

# **Agilent 1290 Infinity Pump Head Maintenance**

**Technical Note**



**Agilent Technologies**

# Notices

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## Introduction

This technical note describes the pump head maintenance for the following pumps:

- 1290 Infinity Binary Pump G4220A/B
- 1290 Infinity Quaternary Pump G4204A
- 1290 Infinity II High Speed Pump G7120A
- 1290 Infinity II Flexible Pump G7104A

Agilent recommends using refurbished pump heads for maintenance and repair instead of disassembling pump heads. Such pump heads are available through Agilent service.

Please carefully follow all instructions step by step and use recommended tools like the pump head alignment tool and a torque wrench. Any deviation from these procedures may damage pump heads or may significantly reduce the life time of the pump heads.

The 1290 Infinity pump service kit (5067-4699) includes all tools required for the procedures described in the technical note.

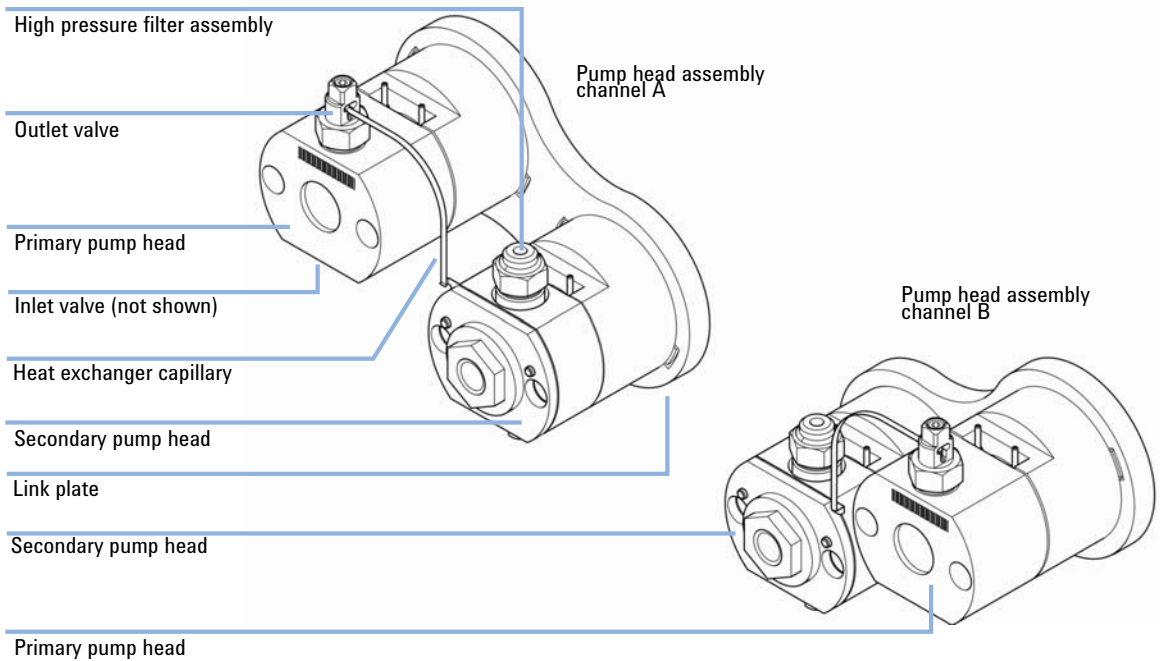
# Overview of Pump Head Assemblies

**Table 1** Overview of pump head assemblies

<b>Pump</b>	<b>Pump Head Assembly</b>	<b>Seal Wash Function</b>
G4220A/B	Channel A: G4220-60200 Channel B: G4220-60210	Yes
	Channel A: G4220-60400 Channel B: G4220-60410	No
G4204A	G4204-60200	Yes
	G4204-60400	No
G7120A	Channel A: G4220-60900 Channel B: G4220-60910	Yes
G7104A	G4204-60600	Yes

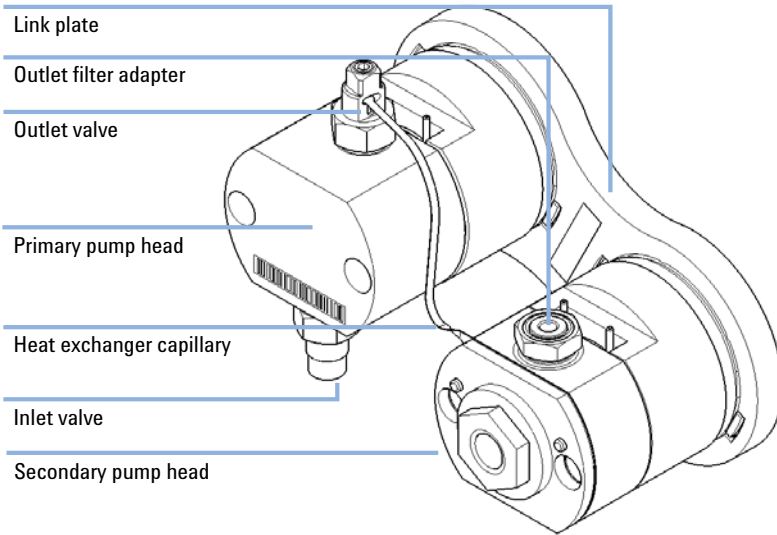
# Overview of Maintenance Parts

## General



**Figure 1** Pump heads channel A and B (Binary Pump, High Speed Pump)





**Figure 2** Pump head (Quaternary Pump, Flexible Pump)

## Maintenance Parts for Binary Pumps and High Speed Pumps

<b>p/n</b>	<b>Description</b>
G4220-68741	1290 Binary Pump PM kit includes seal cap assemblies, PE piston seals and PTFE frits
G4220-68742	Seal Wash PM kit for 1290 Binary Pumps includes film washers, PE wash seals and a Peristaltic pump

For a detailed overview of the internal pump head parts see sections below.

## Maintenance Parts for Quaternary Pumps and Flexible Pumps

<b>p/n</b>	<b>Description</b>
G4204-68741	1290 Quaternary Pump PM kit includes seal cap assemblies, PE piston seals and filter frits
G4204-68742	Seal Wash PM kit for 1290 Quaternary Pumps includes film washers, PE wash seals and a Peristaltic pump

For a detailed overview of the internal pump head parts see sections below.



## 2 Pump Head Maintenance (Binary and High Speed Pumps)

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## 2 Pump Head Maintenance (Binary and High Speed Pumps)

### Disassembling the Pump Head

# Disassembling the Pump Head

**When** If parts inside the pump head need to be replaced

<b>Tools required</b>	<b>p/n</b>	<b>Description</b>
	G4220-20012	Torque wrench 2 – 25 Nm
	G4220-20013	4 mm hex bit
	G4220-20014	2.5 mm Hex Bit
	G4220-20015	Adapter ¼ in square to hex
	8710-0510	Wrench open 1/4 — 5/16 inch

### CAUTION

Damage of the pump piston

Removing pump heads in a position other than the maintenance position can damage the pump piston.

→ Before switching off the pump, bring it to the maintenance position.

### CAUTION

Damage of pump drives

The pump drive can be damaged if the pump initializes after switching it on without having the pump head installed properly.

→ Use the Lab Advisor maintenance procedure for replacing pump heads.

→ Install the pump head correctly before switching on the pump.

### NOTE

This procedure shows how to remove a pump head assembly from an Infinity I Binary Pump module (G4220A/B).

Removing pump head assemblies from an Infinity II High Speed Pump (G7120A) will be done in the same way.

### NOTE

This procedure describes how to remove the pump head assembly of channel A. The same steps apply for channel B.

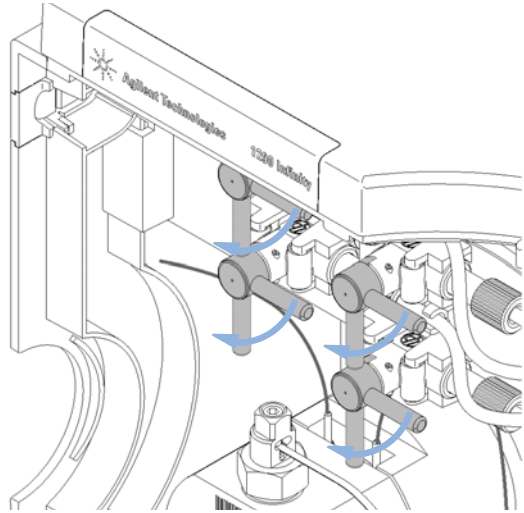
The primary pump head does not have a heat exchanger. Seal wash parts are optional for both pump heads (G4220A/B only).

## Pump Head Maintenance (Binary and High Speed Pumps) 2

### Disassembling the Pump Head

**1** In Lab Advisor go to **Service & Diagnostics > Remove/Install Pump Head** and follow instructions given on the screen.

**2** Close the shut-off valve of the respective pump channel.

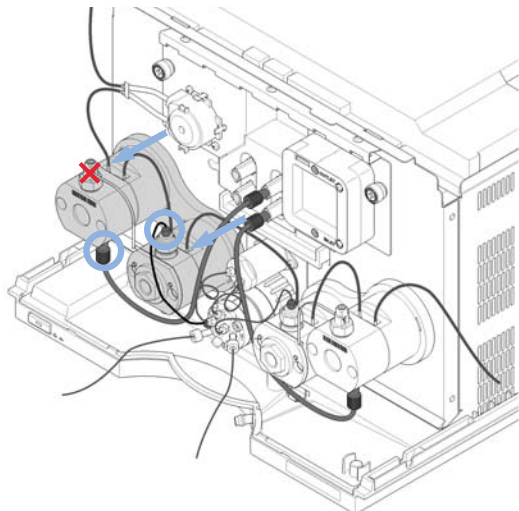


## 2 Pump Head Maintenance (Binary and High Speed Pumps)

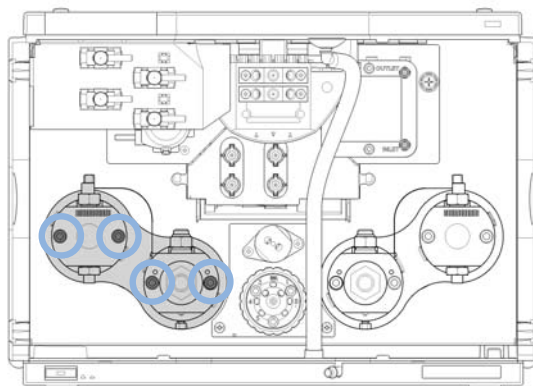
### Disassembling the Pump Head

- 3** Remove the flow connection between the degassing unit and the primary pump head inlet. Remove the capillary connection at the top of the secondary pump head to the pump valve. If installed, remove the tubings of the seal wash option.

**DO NOT REMOVE** the capillary connection between the pump heads marked by the red X.



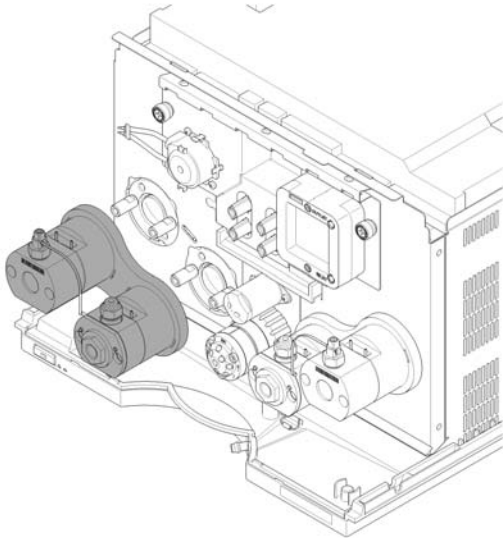
- 4** Open the 4 screws holding the pump heads.



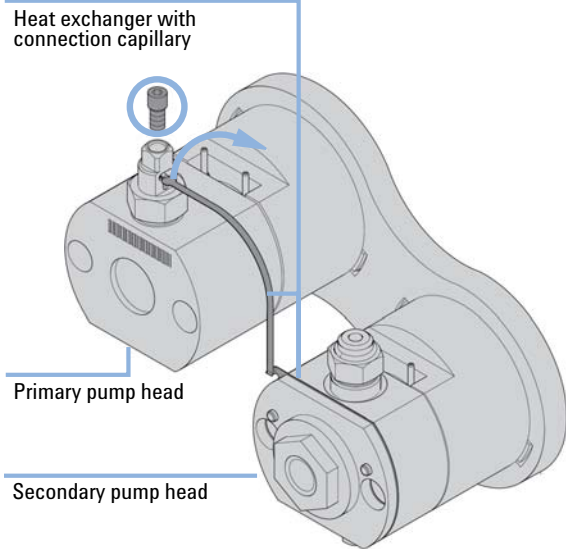
#### NOTE

Open all screws step by step, not screw by screw.

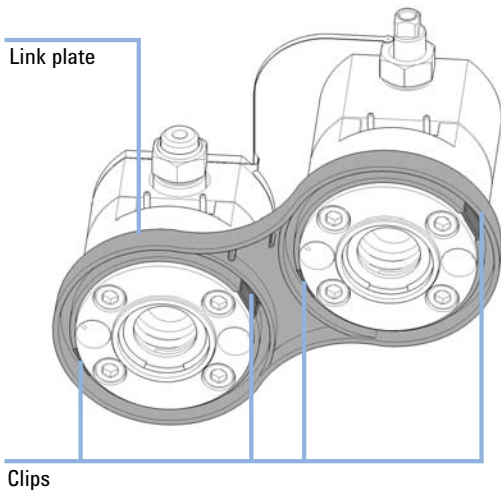
**5** Remove the complete pump head assembly by holding it with both hands and pulling it to the front.



**6** Open the 2.5 mm hex screw at the top of the primary pump head, which fixes the connection capillary of the heat exchanger. Then lift up the capillary and remove it from the primary pump head.

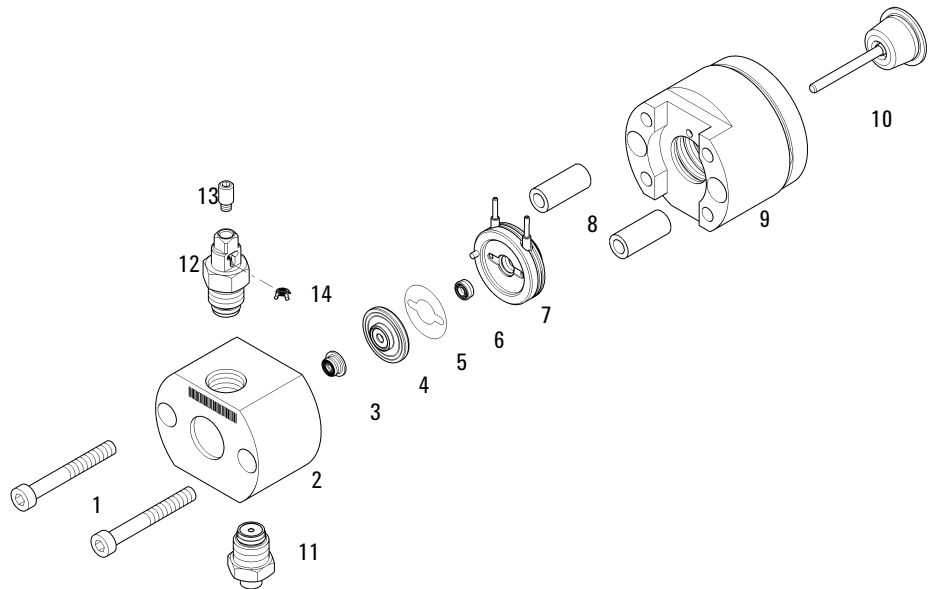


**7** Remove both pump heads from the link plate by pushing the clips at the rear of the plate.



## Primary Pump Head

### Primary Pump Head with Seal Wash (Binary Pump)



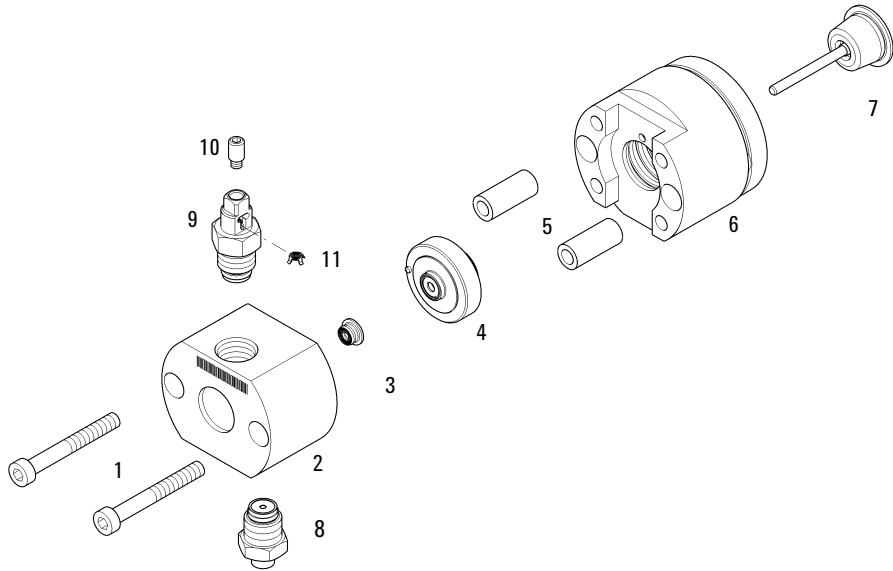
**Figure 3** Primary pump head (Binary Pump) with seal wash



<b>Item</b>	<b>p/n</b>	<b>Description</b>
1	0515-1218	Screw M5, 40 mm long
2		Pump Chamber Housing (order pump head)
3	0905-1719	PE Seal
4	G4220-60016	Seal holder including backup ring
5	5062-2484	Gasket, seal wash (pack of 6)
6	0905-1718	Wash Seal PE
7	G4220-63010	Support Ring (Seal Wash)
8		Pump Head Ferrules (order pump head)
9		Piston Housing (order pump head)
10	5067-5678	Piston ceramic 100 $\mu$ L
11	G4220-60022	Inlet valve (primary pump head)
12	G4220-60028	Outlet valve (primary pump head)
13	G4220-20028	Headless screw for 1290 Infinity pump heads
14	G4220-20020	Internal gold seal for Outlet Valve

