

عنوان سند

Gas Chromatograph

DataSheet
(ISO 9001:2008)

Item no	Technical Features	Requirements
1	OVEN	<p>Operating temperature range suitable for all columns and chromatographic separations. Ambient temperature +4 °C to 450 °C.</p> <ul style="list-style-type: none">•Temperature set point resolution: 0.1 °C.•Supports 20 oven ramps with 21 plateaus. Negative ramps allowed.•Maximum achievable temperature ramp rate: 120 °C/min•Maximum run time: 999.99 min (16.7 h).•Oven cool down (22 °C ambient) 450 to 50 °C in 4.0 min (3.5 min with oven insert accessory).•Ambient rejection: < 0.01 °C per 1 °C.
2	PENOMATICS	<ul style="list-style-type: none">• Compensation for barometric pressure and ambient temperature changes be standard.•Pressure must have typical control of ± 0.001 psi for the range of 0 to 150 psi. Pressure set points may be adjusted in increments of 0.001 for the range 0.000 to 99.999 psi; 0.01 psi for the range 100.00 to 150.00 psi.•User could select pressure units as psi, kPa, or bar.•Pressure/flow ramps: Three minimum.•Carrier and makeup gas settings be selectable for He, H₂, N₂, and argon/methane.•Flow or pressure set points for each inlet or detector parameter could be adjusted with instrument and Software.• Constant flow mode be available when capillary column dimensions are entered into the instrument.•Split/splitless, Multimode, and PTV inlets must have flow sensors for the control of split ratio.•Inlet modules• Pressure sensors: Accuracy: < $\pm 2\%$ full scale, Repeatability: < ± 0.05 psi, Temperature coefficient: < ± 0.01 psi/°C, Drift: < ± 0.1 psi/6 months.•Flow sensors: Accuracy: < $\pm 5\%$ depending on carrier gas, Repeatability: < $\pm 0.35\%$ of set point, Temperature Coefficient < ± 0.20 mL/min (NTP)* per °C for He or H₂; < ± 0.05 mL/min NTP per °C for N₂ or Ar/CH₄.•Detector modules: Accuracy: < ± 3 mL/min NTP or 7% of set point, Repeatability: < $\pm 0.35\%$ of set point <p>*NTP = 25 °C and 1 atmosphere</p>
3	S/SL INJECTOR	<ul style="list-style-type: none">• Suitable for all capillary columns (50 μm to 530 μm id).•Split ratios up to 7,500:1 to avoid column overload. Setting split ratios (particularly low split ratios) is limited by column parameters and control of system flows (particularly low system flows).•Splitless mode for trace analysis.• Pressure-pulsed splitless be easily accessible for best performance.•Maximum temperature: 400 °C.•EPC be available in two pressure ranges: 0 to 100 psig (0 to 680 kPa) for best control for columns > 0.200 mm diameter; 0 to 150 psig for columns < 0.200 mm diameter.

		<ul style="list-style-type: none"> •Gas saver mode to reduce gas consumption without compromising performance. •Electronic septum purge flow control to eliminate “ghost” peaks. •Total flow setting range: 0 to 200 mL/min N₂ 0 to 1,250 mL/min H₂ or He •Turn top inlet sealing system i with each S/SL inlet for quick, easy, injector liner changes.
4	PTV INJECTOR	<ul style="list-style-type: none"> •Support hot/cold split and splitless modes as well as large volume injections. •Temperature control: either LN₂ (to –160 °C) or LCO₂ (to –65 °C) cooling. •Temperature programming of up to 3 ramps at up to 720 °C/min. •Maximum temperature: 450 °C. •EPC pressure range 0 to 100 psig. •Split ratio up to 7,500:1. •Electronic septum purge flow control. •Choice of Gerstel septumless head or Merlin Microseal® septum head. •Total flow setting range: 0 to 200 mL/min N₂ , 0 to 1,250 mL/min H₂ or He
5	FID DETECTOR	<ul style="list-style-type: none"> •Electronic pneumatics control and electronic on/off for all detector gases. •EPC compensated for atmospheric pressure and temperature variation. •Minimum detectable level (for tridecane): < 1.4 pg C/s •Linear dynamic range: >10⁷(± 10%). •Full-range digital data path enables peaks to be quantified over the entire 10⁷ concentration range in a single run. •Data rates up to 500 Hz accommodate peaks as narrow as 10 msec at half height. •Standard electronic pneumatic control for three gases: <ul style="list-style-type: none"> - Air: 0 to 800 mL/min - H₂: 0 to 100 mL/min - Makeup gas (N₂ or He): 0 to 100 mL/min •adaptable for either packed or capillary columns. •Flameout detection and automatic resignation •450 °C maximum operating temperature
6	TCD DETECTOR	<ul style="list-style-type: none"> •Electronic pneumatics control and electronic on/off for all detector gases. •EPC compensated for atmospheric pressure and temperature variation. •Minimum detectable level: 400 pg tridecane/mL with He carrier. •Linear dynamic range: > 10⁵ ± 5% •Unique fluidic switching design provide rapid stabilization from turn-on, low-drift performance. •Signal polarity could be run-programmed for components having higher thermal conductivity than the carrier gas. •Maximum temperature: 400 °C •Standard EPC for 2 gases (He, H₂, or N₂ matched to carrier gas type) •Make-up gas: 0 to 12 mL/min •Reference gas: 0 to 100 mL/min •The instrument must accommodate a third detector as TCD located on the left-hand side of the GC.

