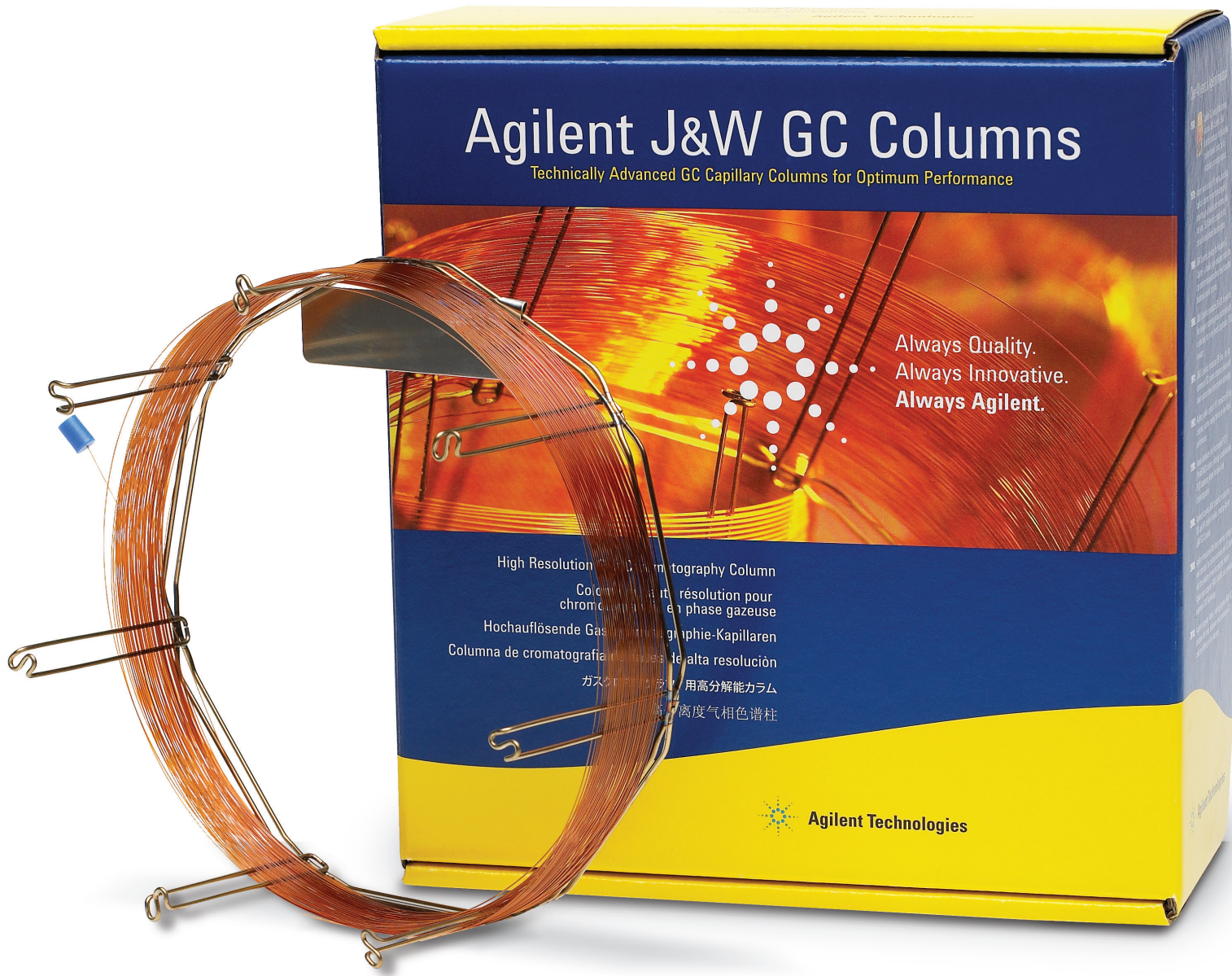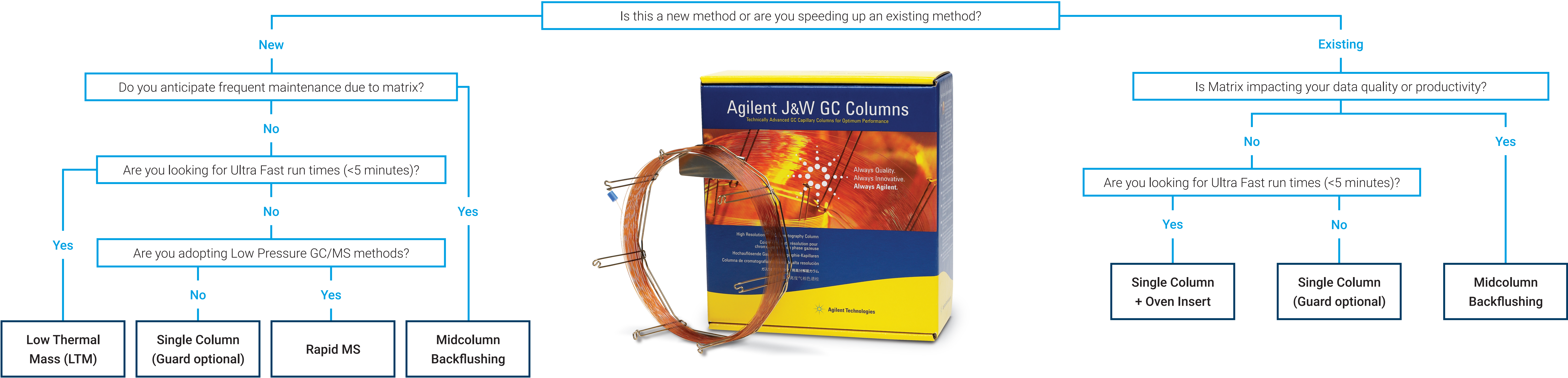# Selecting the Best Technique for Your Fast GC Analysis

