

Agilent InfinityLab Quick Change Valve G5640A

Instructions

This technical note describes the installation and application of the Agilent InfinityLab Quick Change 6-position/14-port Bio Valve G5640A in a 1290 Infinity II Multicolumn Thermostat (MCT).

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Typical Applications

Multicolumn Selection

Advantages

- Increase productivity
- Higher instrument uptime

Quickly change between up to six different stationary phases for different applications, or use identical stationary phases in columns with different dimensions for either faster run-times (short columns), higher resolution (long columns), or loading studies with different internal diameters.

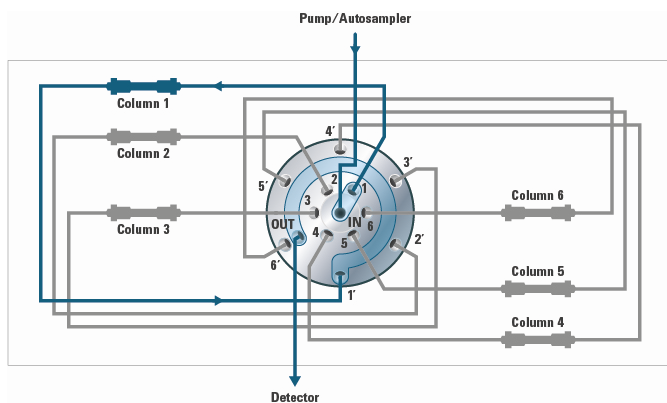


Figure 1 Multiple column selection, pos. 1

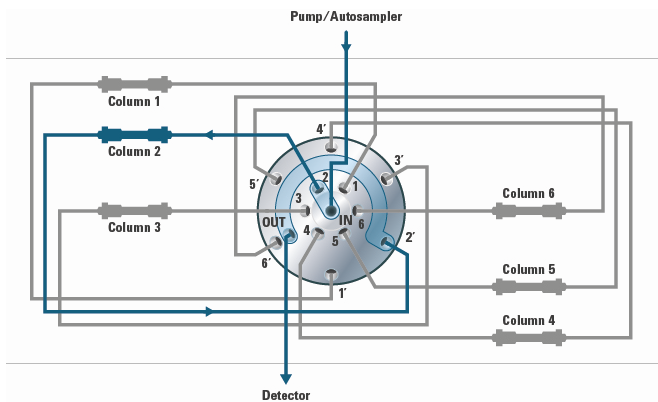


Figure 2 Multiple column selection, pos. 2

Method Development

Advantages:

- Faster method development
- Automated method development possible

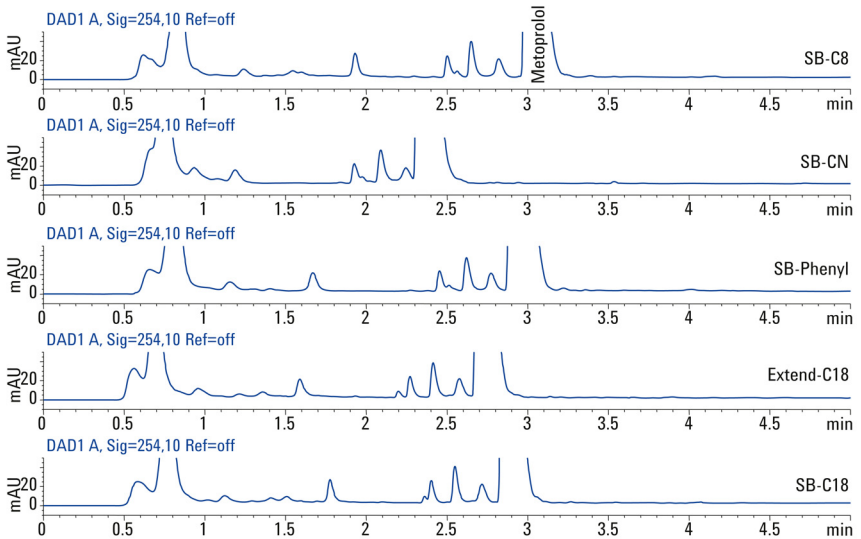


Figure 3 Different chromatographic results obtained for the same sample on five different stationary phases

Delivery Checklist

Check the content of the delivery. You should have received the following:

G5640A:

Item	p/n	Description
1	5320-0025	6-position/14-port bio valve head, 1300 bar
	5005-0070	Bio 6-Column Selector Capillary Kit

