DPS
Instruments Europe GmbH

Custom GC Systems - ***Popular Applications***

Click an Image for the Application!

Custom GC Systems are what we´re - ***About***

If you Dream it, we can Built It!

That is exactly why we started back in 2005! And ever since we have specialized in Custom Gas Chromatography (GC) Systems. Custom is standard for us, in both our Series 600 Lab GC and Companion Portable GC Systems. All of our modular GC Systems are configured for your GC Sample Analysis.

Lab and Portable GC Models

Each of our Series 600 Laboratory and Companion 1&2 Portable GC's use the same detectors, columns, electronics and software. Consequently, analytical methods are easily transferable from one Series to the other. And best of all, both GC Systems get the same great results.

Personal Service

Above all, we produce each Series 600 GC and Companion Portable Custom GC drawing from a wealth of Application experience. We always take pride in working with you to fulfill your specific requirements. Our ultimate goal is to make you feel happy every step of the way, from initial conception through delivery of your Custom GC System!

01:43

100´s of Custom GC Systems

This fun little video tells our story. We believe we should leave our planet a better place for our children and generations to come!

We are proud to offer 4 GC models, 8 different detectors, built-in sample concentrators, incredible plumbing schemes, autosamplers, and many other accessories. Consequently, we can build 100´s of configurations of Custom GC Systems. Where each one is specifically built to met the requirements of your GC Analysis application. In other words, we don´t just build GC´s, we build application specific Custom GC Systems!

Custom GC - ***Products***

Companion 1 -
Portable GC System

- Only 1 GC Detector (Choose from: FID, NPD, PID, or TID)
- 1, or 2 Injectors (on-Column, or Custom S/S)
- Ambient to 325°C
- Temperature Program – to 80°C/min
- EPC Pressure Control for all Gases
- Use Capillary, Packed, or Micro-Packed Columns
- Add Air, Purge & Trap, or Headspace Concentrator!
- Many Custom GC Systems & Applications
- It goes with you Anywhere!

More Companion 1 GC info!

Companion 2 - Portable GC System

- 1, or 2 GC Detectors (Choose from: BCD, FID, FPD, HID, NPD, PID, or TID)
- 1, or 2 Injectors (on-Column, or Custom S/S)
- Ambient to 325°C
- Temperature Program – to 80°C/min
- EPC Pressure Control for all Gases
- Use Capillary, Packed, or Micro-Packed Columns
- Add Air, Purge & Trap, or Headspace Concentrator!
- More Custom GC Systems & Applications
- It goes with you Anywhere!

More Companion 2 GC info!

Companion 4 - Portable Micro-TCD GC

- Rugged Portable Micro-TCD Gas Chromatograph
- 1 to 4 GC Column Oven/Micro-TCD Channels
- 2 Micro-machined Thermal Conductivity Detectors (TCD) per Channel
- Most analyses in less than 1 min
- Rechargeable Battery, Built-in Computer
- Integrated 3-Stream Selector
- Easy Chromatography Data System
- Ultra Compact and Lightweight
- Fast & Accurate with Low Maintenance!

More Companion 4 GC info!

Series 600 -
Lab GC System

- 1 to 4 GC Detectors (Choose from: BCD, FID, FPD, HID, NPD, PID, or TID)
- 1, or 2 Injectors (on-Column & S/S)
- Ambient to 450°C
- Temperature Program – to 100°C/min
- EPC Pressure Control for all Gases
- Use all Capillary, Packed, or Micro-Packed Columns
- Add Air, Purge & Trap, or Headspace Concentrator!
- Almost all Custom GC Systems & Applications
- Small, Fast, Reliable and Lightweight!

More Series 600 GC info!

Micro-TCD GC -
Continuous Monitoring

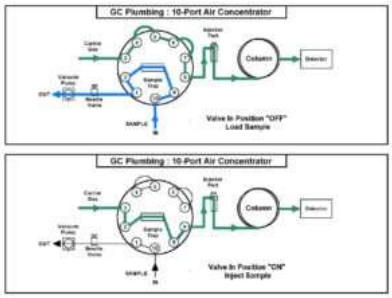
- 1 to 4 GC Column Oven/Micro-TCD Channels
- 2 Micro-machined Thermal Conductivity Detectors (TCD) per Channel
- Designed for Unattended Continuous Operation
- Most analyses in less than 1 min
- Integrated 3-Stream Selector
- Automated Calibrations
- Free standing operation with on-board GC Methods
- Easy Chromatography Data System
- Small, Fast, Reliable and Lightweight!

