Agilent G4239C Valve Kit - Instructions

Technical Information about the Agilent Valve Kit G4239C.

Contents

Typical Applications 2

Multicolumn Selection 2
Method Development 3

Delivery Checklist 4

Install the Valve Heads 5

Remove the Transportation Lock and the Valve Dummy 5
Install the Valve Head and Connect Capillaries 6

Install the Capillaries 8

Setup Examples 10

Valve Specifications 11

Valve Parts 11

Agilent Technologies

Typical Applications

Multicolumn Selection

Advantages

- Increase productivity
- Higher instrument up-time

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

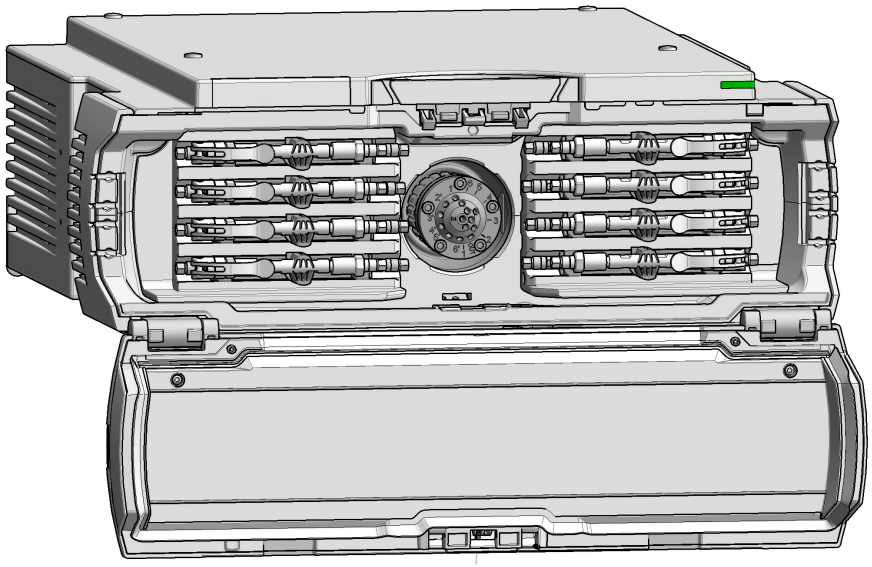


Figure 1 The G7116B 1290 Infinity II Series Multiple Column Thermostat equipped with an 8 Column Selector Valve

Method Development

Advantages:

