

50 YEARS OF INNOVATION IN GAS CHROMATOGRAPHY

1970s



Fused Silica Capillary Column

Provides increased precision and sensitivity, and dramatically improves ability to separate similar compounds

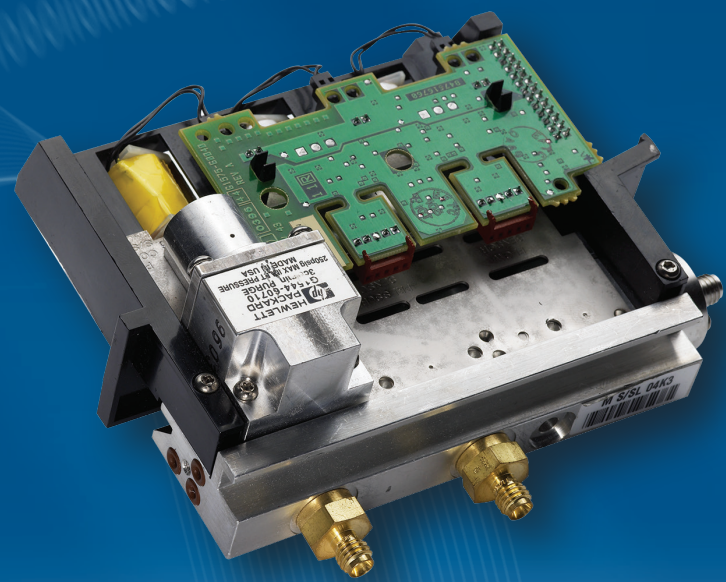
- Increased the number of pesticides that can be detected in food
- Allows regulation and enforcement of environmental pollutants that could not be found previously
- Allows analysis of fuels for extreme toxic chemicals, avoiding environmental contamination after combustion

1980s

Electronic Pneumatic Control

Provides precise carrier gas pressure control, increasing the precision and accuracy of compound retention times making it easier to identify and quantify

- Increased reliability of retention times allows for comparison between reference samples and unknown harmful mixtures
- Consistent retention times allows for quality control of food production
- Reliable results for high boiling point compounds



1990s



Retention Time Locking

Delivers the same retention time for the same method day to day, column to column, instrument to instrument, regardless of detection system

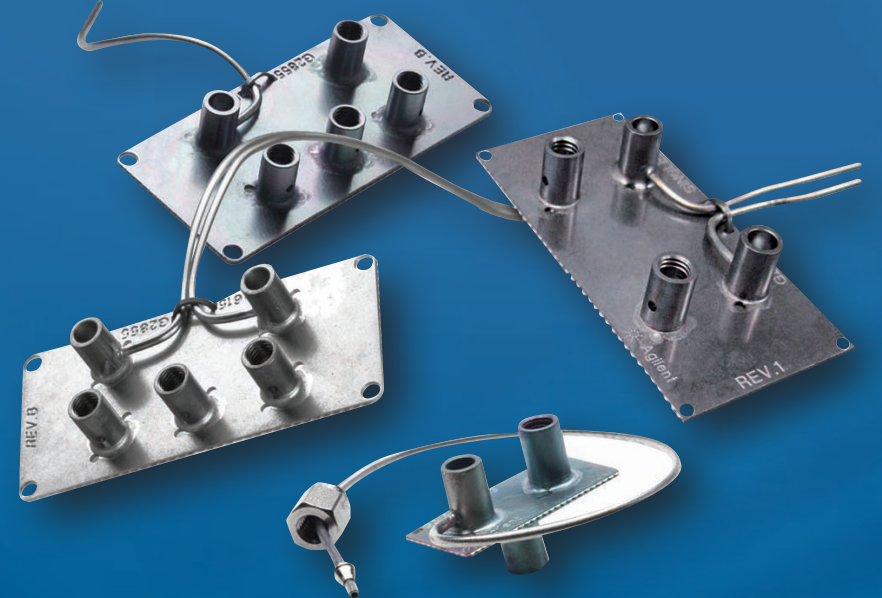
- Decreased training time and ensuring quality control across the laboratory or multiple laboratory sites
- Specific and unchanging retention times allows mass spec libraries of different compound with the same mass pattern to be different
- Creates very narrow isolation windows for triple quads, which provides the best low level sensitivity and precision

2000s

Capillary Flow Technology

Precisely delivers carrier flow and splits with an oven mountable, low thermal mass device. Set up as flow splitters, backflush, Dean's switch, GCxGC, and purged union, these devices provide the ability to separate challenging samples in a single system

- Less time in sample preparation by separating high boiling point contamination, keeping it from the most sensitive parts of the GC or GC/MSD system
- Perform extensive separations and provide complete detection of contaminant compounds on one system in a single injection, saving time and money
- The backflush device decreases sample preparation time by removing the sample matrix before it reaches the analytical column and mass spec source GCxGC devices provide complete separations without need for cryo-cooling



2010s



Inert Flow Path

Completely inert flow path (IFP) from inlet to detector, eliminating potential compound degradation anywhere the compound may reside

- Lower detection limits of active compounds an increased length of time between cleaning, due to active compound degradation. Compounds respond better for a longer period of time reducing unplanned down time
- IFP eliminates the chance that extremely active compounds (i.e. pesticides) will breakdown to other compounds on a clean system
- IFP increases the detectability of highly active compounds such as sulfur (analyzed for in fuel production) for a longer period of time

TODAY

Intuvo 9000 GC System

Agilent Technologies launches the Intuvo 9000 GC System, changing the paradigm in GC and transforming the way the GC laboratory operates

- **Direct Heating:** Through-put is improved. Unlike conventional GC systems, Intuvo uses direct conductive heating to temperature program the entire flow path and analytical column. Direct heating uses less power, is smaller, and can be heated and cooled much faster
- **Click-and-Run Connections:** Unplanned downtime and associated business disruption is eliminated. Ferrules are eliminated and advanced direct face seal connections are made with an audible and tactile 'click' instead
- **Guard Chip and Trim-free Column:** Trimming is eliminated and productivity is improved while reducing the skill set necessary to operate a GC system. Intuvo has a simple, disposable Guard Chip which traps unwanted material. The new trim-free planar column can be installed faster and more reliably than conventional columns