Table 1 Capillary Kit p/n 5005-0070

p/n	Description	Connection	Quantity	Unit
G7116-60071	Quick Connect Bio Heat Exchanger Standard Flow		6	ea
5004-0044	Capillary MP35N 0.12 mm x 105 mm SL	Heat exchanger to column	6	ea
5067-5966	InfinityLab Quick Turn Fitting		12	ea
5004-0042	Capillary MP35N 0.12 mm x 130 mm M/SL	Valve to heat exchanger	6	ea
5004-0043	Capillary MP35N 0.12 mm x 130 mm M	Column to valve	6	ea
5004-0045	Capillary MP35N 0.12 mm x 500 mm M/SL	Sampler to valve	1	ea
5004-0046	Capillary MP35N 0.12 mm x 280 mm M/SL	Valve to detector	1	ea
5004-0047	Capillary MP35N 0.12 mm x 150 mm M/M	Valve to valve bypass line	1	ea
G1375-87326	Waste tube, FEP, 1.6 mm od, 0.8 mm id	Waste line	1	ea
5005-0064	Blank Nut, bio-compatible, MP35N, for M4 port		2	ea
5023-2504	Hex driver SW-4 slitted	Tool for M4 fittings	1	ea
G7116-68004	Column Holder Clamp (2/pk) for Infinity II		6	ea
5043-0915	Fitting mounting tool		1	ea
5067-6654	Number Kit 1-8 colored		1	ea

Specifications

Table 2 G5640A (5320-0025), 6-position/14-port bio valve head 1300 bar

Type	Specification
Maximum pressure	1300 bar
Typical application	6-column selection
Port size	Accepts M4 male threaded fittings
Liquid contacts	PEEK, MP35N
pH range	0 – 14 ¹

¹ incompatible with some mineral acids. For more information see Solvent Information.

Install the Valve Heads

If ordered, the valve drives are factory-installed in the Multicolumn Thermostat. The valve heads are interchangeable and can be easily mounted.

At the first installation, the transportation lock and the dummy valve have to be removed, see “[Remove the Transportation Lock and the Valve Dummy](#)” on page 6. 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.

NOTE

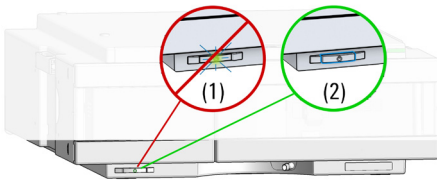
The valves are mounted on pull-out rails to allow easy installation of capillaries. Push the valve gently into its housing until it snaps into the inner position, push it again and it slides out.

Remove the Transportation Lock and the Valve Dummy

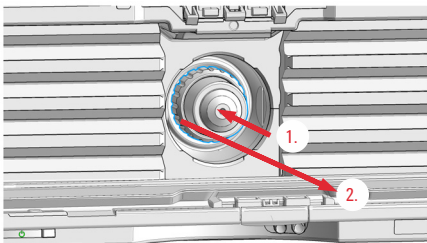
The following procedure demonstrates the necessary steps for installing the valve head to the valve drive of a Multicolumn Thermostat (MCT).

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

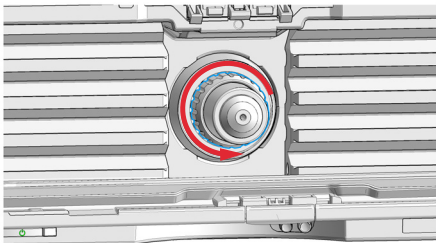
- 1 Switch off the module.



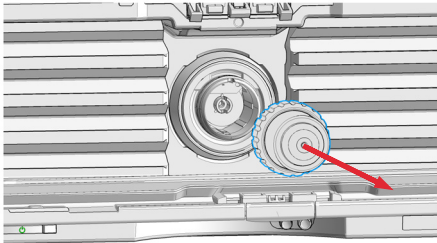
- 2 When unscrewing the transportation lock, push it back until the last screw is removed - the valve rail is spring-loaded.
- 3 Press on the valve dummy (1.) to release it (2.) (spring-loaded valve rail).



- 4 Unscrew the valve dummy.



- 5 Remove the valve dummy from the valve drive.



Install the Valve Head and Connect Capillaries



For 1290 Infinity II Bio LC modules, use bio / biocompatible parts only. Do not mix parts between 1260 Infinity II Bio-Inert LC modules and 1290 Infinity II Bio LC modules.

CAUTION

The valve actuator contains sensitive optical parts, which need to be protected from dust and other pollution. 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 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 applications, always use dedicated bio parts, which can be identified by the bio-inert symbol or other markers described in this manual.
- ✓ Do not mix bio, and non-bio modules or parts in a bio system.

NOTE

For a correct installation of the valve head, the outside pin (red) must completely fit into the outside groove on the valve drive's shaft (red). A correct installation is only possible if the two pins (green and blue) on the valve head fit into their corresponding grooves on the valve drive's actuator axis. Their match depends on the diameter of the pin and groove.

NOTE

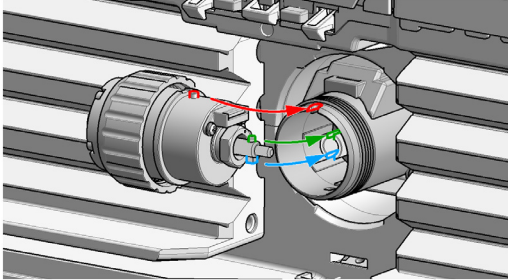
The tag reader reads the valve head properties from the valve head RFID tag during initialization of the module. Valve properties will not be updated, if the valve head is replaced while the module is on. Selection of valve port positions can fail, if the instrument does not know the properties of the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

NOTE

To allow correct valve identification, power off the valve drive for at least 10 s.

