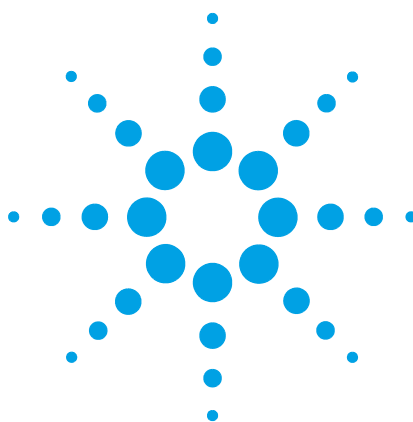




Agilent G4236A 2D-LC Valve Installation Guide

Technical Note

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Delivery Checklist

p/n	Description
5067-4214	2D-LC Valve Head, 1200 bar
5067-5440	Calibrated loop kit for 2D-LC (OPTIONAL)
5067-5441	Capillary kit for 2D-LC, low dispersion (OPTIONAL)

Calibrated loop kit for 2D-LC (5067-5440)

p/n	Description
5067-5446 (2x)	Loop housing kit
5067-5424	20 µL Loop 2D-LC
5067-5425	40 µL Loop 2D-LC
5067-5437	60 µL Loop 2D-LC
5067-5426	80 µL Loop 2D-LC

Table 1 Capillary Kit for 2D-LC, low dispersion (p/n 5067-5441)

Description	Amount	Unit	Comment
Capillary ST 0.12 mm x 600 mm S/SL (5067-4669)	1	ea	Autosampler to 1 st dimension column / low dispersion heat exchanger
SST-Capillary 150 x 0.12 mm ns ps 1lg 1xlg (5067-4650)	1	ea	1 st dimension column outlet to valve (short column)
SST-Capillary 280 x 0.12 mm ns ps 1lg 1xlg (5067-4651)	1	ea	1 st dimension column outlet to valve (long column)
SST-Capillary 90 x 0.12 mm ps ps 1sh 1xlg (5067-4649)	1	ea	Valve to 2 nd dimension column
SST-Capillary 200 x 0.12 mm ps ps 1sh 1xlg (5067-4653)	1	ea	2 nd dimension column outlet to detector
Heater long-up (0.12 mm i.d., 1.6 µL internal volume) (G1316-80002)	2	ea	
Carrier for heat exchanger TCC SL Plus (G1316-89200)	2	ea	
Waste tubing, 2 m (0890-1713)	1	ea	
Fitting male PEEK, 2/pk (0100-1516)	1	ea	

Installing Valve Heads

The valve drives are factory-installed in the thermostatted column compartment and in the 1290 infinity valve drive. The valve heads are interchangeable and can be easily mounted.