- Faster method development
- Automated method development possible

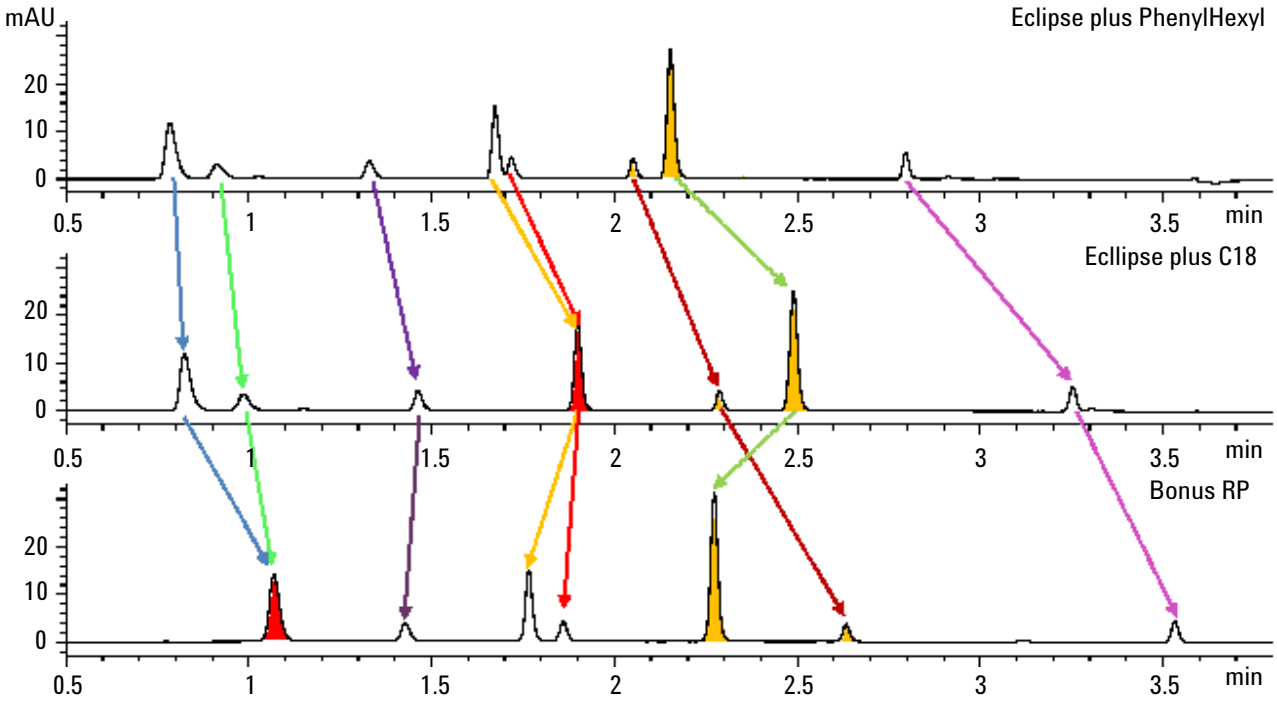


Figure 2 Totally different chromatographic results by using the same sample but three different stationary phases

Delivery Checklist

Delivery Checklist

p/n	Description
5067-4233	8 Column Selector, 1300 bar G4239C
5067-4248	Capillary Kit, 0.12 mm, 8-column sel. PCHex (OPTIONAL)

Capillary Kit (5067-4248)

#	p/n	Description
1	5500-1202	Capillary SST 0.12x500mm M4-SL PS-PS Autosampler to valve
8	5500-1199	Capillary SST 0.12x130mm M4-SL PS-PS Valve to heat exchanger
1	5500-1200	Capillary SST 0.12x130mm M4 PS-NS LS Column to valve
1	5063-6591	PEEK Fittings 10/PK Column outlet
8	5500-1201	Capillary SST 0.12x105mm SL-- PS-LS Heat exchanger (ps-SL) to column (long socket - use G1314-68703)
8	G1314-68703	Cap fitting kit special Column inlet connection fitting
1	5500-1203	Capillary SST 0.12x280mm M4-SL PS-PS Valve (ps-M4) to detector (ps-SL)
1	5500-1204	Capillary SST 0.12x150mm M4-M4 PS-PS Valve to valve (column bypass)
1	5023-2504	Hex driver SW-4 slitted Tool for M4 fittings
8	G7116-60015	Heat Exchanger Assembly 1.6 µL-Z Quick Connect Heatexchanger Standard Flow Low dispersion heat exchangers
1	G1375-87326	Waste tube Waste tube incl. M4 PEEK fitting
3	5067-6141	M4 Blank nut for plugging unused valve ports
8	G7116-68003	Column Holder Clips (2/Pk) for G7116B

Capillary & Fitting Information

- M4 = fitting thread size for micro valve ports
- PS = pre-swaged fitting
- NS = non-swaged fitting
- SL = fitting screw long
- LS = long capillary socket (required for special fittings as the A-Line Quick Turn Fittings)

Install the Valve Heads

NOTE Following procedures may show the 1290 Infinity TCC. The MCT uses the same valve heads, the valve head installation is the same.

The valve drives are factory-installed in the 1290 Infinity II 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 5. 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.