**2 Pump Head Maintenance (Binary and High Speed Pumps)**  
Primary Pump Head

**Primary Pump Head Without Seal Wash (Binary Pump)**

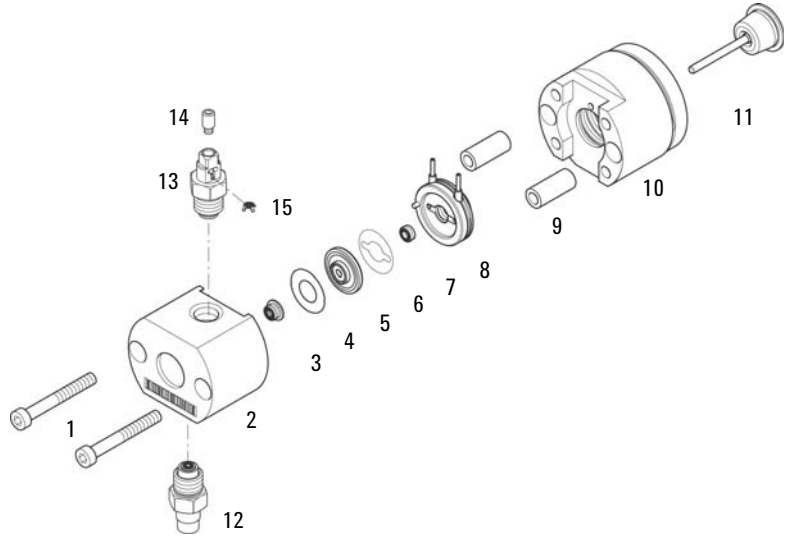


**Figure 4** Primary pump head (Binary Pump) without seal wash

<b>Item</b>	<b>p/n</b>	<b>Description</b>
1	0515-1218	Screw M5, 40 mm long
2		Pump Chamber Housing (order pump head)
3	0905-1719	PE Seal
4	G4220-60015	Support ring including backup ring
5		Pump Head Ferrules (order pump head)
6		Piston Housing (order pump head)
7	5067-5678	Piston ceramic 100 $\mu$ L
8	G4220-60022	Inlet valve (primary pump head)
9	G4220-60028	Outlet valve (primary pump head)
10	G4220-20028	Headless screw for 1290 Infinity pump heads
11	G4220-20020	Internal gold seal for Outlet Valve

**2 Pump Head Maintenance (Binary and High Speed Pumps)**  
Primary Pump Head

**Primary Pump Head with Seal Wash (High Speed Pump)**



**Figure 5** Primary pump head parts

Primary Pump Head G4220-60060

Item	p/n	Description
1	0515-1218	Screw M5, 40 mm long
2	G4204-60033	PH Body prim
3	0905-1719	PE Seal
4	5023-2513	Distance sheet
5	G4220-60016	Seal holder including backup ring
6	01018-07102	Gasket (Seal wash)
7	0905-1718	Backup Seal PE (Seal Wash)
8	G4220-63010	Support Ring (Seal Wash)
9	G4220-23705	Bracket
10	G4220-60000	Preload Assy
11	5067-5938	Plunger
12	G4220-60022	Inlet valve (primary pump head)
13	G4220-60028	Outlet valve (primary pump head)
14	G4220-20028	Headless screw for 1290 Infinity pump heads
15	G4220-20020	Internal gold seal for Outlet Valve

## 2 Pump Head Maintenance (Binary and High Speed Pumps)

### Primary Pump Head

# Disassembling the Primary Pump Head

Tools required	p/n	Description
	8710-0510	Wrench open 1/4 — 5/16 inch
	G4220-20012	Torque wrench 2 – 25 Nm
	G4220-20013	4 mm hex bit
	01018-23702	Insert tool

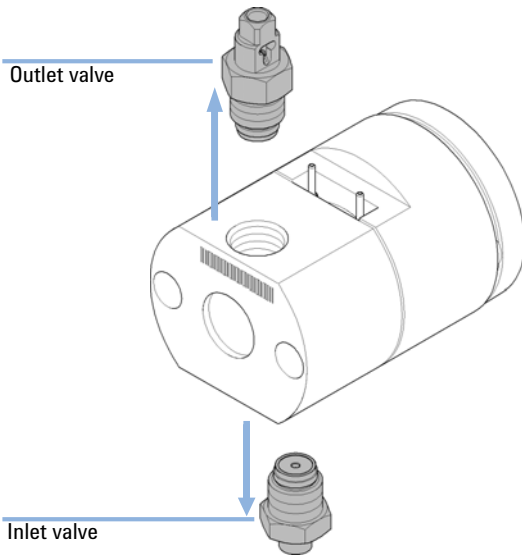
### CAUTION

#### Damage of pump piston

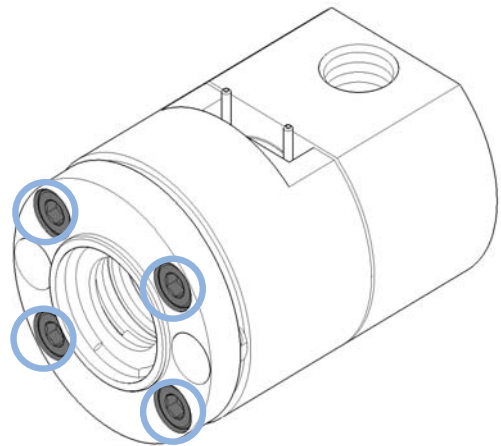
The pump piston is made of ZrO<sub>2</sub>-based ceramic, which is a very hard and resistant material, but it is sensitive to shearing forces from the side.

- Do not try to remove the pump piston from the rear.
- Do not use the piston for removing pump seals.

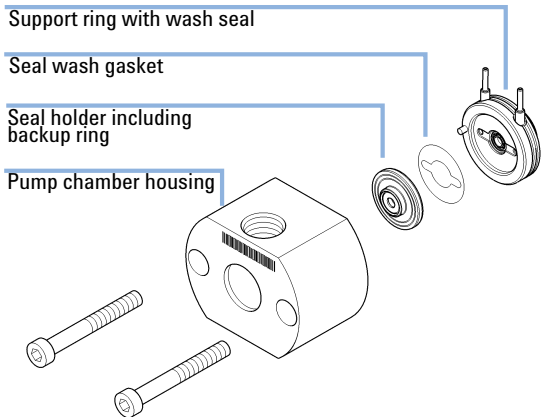
**1** Remove the outlet valve at the top of the pump head and the inlet valve at the bottom of the pump head.



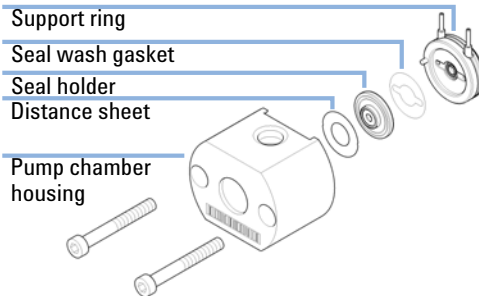
**2** For disassembling the pump head, remove the 4 hex screws at the rear of the pump head.



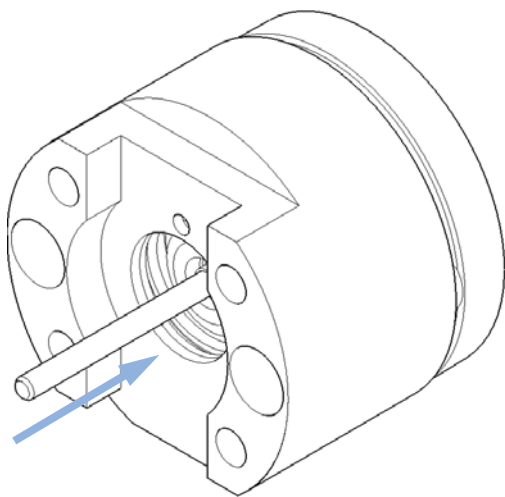
**3 G4220A/B:** Remove the front part of the pump head including pump chamber housing with pump seal and seal holder. If the seal wash option is installed, also remove the support ring with wash seal and gasket.



**4 G7120A, G7104A:** Remove the front part of the pump head including pump chamber housing with pump seal, distance sheet, support ring, seal holder including backup ring, and the gasket.



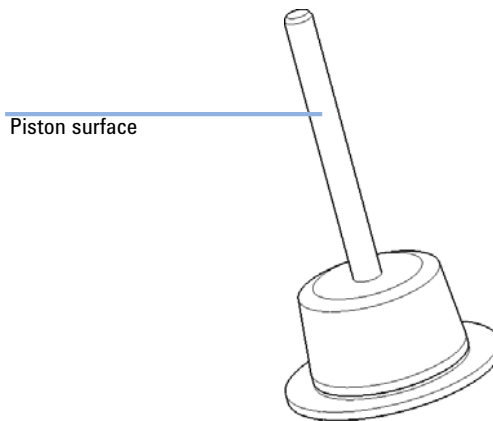
**5** Remove the piston from the piston housing by pushing it to the rear, then pull it out from the rear.



**6** Check the pump pistons for scratches, grooves, and dents.

**NOTE**

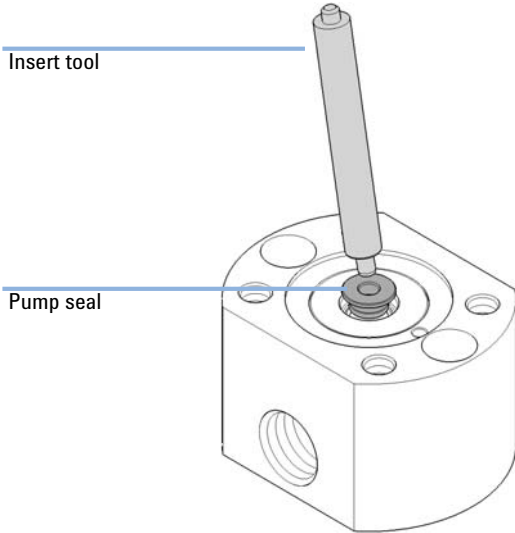
Damaged pistons cause micro leaks and will decrease the lifetime of the seals.



## 2 Pump Head Maintenance (Binary and High Speed Pumps)

### Primary Pump Head

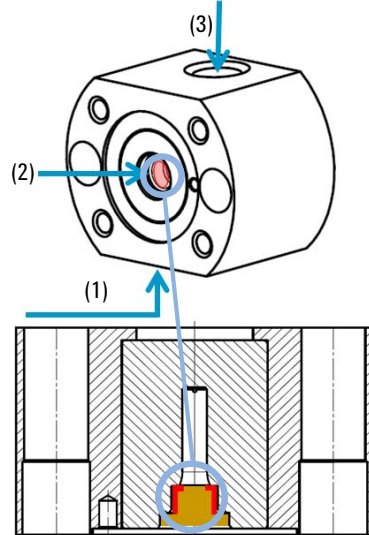
- 7 Use the steel side of the insert tool for removing the pump seal from the pump chamber housing.



#### NOTE

Do not use the pump piston for that purpose, as this can break it!

- 8 To flush out particles from the pump head, use pressurized air ((1), (2) and (3)).



#### NOTE

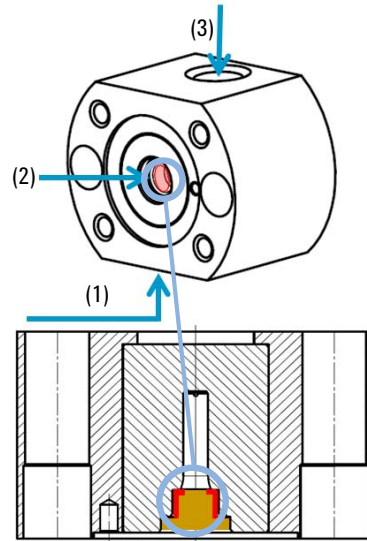
Pump head parts in contact with the piston seal need to be cleaned properly in order to get a smooth surface and a tight connection.



**9** To remove wear, use isopropanol.

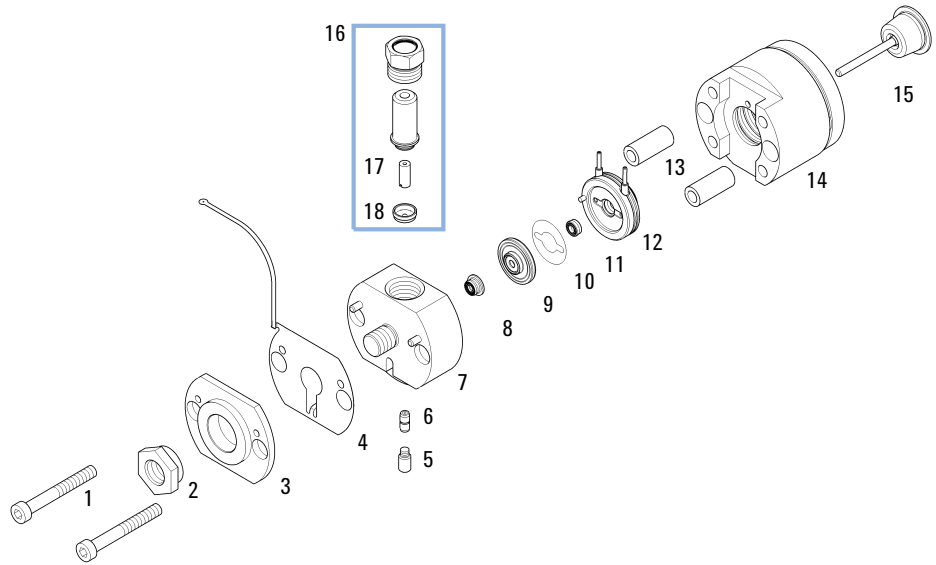
**10** To clean the piston and the pump head surface, use the ultra fine abrasive mesh (p/n 8660-0852).

**11** To dry the pump head and to remove residues, use pressurized air ((1), (2) and (3)).



## Secondary Pump Head

### Secondary Pump Head With Seal Wash (Binary Pump)

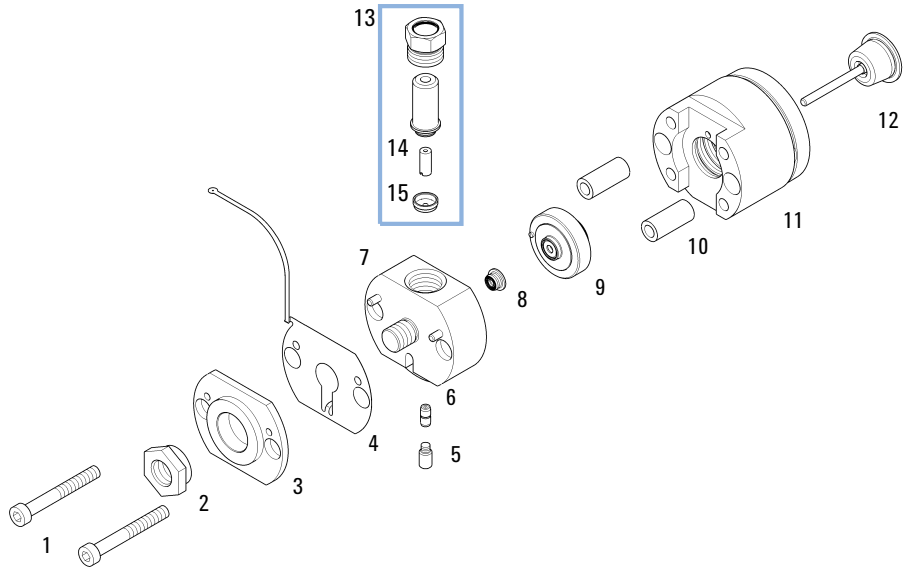


**Figure 6** Secondary pump head (Binary Pump) with seal wash

<b>Item</b>	<b>#</b>	<b>p/n</b>	<b>Description</b>
1	1	0515-1218	Screw M5, 40 mm long
2	1	G4220-20003	Pump Head Screw
3	1		Pump Head Front Plate (order pump head)
4	1	G4220-81013	Heat Exchanger Channel A (secondary pump head only)
	1	G4220-81012	Heat Exchanger Channel B (secondary pump head only)
5	1	G4220-20028	Headless screw for 1290 Infinity pump heads
6	1	G4220-20001	Spacer Fitting
7	1		Pump Chamber Housing (order pump head)
8	1	0905-1719	PE Seal
9	1	G4220-60016	Seal holder including backup ring
10	1	5062-2484	Gasket, seal wash (pack of 6)
11	1	0905-1718	Wash Seal PE
12	1	G4220-63010	Support Ring (Seal Wash)
13	2		Pump Head Ferrules (order pump head)
14	1		Piston Housing (order pump head)
15	1	5067-5678	Piston ceramic 100 µL
16	1	G4280-60026	High Pressure Filter Assembly (secondary pump head)
17	1	01018-22707	PTFE frits (pack of 5)
18	1	5067-4728	Seal cap