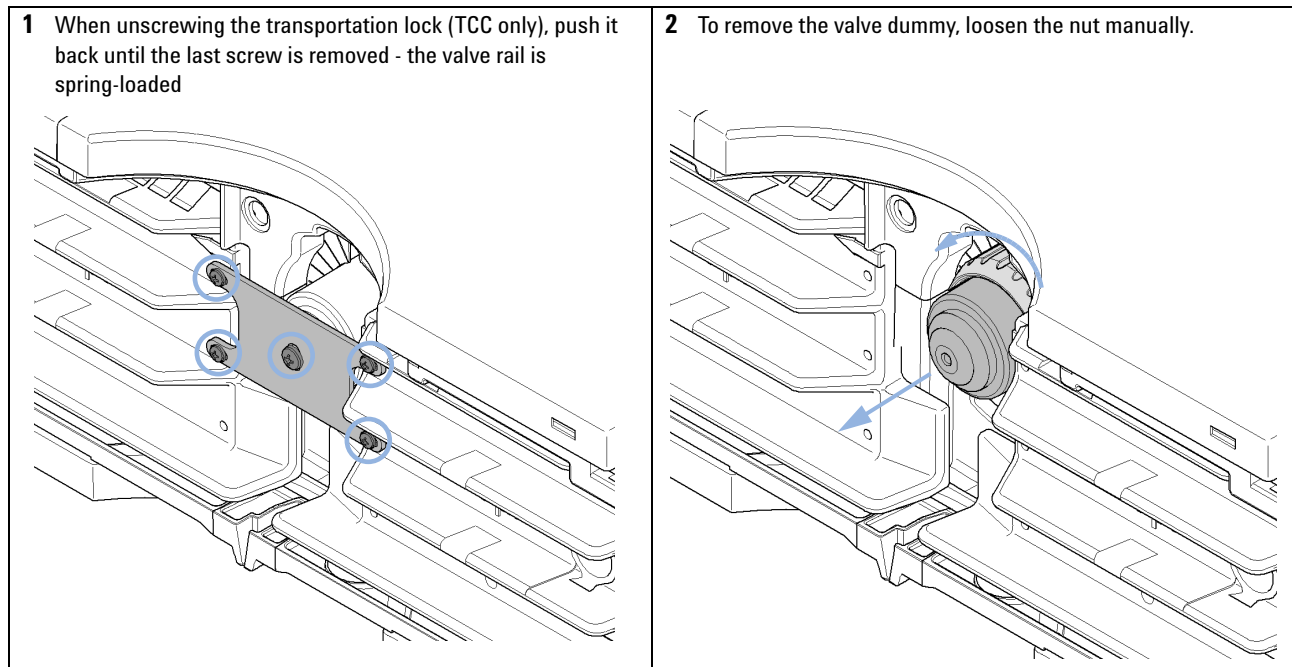
At the first installation, the transportation lock (TCC only) and the dummy valve have to be removed, see [“Removing the Transportation Lock and the Valve Dummy”](#) on page 3. The valve heads can be installed by mounting the valve heads onto the valve drives and fastening the nut manually (do not use any tools).

Be sure that the guide pin snaps into the groove of the valve drive thread. The valves are mounted on pull-out rails to allow easy installation of capillaries. Push the valve gently into its housing until it snaps into the inner position, push it again and it slides out. If all capillaries are installed, push the valve back into its housing, see [“Installing the Valve Head and Connecting Capillaries”](#) on page 4.

Removing the Transportation Lock and the Valve Dummy

The following procedure demonstrates the necessary steps for installing the valve head to the valve drive of a TCC.

For the installation of a valve head to a G1170A Infinity Valve Drive you can ignore the steps that describe the TCC features of the transportation lock and spring loaded valve drive.



Installing the Valve Head and Connecting Capillaries



For bio-inert modules use bio-inert parts only!

CAUTION

The valve actuator contains sensitive optical parts, which need to be protected from dust and other pollutions. Pollution of these parts can impair the accurate selection of valve ports and therefore bias measurement results.

- Always install a valve head for operation and storage. For protecting the actuator, a dummy valve head (part of Transportation Lock Kit (G1316-67001)) can be used instead of a functional valve. Do not touch parts inside the actuator.

CAUTION

Column Damage or Bias Measurement Results

Switching the valve to a wrong position can damage the column or bias measurement results.

- Fit the lobe to the groove to make sure the valve is switched to the correct position.

CAUTION

Valve Damage

Using a low pressure valve on the high pressure side can damage the valve.

- When using multiple column compartments as part of a method development solution, make sure that the high pressure valve head is connected to the autosampler and the low pressure valve head is connected to the detector.

CAUTION

Sample degradation and contamination of the instrument

Metal parts in the flow path can interact with the bio-molecules in the sample leading to sample degradation and contamination.

- For bio-inert applications, always use dedicated bio-inert parts, which can be identified by the bio-inert symbol or other markers described in this manual.
- Do not mix bio-inert and non-inert modules or parts in a bio-inert system.