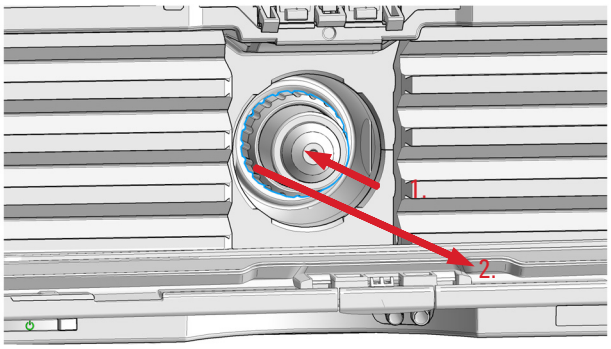
NOTE The valves are mounted on pull-out rails to allow easy installation of capillaries. Push the valve gently into its housing until it snaps into the inner position, push it again and it slides out.

When all capillaries are installed, push the valve back into its housing, see "Install the Valve Head and Connect Capillaries" on page 6.

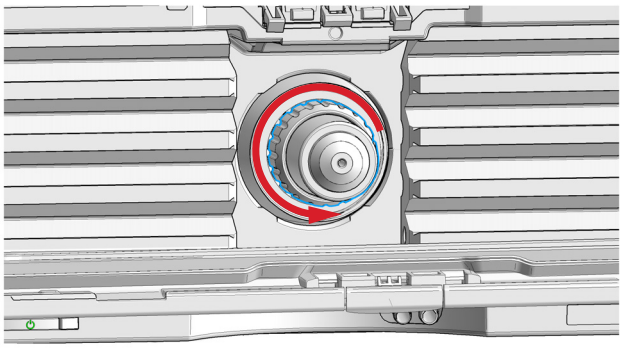
Remove the Transportation Lock and the Valve Dummy

1 When unscrewing the transportation lock, push it back until the last screw is removed - the valve rail is spring-loaded.

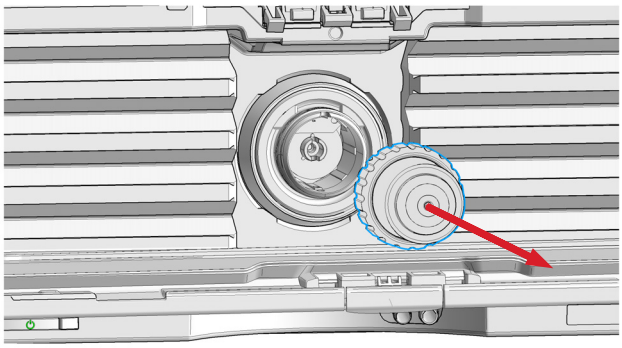
2 Press on the valve dummy to release it (spring-loaded valve rail).



3



4



Install the Valve Head and Connect Capillaries

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 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

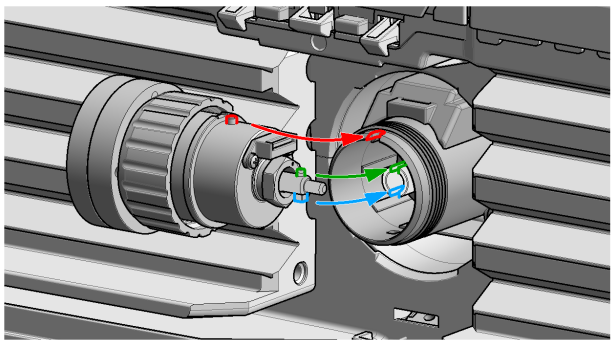
Using a low pressure valve on the high pressure side can damage the valve.

➔ 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.