**2 Pump Head Maintenance (Binary and High Speed Pumps)**  
Secondary Pump Head

**Secondary Pump Head Without Seal Wash (Binary Pump)**

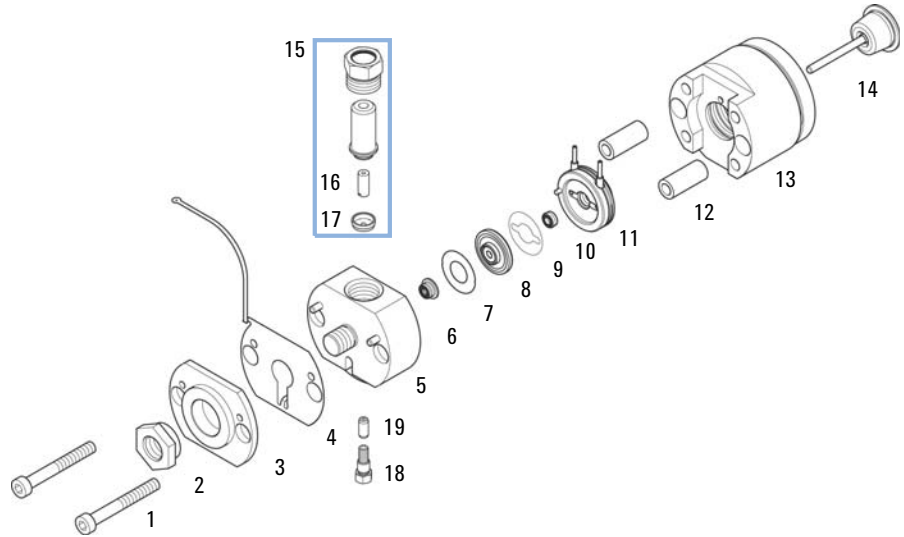


**Figure 7** Secondary pump head (Binary Pump) without seal wash

<b>Item</b>	<b>#</b>	<b>p/n</b>	<b>Description</b>
1	1	0515-1218	Screw M5, 40 mm long
2	1	G4220-20003	Pump Head Screw
3	1		Pump Head Front Plate (order pump head)
4	1	G4220-81013	Heat Exchanger Channel A (secondary pump head only)
	1	G4220-81012	Heat Exchanger Channel B (secondary pump head only)
5	1	G4220-20028	Headless screw for 1290 Infinity pump heads
6	1	G4220-20001	Spacer Fitting
7	1		Pump Chamber Housing (order pump head)
8	1	0905-1719	PE Seal
9	1	G4220-60015	Support ring including backup ring
10	2		Pump Head Ferrules (order pump head)
11	1		Piston Housing (order pump head)
12	1	5067-5678	Piston ceramic 100 µL
13	1	G4280-60026	High Pressure Filter Assembly (secondary pump head)
14	1	01018-22707	PTFE frits (pack of 5)
15	1	5067-4728	Seal cap

**2 Pump Head Maintenance (Binary and High Speed Pumps)**  
Secondary Pump Head

**Secondary Pump Head With Seal Wash (High Speed Pump)**



**Figure 8** Secondary pump head parts

Secondary Pump Head G4220-60061

<b>Item</b>	<b>p/n</b>	<b>Description</b>
1	0515-1218	Screw M5, 40 mm long
2	G4220-20003	Pump Head Screw
3	G4220-20000	LID
4	G4220-81013	Heat Exchanger Channel A (secondary pump head only)
	G4220-81012	Heat Exchanger Channel B (secondary pump head only) (not shown)
5	G2404-25213	PH Body sec
6	0905-1719	PE Seal
7	5023-2513	Distance sheet
8	G4220-60016	Seal holder including backup ring
9	01018-07102	Gasket (Seal wash)
10	0905-1718	Backup Seal PE (Seal Wash)
11	G4220-63010	Support Ring (Seal Wash)
12	G4220-23705	Bracket
13	G4220-60000	Preload Assy
14	5067-5938	Plunger
15	G4280-60026	High Pressure Filter Assembly (secondary pump head)
16	01018-22707	PTFE frits (pack of 5)
17	5067-4728	Seal cap
18	G4220-20028	Headless screw for 1290 Infinity pump heads
19	G4220-20001	Spacer Fitting

## 2 Pump Head Maintenance (Binary and High Speed Pumps)

### Secondary Pump Head

# Disassembling the Secondary Pump Head

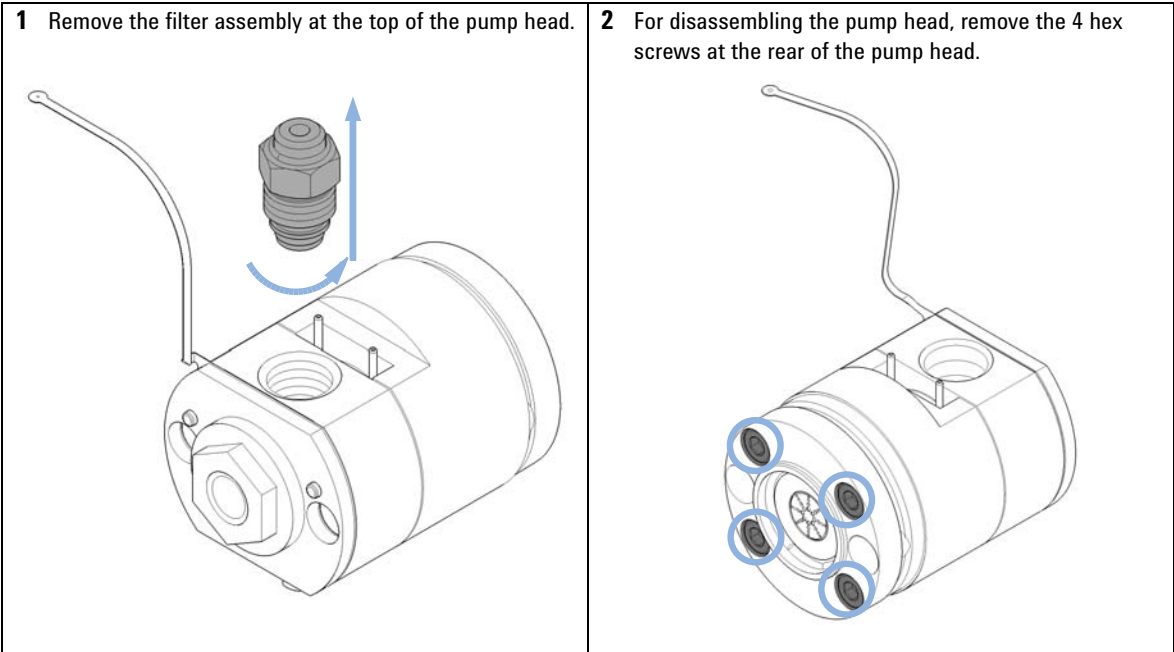
Tools required	p/n	Description
	8710-0510	Wrench open 1/4 — 5/16 inch
	G4220-20012	Torque wrench 2 – 25 Nm
	G4220-20013	4 mm hex bit
	01018-23702	Insert tool

### CAUTION

Damage of pump piston

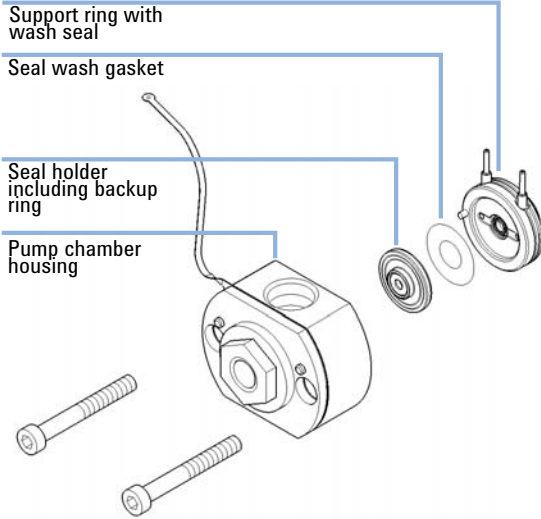
The pump piston is made of ZrO<sub>2</sub>-based ceramic, which is a very hard and resistant material, but it is sensitive to shearing forces from the side.

- Do not try to remove the pump piston from the rear.
- Do not use the piston for removing pump seals.

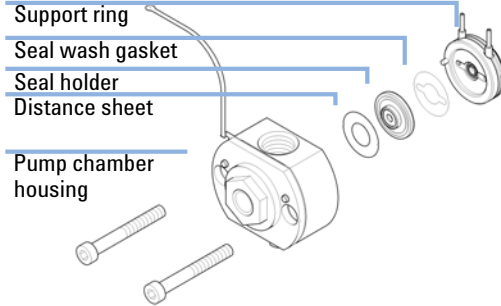




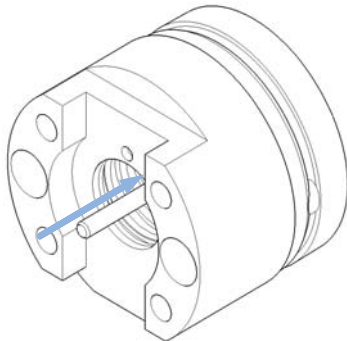
**3 G4220A/B:** Remove the front part of the pump head including pump chamber housing with pump seal and seal holder. If the seal wash option is installed, also remove the support ring with wash seal and gasket.



**4 G7120A, G7104A:** Remove the front part of the pump head including pump chamber housing, distance sheet, pump seal and seal holder, and support ring with wash seal and gasket.



**5** Remove the piston from the piston housing by pushing it to the rear, then pull it out from the rear.

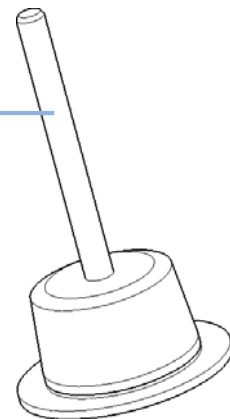


**6** Check the pump pistons for scratches, grooves, and dents.

**NOTE**

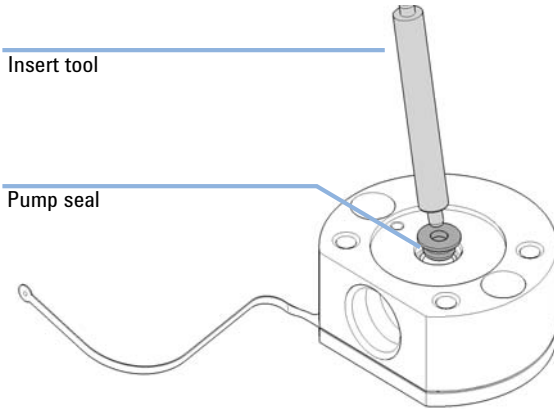
Damaged pistons cause micro leaks and will decrease the lifetime of the seals.

Piston surface



## 2 Pump Head Maintenance (Binary and High Speed Pumps) Secondary Pump Head

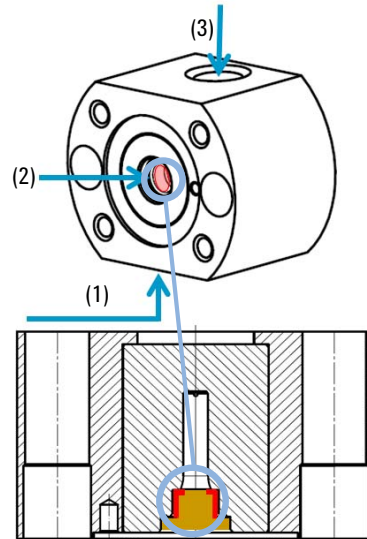
- 7 Use the steel side of the insert tool for removing the pump seal from the pump chamber housing.



### NOTE

Do not use the pump piston for that purpose, as this can break it!

- 8 To flush out particles from the pump head, use pressurized air ((1), (2) and (3)).



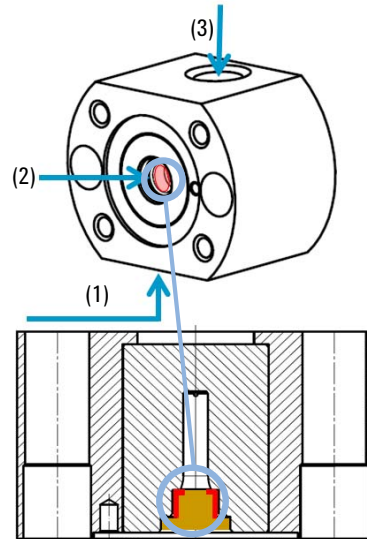
### NOTE

Pump head parts in contact with the piston seal need to be cleaned properly in order to get a smooth surface and a tight connection.

**9** To remove wear, use isopropanol.

**10** To clean the piston and the pump head surface, use the ultra fine abrasive mesh (p/n 8660-0852).

**11** To dry the pump head and to remove residues, use pressurized air ((1), (2) and (3)).



## 2 Pump Head Maintenance (Binary and High Speed Pumps)

### Secondary Pump Head

# Replacing the Heat Exchanger

Tools required	p/n	Description
		Wrench, 19 mm
	5023-2501	Screwdriver Torx-T10
	5067-5688	Torque wrench 1 – 25 Nm with 14 mm wrench
	G4220-20013	4 mm hex bit
	G4220-20015	Adapter ¼ in square to hex
	G4220-20041	Bit Torx 10x25 mm

Parts required	#	p/n	Description
	1	G4220-81013	Heat Exchanger Channel A (secondary pump head only)
OR	1	G4220-81012	Heat Exchanger Channel B (secondary pump head only)

Preparations	
	<ul style="list-style-type: none"><li>• Remove the pump head assembly from the pump</li><li>• Remove the secondary pump head from the link plate</li></ul>

### CAUTION

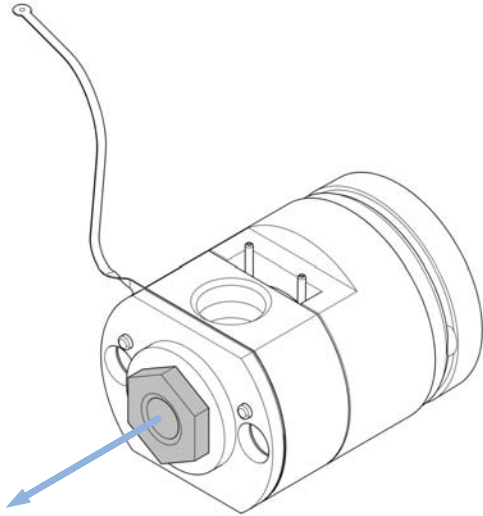
Loss of small spacer fitting

Inside the secondary pump head is a small spacer fitting, which can be dropped easily when removing the heat exchanger.

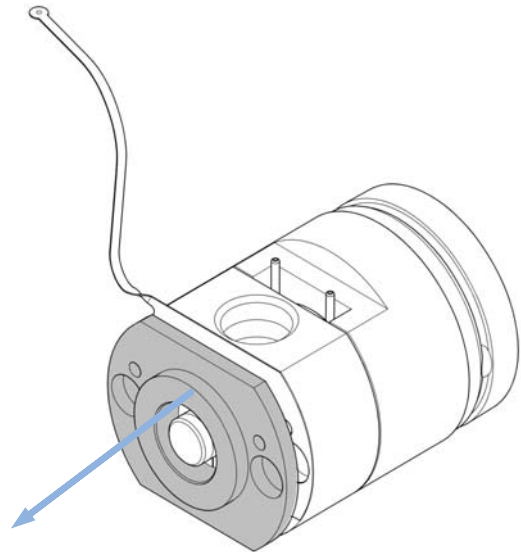
→ The heat exchanger does not need to be removed for pump head maintenance.

---

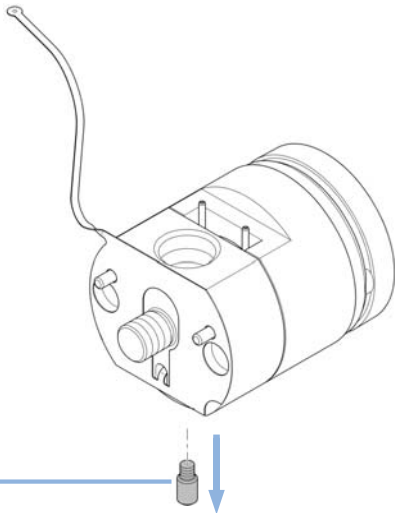
**1** Remove the 19 mm screw at the front of the secondary pump head.



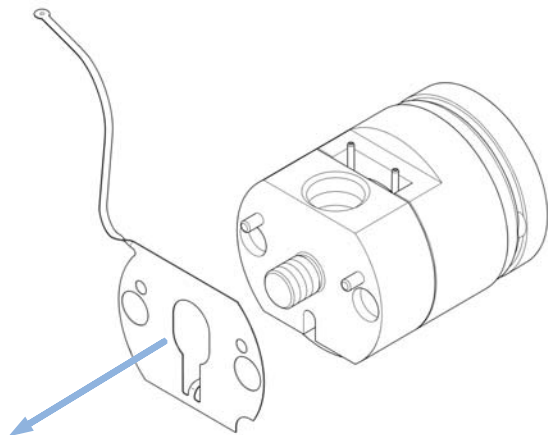
**2** Remove the front plate.



**3** Remove the screw at the bottom of the pump head. Do not drop the golden spacer fitting.



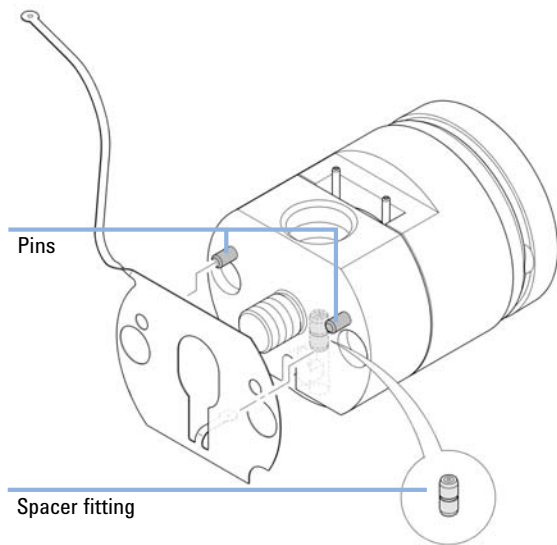
**4** Lift out the heat exchanger.



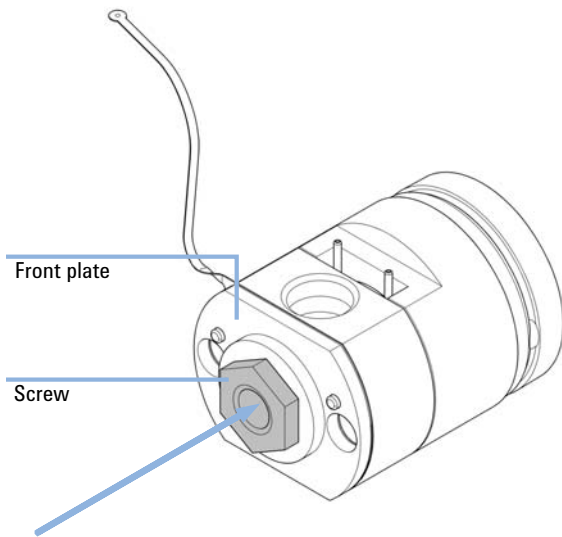
## 2 Pump Head Maintenance (Binary and High Speed Pumps)

### Secondary Pump Head

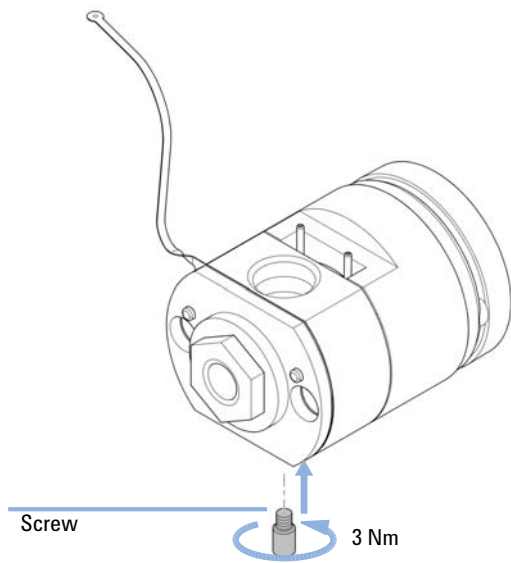
**5** If removed, first insert the spacer fitting. Then insert the new heat exchanger to the opening in the pump head and lift it over the pins.