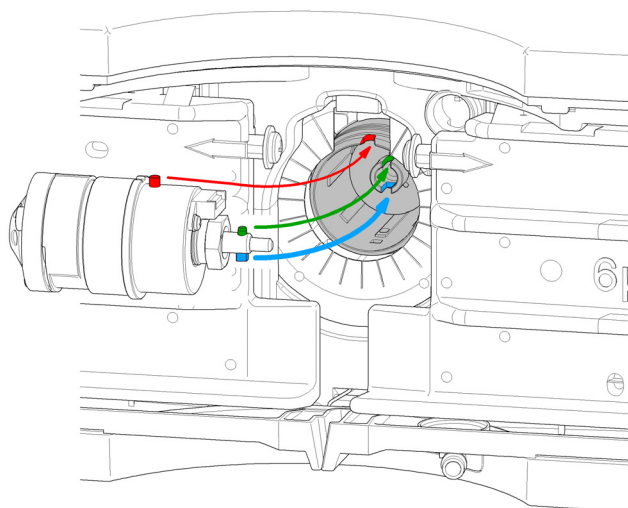
NOTE

The tag reader reads the valve head properties from the valve head RFID tag during initialization of the module. Valve properties will not be updated, if the valve head is replaced while the module is on. Selection of valve port positions can fail, if the instrument does not know the properties of the installed valve.

NOTE

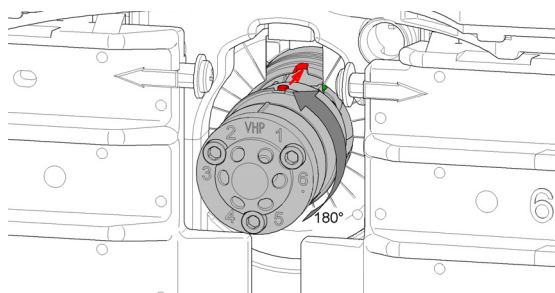
To have the valve correctly recognized by the Agilent Infinity valve drive you must have the valve drive powered off for at least 10 s.

- 1** The two different pins (blue & green) on the valve shaft must fit into the corresponding grooves of the actuator axis. The outside pin (red) must fit into the outside groove.

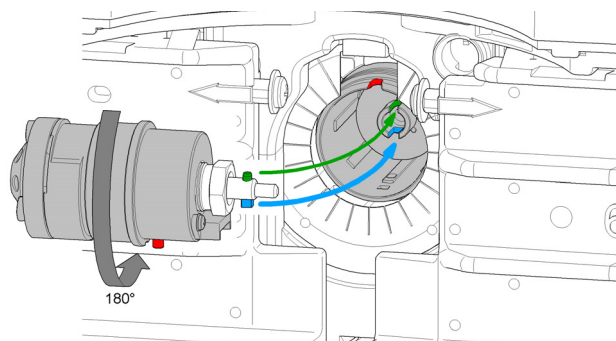


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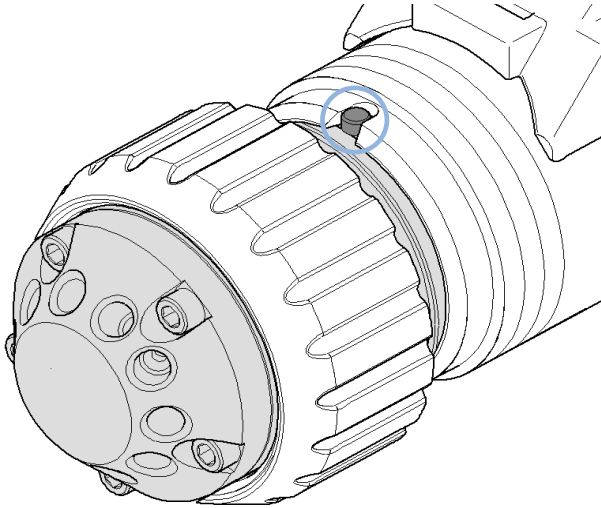
- a** It can be possible that you have to turn the valve head until the outside pin completely locks in. While turning the valve you should feel some resistance from the drive. Otherwise the pins on the valve shaft are not properly fitted into the corresponding adapters on the valve drive.