NOTE

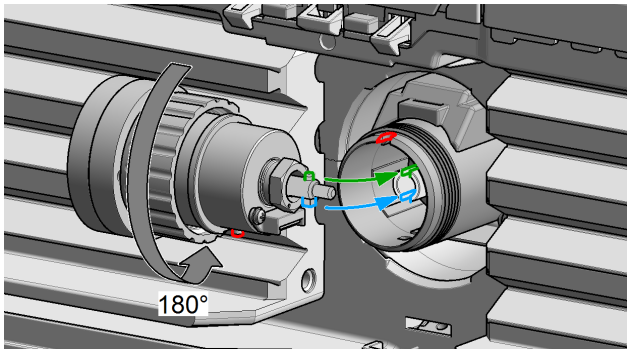
For a correct installation of the valve head, the outside pin (red) must completely fit into the outside groove on the valve drive's shaft (red). A correct installation is only possible if the two pins (green and blue) on the valve head fit into their corresponding grooves on the valve drive's actuator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

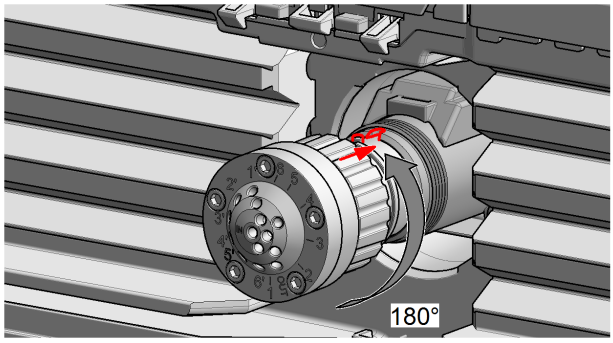
1 Insert the valve head into the valve shaft.



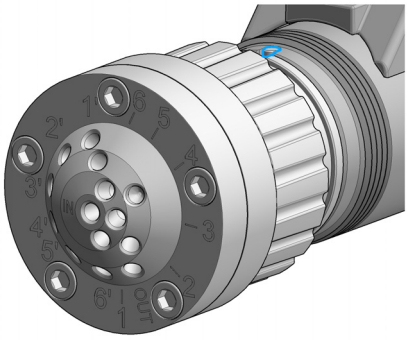
OR

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 continue turning the valve head until the pin fits into the groove.





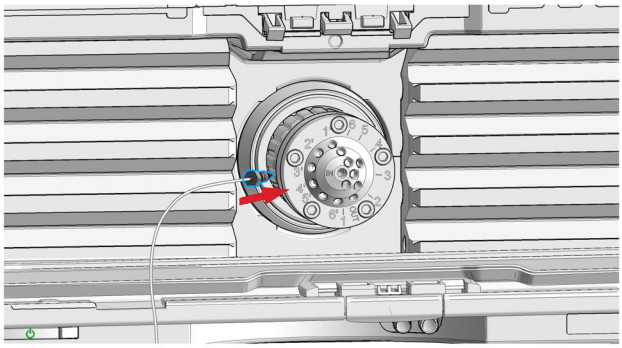
2 When the outer pin is locked into the groove, manually screw the nut onto the valve head.



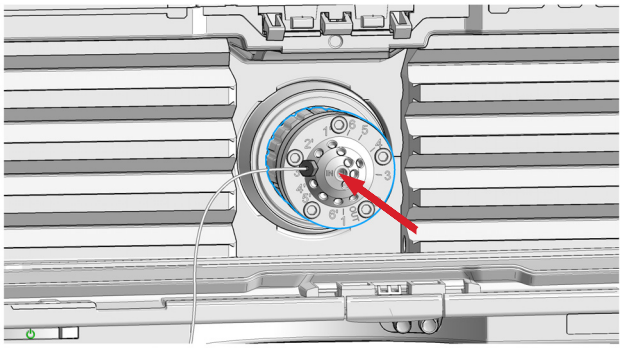
NOTE

Fasten the nut manually. Do not use any tools.

3 Install all required capillary connections to the valve.



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



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

Install the Capillaries

CAUTION

Damage to the rotor seal

Instant pressure release within the valve will lead to water jet effects that can harm internal parts of the valve. This pressure release typically happens if the valve gets switched under high pressure over unused or open channels.

➔ Block all unused channels properly with the M4 blank nut.

