



GOW-MAC[®]
INSTRUMENT CO.

Series 400 Isothermal Gas Chromatograph

The GOW-MAC[®] Series 400 Isothermal, Thermal Conductivity Detector (TCD) Gas Chromatograph is a rugged, compact, affordable, service-free GC designed for high capability performance while withstanding rough, student or industrial use. It meets the demands for teaching the principles of gas chromatography, chemistry and biochemistry in a teaching environment; as well as being rugged enough for the production lab.

The Series 400 can be operated at temperatures from ambient to 300 °C. Independent temperature controls for all heated zones. All temperatures are set, monitored and displayed digitally.

The safety features of the Series 400 GC provide upper temperature limit controls. The column oven will automatically shut down if the temperature exceeds the setpoint by more than 30 °C.

Up to two externally mounted gas sample valves (GSV) may be installed. GSVs offered include 6-, 8-, and 10-port valves. The valves are equipped with 2.0 mL sample loops as standard.

The thermal conductivity detector (TCD) contains four rhenium-tungsten (WX) hotwire filaments, selected for their outstanding resistance to oxidation, whether from air in samples, leaks or impure carrier gas. The detector geometry is engineered for performance equal to or better than many GC systems costing significantly more than the Series 400.



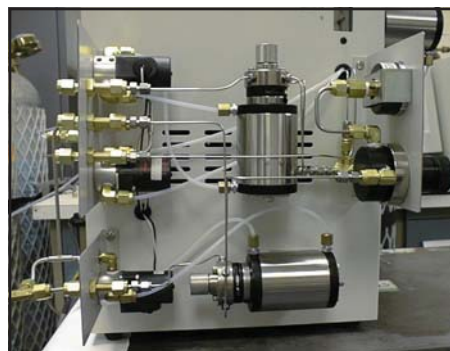
Optional Microscale Preparative Techniques

The use of microscale preparative techniques in the organic chemistry laboratory has become very attractive to those responsible for instructing students as well as those in research activities. Utilizing the gas chromatograph to replace distillation apparatus and collecting fractions for further analyses or manipulation is widely used and recommended.

The Series 400-P GC supports microscale techniques when Option 400 and the GOW-MAC Microscale Prep Conversion Kit #59-425 are ordered with the GC. The kit contains two prep columns, one 8' x 1/4" DC-710 and one 8' x 1/4" Carbowax 20M, and a glassware kit designed for the collection of samples.

Use of the microscale techniques:

- ▶ lowers the quantity and cost of the chemicals needed and used by students.
- ▶ experiments performed in the laboratory can be expanded upon in both content and length.
- ▶ exposure to hazardous chemical is limited.
- ▶ problems of chemical disposal are minimized.



Series 400 GC with Gas Sample Valves

Using the powerful *Clarity*[®] or *Clarity Lite*[®] chromatography software and interfacing with a PC with Windows[®] XP Pro (SP3), Vista[®], or 7[®], an operator can create methods, design custom reports, view calibration curves, acquire and process data, and create and run batch sequences from a single window. The Series 400 also interfaces with reporting integrators and strip chart recorders.

Specifications

Column Oven

- Temperature Control: solid state time proportioning, RTD sensors, direct reading
- Temperature Range: Ambient to 300 °C
- Column Oven Temperature Protection Circuit: shuts the column oven off if the temperature rises to 30 °C over setpoint.
- Accommodates two 1/4" od x 12' columns or correspondingly longer lengths of 1/8" o.d.
- Dual column
- Direct temperature setpoints

Detector Oven

- Temperature control: solid state time proportioning, RTD sensors, direct reading
- Temperature Range: Ambient to 300 °C
- Temperature Readout: 3½ digit LED digital meter

Gas Flow

- Dual column
- Two metering valves for independent flow control to each column
- Optional manual gas sample valves available

Detector Power Supply

- Constant current: 300 mA max.
- Noise and ripple: < 5 µV rms

TCD Bridge Control

- Continuous current adjust to 300 mA
- Bridge zero adjust
- Attenuator for bridge output, 12 position to 1024 plus infinity (∞)
- Polarity switch

Detector

- Thermal conductivity (TCD)
- Response time, 0.5 seconds
- Four detector elements, rhenium-tungsten (WX)
- Noise: 10 µV max. within operating parameters
- Drift: < 40 µV/hour max.
- Carrier gas: Helium, Nitrogen, or Argon
- Upper current limit: 300 mA with He
100 mA with N₂

Injection Ports

- Two; on-column
- Low volume
- 9 mm septums
- Temperature control: solid state time proportioning, RTD sensors, direct reading
- Temperature Range: ambient to 300 °C
- Temperature Readout: 3½ digit LED digital meter

Power Requirements: 600 Watts

- Series 400-TCD/400-P: 110-130V, 50/60 Hz, 900 W
- Series 402-TCD/402-P: 220-240V, 50/60 Hz, 900 W
- Circuit breaker: Series 400-TCD: 10 Amp
Series 402-TCD: 5 Amp

Physical Dimensions

- 12" W x 11" D x 16.5" H (30.48 cm x 27.94 cm x 41.91 mm)
- Net weight: 27 lbs. (12.25 kg)
- Shipping weight: 32 lbs. (14.51 kg)

Ordering Information

Gas Chromatograph

- Series 400-TCD Gas Chromatograph: 110-130V, 50/60 Hz
- Series 402-TCD Gas Chromatograph: 220-240V, 50/60 Hz
- Series 400-P TCD Gas Chromatograph w/ Microscale Prep Detector and Outlet Temperature Control: 110-130 V, 50/60 Hz
- Series 402-P TCD Gas Chromatograph w/ Microscale Prep Detector and Outlet Temperature Control: 220-240 V, 50/60 Hz

Series 400 Options (2 valves maximum)

- #301 4-port Manual Switching Valve
- #302 6-port Manual Gas Sample Valve with 2.0 mL loop
- #303 8-port Manual Gas Sample Valve with 2.0 mL loop
- #304 10-port Manual Gas Sample Valve with 2.0 mL loop
- #411 Interface PCB to Activate Auto Valve from an external source

*Note: valves also offered with pneumatic actuators

Replacement Detector and Filaments

- Part No. 069-78-S T/C Cell
- Part No. 13-355-400 Replacement Filaments (Quad), WX

Accessories

- Part No. 59-230 Bubble Flow Meter Kit
- Part No. 59-425 Microscale Prep Kit
- Part No. 59-400 TC/GC Installation Kit
- Part No. 21-070 Mini Gas Leak Detector
- Part No. 180-123S Silicon Septums, 9 mm (pkg. 100)
- Part No. 180-102 Hamilton Syringe, Type 701N, 10mL

Data Systems

- Model 70-150A Strip Chart Recorder
- Clarity[®] or Clarity Lite[®] Chromatography Software (MS Windows[®])



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