- b** It can be possible that you have to turn the valve head until the outside pin completely locks in. While turning the valve you should feel some resistance from the drive. Otherwise the pins on the valve shaft are not properly fitted into the corresponding adapters on the valve drive.



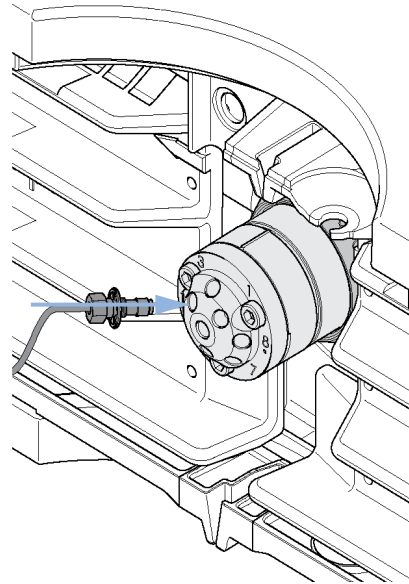
- 3** When the outer pin is locked into the groove, manually screw the nut onto the valve head.



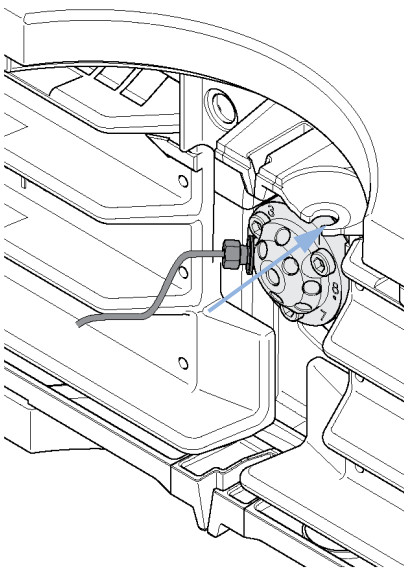
NOTE

Fasten the nut manually. Do not use any tools.

- 4** Install all required capillary connections to the valve.



- 5** Push the valve head until it snaps in and stays in the rear position. (TCC only)



- 6** Power on or power-cycle your TCC or Infinity valve drive that the valve head gets recognized during the module initialization.

NOTE

Power Off the Infinity valve drive for at least 10 s.

Thermostatted Column Compartment Setup

Different variants of thermostatted column compartment setup are supported with the optional 2D-LC capillary kit for the 2D-LC valve (G4236A#3):

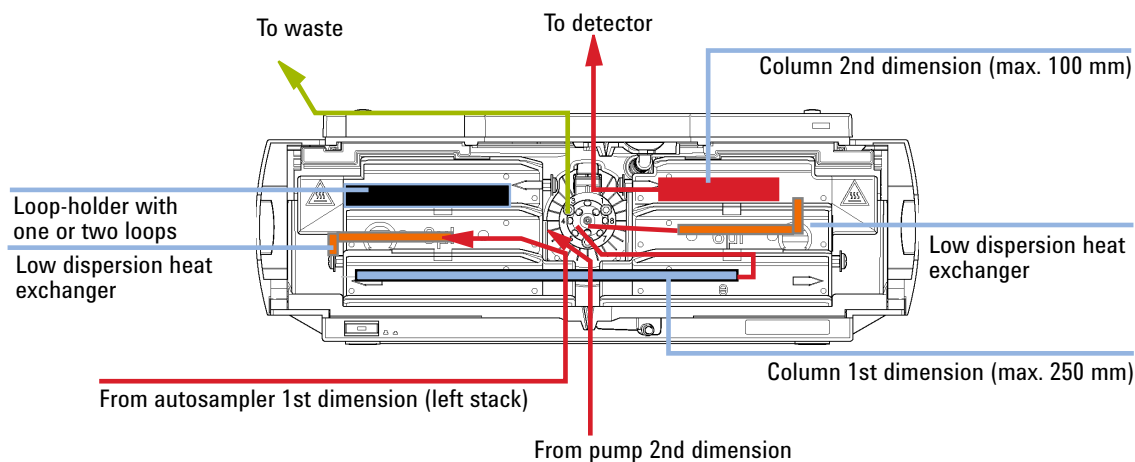


Figure 1 Columns at different temperatures, long 1st dimension column, no 1st dimension detector, for comprehensive 2D-LC booth loops can be placed in the loop holder.

