

## PGC2005 Temperature Programmed

## Application

**Usage** Specialty analysis for separation of wide boiling range compounds. The PGC2005 "Temperature Programmed" Gas Chromatograph uses component separation to analyze gas or liquid samples. The analyzer operates unattended, automatically sampling and analyzing process streams.

**Description** An Isothermal Oven contains the Temperature Programmed Oven Assembly with detectors, the Thermal Conductivity Detector (TCD) or the Flame Ionization Detector (FID), mounted on top of the temperature-programmed oven. Sample valves - the Liquid Sample Valve (LSV) or the Continuous Performance (CP) valve can also be installed in the isothermal oven compartment. An optional Air Cleanup / Methanizer Unit may be used. Special Columns (capillary or packed type) are installed inside the temperature programmed oven. Sample separation takes place in these chromatographic columns, which are installed between the analytical valves and the detector. These columns contain special packings, which separates the compounds to be analyzed so that they enter the detector in a predictable sequence.

## Physical

Environmental (Enclosure):	Protected from weather: IP 52, (NEMA Type 12) Equivalent
Ambient Temperature Range:	0 to +50° C (32 to 122° F)
Humidity:	95% relative humidity, non-condensing
Dimensions:	496 mm W x 340 mm D x 1175 mm H (19.5 in. W x 13.4 in. D x 46.3 in. H)
Weight:	73 kg (160 lb) (minimum)
Mounting:	Wall: 32 mm (1.3 in.) from wall with brackets
	Floor: Optional wheeled dolly
EMI/RFI Considerations:	Conforms to Class A industrial environment
Electrical Entries:	Top
Pneumatic Entries:	Right Side
Sample Entries:	Liquid: Right Side, 1 each Model 791 LSV
	Gas: Bottom and/or Right Side
Vents:	Bottom and/or Right Side

## Safety Area Classification

NEC: Class I, Divisions 1 & 2 Group B, C, D with Type X-Purge T2



Conforms to ATEX Directive 94/9/EC and EMC Directive 89/336/EEC as amended by 92/31/EEC & 93/68/EEC

Zone 1: CE 0081; II 2G, EEx pde [ib] ib [ia] IIB+H2 T2

Backup Purge Air

A backup, instrument grade air cylinder, Size A1, is required to cool the Temperature Programmed Oven zone below the area T- Rating during a loss of the Primary air purge source.

X-Purge Timeout:

4.6 minutes @ 60 Hz, 5.5 minutes @ 50 Hz

T- Rating

T2 - 300°C

## Power (Hot, Neutral, Ground)

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Voltage:	100 VAC (+15, -6 VAC) 120 VAC ± 10% 230 VAC ± 10%
Frequency:	50/60 Hz ± 10%
Power Consumption:	1800 VA Maximum, 1725 VA Typical

## Instrument Air

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Supply Connection:	3/8 inch tube, minimum
Supply Pressure:	552-690 kPa (80-100 psig)
Quality:	Instrument grade: Clean, Oil Free and -34° C, (-30° F) dewpoint An Optional Air Clean Up Unit is available for FID burner air.
Flow Rates:	Startup: 378 L/min (13.4 ft <sup>3</sup> /min)
Steady State:	310 L/min (11 ft <sup>3</sup> /min)
Oven Cool-down:	628 L/min (22.25 ft <sup>3</sup> /min) During Vortex Cool-down (If required)

## Analytical Detectors

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Standard Detectors:	Flame Ionization or Thermal Conductivity - Both are Independently heated
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## Isothermal Analytical Oven

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Oven Liner:	Stainless Steel
Internal Dimensions:	390 mm W x 520 mm H x 230 mm D (15.3 in. W x 20.4 in. H x 9.0 in. D)
Number of Valves:	Standard provisions for one external liquid sample valve, or one CP valve
Heat:	Forced Air
Temperature Control Method:	Closed loop PID
Oven Temperature:	Ambient + 30° to 180° C (Settings and display in ° C only)
Setpoint Resolution:	1° C
Temperature Stability:	
Steady Ambient:	±0.1° C
Ambient Range:	±1.0° C

## Temperature Programmed Column Oven

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Oven Shell Material:	Stainless Steel
Internal Dimensions:	234 mm W x 203 mm H x 102 mm D (9.2 in. W x 8 in. H x 4 in. D)
Heat:	Forced Air
Temperature Control Method:	Closed loop PID
Oven Temperature:	+ 30° to 289° C (Settings and display in ° C only)
Setpoint Resolution:	1° C
Analytical Columns	Metal Capillary, Fused Silica Capillary, or Packed Stainless Steel
Column Oven Cooling (When required by the application)	At the end of the analysis cycle, the controller directs vortex-cooled air into the inner column oven to rapidly return this oven zone to the initial temperature, allowing the next measurement cycle to begin.

## Gas Control

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Control Method:	Closed loop PID; Temperature stabilized
Number of Zones:	1 to 5
Filtration:	2 µm at inlet, provided
Inlet Pressure:	Minimum: Setpoint + 69 kPa (10 psig) Maximum: 1034 kPa (150 psig)
Range:	0-100 psig, Bubble tight, non-venting
Gauges:	Electronic readout : 0.01 psig resolution; Setpoint resolution: 0.01 psig
Accuracy:	0-50 psig: 1.7% 50-100 psig: 2.7%
Repeatability:	±0.1 psig
Allowable Gases:	H <sub>2</sub> , He, N <sub>2</sub> , Air, Ar
Quality:	GC Grade. An Optional Air Clean Up Unit is available for FID burner air.
Flow Adjustment:	Oven mounted needle valves with external adjustment
Tube Fittings:	316 SS Gyrolok (std.); 316 SS Swagelok (optional); 1/16, 1/8, 1/4 inch connections

visit: [www.abb.com/analytical](http://www.abb.com/analytical)

Specifications subject to change without notice.