Agilent 1290 Infinity II Ultra Low Dispersion Kit

Technical Note

In this note we describe how to install the Agilent 1290 Infinity II Ultra Low Dispersion Kit (5067-5963).

Contents

Agilent Technologies

Introduction

The 1290 Infinity II LC has a large power range (2 mL/min at 1300 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 II Ultra-Low Dispersion Kit (5067-5963) allows a further reduction of the extra column volume* of the 1290 Infinity II 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 1290 Infinity II Ultra-Low Dispersion Kit (5067-5963) is designed for the use with an Agilent 1290 Infinity II System.

* 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

Kit Contents

p/n	Description
5500-1208	Capillary ST 0.075 mmx250 mm ULD-Kit Inf-II Column outlet to Flow Cell
5500-1207	Capillary ST 0.075 mmx500 mm ULD-Kit Inf-II Multisampler to Heat exchanger (use A-Line Quick Turn Fitting for heat exchanger connection)
G4267-87020	High Pressure Seat Assembly 0.075 mm
G7116-60021	Heat Exchanger 0.6 Quick Connect Heatexchanger Ultra Low Dispersion
5067-6135	Capillary ST 0.075 x 105 mm ULD-Kit Inf-II Heat exchanger to column. (use A-Line Quick Turn Fitting for column connection)

Installation

Install the High Pressure Needle Seat Assembly

Tools required	p/n	Description
	8710-0510	Wrench open 1/4 — 5/16 inch
		Flat head screwdriver

Parts required	p/n	Description
	G4267-87020	High Pressure Seat Assembly 0.075 mm

Preparations In order to avoid leaks, stop the pump running and remove the tubings from the solvent bottles. If available close the shutoff valves.

WARNING

Risk of injury by uncovered needle

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

➔ Do not open the safety lock of the needle assembly

➔ Be careful working at the z-robot.

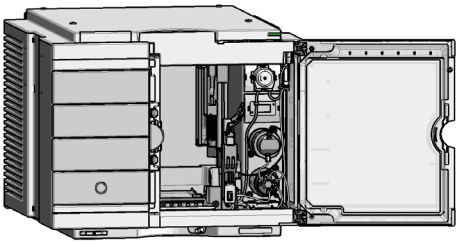
➔ Wear safety goggles, when removing the needle assembly.

1 In the Instant Pilot start the maintenance mode and select **Change needle/seat** function.

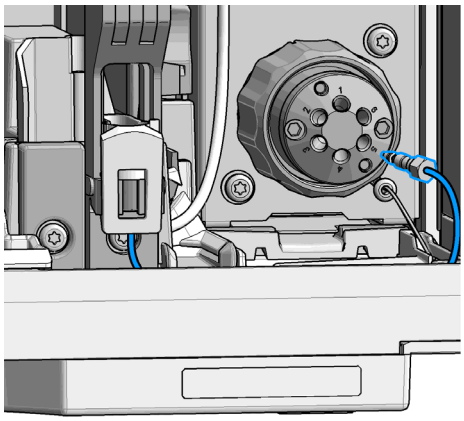
OR

In the Agilent Lab Advisor software select **Service & Diagnostics** in the system screen **Maintenance Positions > Change Needle**, click start and wait until the needle assembly is in maintenance position.

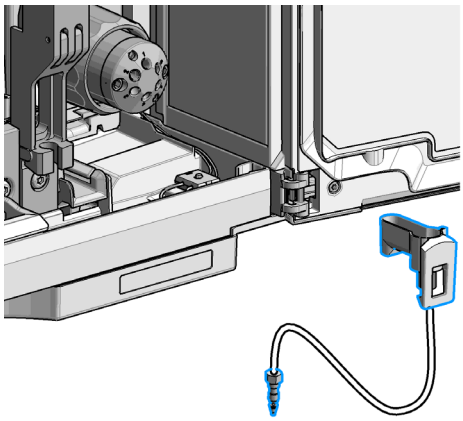
2 Open the front door.



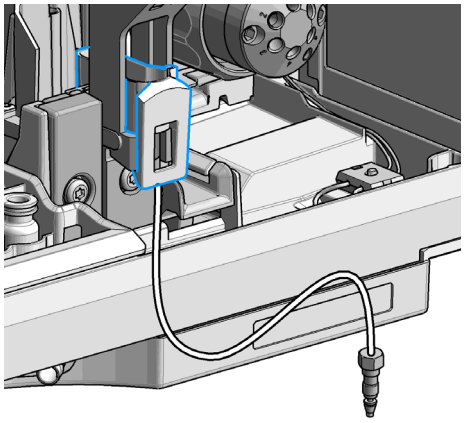
3 Disconnect the seat capillary from the Injection valve.