More Micro-TCD GC info!

Custom GC Built-in - ***Accessories***

AIR Concentrator

Companion 1 Air Concentrator



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Air Concentrator – The Custom GC Air Concentrators for both the Companion Portable GC and Series 600 GC's are built right in. Most importantly, this provides both a compact portable sample concentrator and a shortest possible sample path. Above all, a heated valve and heated sample lines create an inert sample path. The sample trap is plumbed in a true backflush fashion. It also can be equipped with a variety of packing materials to achieve the best concentration of the compounds being analyzed. To start, a built-in vacuum pump loads the sample and a variable flow controller ensures consistent sample trapping and GC analysis. From start to finish, the entire sequence of the Air Sample Concentrator is automated through the Timeline of the DPS Control Software for the GC analysis of one sample. If needed the system can also be set up to run unattended 24/7, collecting and analyzing samples every hour, or so.

Headspace Concentrator

Companion 2 Headspace Concentrator

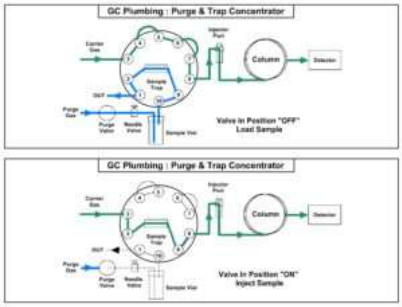
Series 600 Lab GC with Headspace Concentrator

Headspace Concentrator – The Custom GC Headspace Concentrator for both the Companion Portable GC and Series 600 GC's are built right in to provide the shortest possible sample path. Each Sample Vial is heated and then consistently Pressurized before loading the Sample Loop. A fixed Sample Loop ensures reproducible sampling and consistent GC analysis. In addition, the sample lines are Flushed between analyses to limit any cross-over contamination. Above all, the entire sequence of the Headspace Concentrator is automated through the Timeline sequence of the DPS GC Control Software for the GC analysis of one sample at a time.

Dynamic Headspace Concentrator – For even lower Detection Limits the analytes are concentrated further on an adsorbent Trap. With this method ppb levels are easily achieved. Either way, the Headspace Concentrators for DPS can solve your sample concentration requirements.

Purge & Trap Concentrator

Companion 2 Purge & Trap Concentrator



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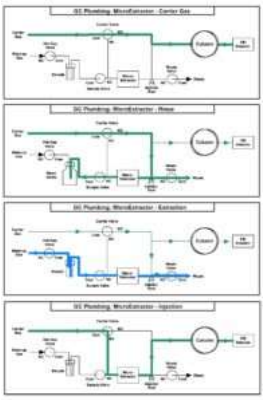
Purge & Trap Concentrator – The Custom GC Purge & Trap Concentrator for both the Companion Portable GC and Series 600 GC's are built right in with Trap features similar to the Air Concentrator. At first, water samples are purged with inert gas to extract the sample compounds and load them onto the Trap. In addition, a variable flow controller regulates the Purge Gas for consistent sample trapping and GC analysis. In short, the entire sequence of the Purge & Trap Concentrator is automated through the Timeline of the DPS Control Software for the GC analysis of one sample at a time.

MicroExtractor Concentrator

Series 600 Lab GC with MicroExtractor Concentrator



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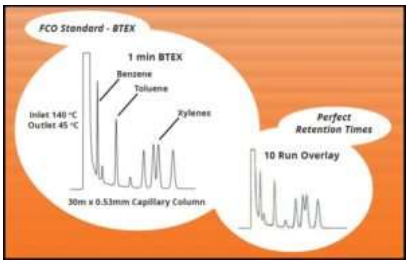
MicroExtractor Concentrator – The Custom GC MicroExtractor concentrator is a exciting innovation, but only from DPS, which concentrates higher boiling compounds directly from water samples. At first, the sample vial is pressurized and the water sample is pushed through the trap at ambient temperature, where the compounds are concentrated. After that, the trap is heated and the compounds are directed to the analytical column for GC analysis. In conclusion, the entire sequence of the MicroExtractor Concentrator is automated through the Timeline of the DPS Control Software.