**6** Use the 19 mm screw for fixing the front plate.



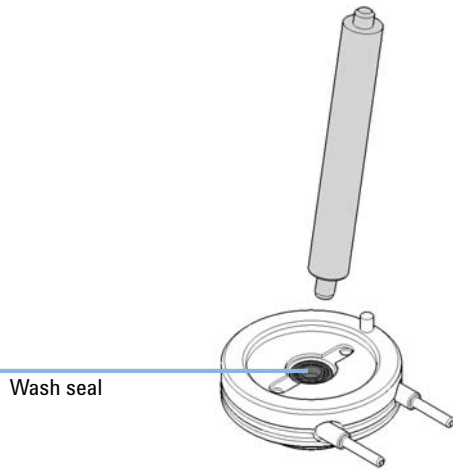
**7** Insert and fix the screw.



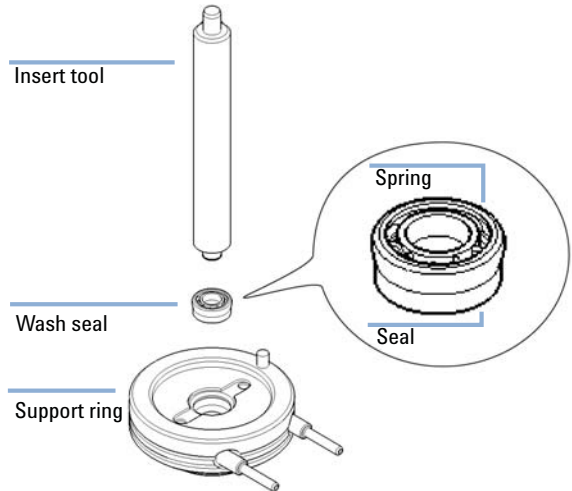
## Replacing Wash Seal and Gasket

<b>Tools required</b>	<b>p/n</b> 01018-23702	<b>Description</b> Insert tool
<b>Parts required</b>	<b>p/n</b> G4220-68742	<b>Description</b> Seal Wash PM kit for 1290 Binary Pumps includes film washers, PE wash seals and a Peristaltic pump

**1** Use the steel side of the insert tool for removing the wash seal.



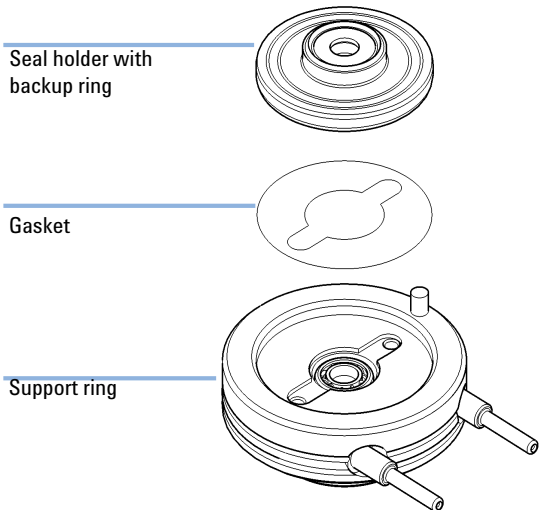
**2** Use the soft plastic side of the insert tool for inserting the wash seal into the support ring. Wet the wash seal with isopropanol or another suitable solvent before insertion.



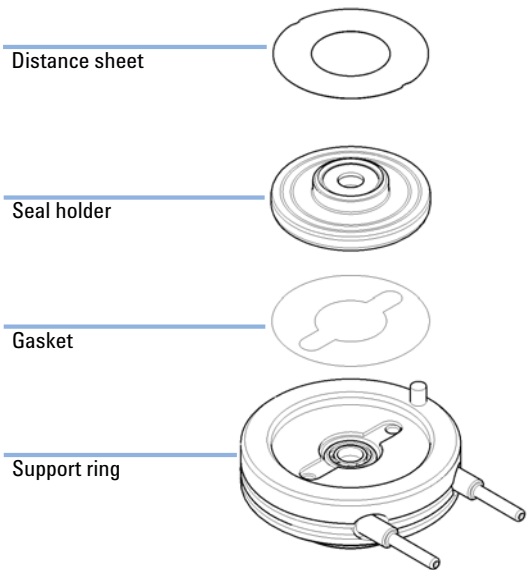
## 2 Pump Head Maintenance (Binary and High Speed Pumps)

### Replacing Wash Seal and Gasket

**3 G4220A/B, G4204A:** Put the gasket into the support ring and insert the seal holder.



**4 G7120A, G7104A:** Put the gasket into the support ring and insert the seal holder.





## Assembling the Pump Head

**When** Before installing the pump head.

<b>Tools required</b>	<b>p/n</b>	<b>Description</b>
		Pump head alignment tool
	G4220-20012	Torque wrench 2 – 25 Nm
	G4220-20013	4 mm hex bit
	G4220-20041	Bit Torx 10x25 mm
	G4220-20015	Adapter ¼ in square to hex
	01018-23702	Insert tool

<b>Parts required</b>	<b>p/n</b>	<b>Description</b>
	G4220-68741	1290 Binary Pump PM kit includes seal cap assemblies, PE piston seals and PTFE frits

For a detailed overview of the used parts refer to “[Primary Pump Head with Seal Wash \(Binary Pump\)](#)” on page 16 and “[Secondary Pump Head With Seal Wash \(Binary Pump\)](#)” on page 26.

### CAUTION

Damage of the pump piston

The pump piston is very sensitive to shearing forces from the side.

→ Use the alignment piston of the pump head alignment tool for the alignment procedure described below.

### CAUTION

Wrong orientation of pins on support ring

Assembling the pump head without paying attention to the correct orientation of the pins on the support ring can lead to leaks or damage of the piston and pump head.

→ Observe pins on the support ring, which help assembling the parts of the pump head in the correct orientation.

## 2 Pump Head Maintenance (Binary and High Speed Pumps)

### Assembling the Pump Head

#### CAUTION

Damage of the pump head assembly

When installing the pump head assembly, the pump drives need to be in maintenance position, where they are retracted. Using the pump drive in default position will damage the pump head assembly.

→ Bring the pump drive to the maintenance position.

---

#### CAUTION

Damage to the pump head

Using a wrong torque will damage the pump head.

→ For handling the torque wrench, setting and applying the right torque, consult the manual of your torque wrench.

---

#### NOTE

This procedure shows how to reassemble the pump head assembly and how to install it to an Infinity I Binary Pump module (G4220A/B).

Reassembling and installing pump head assemblies to an Infinity II High Speed Pump (G7120A) will be done in the same way.

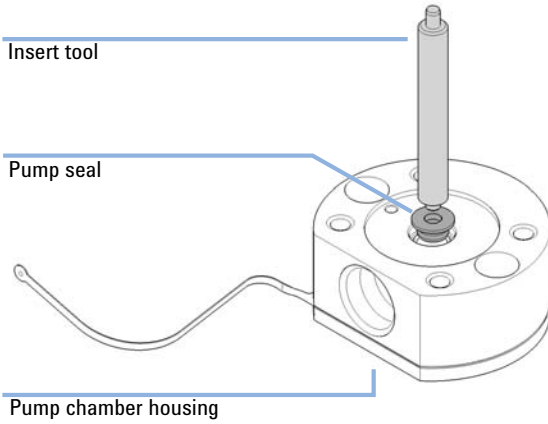
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#### NOTE

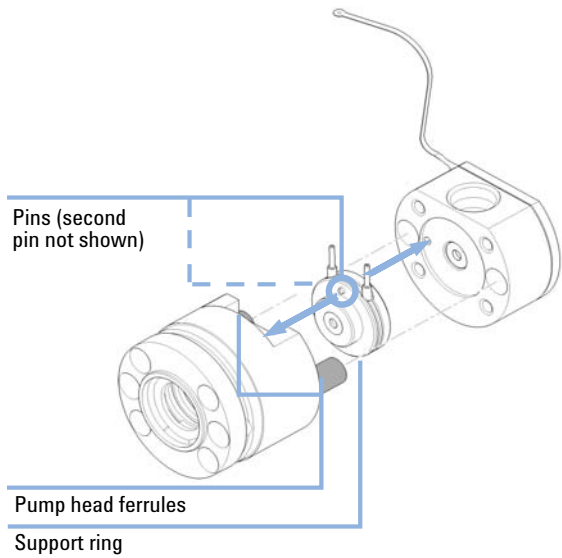
This procedure describes how to assemble the secondary pump head using the pump head alignment tool. Assembling the primary pump head can be done accordingly. The secondary pump head has the heat exchanger capillary, which must fit into the openings of the alignment tool, whereas the primary pump head does not have a heat exchanger. See [Figure 1](#) on page 8.

---

- 1** Use the soft plastic side of the insert tool for inserting the piston seal to the pump chamber housing. Wet the piston seal with isopropanol or another suitable solvent before insertion.



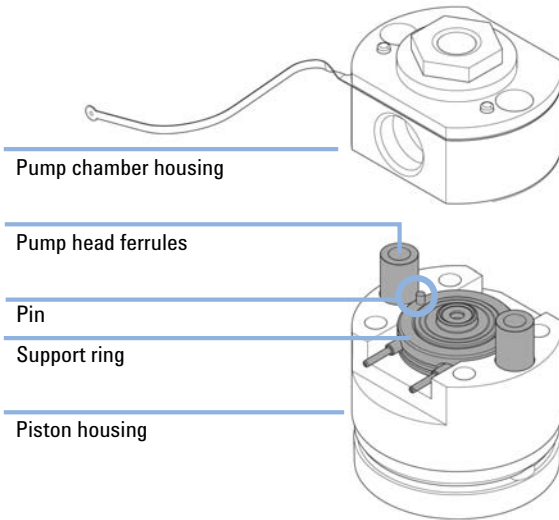
- 2** Insert the support ring and pump head ferrules into the piston housing. Observe the pins on the support ring, which help you assembling the pump head correctly.



## 2 Pump Head Maintenance (Binary and High Speed Pumps)

### Assembling the Pump Head

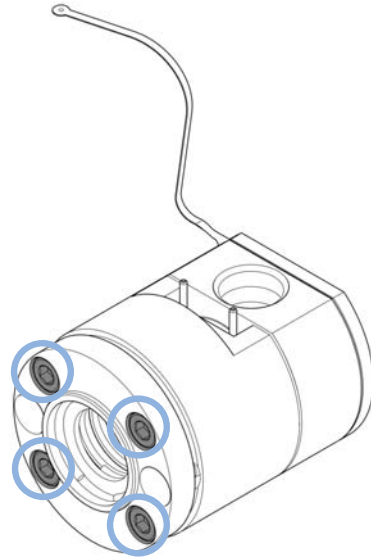
- 3** Assemble the pump head by putting the pump chamber housing on top of the support ring. Observe correct orientation of the pin.



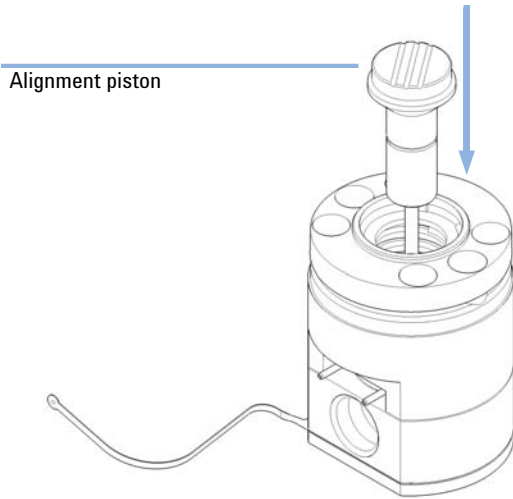
#### NOTE

Do NOT install the inlet and outlet valves (primary pump head) and the high-pressure filter (secondary pump head) at this stage.

- 4** Loosely close the 4 screws at the rear of the pump head. The screws will be fixed tightly later.



- 5 Insert the alignment piston of the pump head alignment tool. Lubricate the alignment piston with isopropanol or another suitable solvent before insertion.



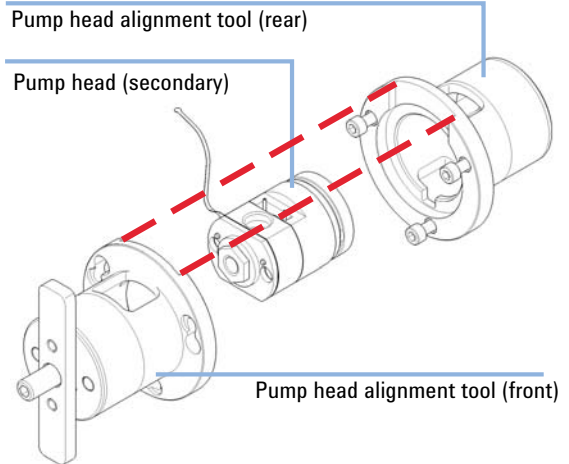
**CAUTION**

**Damage to the pump head.**

→ Using the alignment tool is mandatory.

→ Not using will break the pump head.

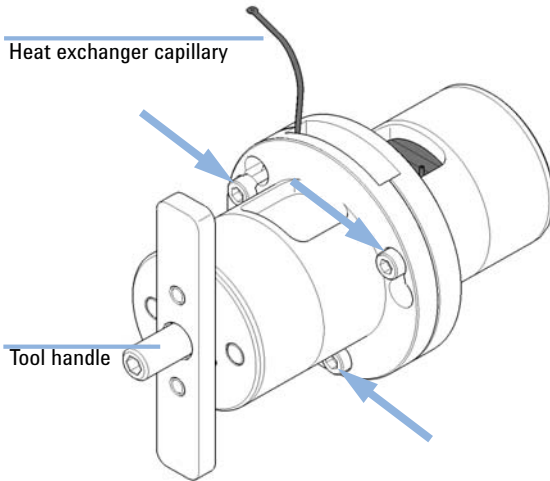
- 6 Insert the pump head to the pump head alignment tool, which is included to the 1290 Infinity Service Kit p/n 5067-4699. There are openings for the seal wash support ring and heat exchanger of the secondary pump head. Observe the correct orientation of all parts.



## 2 Pump Head Maintenance (Binary and High Speed Pumps)

### Assembling the Pump Head

- 7 Close the tool by closing the 3 screws at the connection ring.

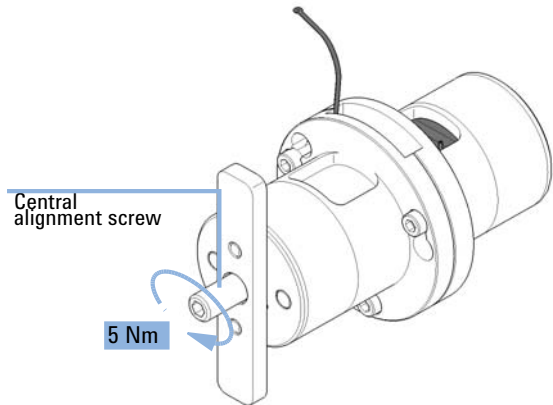


### CAUTION

**Damage to the pump head**  
Using a wrong torque will damage the pump head.

→ For handling the torque wrench, setting and applying the right torque, consult the manual of your torque wrench.

- 8 Using a torque key, which is included to the 1290 Infinity Service Kit p/n 5067-4699, set 5 Nm and fix the central alignment screw.



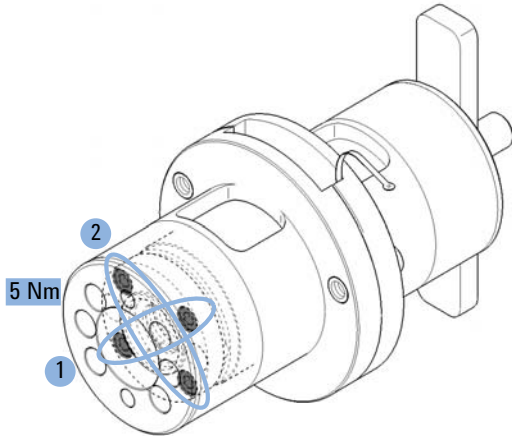
**CAUTION**

**Damage to the pump head**

Using a wrong torque will damage the pump head.

→ For handling the torque wrench, setting and applying the right torque, consult the manual of your torque wrench.

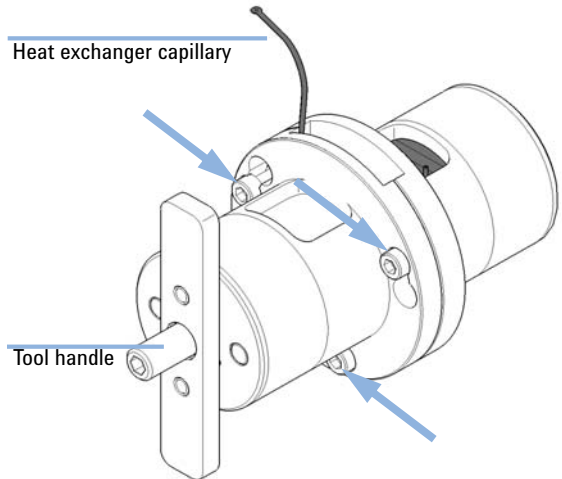
- 9 Using a torque key, which is included to the 1290 Infinity Service Kit p/n 5067-4699, set 5 Nm and fix the 4 screws at the rear of the alignment tool. Tighten screws crosswise.