NOTE

To minimize valve movement over open connections it is recommended to plumb the column connected channels in one row.

e.g.:

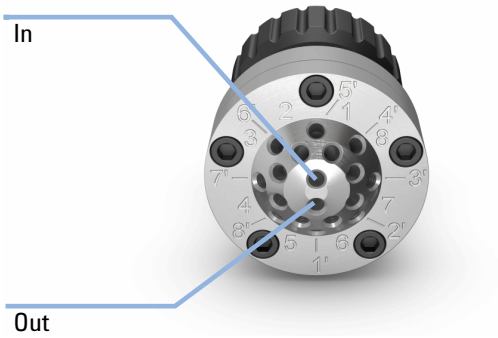
- channel 1 – column 1
- channel 2 – column 2
- channel 3 – column 3
- channel 4 – column 4
- channel 5 – blocked
- channel 6 – blocked
- channel 7 – waste
- channel 8 – bypass

NOTE

The blank nuts are only required for the ports on the inner circle that connect the valve with the column inlet.

1 Install the in and out connectors.

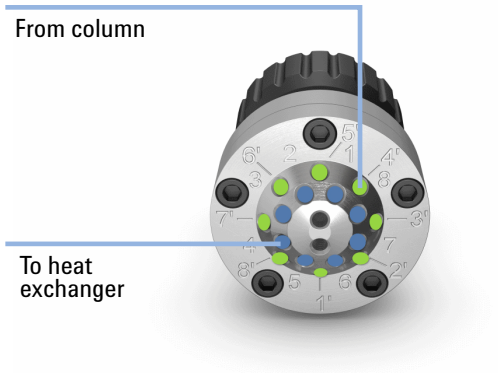
- from sampler to the valve (Capillary SST 0.12x500mm M4-SL PS-PS (5500-1202))
- from valve to the detector (Capillary SST 0.12x280mm M4-SL PS-PS (5500-1203))



The *In* port is hydraulically connected to the column inlet ports 1-8 on the inner ring while the *Out* port connects to the column outlet ports 1`-8` on the outer ring.

2 Install the column inlet and outlet connections.

	ports 1-8 for connections from valve to the heat exchanger (Capillary SST 0.12x130mm M4-SL PS-PS (5500-1199)) or waste line (Waste tube (G1375-87326))
	ports 1`-8` for connections from column outlet to valve (Capillary SST 0.12x130mm M4-SL PS-NS LS (5500-1200)), use fingertight PEEK fittings for connecting the column outlet