FCO Upgrade for **Fast GC**



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The Fluidless Column Oven (FCO) is a revolutionary low mass accessory. The column is sealed inside an insulated oven, but comes in direct contact with the heater elements. Therefore, this contact allows the gradient to be transferred directly to the column. The low mass of the oven and direct heating make very fast temperature ramping possible in both the Extended Run and Classic models. In addition an integrated chiller cools the column between runs and is powerful enough to permit sub-ambient GC analysis starting as low as 20°C.

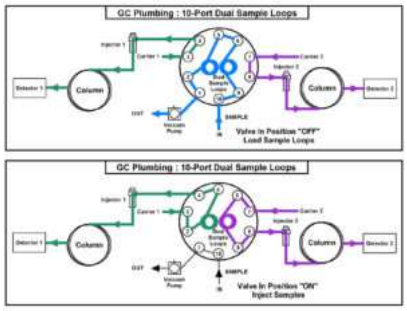
Series 600 Lab GC with Large Frame FCO

Check out the Installation Video

Visit GC Ovens for more about Fast GC

Innovative **Plumbing Schemes**

Headspace Vial Cleaner Accessory



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Example: Dual Sample Loop

There are so many to choose from it is not possible to list them all. But just contact us and we will be happy to help you configure your Companion Portable GC, or Series 600 Custom GC System for your specific GC sample analysis.

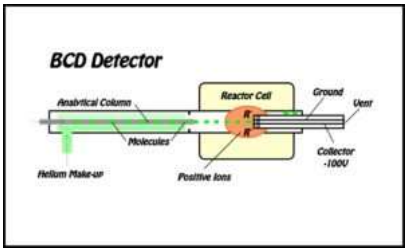
Visit American Laboratory Magazine for articles about GC

Visit LC/GC Magazine for articles about GC

Visit Chemie.de for more GC products and accessories

Custom GC - ***Detectors***

BCD
Bromide Chloride Detector



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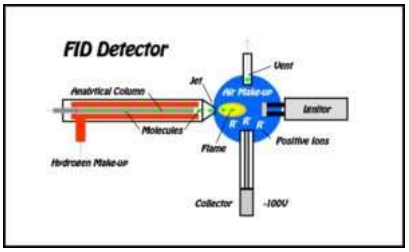
BCD Overview – Above all, the BCD detector is highly selective to Bromine and Chlorine compounds. Moreover, the BCD is only available in DPS Custom GC Systems. While the BCD sensitivity to these compounds approaches the sensitivity of the radioactive ECD detector, the detector is completely non-radioactive. To start, at very high temperatures, the aluminum in the ceramic collector acts as a catalyst to cleave Bromide and Chloride ions from the molecules. The catalytic activity starts around 700°C and increases exponentially, with the temperature of the Reaction Cell. However, we limit the Reactor Cell to 1000°C for safety purposes. Finally, the negatively charged Collector Electrode attracts the resultant positively charged Molecules.

FID
Flame Ionization Detector



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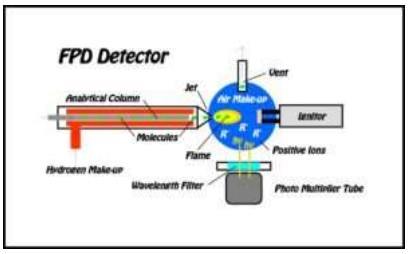
FID Overview – The FID detector is selective to all compounds that burn, therefore it is commonly used for the analysis of hydrocarbons. At first, a precisely controlled Hydrogen and Air mixture is ignited and burns as a small flame at the end of a jet within the Detector Body. Consequently, all compounds exiting the column pass through the flame. As a result, those that are combustible ionize. After that, the negatively charged Collector Electrode attracts the positively charged Ions.

FPD

Flame Photometric Detector



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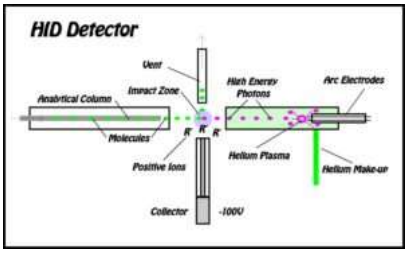
FPD Overview – The FPD detector can be configured for 2 modes of operation. Firstly, a highly selective configuration for Sulfur compounds. Or secondly, a mode that is highly selective for Phosphorus compounds. To start, a precisely controlled Hydrogen and Air mixture is ignited and burns as a small flame at the end of a jet within the Detector Body. Therefore, all compounds exiting the column pass through the flame and those that are combustible ionize. After that, all excited Sulfur, or Phosphorus ions return to their ground state and emit photons. The specific wavelength filters within the detector body only let certain photons pass through to a Photo Multiplier Tube (PMT), where they are detected and amplified. The FPD produces a lot of water, which is a problem for most Portable GC's, however the unique design of the DPS FPD detector takes care of this problem.