**NOTE**

This procedure will align pump head parts to their correct positions and close the pump head tightly.

- 10 Open the 3 screws which have closed the pump head alignment tool and take out the aligned pump head. In case the pump head sticks inside the alignment tool, you can use the handle and insert it to the rear of the tool for pushing out the pump head.



## 2 Pump Head Maintenance (Binary and High Speed Pumps)

### Assembling the Pump Head

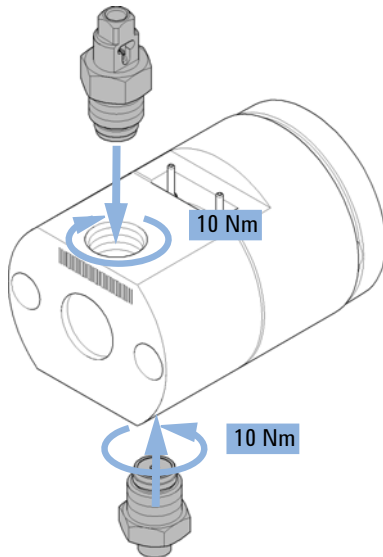
#### CAUTION

##### Damage to the pump head

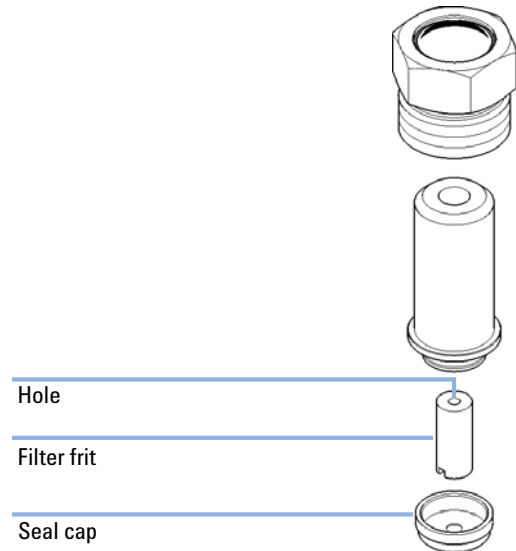
Using a wrong torque will damage the pump head.

→ For handling the torque wrench, setting and applying the right torque, consult the manual of your torque wrench.

**11** For the primary pump head, install the inlet valve and outlet valve using the torque wrench, which is included to the 1290 Infinity Service Kit p/n 5067-4699. Set 10 Nm for the inlet valve and 10 Nm for the outlet valve.



**12** Replace the filter frit and seal cap as desired. Please note the correct orientation of the filter frit.



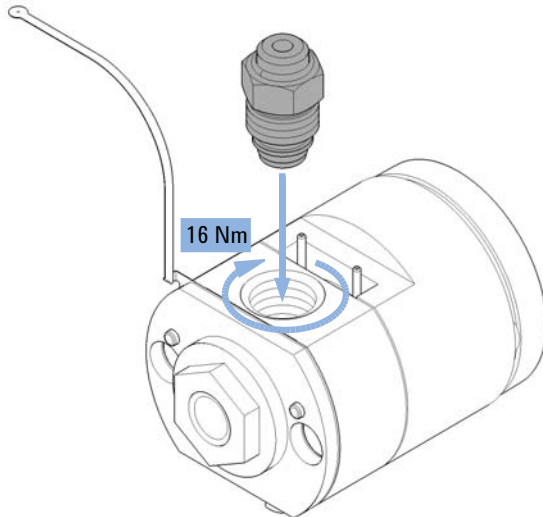


**CAUTION**

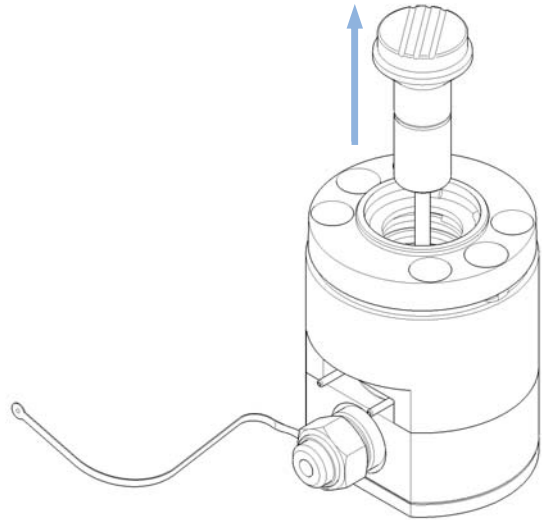
**Damage to the pump head**  
Using a wrong torque will damage the pump head.

→ For handling the torque wrench, setting and applying the right torque, consult the manual of your torque wrench.

**13** For the secondary pump head, assemble and install the high pressure filter assembly using the torque wrench (14 mm hex wrench), which is included to the 1290 Infinity Service Kit p/n 5067-4699, set to 16 Nm.



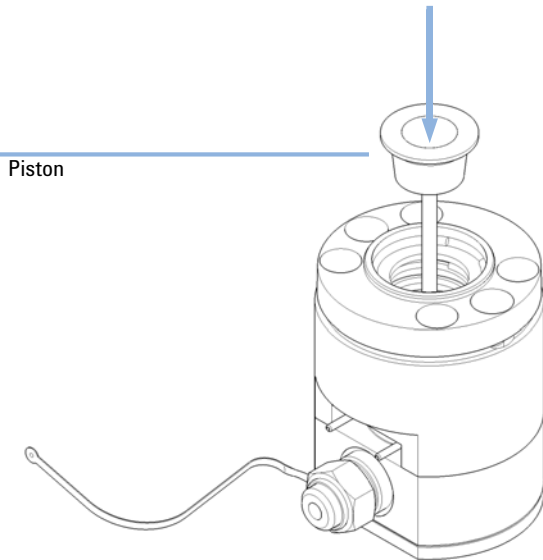
**14** Remove the alignment piston.



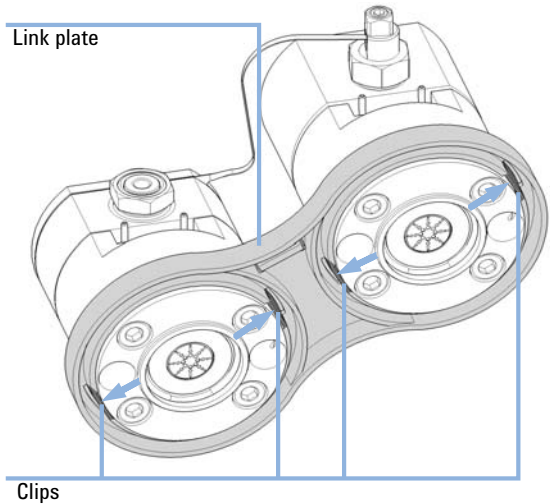
## 2 Pump Head Maintenance (Binary and High Speed Pumps)

### Assembling the Pump Head

- 15** Lubricate the pump piston with isopropanol or another suitable solvent, and insert it.



- 16** Insert both pump heads to the link plate and make sure that the clips snap in that fix the pump heads.



#### NOTE

Observe the correct orientation of the primary and the secondary pump head. This is important for correct fixation of the heat exchanger and the capillaries, as described in the following steps.

#### NOTE

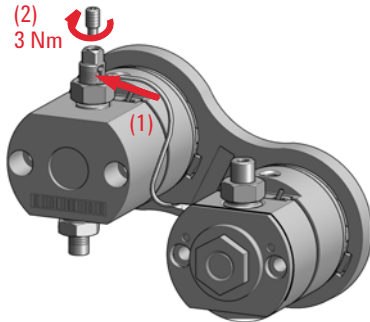
Mind the orientation of the ID tag.

**CAUTION**

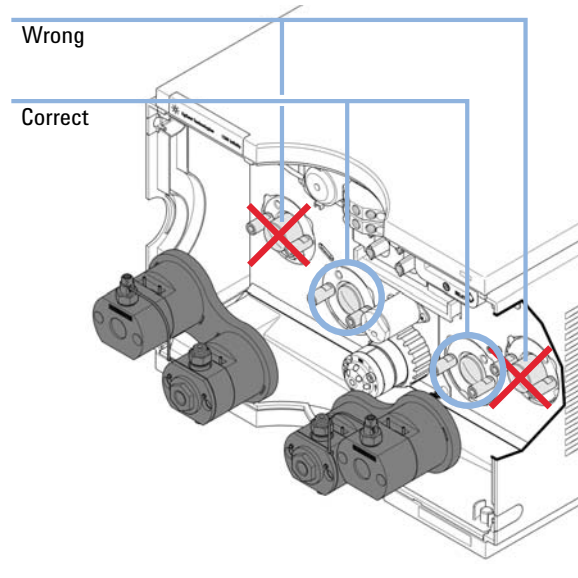
**Damage to the pump head**  
Using a wrong torque will damage the pump head.

→ For handling the torque wrench, setting and applying the right torque, consult the manual of your torque wrench.

**17** Insert the heat exchanger capillary into the outlet of the primary pump head (1). Using a torque key, which is included to the 1290 Infinity Service Kit p/n 5067-4699, set 3 Nm and close the screw at the top of the outlet (2).



**18** Bring the pump drive to the maintenance position using the Lab Advisor user interface, see “Disassembling the Pump Head” on page 12. Both pump drives must be retracted.



## 2 Pump Head Maintenance (Binary and High Speed Pumps)

### Assembling the Pump Head

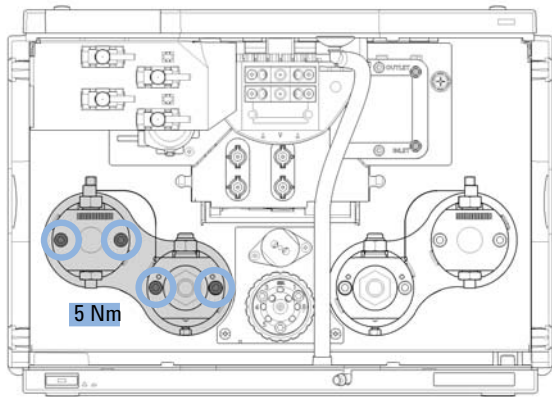
#### CAUTION

##### Damage to the pump head

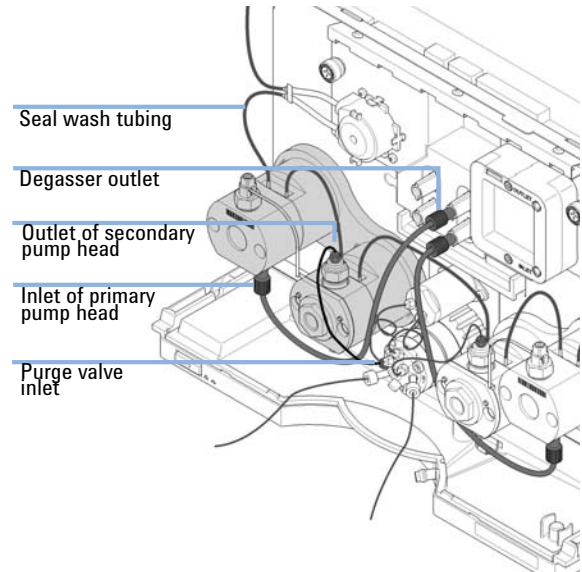
Using a wrong torque will damage the pump head.

→ For handling the torque wrench, setting and applying the right torque, consult the manual of your torque wrench.

**19** Install the pump head assembly by fixing the 4 screws using a 4 mm hex key and a torque wrench, which are included to the 1290 Infinity Service Kit p/n 5067-4699 set to 5 Nm. Install screws step by step, not screw by screw.



**20** Install flow connections as described in *Replacing the Pump Heads* in the user manual.





### 3 Pump Head Maintenance (Quaternary and Flexible Pumps)

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Primary Pump Head with Seal Wash (Quaternary Pump)	58
Primary Pump Head Without Seal Wash (Quaternary Pump)	60
Primary Pump Head with Seal Wash (Flexible Pump)	62
Disassembling the Primary Pump Head	64
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Secondary Pump Head Without Seal Wash (Quaternary Pump)	70
Secondary Pump Head with Seal Wash (Flexible Pump)	72
Disassembling the Secondary Pump Head	74
Replacing the Heat Exchanger	79
Replacing Wash Seal and Gasket	82
Assembling the Pump Head	84



### 3 Pump Head Maintenance (Quaternary and Flexible Pumps) Disassembling the Pump Head

## Disassembling the Pump Head

**When** If parts inside the pump head need to be replaced

<b>Tools required</b>	<b>p/n</b>	<b>Description</b>
	G4220-20012	Torque wrench 2 – 25 Nm
	G4220-20013	4 mm hex bit
	G4220-20014	2.5 mm Hex Bit
	G4220-20015	Adapter ¼ in square to hex
	8710-0510	Wrench open 1/4 — 5/16 inch

**Preparations** Remove tubing connections to the MCGV.

#### CAUTION

Damage of the pump piston

Removing pump heads in a position other than the maintenance position can damage the pump piston.

→ Before switching off the pump, bring it to the maintenance position.

#### CAUTION

Damage of pump drives

The pump drive can be damaged if the pump initializes after switching it on without having the pump head installed properly.

→ Use the Lab Advisor maintenance procedure for replacing pump heads.

→ Install the pump head correctly before switching on the pump.

#### NOTE

This procedure shows how to remove the pump head assembly from an Infinity I Quaternary Pump module (G4204A).

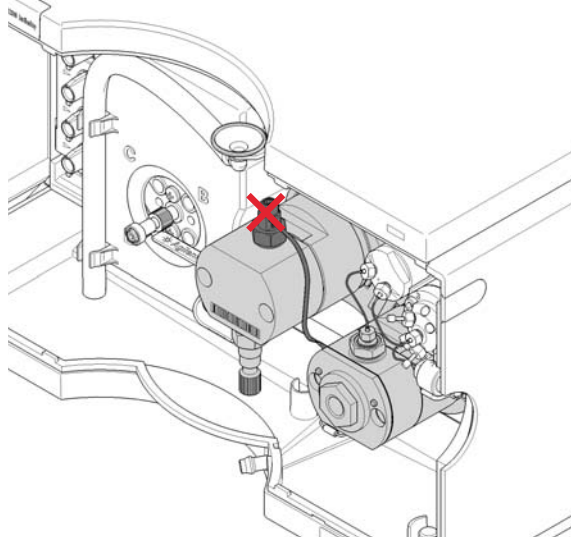
Removing the pump head assembly from an Infinity II Flexible Pump module (G7104A) will be done in the same way.

#### NOTE

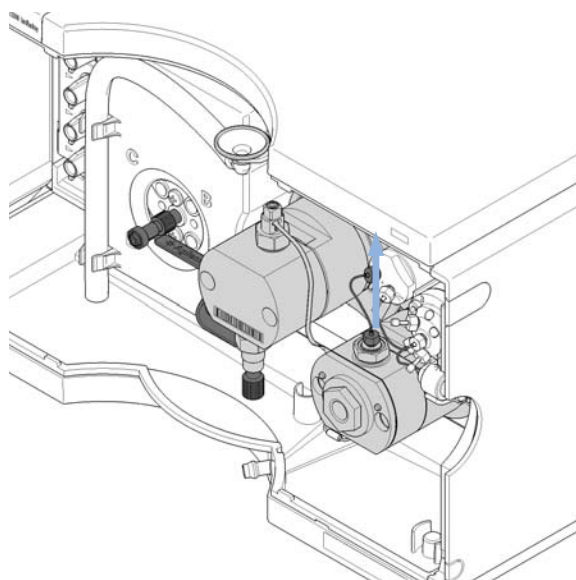
The primary pump head does not have a heat exchanger. Seal wash parts are optional (G4204A only).

- 1 In Lab Advisor go to **Service & Diagnostics > Remove/Install Pump Head** and follow instructions given on the screen.
- 2 If applicable, remove flow connections of the seal wash option.

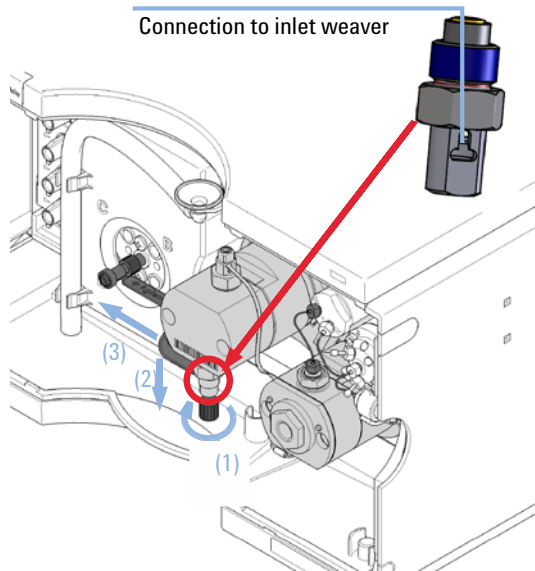
- 3 DO NOT REMOVE the capillary connection between the pump heads marked by the red X.



- 4 Remove the capillary connection from the outlet filter on the secondary pump head to the pressure sensor.



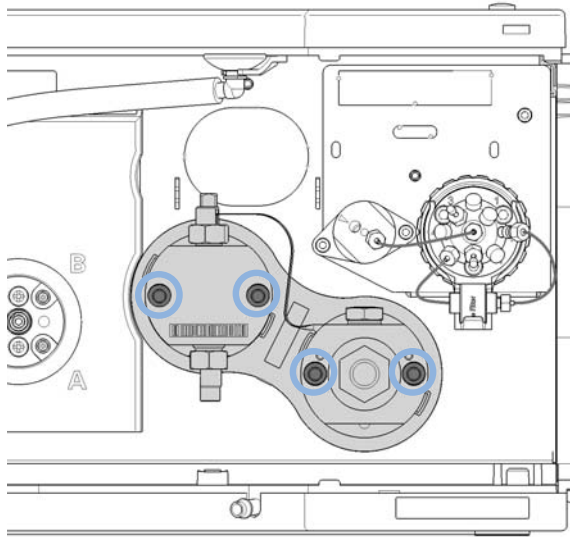
- 5 Open the black plastic screw of the inlet valve at the bottom of the left primary pump head (1) and remove the inlet weaver by first pushing it downwards (2) and then pulling it out to the left (3).



