Quad-Column Chromatograph

Provides fast analysis and clear separation of gases including C1 to C10, C_2H_4, C_3H_6, CO_2, H_2, He, N_2, O, B, and T

The quad-column chromatograph uses a thermal conductivity sensor to clearly separate peaks, which enables discrete analysis of previously undetectable combinations of gases.

Applications

- Gas detection
- Analysis of multiple gases

Safety Notices

- Use personal protective equipment as advised.
- The quad-column chromatograph should only be used in safe, nonhazardous areas.

Features

- 90-second cycle time
- Thermal conductivity detector (TCD) for clear peak separation
- Dual carrier gases for accurate quantification of multiple gases
- Serial connection for communication
- Straight and backflush columns
- Silicon micromachined injector with no moving parts

Benefits

- Detects C1 to C10 in 70 seconds, which is essential at a high rate of drilling
- Clearly separates peaks to maintain gas-reading accuracy in highly concentrated gases
- Enables analysis of previously undetectable combinations of gases
- Has a robust design with no moving parts, which helps to extend fatigue life of the tool resist and to avoid downtime
- Provides heavy hydrocarbon detection when coupled with a heated constant volume trap

Tool Description

The quad-column chromatograph cycles every 70 seconds to quickly detect hydrocarbons and other gases in circulating mud. Using both helium and hydrogen as carrier gases, the tool accurately assesses previously undetectable combinations of gases in a single compact unit. The chromatograph is calibrated using Weatherford ChromatWizard software, and data from the tool is displayed in a variety of customizable formats using the WellWizard® data processor.

The tool detects a broad range of gases, including C1 to C10, ethylene,

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propylene, carbon dioxide, nitrogen, helium, hydrogen, benzene, toluene, ethylbenzene, xylene, methylcyclohexane, and oxygen. It can also analyze additional gases upon request. For detection of C6+ gases, heated sample lines are recommended to maintain a gaseous state. Micromachined with a software-selectable inject volume, the injector provides sharp peaks with narrow bandwidth for analysis. The ultra-low volume TCD has a limit of quantification of 1 ppm and fast autoranging capabilities to detect low and high gas concentrations.

Specifications

Manufacturer	Agilent
Dimensions (L × W × H)	22 × 11 × 6 in. (55.88 × 27.94 × 15.24 cm)
Weight	24.5 lb (11.11 kg)
Power	90-130 Vac or 180-260 Vac 50 to 60 Hz
Hydrocarbon compounds	C1 to C10, C_2H_4, C_3H_6
Nonhydrocarbons	CO_2, N_2, He, H_2, B, T
Units	ppm, units, percent
Cycle time	70 seconds
Accuracy	±5% of reading
LOD and resolution:	1 ppm
Limit of quantification (LOQ)	1 ppm
C1 saturation limit	100%
C1/C2 separation	N/A - clear peak separation
Method	Curve integration
Calibration	Linear
Carrier(s)	He, N
Carrier pressure	80 psi (550 kPa)
Flow injection	On demand
Threshold	5 ppm
Sample temperature	86 to 230°F (30 to 110°C)
Sample pressure	15 psi (100 kPa)

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