HID

Helium Ionization Detector



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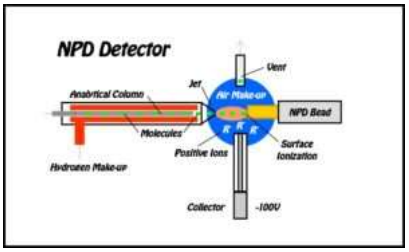
HID Overview – The HID detector is a universal broad range detector, so it is highly sensitive to almost all compounds. At first, in a pure helium environment, a current flows between two electrodes creating a plasma of high energy short wavelength photons. Consequently, as the compounds exit the column they are bombarded by these photons and Ionized. Take note, that the energy of these photons are 24 eV, which is sufficient to Ionize almost all compounds. After that, the negatively charged Collector Electrode attracts the resultant positively charged Ions. The HID can be run in series with other detectors, such as a FID, PID, or BCD. The unique design of the DPS HID detector is ideal for both Series 600 Lab and Portable Custom GC Systems.

NPD

Nitrogen Phosphorus Detector



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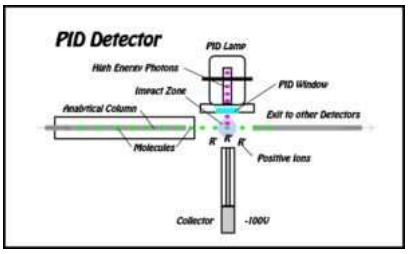
NPD Overview – The NPD detector is highly selective, but only for Nitrogen and Phosphorus containing compounds. At first, a precisely controlled Hydrogen and Air mixture surrounds the NPD bead within the detector body. Secondly, a voltage is applied to the bead to activate the surface. Finally, Nitrogen or Phosphorus compounds react with the activated surface as they exit the column creating Ions. Consequently, the negatively charged Collector Electrode attracts the resultant positively charged Ions.

PID

Photo Ionization Detector



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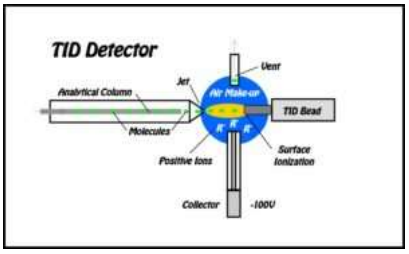
PID Overview – The PID detector is highly sensitive to hydrocarbons, but only those that are aromatic, or have double or triple bonds. To begin, the PID lamp emits 2 major wavelengths of high energy Ultraviolet light that travel through the window of the lamp. After that, the compounds exiting the column are bombarded by these UV photons and Ionized. Finally, the positively charged Ions are attracted to the negatively charged Collector Electrode and amplified. The energy of these photons averages 10.6 eV, and this is sufficient to ionize aromatic compounds, but not aliphatic compounds. Since the PID is non-destructive, the PID detector is commonly used in series with other detectors. For instance, in DPS Custom GC Systems the PID is used in series with both the BCD and FID detectors.

TID

Thermo Ionic Detector



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TID Overview – In short, the TID detector is highly selective to Amines and Nitroaromatic compounds commonly found in explosives. At first, a precisely controlled Nitrogen, or Air mixture surrounds the TID bead within the detector body. Secondly, a Voltage is applied to the bead to activate the surface. After that, Amines and Nitroaromatic compounds react with the activated surface as they exit the column creating Ions. Therefore, the negatively charged Collector Electrode attracts the resultant positively charged Ions.

Custom GC - ***Customers***

Six Continents and Counting!

Due to the current data protection regulations we are reluctant to present a list of customers, or even display their logos. We think that this is sad, but you probably already have a good idea of who they are by the products and services they provide. Although, we have smiling customers on 6 continents, Antarctica is still open, so we are hoping for a happy customer there too!

For more Custom GC Information - ***Contact Us***

Content – Accuracy & Accountability

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