A Special GC Instrument as Below:
GC for Olefin Cracking Process (OCP) Project Special Gas Chromatography System
<p>Common Requirements for instrument:</p> <ul style="list-style-type: none"> -Voltage: 220 volt (universal) -PC system with latest version of original MS operating system with color laser printer -latest version of Original Software in Order to control GC and analyze results -Two years spare parts * -18 months guaranty & 10 years warranty ** -Training course for 2 people for each instrument
<p>Hyper-Extended RGA Gas Chromatograph S/SI Injector & GSV For Liquid And Gas Samples Injection, Configured so that be able to separate and analyze below components: C₁-C₁₀ Hydrocarbons with one or two channel with separation of light C₁-C₄ Hydrocarbons (Olefinic & Paraffinic Isomers) Hydrogen Carbon Dioxide, Hydrogen Sulfide, Oxygen, Nitrogen, Carbon Monoxide</p>
<p>Sample Temperature: 150°C Sample Pressure: Ambient</p>

* دو سال لوازم یدکی معمولی که شرکتهای سازنده برای هر برند و مدل دستگاه در نظر می گیرند.
** مدت زمان تضمین کیفیت از زمان تحویل دستگاه و مدت زمان تضمین خدمات پس از فروش از زمان اتمام دوره تضمین کیفیت محاسبه می شود.

- A) Application done before by the customer?
 B) Application according
 1. Standard method, like ASTM? Method: no Standard Method
 2. Application or article? Methanol Production Analysis (gas and liquid in one sample in high temperature)
 C) Sample information

Sample type: 01		
Sample Type	Real	(Calibration, Validation, Real sample)
Sample Description	Olefin Cracking Process (OCP)	(for example Naphtha)
Sample state	Gas liquid mixture	(Gas or Liquid)
Sample Temperature at site	150 °C	
Sample Pressure at site	1 Bar	
Max Runtime	60 Min	
Max cycle Time	30 Min	

Fill in details in case of specific component analysis

#	Component or group	Critical comp.	Concentration		LOD	Unit of measurement (wt%, vol%, ppm, ppb, etc.)	Quantitation (yes or no)
			Min.	Max.			
01	CH ₄			2		Wt%	Y
	C ₂ H ₆			2		Wt%	Y
	C ₂ H ₄			30		Wt%	Y
	C ₃ H ₆			70		Wt%	Y
	C ₃ H ₈			2		Wt%	Y
	n-Butane			30		Wt%	Y
	iso-Butane			3		Wt%	Y
	1-Butene			90		Wt%	Y
	iso-Butene			2		Wt%	Y
	Butadiene			3		Wt%	Y
	n-Pentane			2		Wt%	Y
	iso-Pentane			2		Wt%	Y
	1-Pentene			5		Wt%	Y
	Hexene			1		Wt%	Y
	Heptene			1		Wt%	Y
	Octene			1		Wt%	Y
	Nonene			1		Wt%	Y
	Decene			1		Wt%	Y
	Hexane			1		Wt%	Y
	Heptane			1		Wt%	Y
	Octane			1		Wt%	Y
	Nonane			1		Wt%	Y
	Decane			1		Wt%	Y
	BTEX			2		Wt%	Y
	H ₂ S			0.1		Wt%	Y
	N ₂			80		Wt%	Y
	O ₂			20		Wt%	Y
	CO			5		Wt%	Y

	CO ₂			5		Wt%	Y
	H ₂			2		Wt%	Y
A	H ₂ O			2		Wt%	No
B	Balance:						
Additional Information:							
All component with higher concentration than 0.01 Wt% should be analysed							
All component with less concentration than 0.001 Wt% not need to be analysed							
All component with concentration between 0.01 and 0.001 Wt% can be analysed as a group							
Notes:							
1. In case "0" is specified as the minimum concentration it is assumed 0.5							
2. If any components in the stream(s) polymerize or decompose, indicate temperature at which the change(s) occur.							
3. All samples are considered free of particulates. Indicate if sample contains particulates.							

Does this sample contain:

	No	Yes	Describe
Corrosives	*		
Moisture/Water		*	
Particulates	*		
Oils/Heavies	*		
Precipitates	*		
Oligomers, Polymers	*		