Fast GC is a technique that scales GC column dimensions to produce significantly faster analysis times. Implementing Fast GC methods is a powerful option for improving laboratory productivity, especially for routine analytical methods. Fast GC, however, is not always straight forward as practical limitations exist, like the impact of matrix on data specific runtime goals and sample preparation. Agilent J&W GC columns are designed to deliver fast and reliable results.

(F) Fast

(H) Hydrogen Compatible

(M) Improve Durability in Matrix

(U) Ultra Fast

Agilent
Trusted Answers

Decision Flowchart

Is this a new method or are you speeding up an existing method?

New

Do you anticipate frequent maintenance due to matrix?
- **Yes** → Low Thermal Mass (LTM)
- **No** → Are you looking for Ultra Fast run times (<5 minutes)?
  - **No** → Are you adopting Low Pressure GC/MS methods?
    - **No** → Single Column (Guard optional)
    - **Yes** → Rapid MS
  - **Yes** → Midcolumn Backflushing

Existing

Is Matrix impacting your data quality or productivity?
- **No** → Are you looking for Ultra Fast run times (<5 minutes)?
  - **Yes** → Single Column + Oven Insert
  - **No** → Single Column (Guard optional)
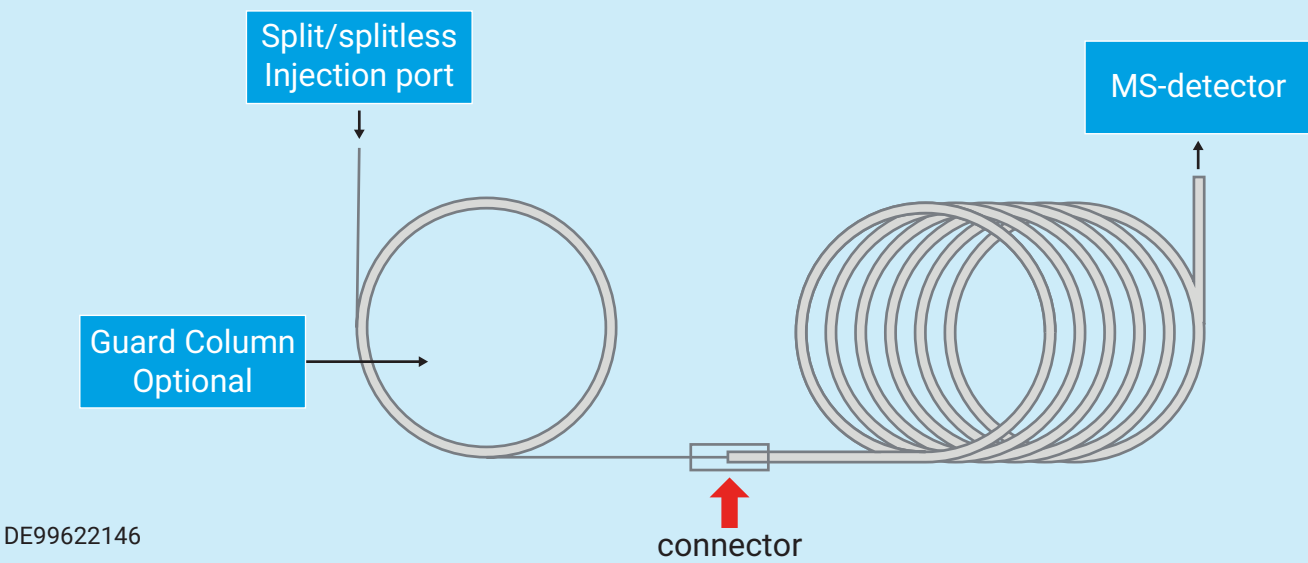- **Yes** → Midcolumn Backflushing

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Single-Column Analysis
(20 m x 0.18 mm)

(F) (H)