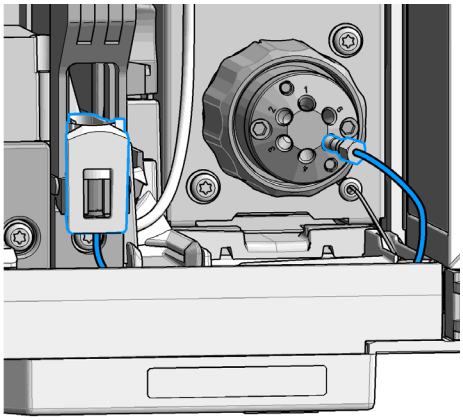
4 Unclick the needle seat assembly carefully by lifting the leak tube from the holder.



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



6 Reconnect the seat capillary to the injection valve.

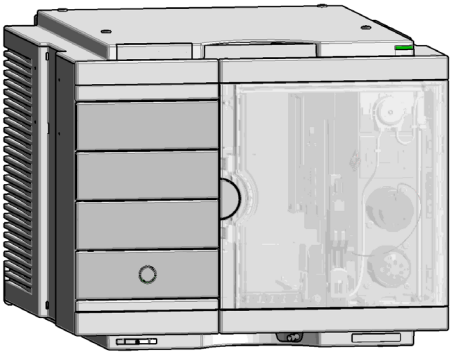


7 In the Instant Pilot close **Change needle /seat**.

OR

In the Agilent Lab Advisor software **Change needle** click **End** and wait until the needle assembly is in the needle park position.

8 Close the front door.



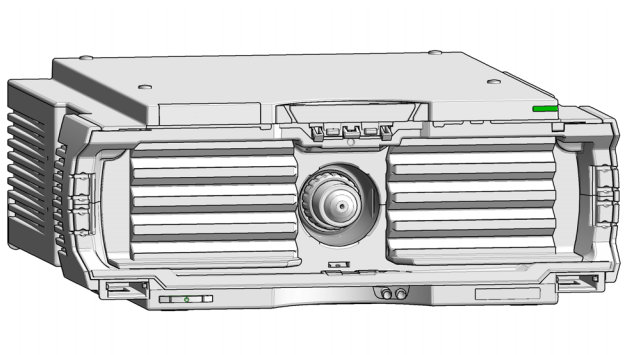
9 Perform a pressure test.

Install the Heat Exchanger Assembly

Tools required	p/n	Description
	5023-2502	Hex driver 1/4 inch, slitted
	8710-0510	Wrench open 1/4 — 5/16 inch

Parts required	p/n	Description
	G7116-60021	Heat Exchanger 0.6 Quick Connect Heatexchanger Ultra Low Dispersion
	5067-6135	Capillary ST 0.075 x 105 mm ULD-Kit Inf-II
	5500-1207	Capillary ST 0.075 mmx500 mm ULD-Kit Inf-II

1 Choose one of the possible positions for placing the heat exchanger.



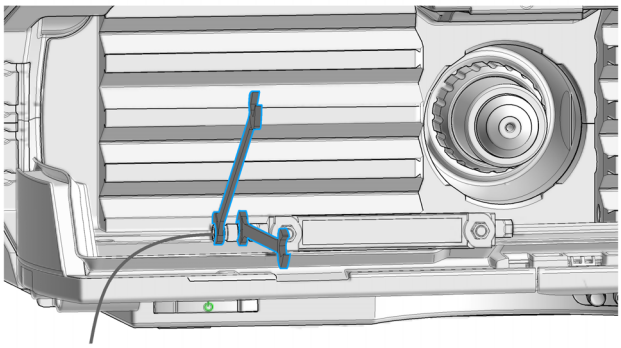
NOTE

Use one of the four central positions if only one column is used.

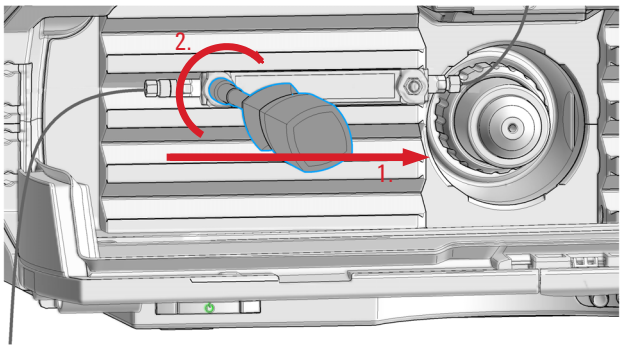
NOTE

Follow the special instructions provided for the A-Line Quick Connect and Quick Turn Fittings.