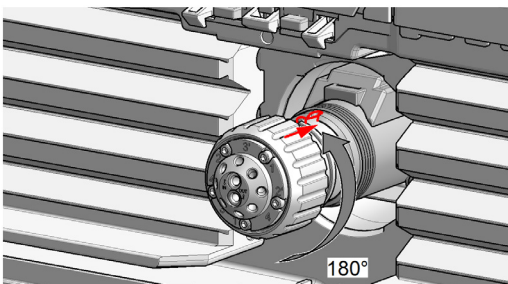
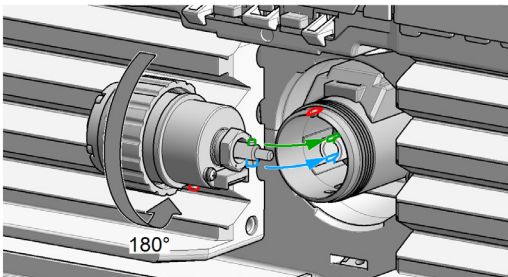
The following procedure shows the valve head installation with an G7116B (MCT) module as an example. For other modules it is similar.

- 1 Insert the valve head into the valve shaft.



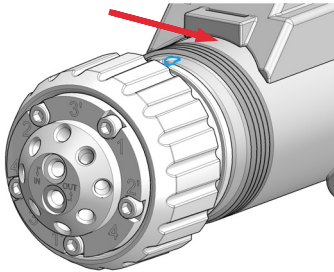
OR

If the outside pin does not fit into the outside groove, you have to turn the valve head until you feel that the two pins snap into the grooves. Now you should feel additional resistance from the valve drive while continuously turning the valve head until the pin fits into the groove.



Install the Valve Heads

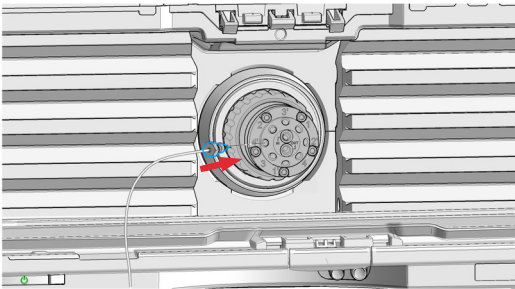
- When the outer pin is locked into the groove, manually screw the nut onto the valve head.



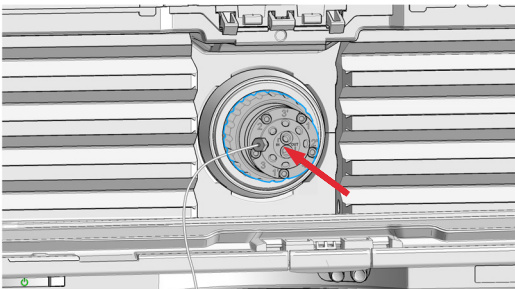
NOTE

Fasten the nut manually. Do not use any tools.

- Install all required capillary connections to the valve.



- Push the valve head until it snaps in and stays in the rear position.



- Power on or power-cycle your module, so the valve head gets recognized during module initialization.

Valve Parts

Replacement Parts

Table 3 Replacement parts

Valve	Rotor Seal	Stator Head	Stator Screws (pack of 10)	Bearing Ring
G5640A 5320-0025	5320-0029 (PEEK)	5320-0028	5068-0019	1535-4045

Valve Head Parts

NOTE

The figure below illustrates replacement parts for the valve heads, with the 12ps/13pt 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.

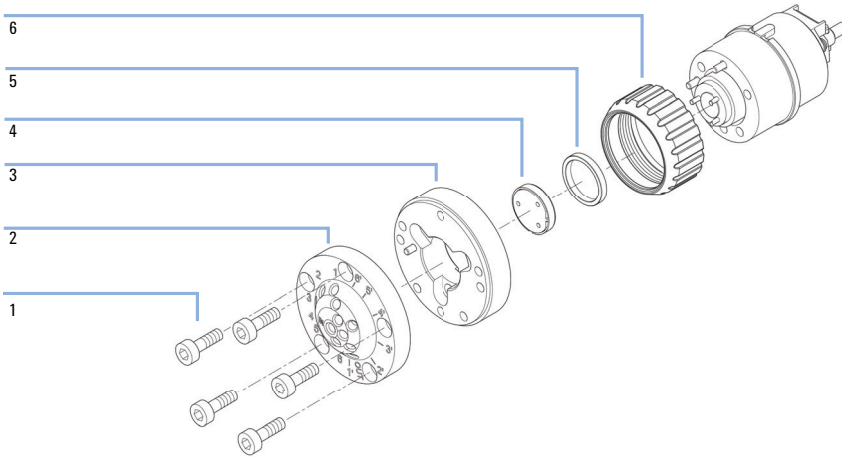


Figure 4 Valve Head Parts (example)

1	Stator screws
2	Stator head assembly
3	Stator ring (available for service only)
4	Rotor seal
5	Bearing ring
6	Spanner nut (available for service only)

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