

Agilent 1290 Infinity

Ultra Low Dispersion Kit

Technical Note

Introduction

The 1290 Infinity LC has a large power range (2 mL/min at 1200 bar and 5 mL/min at 800 bar) and low system dispersion and is therefore designed for a broad application range with 2.1 mm to 4.6 mm inner diameter columns. The 1290 Infinity Ultra-Low Dispersion Kit (p/n 5067-5189) allows a further reduction of the extra column volume* of the 1290 Infinity LC by using capillaries with a low internal diameter of 0.075 mm, which are marked by black sleeves.

This kit is recommended for following applications:

- isocratic separations on 2.1 mm inner diameter, especially with early eluting peaks
- gradient separations on 2.1 mm, especially if the peaks of interest are eluting very early in the isocratic part of the gradient

Applications on 1 mm inner diameter columns will also benefit from the lower extra column volume.

Since small diameter capillaries in this kit will significantly increase the backpressure[†] of the system at high flow rates, it is recommended to use the kit only for the applications mentioned above.

* The volume between the effective injection point and the effective detection point, excluding the part of the column containing the stationary phase is called extra column volume. This volume contributes to the band broadening and should be significantly smaller than the volume of the eluted peak. The use of smaller columns (short length, narrow diameter and smaller/more efficient particles) results in smaller peak volumes, which then also require a smaller extra column volume in order to avoid a loss of efficiency.

† for example +165 bar with water at 1 mL/min flow rate



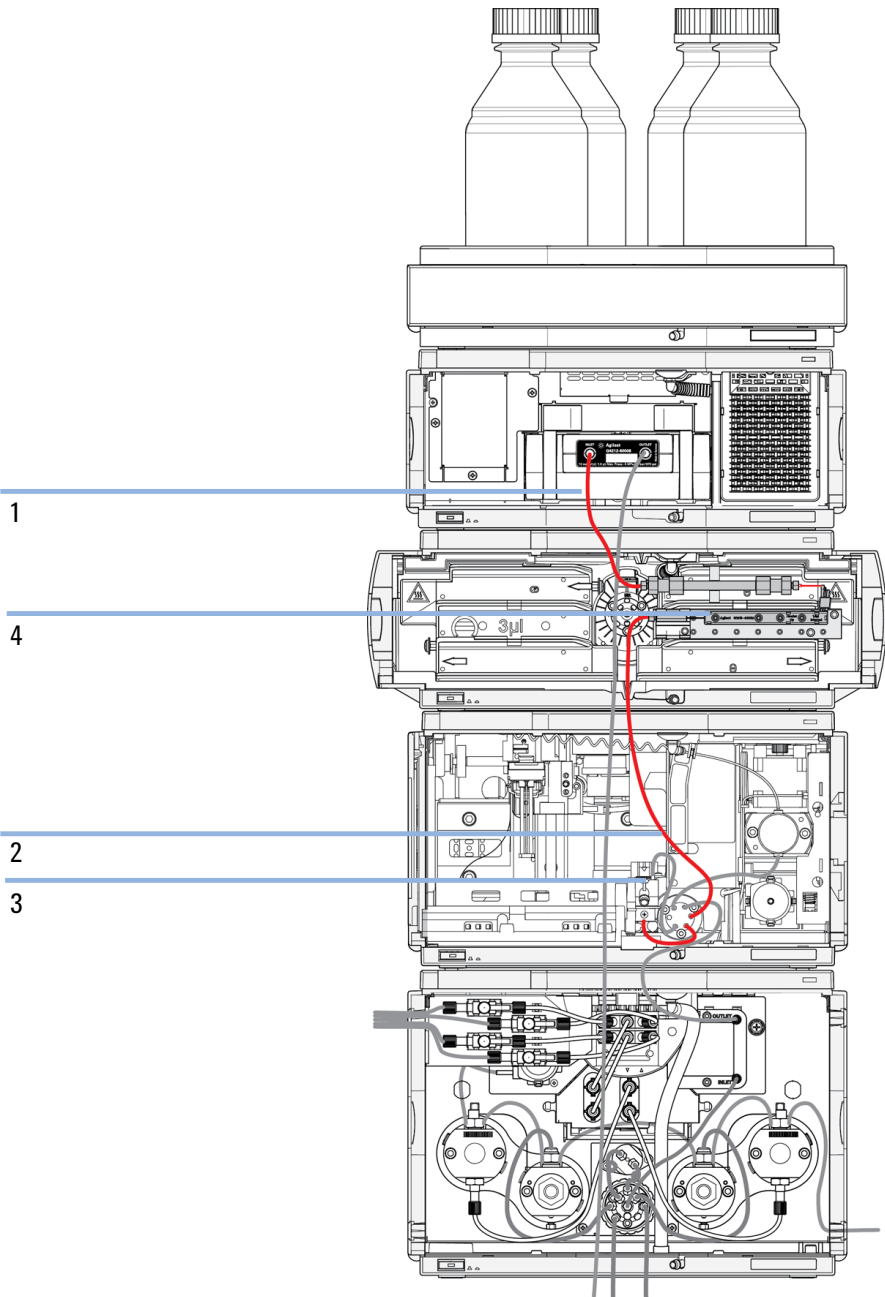
The Ultra-Low Dispersion Kit is designed for the use with an Agilent 1290 Infinity System including a G4220A/B Binary Pump, G4226A Autosampler, G1316B/C Thermostatted Column Compartment and a 1290 Infinity compatible detector.