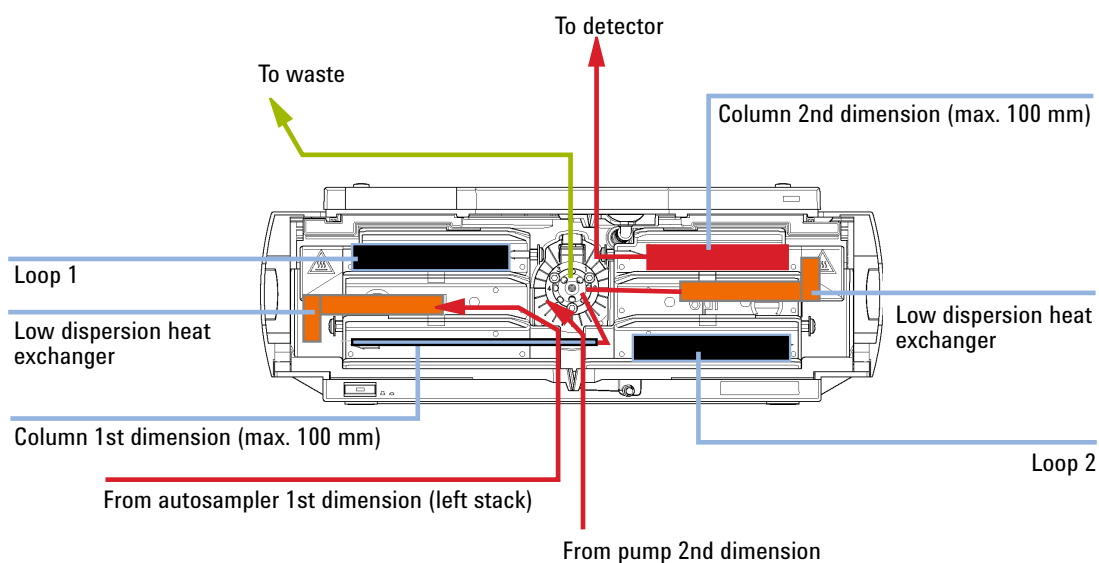


Figure 2 Columns at different temperatures, medium 1st dimension column, no 1st dimension detector

Installing the Capillaries

The hydraulic setup of the valve is optimized for 2D-LC applications.

CAUTION

Wrong flow path setup

Damage to the valve.

→ Strictly follow the setup instructions in the section *Installing the Capillaries*.

Comprehensive 2D-LC

- Cocurrent:
The flow for filling and eluting (analyze direction) the loops is entering the loop from the same side for the cocurrent plumbing.
- Countercurrent:
The flow entering the loops for filling and analyzing is opposite for the countercurrent plumbing.

Table 2 Plumbing for 2D-LC Valve Head, comprehensive 2D-LC

	Filling	Analyzing
Cocurrent		
	Figure 3 2D-LC Valve Head, position 1	Figure 4 2D-LC Valve Head, position 2
Countercurrent		
	Figure 5 2D-LC Valve Head, position 1	Figure 6 2D-LC Valve Head, position 2

Heart-cutting 2D-LC

In a heart-cutting experiment only a part of the first dimension is transferred to the second dimension and analyzed.

