

Agilent 990 Micro GC Channel CP-Sil 5 CB

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 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 CP-Sil 5 CB channels for the 990 Micro GC are ideal for separating saturated hydrocarbons (C3 to C10), aromatics, and organic solvents, and they are widely used for analyzing natural gas, refinery streams, and biogas.

Table 1. Available CP-Sil 5 CB channels for the Agilent 990 Micro GC.

Part Number	Description	Length (m)	Precol (m)	Backflush
G3588-63752	Micro GC 5CB, 4 m, HI, straight, FactI	4		No
G3588-63736	Micro GC 5CB, 6 m, HI, straight, FactI	6		No
G3588-63721	Micro GC 5CB, 8 m, HI, straight, FactI	8		No
G3588-63737	Micro GC 5CB, 10 m, HI, straight, FactI	10		No
G3588-63738	Micro GC 5CB, 15 m, HI, straight, FactI	15		No
G3588-63774	Micro GC 5CB, 20 m, HI, straight, FactI	20		No
G3588-63952	Micro GC 5CB, 4 m, HI, BF 1 m, FactI	4	1	Yes
G3588-63936	Micro GC 5CB, 6 m, HI, BF 1 m, FactI	6	1	Yes
G3588-63931	Micro GC 5CB, 8 m, HI, BF 1 m, FactI	8	1	Yes
G3588-63951	Micro GC 5CB, 8 m, HI, BF2D, FactI	8	Tuned	Yes, BF2D
G3588-63734	Micro GC 5CB, 6 m HI, straight, bundled, FactI	6		No

Product features

Configuration

- CP-Sil 5 CB (100% PDMS) phase
- CP-Sil 5 CB backflush (optional)
- BF to detector (optional)

Control

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

Injector

- Micromachined injector with no moving parts
- Injection volume: 1 to 10 μL , software-selectable injection time
- Heated injector temperature: up to 110 $^{\circ}\text{C}$, including heated sample line transfer, except for G3588-63734, which is up to 80 $^{\circ}\text{C}$ ⁵

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: 10⁵

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 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 $^{\circ}\text{C}$ for all, except G3588-63734, which has extended temperature range of -5 to 55 $^{\circ}\text{C}$ ⁵
- Ambient operating humidity: 5 to 95% relative humidity (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.

⁵ Sensitivity on bundled channels may be slightly lower than on comparable regular channels, as the TCD runs cooler at maximum injector temperature (80 $^{\circ}\text{C}$).

Table 2. Specifications for all available CP-Sil 5 channels for the Agilent 990 Micro GC.^{1,4}

Part Number	Description	Length (m)	Precolumn (m)	Backflush	Resolution (iC4/nC4 at 0.15/0.2%)	Detection Limit (ppm) (As n-C5)	Repeatability (% RSD) (Peak Area at 0.2%)
G3588-63752	Micro GC 5CB, 4 m, HI, straight, Factl	4		No	1.5	0.3	< 0.5
G3588-63736	Micro GC 5CB, 6 m, HI, straight, Factl	6		No	1.5	0.5	< 0.5
G3588-63721	Micro GC 5CB, 8 m, HI, straight, Factl	8		No	1.5	0.5	< 0.5
G3588-63737	Micro GC 5CB, 10 m, HI, straight, Factl	10		No	1.7	0.8	< 0.5
G3588-63738	Micro GC 5CB, 15 m, HI, straight, Factl	15		No	2.0	0.9	< 0.5
G3588-63774	Micro GC 5CB, 20 m, HI, straight, Factl	20		No	2.0	1.0	< 0.5
G3588-63952	Micro GC 5CB, 4 m, HI, BF 1 m, Factl	4	1	Yes	1.2	0.4	< 0.5
G3588-63936	Micro GC 5CB, 6 m, HI, BF 1 m, Factl	6	1	Yes	1.5	0.5	< 0.5
G3588-63931	Micro GC 5CB, 8 m, HI, BF 1 m, Factl	8	1	Yes	1.5	0.6	< 0.5
G3588-63951	Micro GC 5CB, 8 m, HI, BF2D, Factl	8	Tuned	Yes, BF2D	1.5	0.8	< 0.5
G3588-63734	Micro GC 5CB, 6 m, HI, straight, bundled, Factl	6		No	1.5	1.0	< 0.5

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