### 3 Pump Head Maintenance (Quaternary and Flexible Pumps)

#### Disassembling the Pump Head

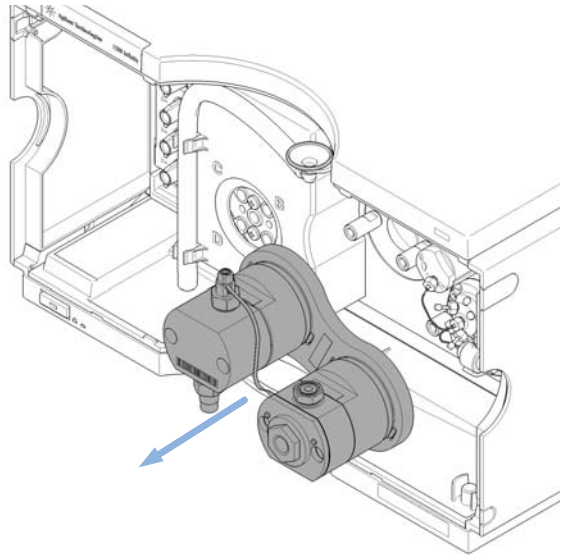
6 Open the four screws holding the pump heads.



#### NOTE

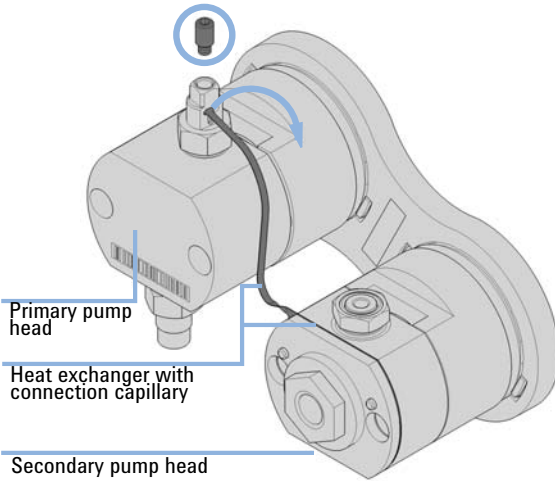
Open all screws step by step, not screw by screw.

7 Remove the complete pump head assembly by holding both heads and pulling it to the front.

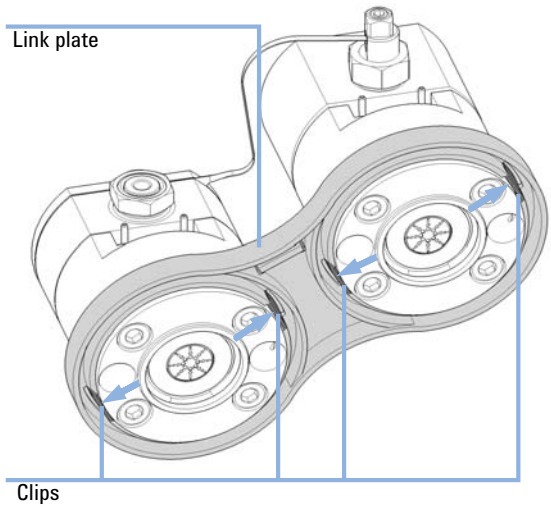




- 8 Open the 2.5 mm hex screw at the top of the primary pump head, which fixes the connection capillary of the heat exchanger. Then lift up the capillary and remove it from the primary pump head.

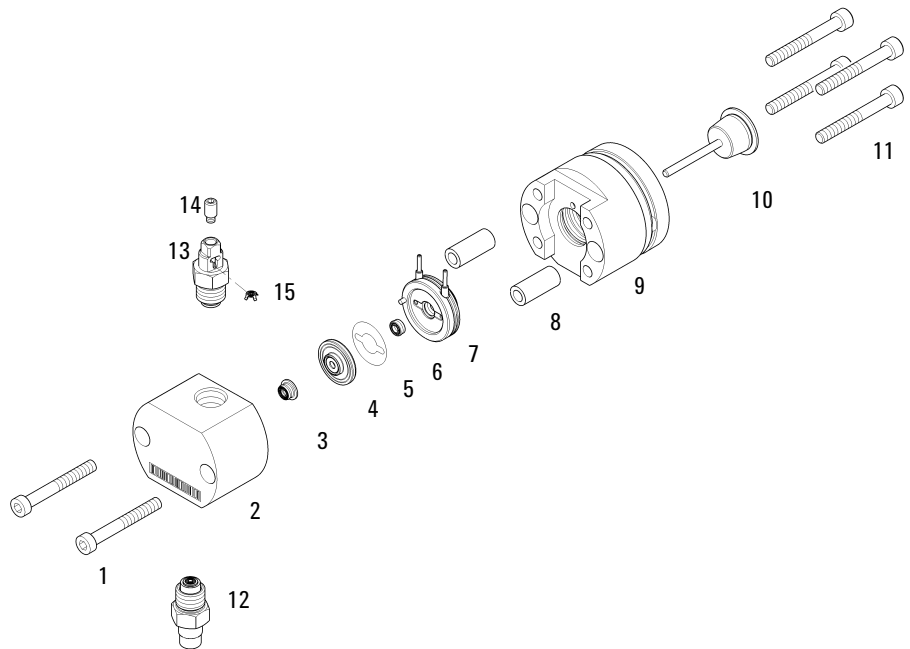


- 9 Remove both pump heads from the link plate by pushing the clips at the rear of the plate.



## Primary Pump Head

### Primary Pump Head with Seal Wash (Quaternary Pump)

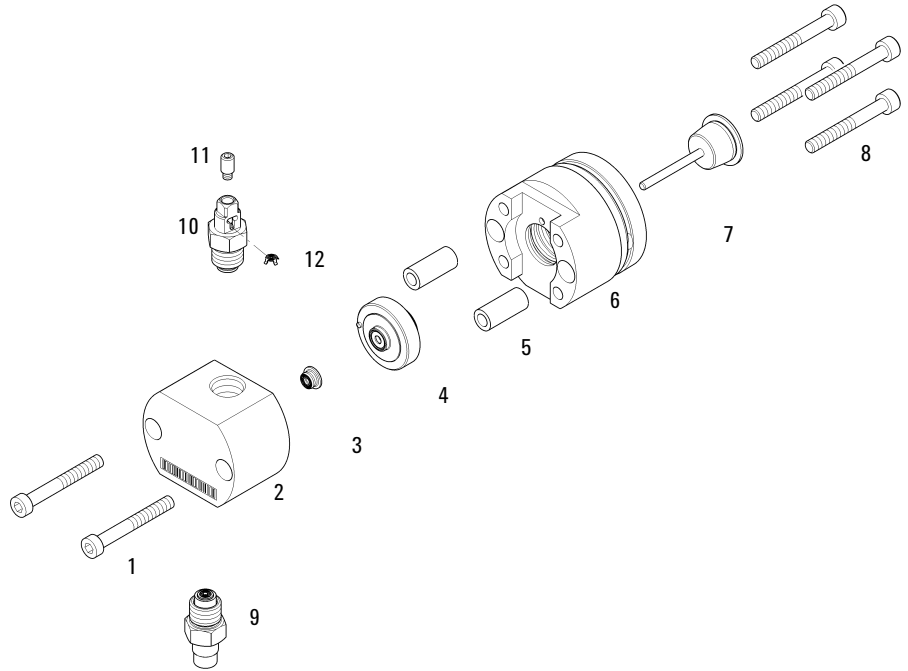


**Figure 9** Primary pump head (Quaternary Pump) with seal wash

<b>Item</b>	<b>#</b>	<b>p/n</b>	<b>Description</b>
1, 11	6	0515-1218	Screw M5, 40 mm long
2	1		Pump Chamber Housing (order pump head)
3	1	0905-1719	PE Seal
4	1	G4220-60016	Seal holder including backup ring
5	1	5062-2484	Gasket, seal wash (pack of 6)
6	1	0905-1718	Wash Seal PE
7	1	G4220-63010	Support Ring (Seal Wash)
8	2		Pump Head Ferrules (order pump head)
9	1		Piston Housing (order pump head)
10	1	5067-5678	Piston ceramic 100 µL
12	1	G4204-60022	Inlet Valve 1290 Infinity Quaternary Pump
	1	G4204-40006	Fixation screw inlet weaver to PIV (not shown)
13	1	G4220-60028	Outlet valve (primary pump head)
14	1	G4220-20028	Headless screw for 1290 Infinity pump heads
15	1	G4220-20020	Internal gold seal for Outlet Valve

**3 Pump Head Maintenance (Quaternary and Flexible Pumps)**  
Primary Pump Head

**Primary Pump Head Without Seal Wash (Quaternary Pump)**

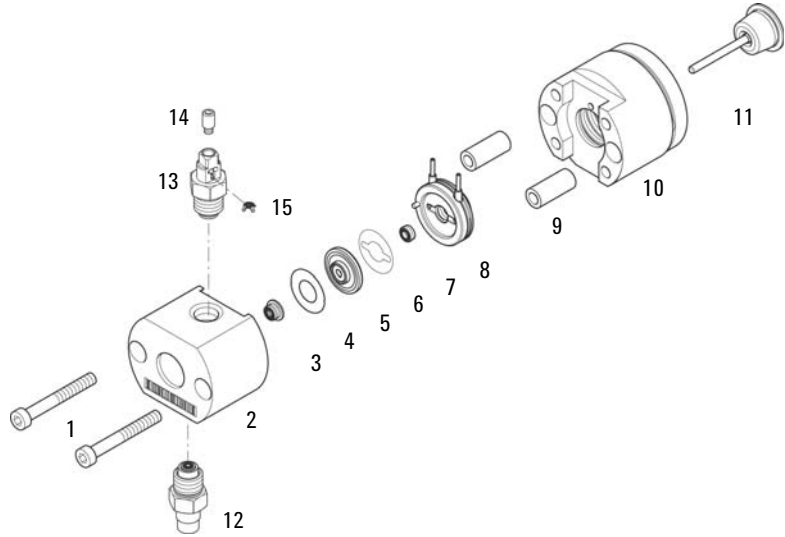


**Figure 10** Primary pump head (Quaternary Pump) without seal wash

Item	#	p/n	Description
1, 8	6	0515-1218	Screw M5, 40 mm long
2	1		Pump Chamber Housing (order pump head)
3	1	0905-1719	PE Seal
4	1	G4220-60015	Support ring including backup ring
5	2		Pump Head Ferrules (order pump head)
6	1		Piston Housing (order pump head)
7	1	5067-5678	Piston ceramic 100 µL
9	1	G4204-60022	Inlet Valve 1290 Infinity Quaternary Pump
	1	G4204-40006	Fixation screw inlet weaver to PIV (not shown)
10	1	G4220-60028	Outlet valve (primary pump head)
11	1	G4220-20028	Headless screw for 1290 Infinity pump heads
12	1	G4220-20020	Internal gold seal for Outlet Valve

**3 Pump Head Maintenance (Quaternary and Flexible Pumps)**  
Primary Pump Head

**Primary Pump Head with Seal Wash (Flexible Pump)**



**Figure 11** Primary pump head parts

Primary Pump Head G4220-60060

<b>Item</b>	<b>p/n</b>	<b>Description</b>
1	0515-1218	Screw M5, 40 mm long
2	G4204-60033	PH Body prim
3	0905-1719	PE Seal
4	5023-2513	Distance sheet
5	G4220-60016	Seal holder including backup ring
6	01018-07102	Gasket (Seal wash)
7	0905-1718	Backup Seal PE (Seal Wash)
8	G4220-63010	Support Ring (Seal Wash)
9	G4220-23705	Bracket
10	G4220-60000	Preload Assy
11	5067-5938	Plunger
12	G4204-60022	Inlet Valve 1290 Infinity Quaternary Pump
13	G4220-60028	Outlet valve (primary pump head)
14	G4220-20028	Headless screw for 1290 Infinity pump heads
15	G4220-20020	Internal gold seal for Outlet Valve

### 3 Pump Head Maintenance (Quaternary and Flexible Pumps) Primary Pump Head

## Disassembling the Primary Pump Head

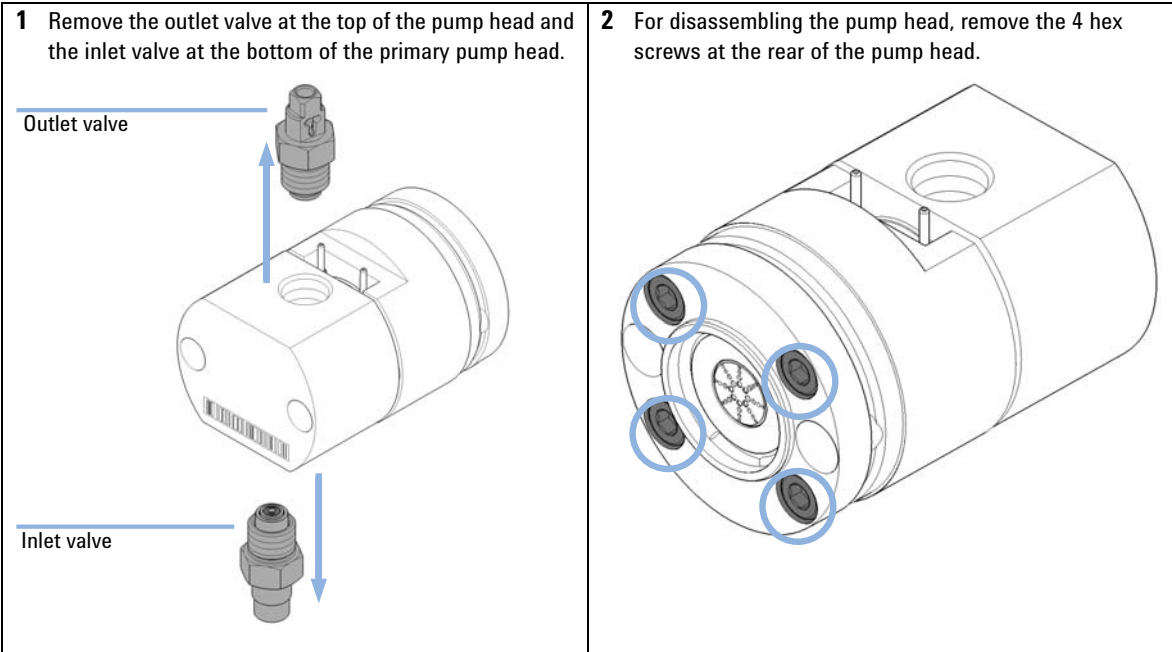
Tools required	p/n	Description
	8710-0510	Wrench open 1/4 — 5/16 inch
	G4220-20012	Torque wrench 2 – 25 Nm
	G4220-20013	4 mm hex bit
	01018-23702	Insert tool

### CAUTION

#### Damage of pump piston

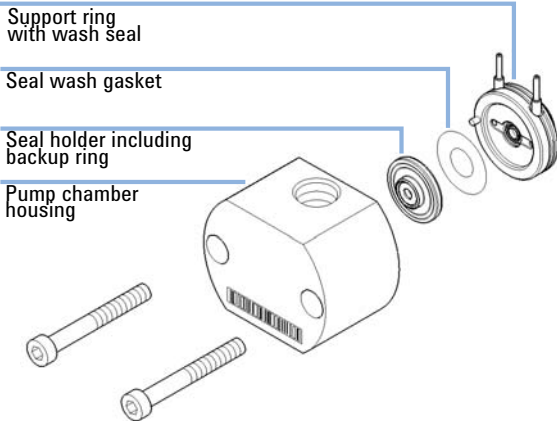
The pump piston is made of ZrO<sub>2</sub>-based ceramic, which is a very hard and resistant material, but it is sensitive to shearing forces from the side.

- Do not try to remove the pump piston from the rear.
- Do not use the piston for removing pump seals.

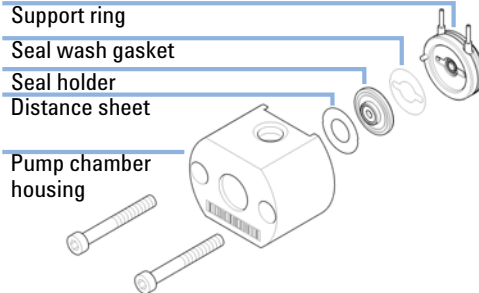




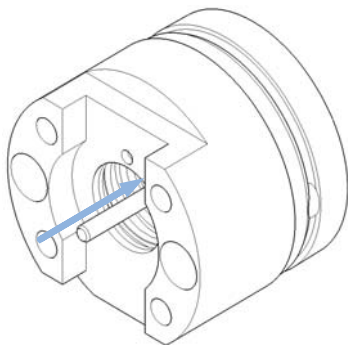
**3 G4204A:** Remove the front part of the pump head including pump chamber housing with pump seal and support ring. If the seal wash option is installed, also remove the seal holder including backup ring, and the gasket.



**4 G7120A, G7104A:** Remove the front part of the pump head including pump chamber housing with pump seal, distance sheet, support ring, seal holder including backup ring, and the gasket.



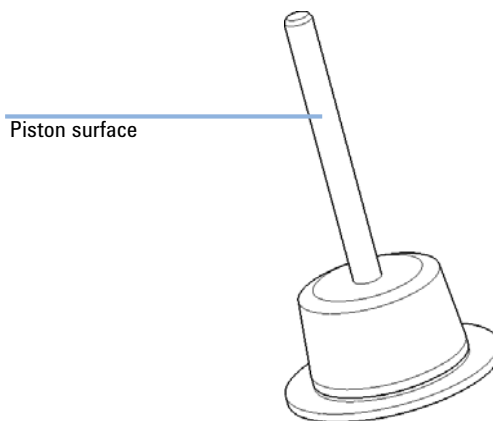
**5** Remove the piston from the piston housing by pushing it to the rear, then pull it out from the rear.