Table 3 Plumbing for 2D-LC Valve Head, heart-cutting 2D-LC

	Filling	Analyzing
Cocurrent		
	Figure 7 2D-LC Valve Head, position 1	Figure 8 2D-LC Valve Head, position 2
Countercurrent		
	Figure 9 2D-LC Valve Head, position 1	Figure 10 2D-LC Valve Head, position 2

Valve Head Parts Information

Replacement Parts

Table 4 Partlist 2D-LC Valve Head, 1200 bar

Valve	Rotor Seal (Vespel)	Stator Head	Stator Screws (pack of 10)	Stator Ring
5067-4214 2D-LC Valve Head, 1200 bar	5068-0186	5068-0115	1535-4857	n.a.

Valve Head Parts

NOTE

The figure below illustrates replacement parts for the valve heads, with the 12Pos/13Port Selector valve as an example. The valves can vary in their appearance and do not necessarily include all of the illustrated parts. Neither, every spare part is available for each flavor of the valve.

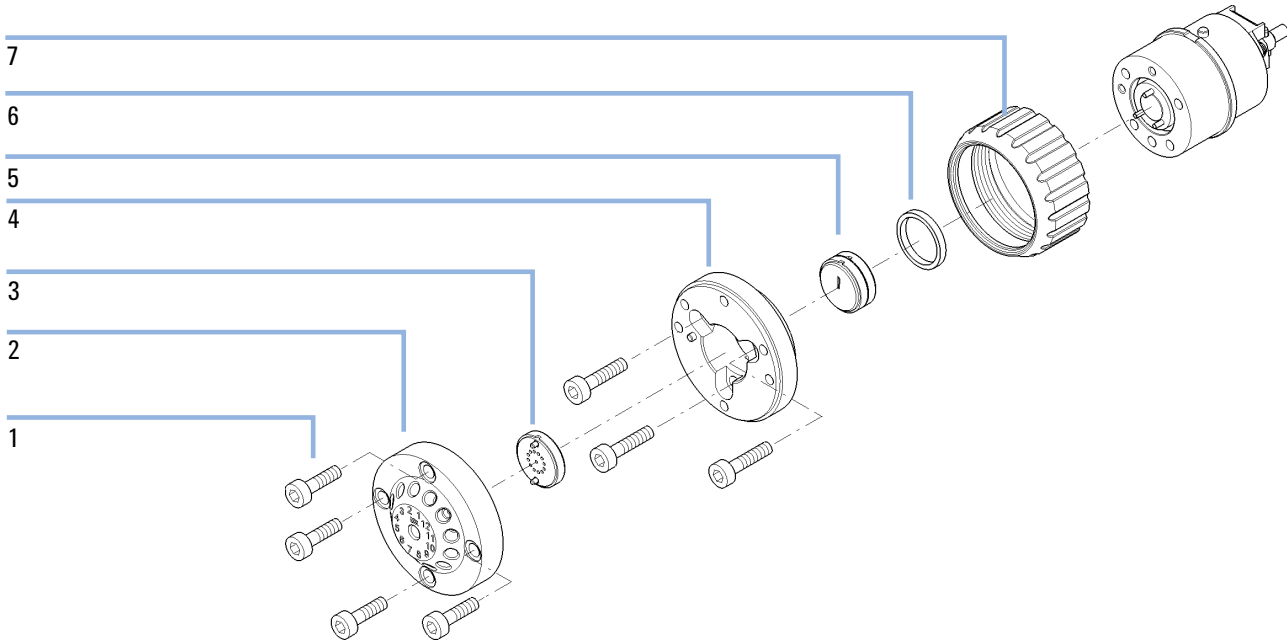


Figure 11 Valve Head Parts (example shows a 5067-4159 valve head)

1	Stator screws
2	Stator head assembly
3	Stator face assembly
4	Stator ring (available for service only)
5	Rotor seal
6	Bearing ring (P/N 1534-4045)
7	Spanner nut (P/N 5068-0106, available for service only)

Technical Specifications

Table 5 Technical specifications

Max. Pressure:	1200 bar
Liquid Contacts:	Stainless Steel, Vespel
Connections:	Accepts 10-32 male threaded fittings, use non pre-swaged fittings to connect



G4236-90001

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