- Conventional set-up with the broadest portfolio of columns available
- DuraGuard and EZ-Guard columns can be added to minimize front-end contamination and increase column life
- Agilent's Oven Insert can be added to further improve GC cycle times
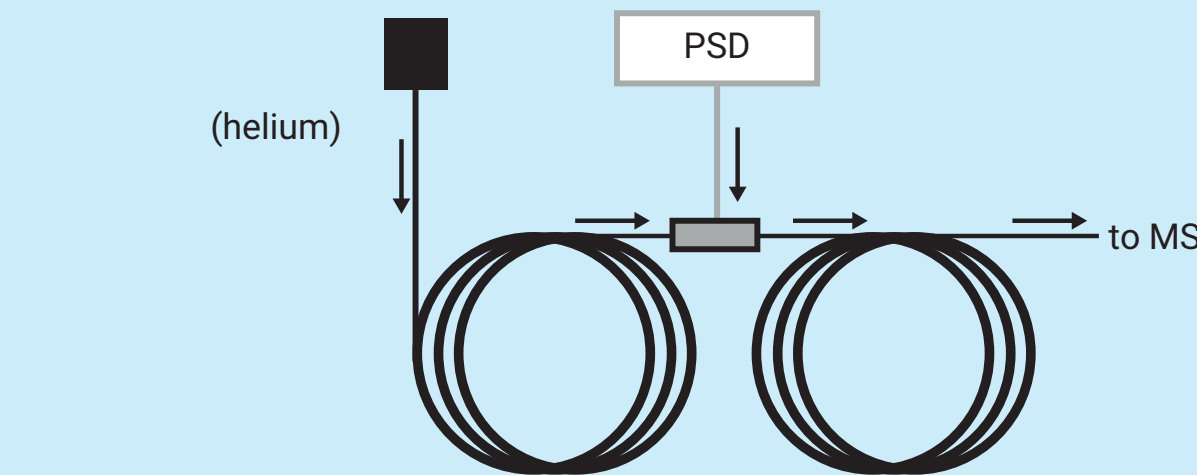
Split/splitless Injection port — MS-detector — Guard Column Optional — connector

Midcolumn Backflushing Analysis
((2) 10 m x 0.18 mm)

(F) (H) (M)

- Ideal for high-throughput in difficult matrix - less need for column and source maintenance
- Broad portfolio of phases available
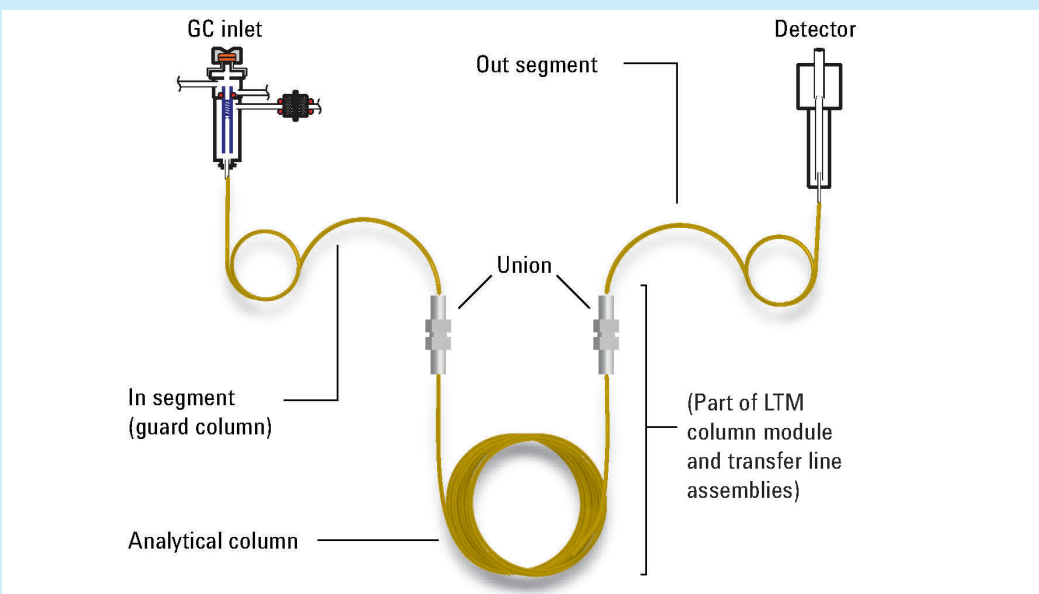- Requires additional EPC or PCM to provide second gas source

(helium) — PSD — to MS

Low-Thermal Mass (LTM)
(20 m x 0.18 mm)

(U) (H)

- Significantly faster analytical cycle times than conventional air bath ovens
- Run up to four column modules simultaneously, with four different temperature programs
- Less power consumption
- Requires Agilent LTM Series II hardware

GC inlet — Out segment — Detector — In segment (guard column) — Union — Analytical column — (Part of LTM column module and transfer line assemblies)

Rapid MS
(5 m Retention Gap + 10 m x 0.53 mm)

(F)

- Provides high-speed GC/MS analysis utilize high optimal carrier gas velocity when performed under reduced pressure
- Only compatible with GC-MS

Split/splitless Injection port — MS-detector — Restriction — connector — Short 0.53 mm capillary (10m)