Kit Contents

The kit contains following parts (one each):

| No. | Part number | Part | Usage |
|-----|-------------|-----------------------------------------------------------------------------------------------------|--------------------|
| 1 | 5067-4784 | Capillary Stainless Steel, 0.075 mm x 220 mm, Swage-lock™, removable fitting (p/n 5067-4784) | TCC to detector |
| 2 | 5067-4783 | Capillary Stainless Steel 0.075 mm x 340 mm, Swage-lock™, removable fitting (p/n 5067-4783) | Autosampler to TCC |
| 3 | G4226-87020 | Low-Dispersion Needle Seat Assembly 1290 Infinity LC (p/n G4226-87020) | Autosampler |
| 4 | G1316-80012 | Heat Exchanger Long Up 0.075 mm, nom. Volume 1.0 µL (p/n G1316-80012) | TCC |
| 5 | 01290-90100 | Installing the 1290 Infinity Ultra-Low Dispersion Kit 5067-5189 (Technical Note) (p/n 01290-90100)* | |

* this technical note, reprints are not orderable. An electronic version of this note can be downloaded from <http://www.chem.agilent.com/en-US/Search/Library/Pages/LibrarySearch.aspx>



Installation

Installing the Low Dispersion Needle Seat

| Tools required | p/n | Description |
|----------------|-----------|------------------------------------------------|
| | 8710-0510 | Wrench open 1/4 — 5/16 inch |
| | 8710-2509 | Screwdriver Torx TX8 Screwdriver, flat-head |

| Parts required | p/n | Description |
|----------------|-------------|------------------------------------------------------|
| | G4226-87020 | Low-Dispersion Needle Seat Assembly 1290 Infinity LC |

- Preparations**
- Switch off System.
 - In order to avoid leaks, close the shutoff valves in the pump or remove tubings from solvent bottles.