Setup Examples

1 8 Column-selection

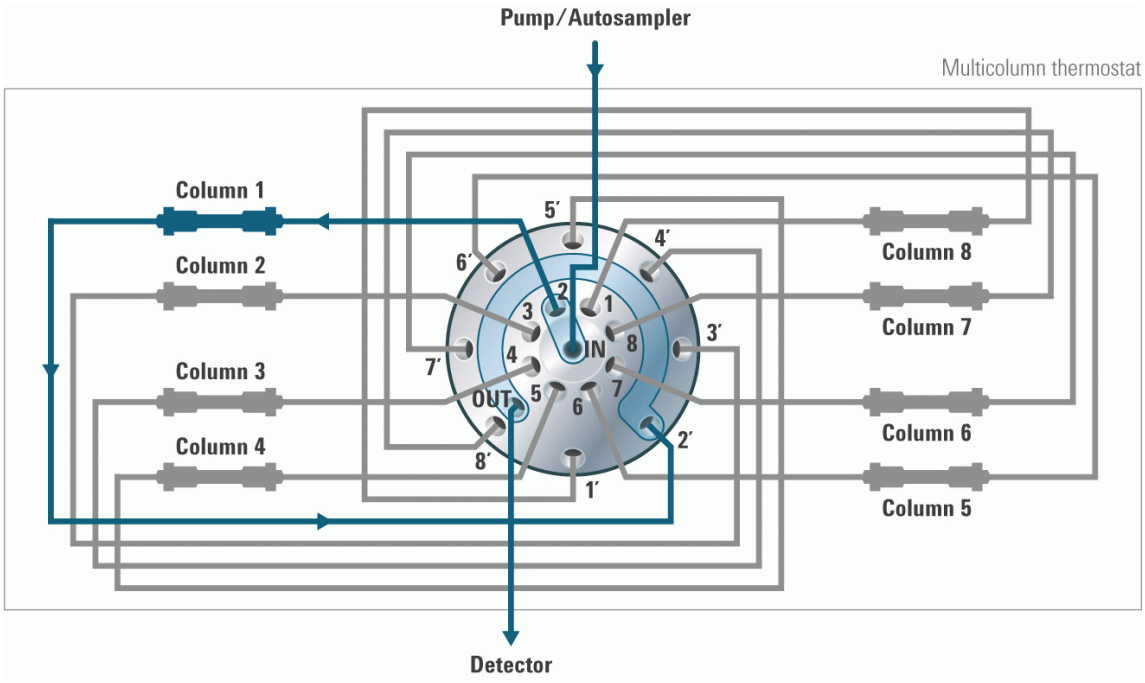


Figure 3 Hydraulic flow path schematics for an 8-column selection setup

2 Six column selection with purge line and valve- bypass

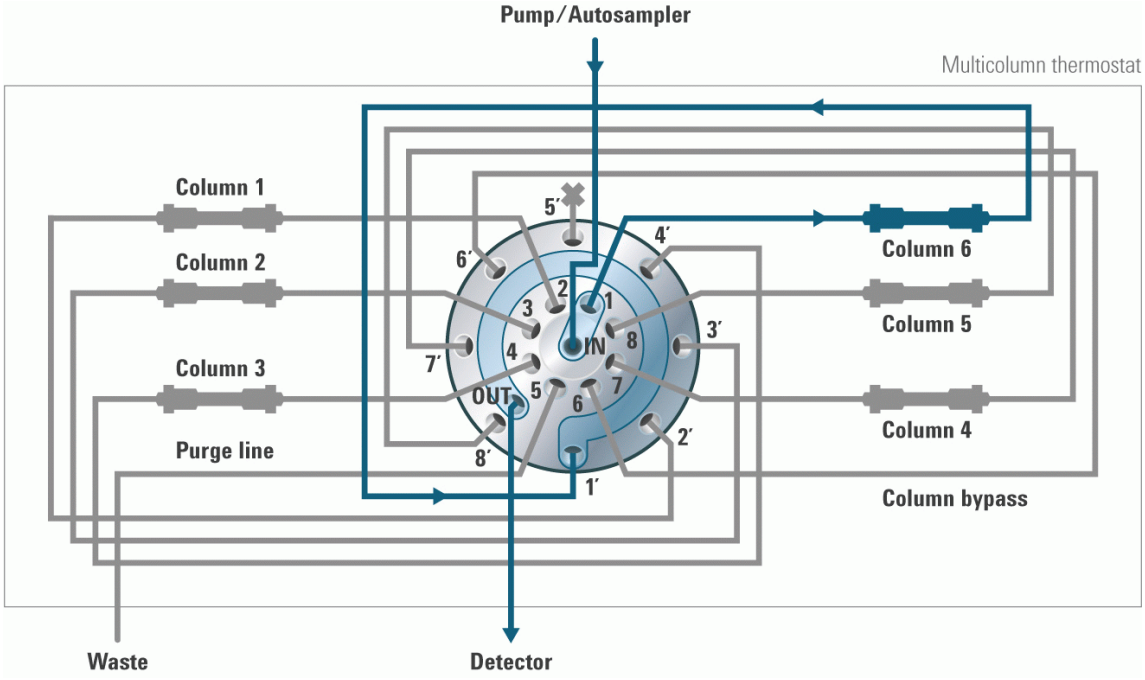


Figure 4 Hydraulic flow path schematics for 6-column selection setup with purge and valve bypass line.