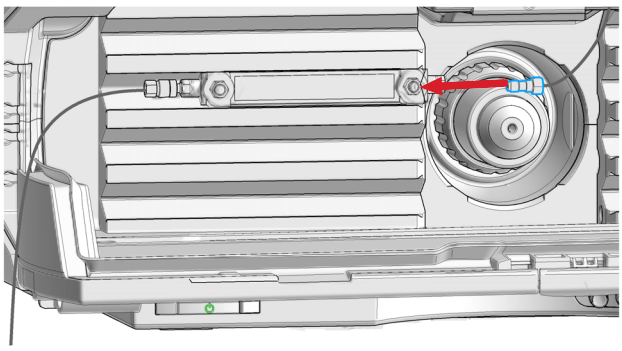
2 Connect the Capillary ST 0.075 x 105 mm ULD-Kit Inf-II (5067-6135) to the Quick-Connect Heat Exchanger ULD using the standard stainless steel fitting.



3 Position the Heat Exchanger as shown (1.). Fix it with a hex driver (2.).



4 Install Capillary ST 0.075 mmx 500 mm ULD-Kit Inf-II (5500-1207) between port 6 of the multisampler injection valve and the heat exchanger.



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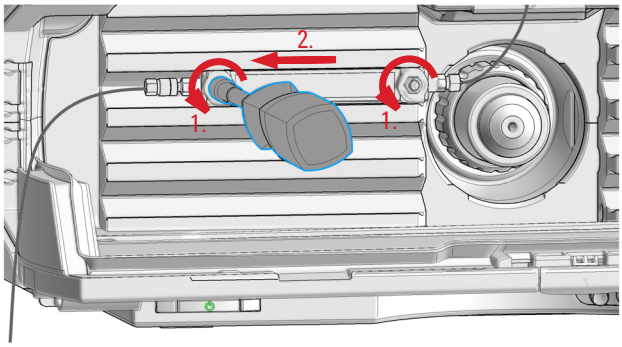

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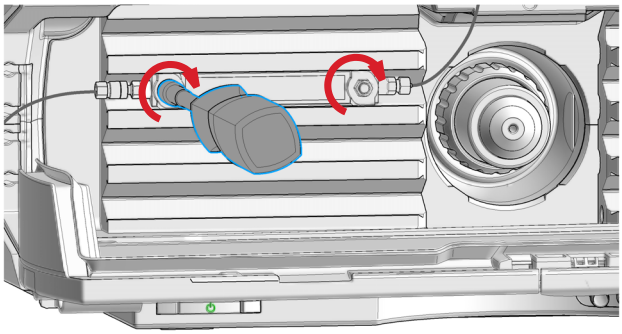

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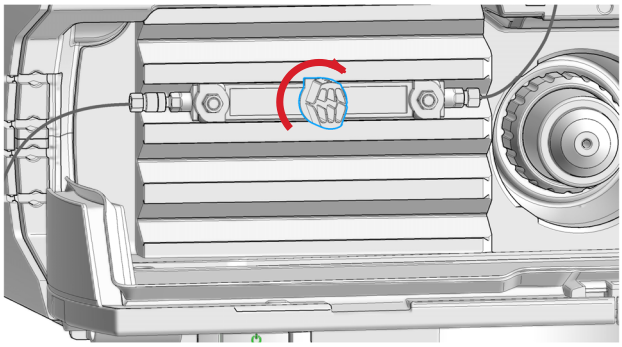

Connect the Column

Tools required	p/n	Description
	5023-0240	Hex driver, ¼", slitted
	8710-0510	Wrench open 1/4 — 5/16 inch

Parts required	p/n	Description
	5067-6135	Capillary ST 0.075 x 105 mm ULD-Kit Inf-II
	5500-1208	Capillary ST 0.075 mmx250 mm ULD-Kit Inf-II

Preparations Capillary ST 0.075 x 105 mm ULD-Kit Inf-II (5067-6135) connected to the heat exchanger, see "Install the Heat Exchanger Assembly" on page 6.

1 Connect the Capillary ST 0.075 x 105 mm ULD-Kit Inf-II (5067-6135) from the heat exchanger to the column.

NOTE

Turn the column on to the Quick turn fitting.

Use a wrench to counter the column while tightening the capillary fitting.

2 Install Capillary ST 0.075 mmx 250 mm ULD-Kit Inf-II (5500-1208) between the column and the detector flow cell.

3 Position the column into the column holder clip.

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