

Agilent 990 Micro GC J&W CP-COX Channels

Introduction

The Agilent 990 Micro GC system has been designed to accommodate up to four analytical channels. Each channel holds its own MEMS-based inlet, isothermal column, and micro TCD detector.

These channels are available in > 15 different column chemistries and > 60 unique configurations. Agilent offers different lengths in straight or backflush (BF) configurations. Backflush allows heavier compounds to be backflushed, leaving a clean column and enabling faster analysis. Backflush to detector (BF2D) backflushes to the detector instead of the vent, using pretuned restrictions. This results in a composite peak for the backflushed compounds, typically C6+.

Agilent J&W CP-COX channels are micro packed, carbon-based column channels that can separate both carbon monoxide and carbon dioxide in permanent gas-type mixtures. Water will also elute from COX, providing more stable retention times. Oxygen and nitrogen will coelute and form a (quantifiable) composite peak on COX.

Table 1. Available CP-COX channels for the Agilent 990 Micro GC.

Part Number	Description	Length (m)	Precolumn (m)	BF
G3588-63729	MGC COX, 1 m, HI, Str, FactI	1	–	No
G3588-63929	MGC COX, 1 m, HI, BF 1 m, FactI	1	1	Yes

Product features

Configuration

- J&W CP-COX phase
- J&W CP-PoraBOND Q precolumn (optional)

Control

- Independent control of the channel
- Pneumatics, including proportional column pressure programming
- Independent column, injector, and detector settings

Injector

- Micromachined injector with no moving parts
- Injection volume of 1 to 10 μL , software-selectable injection time
- Heated injector, up to 110 $^{\circ}\text{C}$, including heated sample transfer line

Column¹

- Temperature range: up to 180 $^{\circ}\text{C}$, isothermal
- Resolution: see Table 2

Detector

- Micromachined thermal conductivity detector (TCD)
- Dual-channel TCD (sample/reference flow)
- Internal volume: 200 nL per channel
- Four filaments

Detection limit, TCD^{1,4}

- See Table 2

Operating range, TCD

- Linear dynamic range²: 10^5

Repeatability¹

- See Table 2

Carrier gas³

- He, H₂, N₂, or Ar, 550 \pm 10 kPa (80 \pm 1.5 psi) input

Sampling

- Sample inlet: 1.6 mm (1/16 in) stainless steel (SST) Valco fitting, with replaceable 5 μm SST filter
- Sample conditions: noncondensing gas of 0 to 110 $^{\circ}\text{C}$
- Maximum sample inlet pressure: 100 kPa (14.5 psi)

Environmental conditions

- Ambient operating temperature: 0 to 50 $^{\circ}\text{C}$
- Ambient operating humidity: 5 to 95% RH (noncondensing)
- Storage extremes: –40 to 70 $^{\circ}\text{C}$
- Altitude: up to 2,000 m above sea level

¹ Specifications are determined under specific test conditions for this channel and are valid for new channels only. Results may vary with different conditions used and may degrade with use.

² For full range calibrations (low ppm to 100%), multilevel calibration is strongly advised.

³ Hydrogen carrier is not permitted on the Agilent 990 Mobile Micro GC system.

⁴ All specifications are determined with He carrier.

Table 2. Specifications for all available J&W CP-COX channels for the Agilent 990 Micro GC.^{1,4}

Part Number	Description	Length (m)	Precolumn (m)	BF	Resolution (as N ₂ /CO, 1% each)	Detection Limit (As CO ₂)	Repeatability (Peak Area)
G3588-63729	MGC COX, 1 m, HI, Str, Factl	1	–	No	1.5	10 ppm	1.0%
G3588-63929	MGC COX, 1 m, HI, BF 1 m, Factl	1	1	Yes	1.2	10 ppm	1.0%

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This information is subject to change without notice.

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