**6** Check the pump pistons for scratches, grooves, and dents.

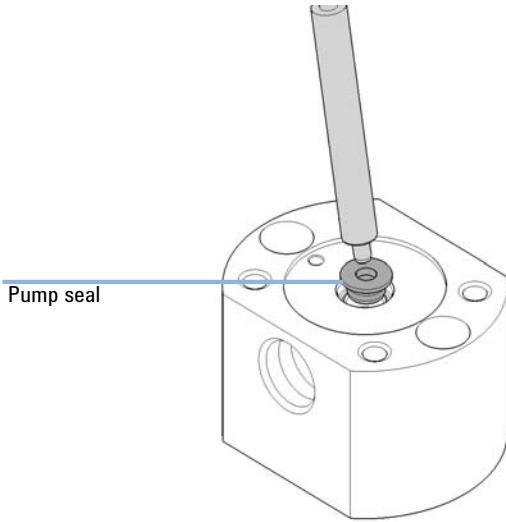
**NOTE**

Damaged pistons cause micro leaks and will decrease the lifetime of the seals.



### 3 Pump Head Maintenance (Quaternary and Flexible Pumps) Primary Pump Head

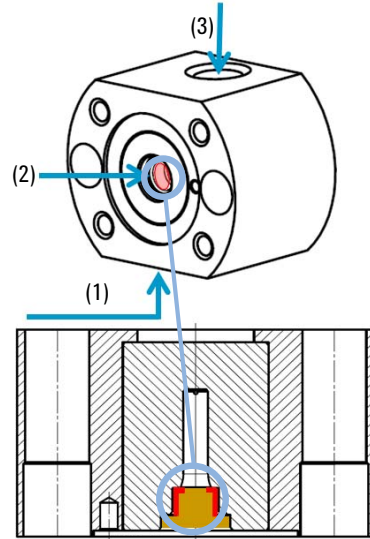
- 7 Use the steel side of the insert tool for removing the pump seal from the pump chamber housing.



#### NOTE

Do not use the pump piston for that purpose, as this can break it!

- 8 To flush out particles from the pump head, use pressurized air ((1), (2) and (3)).



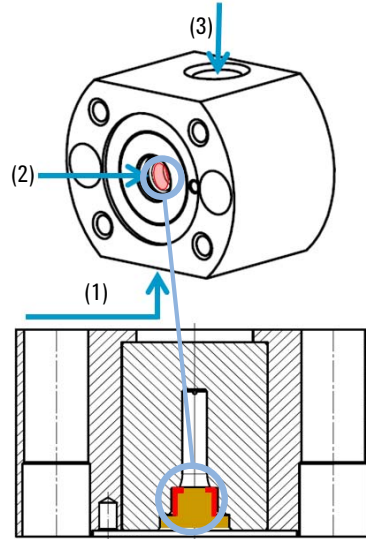
#### NOTE

Pump head parts in contact with the piston seal need to be cleaned properly in order to get a smooth surface and a tight connection.

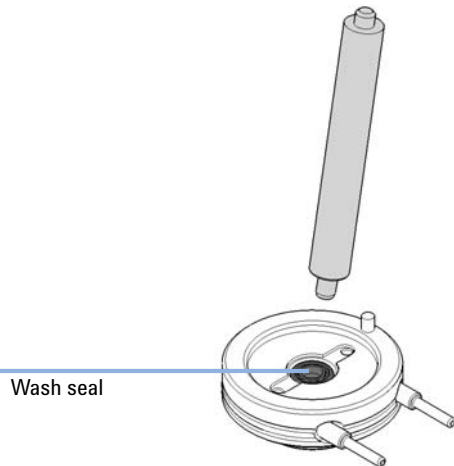
**9** To remove wear, use isopropanol.

**10** To clean the piston and the pump head surface, use the ultra fine abrasive mesh (p/n 8660-0852).

**11** To dry the pump head and to remove residues, use pressurized air ((1), (2) and (3)).

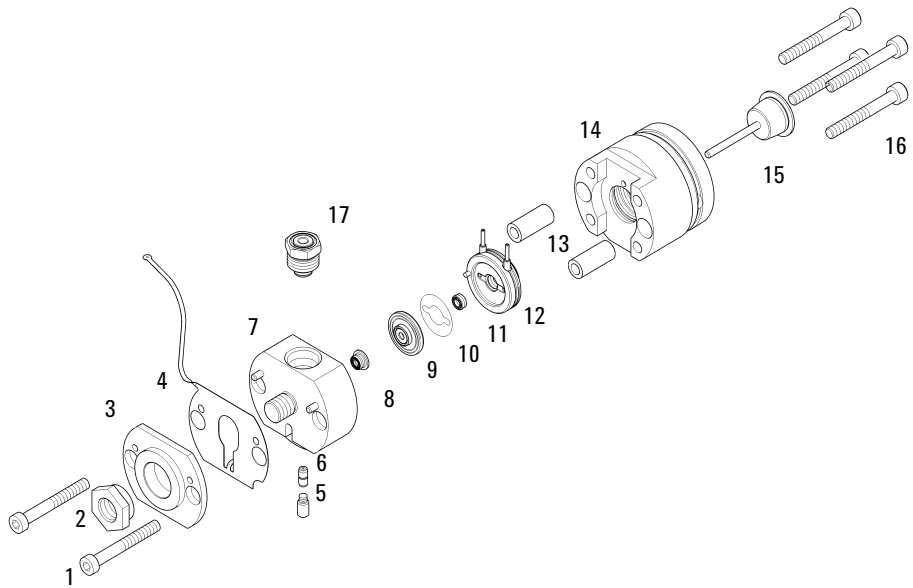


**12** If the wash seal shall be replaced by a new one, use the steel side of the insert tool for removing it.



## Secondary Pump Head

### Secondary Pump Head With Seal Wash (Quaternary Pump)

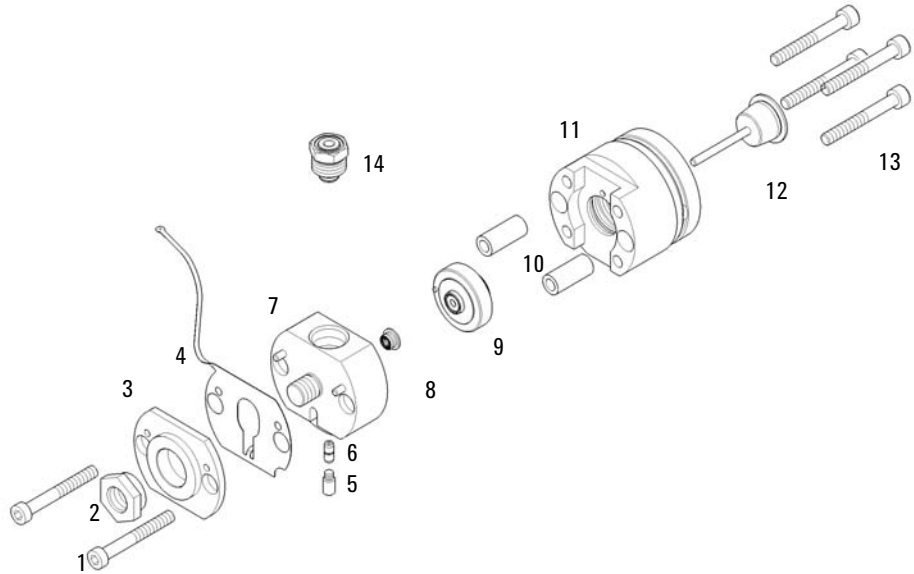


**Figure 12** Secondary pump head (Quaternary Pump) with seal wash

<b>Item</b>	<b>#</b>	<b>p/n</b>	<b>Description</b>
1, 16	6	0515-1218	Screw M5, 40 mm long
2	1	G4220-20003	Pump Head Screw
3	1		Pump Head Front Plate (order pump head)
4	1	G4220-81013	Heat Exchanger (secondary pump head only)
5	1	G4220-20028	Headless screw for 1290 Infinity pump heads
6	1	G4220-20001	Spacer Fitting
7	1		Pump Chamber Housing (order pump head)
8	1	0905-1719	PE Seal
9	1	G4220-60016	Seal holder including backup ring
10	1	5062-2484	Gasket, seal wash (pack of 6)
11	1	0905-1718	Wash Seal PE
12	1	G4220-63010	Support Ring (Seal Wash)
13	2		Pump Head Ferrules (order pump head)
14	1		Piston Housing (order pump head)
15	1	5067-5678	Piston ceramic 100 µL
17	1	G4204-60004	Outlet filter 1290 Infinity Quaternary Pump

**3 Pump Head Maintenance (Quaternary and Flexible Pumps)**  
Secondary Pump Head

**Secondary Pump Head Without Seal Wash (Quaternary Pump)**

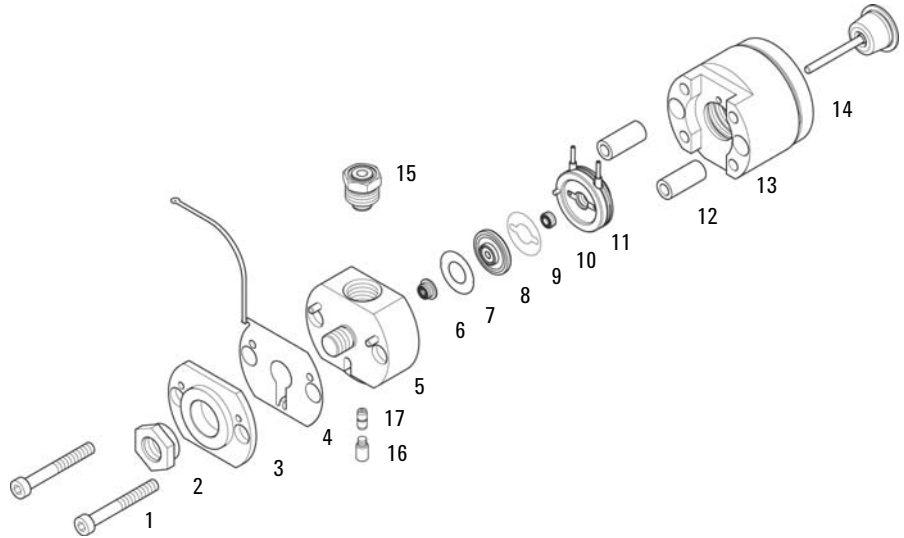


**Figure 13** Secondary pump head (Quaternary Pump) without seal wash

<b>Item</b>	<b>#</b>	<b>p/n</b>	<b>Description</b>
1, 13	6	0515-1218	Screw M5, 40 mm long
2	1	G4220-20003	Pump Head Screw
3	1		Pump Head Front Plate (order pump head)
4	1	G4220-81013	Heat Exchanger (secondary pump head only)
5	1	G4220-20028	Headless screw for 1290 Infinity pump heads
6	1	G4220-20001	Spacer Fitting
7	1		Pump Chamber Housing (order pump head)
8	1	0905-1719	PE Seal
9	1	G4220-60015	Support ring including backup ring
10	2		Pump Head Ferrules (order pump head)
11	1		Piston Housing (order pump head)
12	1	5067-5678	Piston ceramic 100 µL
14	1	G4204-60004	Outlet filter 1290 Infinity Quaternary Pump

**3 Pump Head Maintenance (Quaternary and Flexible Pumps)**  
Secondary Pump Head

**Secondary Pump Head with Seal Wash (Flexible Pump)**



**Figure 14** Secondary pump head parts



Secondary Pump Head G4220-60061

<b>Item</b>	<b>p/n</b>	<b>Description</b>
1	0515-1218	Screw M5, 40 mm long
2	G4220-20003	Pump Head Screw
3	G4220-20000	LID
4	G4220-81013	Heat Exchanger
5	G2404-25213	PH Body sec
6	0905-1719	PE Seal
7	5023-2513	Distance sheet
8	G4220-60016	Seal holder including backup ring
9	01018-07102	Gasket (Seal wash)
10	0905-1718	Backup Seal PE (Seal Wash)
11	G4220-63010	Support Ring (Seal Wash)
12	G4220-23705	Bracket
13	G4220-60000	Preload Assy
14	5067-5938	Plunger
15	G1312-60001	Adapter
16	G4220-20028	Headless screw for 1290 Infinity pump heads
17	G4220-20001	Spacer Fitting

### 3 Pump Head Maintenance (Quaternary and Flexible Pumps) Secondary Pump Head

## Disassembling the Secondary Pump Head

Tools required	p/n	Description
	8710-0510	Wrench open 1/4 — 5/16 inch
	G4220-20012	Torque wrench 2 – 25 Nm
	G4220-20013	4 mm hex bit
	01018-23702	Insert tool

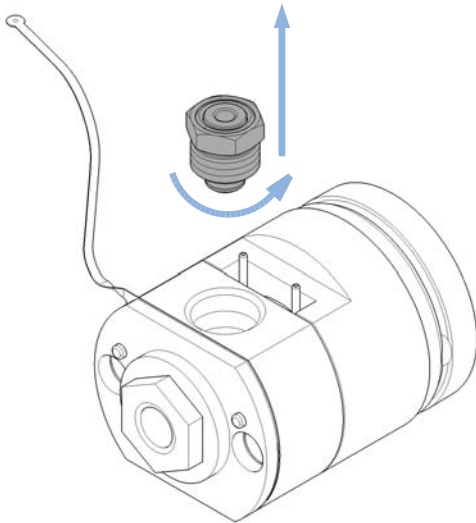
### CAUTION

Damage of pump piston

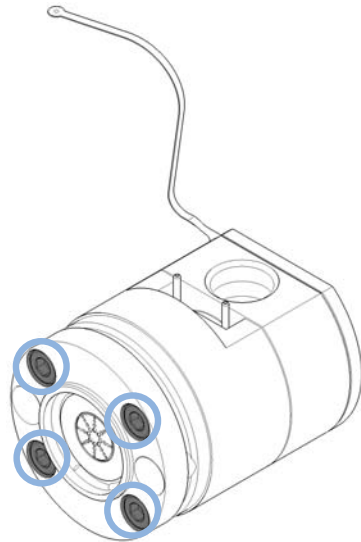
The pump piston is made of ZrO<sub>2</sub>-based ceramic, which is a very hard and resistant material, but it is sensitive to shearing forces from the side.

- Do not try to remove the pump piston from the rear.
- Do not use the piston for removing pump seals.

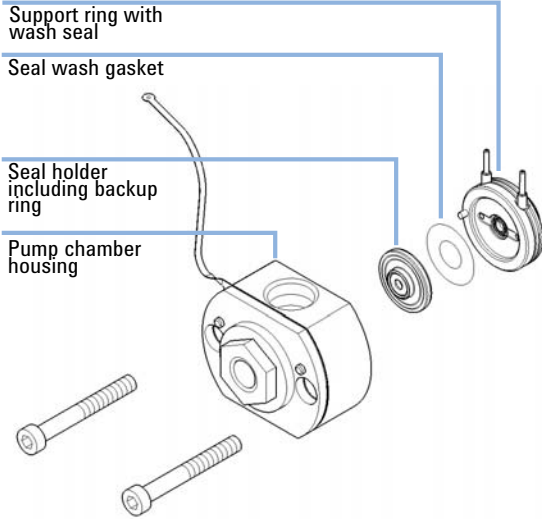
**1** Remove the outlet filter at the top of the pump head.



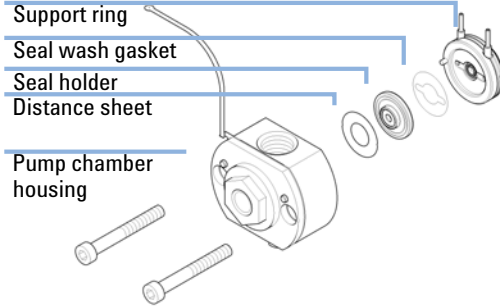
**2** For disassembling the pump head, remove the 4 hex screws at the rear of the pump head.



**3 G4204A:** Remove the front part of the pump head including pump chamber housing with pump seal and seal holder. If the seal wash option is installed, also remove the support ring with wash seal and gasket.

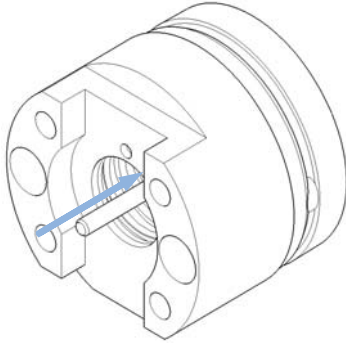


**4 G7120A, G7104A:** Remove the front part of the pump head including pump chamber housing, distance sheet, pump seal and seal holder, and support ring with wash seal and gasket.



### 3 Pump Head Maintenance (Quaternary and Flexible Pumps) Secondary Pump Head

- 5 Remove the piston from the piston housing by pushing it to the rear, then pull it out from the rear.

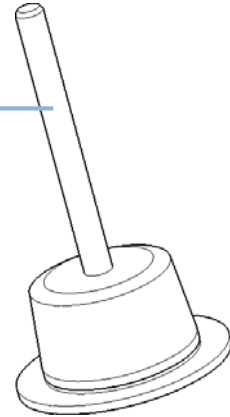


- 6 Check the pump pistons for scratches, grooves, and dents.

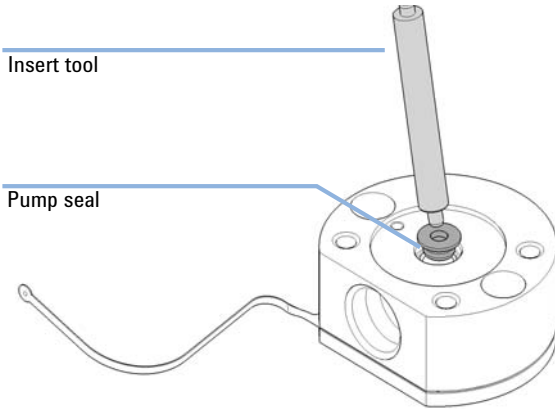
#### NOTE

Damaged pistons cause micro leaks and will decrease the lifetime of the seals.

Piston surface



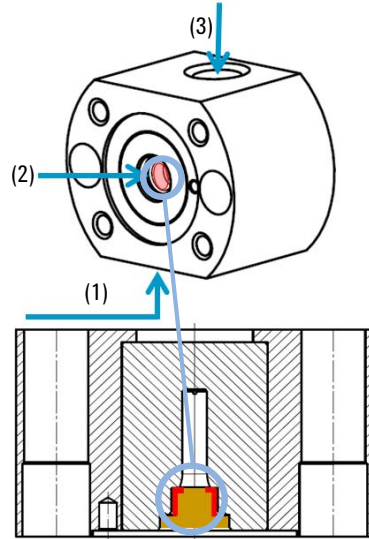
- 7 Use the steel side of the insert tool for removing the pump seal from the pump chamber housing.



