over India.

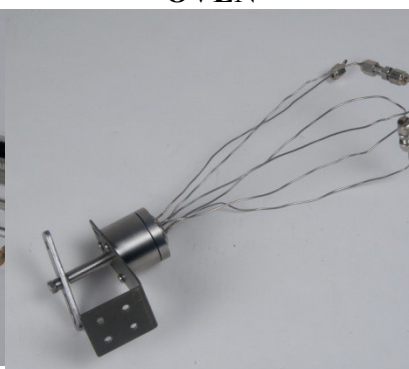


GAS CHROMATOGRAPH

GC WITH COLUMNS IN OVEN



SYRINGES



SAMPLING CONTROL VALVE FOR GC



SAMPLE COLLECTORS

SPECIFICATIONS OF CSL GC

Technical Specifications

Outline:

The Gas Chromatograph is 24 Bit microcontroller based instrument with 40x4 alphanumeric LCD display with back light for Injector, Column Oven, Detector and all heated zones temperature indications. It has a built in 24 bit high resolution data integrator A/D board with sampling frequency up to 20 Hz. It is having injection system suitable for analysis of Gas sample and liquid samples on packed/capillary columns using Thermal Conductivity and Flame Ionization Detectors. The data system has complete control of instrument conditions. Complete runtime display of chromatograms, quantification of analysis. It has advance options of storage and processing analytical data.

What makes it affordable!

Chemtron has been designing low cost gas chromatographs for over a decade. Chemtron has team of highly skilled and experience R&D department which consists of chemists and engineer's who have been developing these instruments specially for small scale industries, collage's and educational institutional which could not afford these analytical instruments. The complete system is made in house which includes The complete instrument consisting of Detectors, Columns, Pneumatics, Chassis, Electronics and also the Data integration software and its 24 Bit A/D board.

CSL-MODEL No.-1045

CSL-MODEL No. 2045

Description

(With Single Detector - PIP. FPD. ECD. HID. TCP or FID)

Gas Chromatograph will have the facility of Pressure Regulator Valve / Pneumatics Mass flow controller integrators, Manual cooling oven. Operating sensitivity mode (Low / Medium / High). The data system will have facility of control of instrument conditions, display of Chromatograms, quantification of analysis and storage of analytical data. CSL-1045 Gas Chromatograph also having optional facility of Methanizer. manual sampling valve, split/split less injection port for FID for dedicated analysis. University /College/Educational, Etc.

(With Dual Detector-Upgradable up to 3 Detector) Gas Chromatograph will have the facility of TCD protection circuit, oven heat protection, in built integrators for data acquisition system. CSL-2045 Gas Chromatograph also having optional facility of M.F.C. (Digital), Methanizer, manual gas sampling valve for ppm level analysis of CO & CO₂, data system with PC Storage of Chromatogram. Up to 3 detectors with TCD in series with FID can be configured for natural Gas analysis, Dissolved gas Analysis (TOGA). DGA Analysis/Solvent Gas Analysis/Permanent Gas Analysis.

Detectors

Single

Dual up to 3



Chemtron Science Laboratories Pvt. Ltd.

Injection System (Controlled from PC with Software common for all models)

Single port (Dual Optional)

Single/Dual with two packed columns and one 1 PTV with split/split less spot

Operating Temp. Range

Ambient 350°C

Ambient 350°C

Pressure Control System

Pressure regulator for carrier as well as air and H₂ for FID. Mass flow controller for carrier gas. Optional TCD

Different Pressure regulators for the air and H₂ for FID. Mass flow controller for carrier gas.

Column Oven Temp (Controlled from PC with Software) common for all models

Ambient 350°C react rate of 6 minutes at 1C/min to 30C / min with 7 ramps

Ambient 350°C with react rate of 4 minutes at 1oC/min to 30C /min with 7 ramps

Cooling Speed

350C to 30C in 10 mins. with manual control.

350C to 30C in 4 min with auto control.

Over Heat Protection

Available Hardware / Software

Available Hardware / Software

Temp. Programming

Ambient to 350C with 1C/min to 30C/min with 7 ramps

Ambient to 350C with 1C/min to 30C/min with 7 ramps

Optional Facility

Methanizer for detection of CO at ppm level. 24 bit software with pc control with instrument conditions, display of chromatographs, quantification and analytical data.

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Accessories

Packed column silica gel / molecular sieve 13 x gas tight syringe, septa , carrier gas cylinders, 24 bit data integrator with PC and printer

Packed column silica gel / molecular sieve 13 x gas tight syringe, septa , carrier gas cylinders, 24 bit data integrator with PC and printer

Weight

8KG

18KG

<http://wstemp.imart.intermesh.net/chemtron/electronics.html#gas-chromatograph>