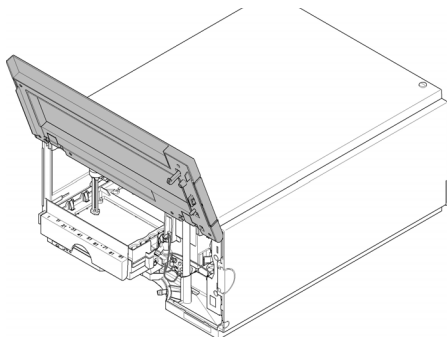
WARNING

Risk of injury by uncovered needle

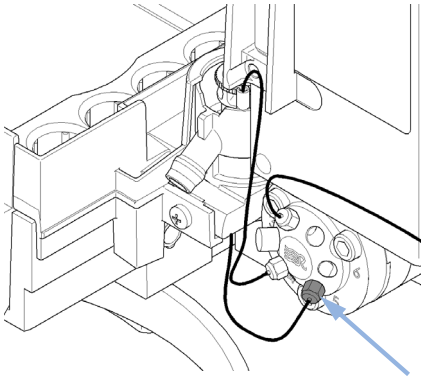
An uncovered needle is a risk of harm to the operator.

- Be careful working at the needle carrier assembly.
- Use the silicon safety tube supplied with every new needle.

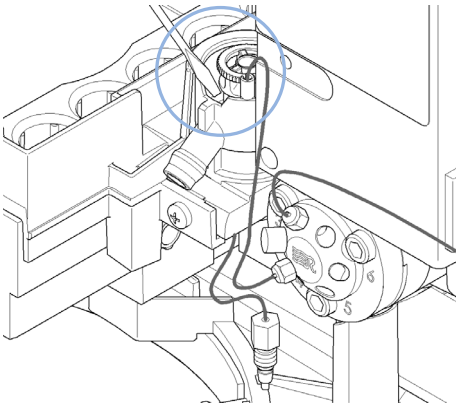
- 1 In the user interface start the maintenance mode and select **Change needle/seat** function. In the Agilent Lab Advisor software the **Change needle/seat** function can be found in the **Tools** section.
- 2 Open the front door.



3 Disconnect the seat capillary from the injection valve.



4 With a flat head screw driver carefully lift out the needle seat from the holder.



5 Insert the new needle seat. Press it firmly in position.



6 In the user interface exit the **Change needle/seat** function and exit the maintenance mode.

Fixing the Low Dispersion Heat Exchangers

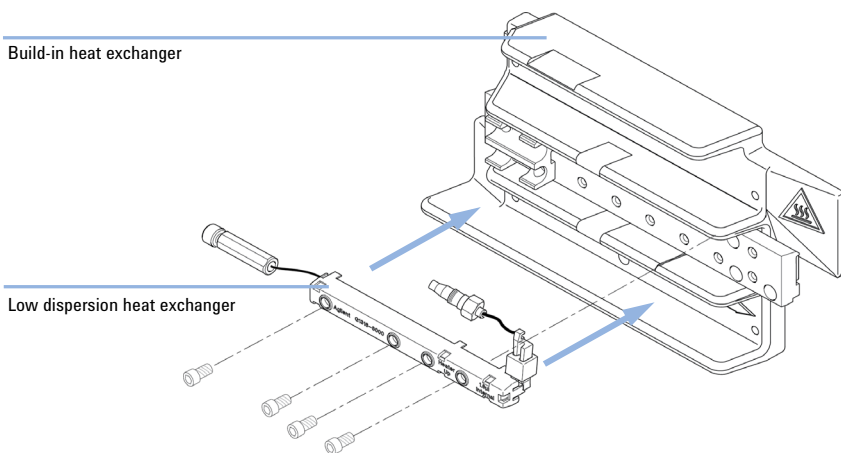
| | | |
|-----------------------|------------|----------------------|
| Tools required | p/n | Description |
| | 8710-2509 | Screwdriver Torx TX8 |

| | | |
|-----------------------|-------------|-----------------------------------------------------|
| Parts required | p/n | Description |
| | G1316-80012 | Heat Exchanger Long Up 0.075 mm, nom. Volume 1.0 µL |