Valve Specifications

Table 1 G4239C, 8-column selector valve kit, 1300 bar

Type	Specification
Liquid contacts	PEEK, Stainless Steel
Port size	Accepts M4 male threaded fittings
Flow passage diameters	Stator: 0.25 mm (0.010 in) Rotor Seal: 0.30 mm (0.012 in)
Port to Port Volume	1.46 µL Pre-column (inlet side of the valve) 1.52 µL Post-column (outlet side of the valve)
Maximum pressure	1300 bar
Comments	Kit contains 1x 8 Column Selector Valve Head and capillary kit

Valve Parts

Valve	Rotor Seal	Stator Head	Bearing Ring	Stator Screws (Pack of 10)	Stator Ring
8 Pos/18 Port, 1300 bar	Rotor Seal (PEEK) (5068-0200)	Stator Head (5068-0199)	Isolation seal (1535-4045)	Stator screws (5068-0089)	Stator ring (5068-0120)

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.

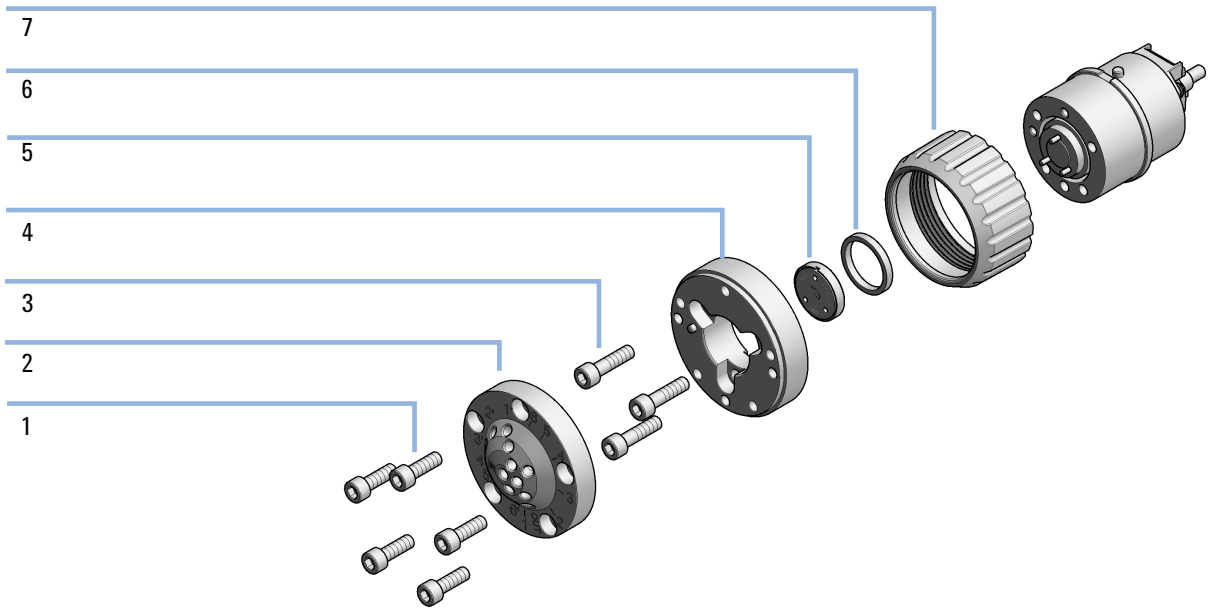


Figure 5 Valve Head Parts (example)

1	Stator screws
2	Stator head assembly
3	Stator ring screws (not available)
4	Stator ring (available for service only)
5	Rotor seal
6	Bearing ring
7	Spanner nut (available for service only)

G4239-90001

Part Number: G4239- 90001

Edition: 05/2015
Printed in Germany

Agilent Technologies, Inc
Hewlett-Packard-Strasse 8
76337 Waldbronn
Germany