NOTE

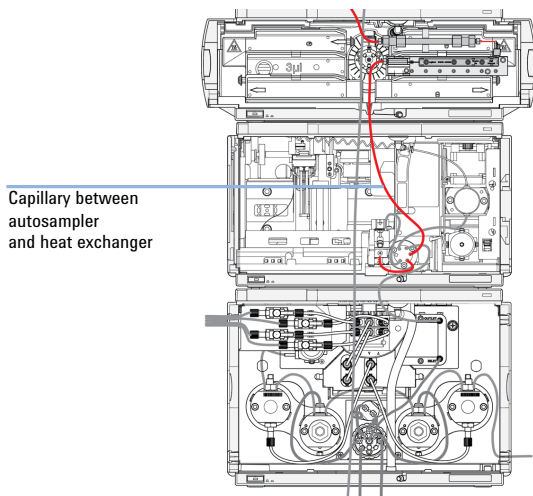
This kit includes the Heat Exchanger for upward column installation. A version for downward installations is available separately, see “Additional Parts” on page 8.

- 1 Fix the Ultra-Low Heat Exchanger Up to the Heat-Exchanger Carrier (upper row of holes) using 4 Torx 8 Screws. If no carrier is installed on you G1316C TCC, please refer to your G1316C user manual.

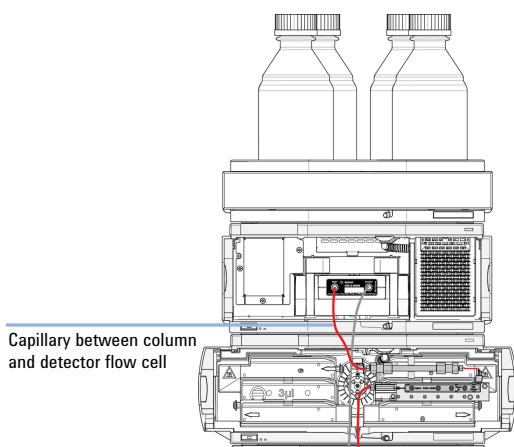


Installing Low-Dispersion Capillary Connections

- 1 Install Capillary Stainless Steel 0.075 mm x 340 mm, Swage-lock™, removable fitting (p/n 5067-4783) between port 6 of the autosampler injection valve and the heat exchanger.

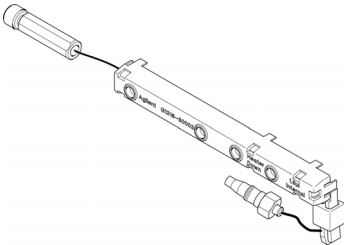
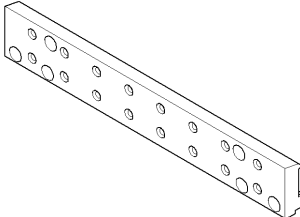
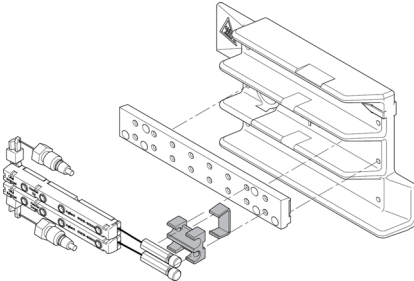


- 2 Install Capillary Stainless Steel, 0.075 mm x 220 mm, Swage-lock™, removable fitting (p/n 5067-4784) between the column and the detector flow cell.



Additional Parts

Depending on the system configuration, following parts not included to the kit may be used in addition:

| Item | Description |
|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
|  | Heat Exchanger Long Down 0.075 mm (nom. 1.0 µL) (p/n G1316-80013) (includes screws) |
|  | Carrier for heat exchanger TCC SL Plus (p/n G1316-89200) |
| | Screw for heat exchangers (p/n 0515-4864) |
| | Screw 2.5 mm hex for mounting carrier (p/n 0515-1052) |
|  | Fitting holder assy, includes following items: Fitting fork, fitting clip, screws (pack of 4) (p/n G1316-68706) |

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