**NOTE**

Do not use the pump piston for that purpose, as this can break it!

- 8 To flush out particles from the pump head, use pressurized air ((1), (2) and (3)).



**NOTE**

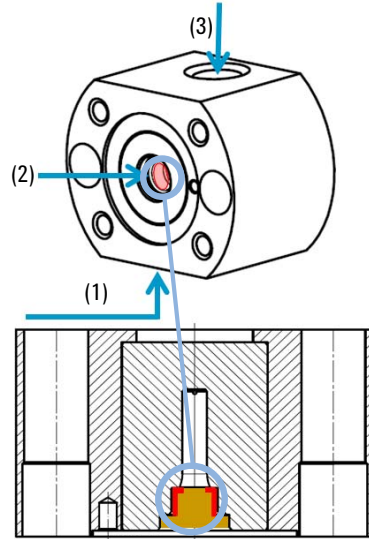
Pump head parts in contact with the piston seal need to be cleaned properly in order to get a smooth surface and a tight connection.

### 3 Pump Head Maintenance (Quaternary and Flexible Pumps) Secondary Pump Head

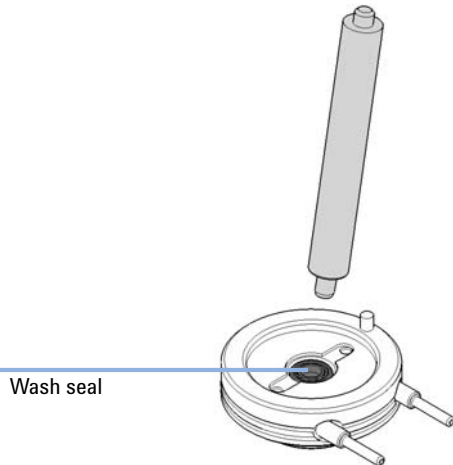
**9** To remove wear, use isopropanol.

**10** To clean the piston and the pump head surface, use the ultra fine abrasive mesh (p/n 8660-0852).

**11** To dry the pump head and to remove residues, use pressurized air ((1), (2) and (3)).



**12** If the wash seal shall be replaced by a new one, use the steel side of the insert tool for removing it.



## Replacing the Heat Exchanger

Tools required	p/n	Description
		Wrench, 19 mm
	5023-2501	Screwdriver Torx-T10
	5067-5688	Torque wrench 1 – 25 Nm with 14 mm wrench
	G4220-20013	4 mm hex bit
	G4220-20015	Adapter ¼ in square to hex
	G4220-20041	Bit Torx 10x25 mm

Parts required	p/n	Description
	G4220-81013	Heat Exchanger (secondary pump head only)

- Preparations**
- Remove the pump head assembly from the pump
  - Remove the secondary pump head from the link plate

### CAUTION

Loss of small spacer fitting

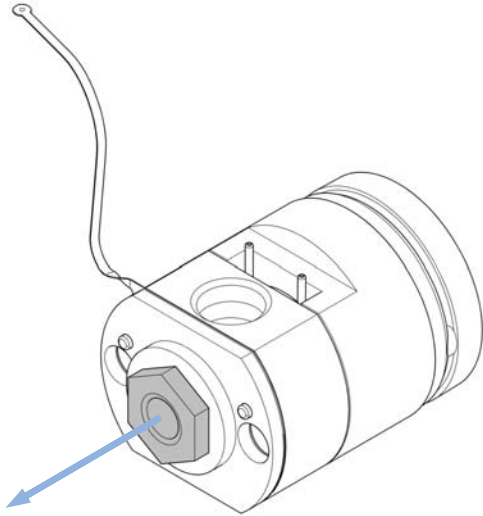
Inside the secondary pump head is a small spacer fitting, which can be dropped easily when removing the heat exchanger.

→ The heat exchanger does not need to be removed for pump head maintenance.

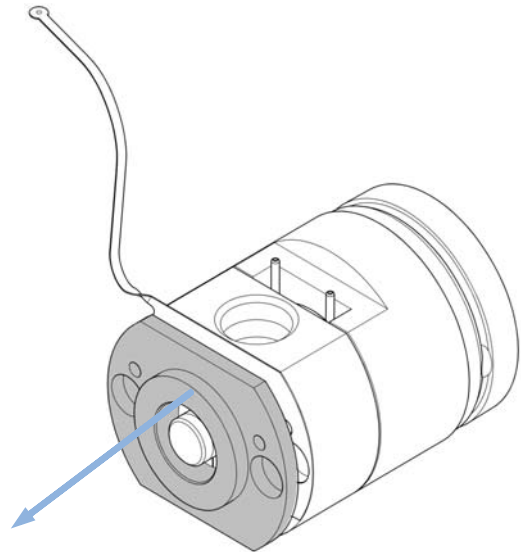
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### 3 Pump Head Maintenance (Quaternary and Flexible Pumps) Secondary Pump Head

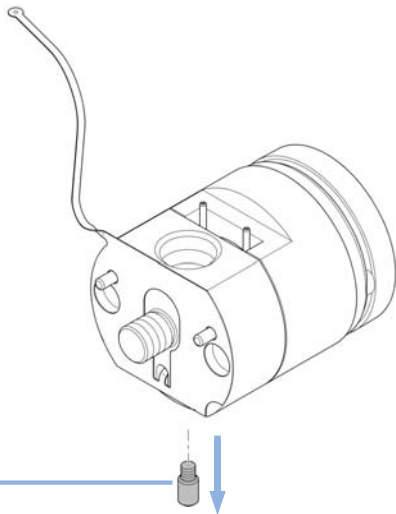
**1** Remove the 19 mm screw at the front of the secondary pump head.



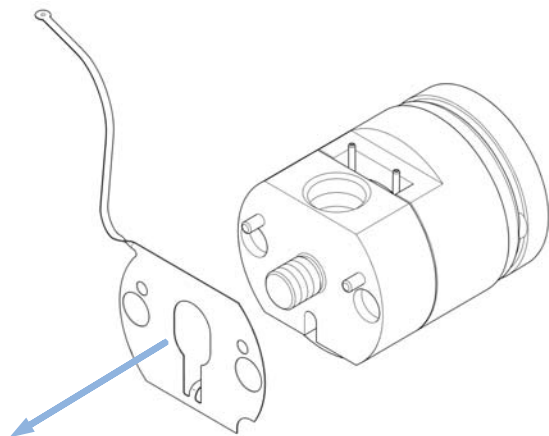
**2** Remove the front plate.



**3** Remove the screw at the bottom of the pump head. Do not drop the golden spacer fitting.

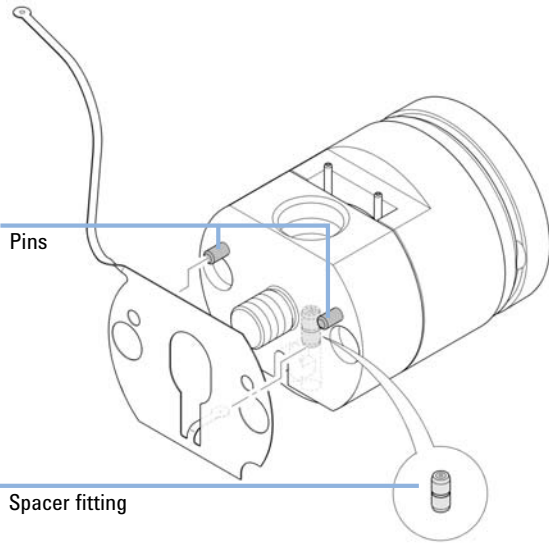


**4** Lift out the heat exchanger.

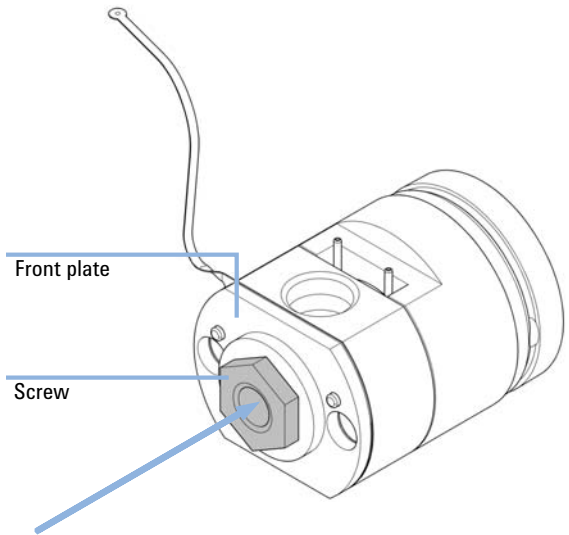




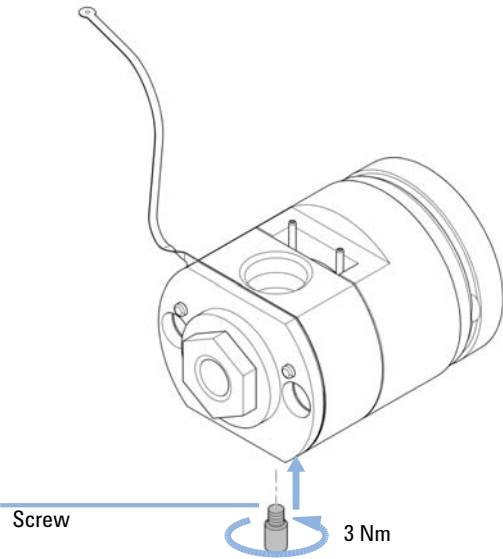
**5** If removed, first insert the spacer fitting. Then insert the new heat exchanger to the opening in the pump head and lift it over the pins.



**6** Use the 19 mm screw for fixing the front plate.



**7** Insert and fix the screw.



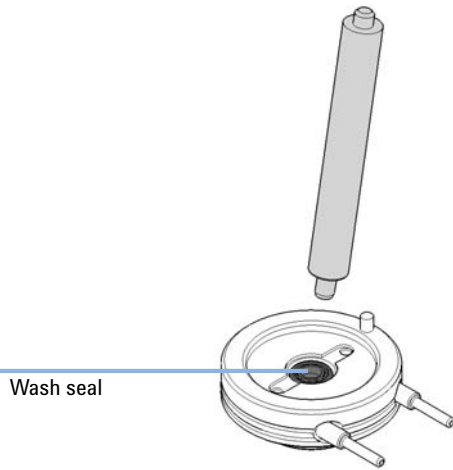
### 3 Pump Head Maintenance (Quaternary and Flexible Pumps) Replacing Wash Seal and Gasket

## Replacing Wash Seal and Gasket

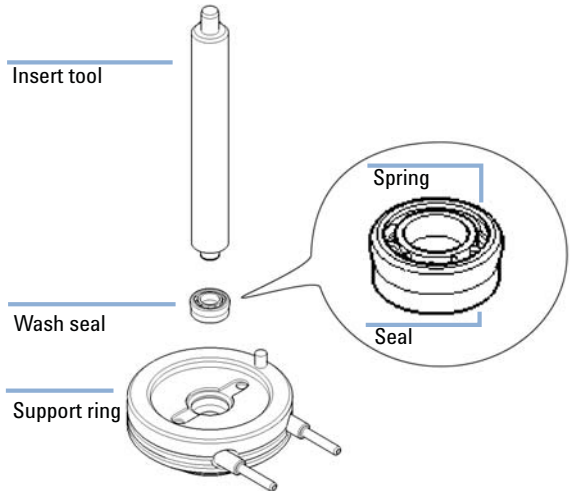
**Tools required**      **p/n**      **Description**  
01018-23702      Insert tool

**Parts required**      **p/n**      **Description**  
G4204-68742      Seal Wash PM kit for 1290 Quaternary Pumps includes film washers, PE wash seals and a Peristaltic pump

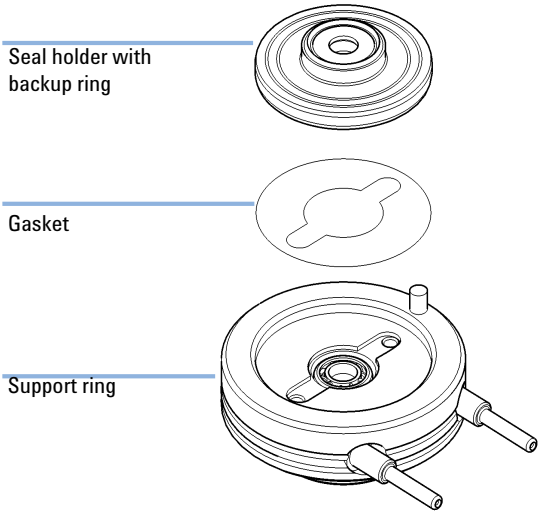
**1** Use the steel side of the insert tool for removing the wash seal.



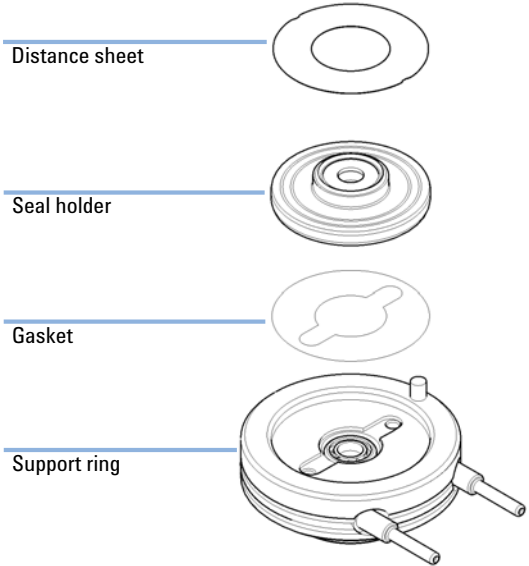
**2** Use the soft plastic side of the insert tool for inserting the wash seal into the support ring. Wet the wash seal with isopropanol or another suitable solvent before insertion.



**3 G4220A/B, G4204A:** Put the gasket into the support ring and insert the seal holder.



**4 G7120A, G7104A:** Put the gasket into the support ring and insert the seal holder.



### 3 Pump Head Maintenance (Quaternary and Flexible Pumps)

#### Assembling the Pump Head

## Assembling the Pump Head

**When** Before installing the pump head.

<b>Tools required</b>	<b>p/n</b>	<b>Description</b>
		Pump head alignment tool
	G4220-20012	Torque wrench 2 – 25 Nm
	G4220-20013	4 mm hex bit
	G4220-20041	Bit Torx 10x25 mm
	G4220-20015	Adapter ¼ in square to hex
	01018-23702	Insert tool

<b>Parts required</b>	<b>p/n</b>	<b>Description</b>
	G4204-68741	1290 Quaternary Pump PM kit includes seal cap assemblies, PE piston seals and filter frits

For a detailed overview of the used parts refer to page “[Primary Pump Head with Seal Wash \(Quaternary Pump\)](#)” on page 58 and “[Secondary Pump Head With Seal Wash \(Quaternary Pump\)](#)” on page 68.

### CAUTION

Damage of the pump piston

The pump piston is very sensitive to shearing forces from the side.

→ Use the alignment piston of the pump head alignment tool for the alignment procedure described below.

### CAUTION

Wrong orientation of pins on support ring

Assembling the pump head without paying attention to the correct orientation of the pins on the support ring can lead to leaks or damage of the piston and pump head.

→ Observe pins on the support ring, which help assembling the parts of the pump head in the correct orientation.

**CAUTION**

Damage of the pump head assembly

When installing the pump head assembly, the pump drives need to be in maintenance position, where they are retracted. Using the pump drive in default position will damage the pump head assembly.

→ Bring the pump drive to the maintenance position.

---

**CAUTION**

Damage to the pump head

Using a wrong torque will damage the pump head.

→ For handling the torque wrench, setting and applying the right torque, consult the manual of your torque wrench.

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**NOTE**

This procedure shows how to reassemble the pump head assembly and how to install it to an Infinity I Quaternary Pump module (G4204A).

Reassembling and installing the pump head assembly to an Infinity II Flexible Pump (G7104A) will be done in the same way.

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**NOTE**

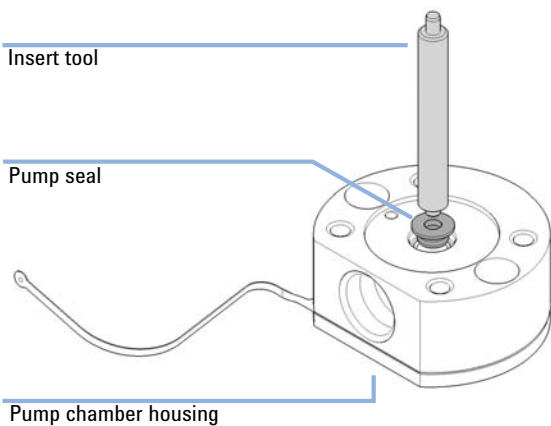
This procedure describes how to assemble the secondary pump head using the pump head alignment tool. Assembling the primary pump head can be done accordingly. The secondary pump head has the heat exchanger capillary, which must fit into the openings of the alignment tool, whereas the primary pump head does not have a heat exchanger. See [Figure 2](#) on page 9.

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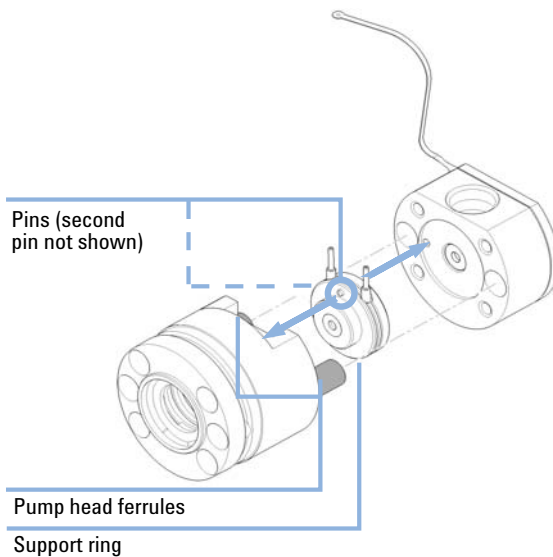
### 3 Pump Head Maintenance (Quaternary and Flexible Pumps)

#### Assembling the Pump Head

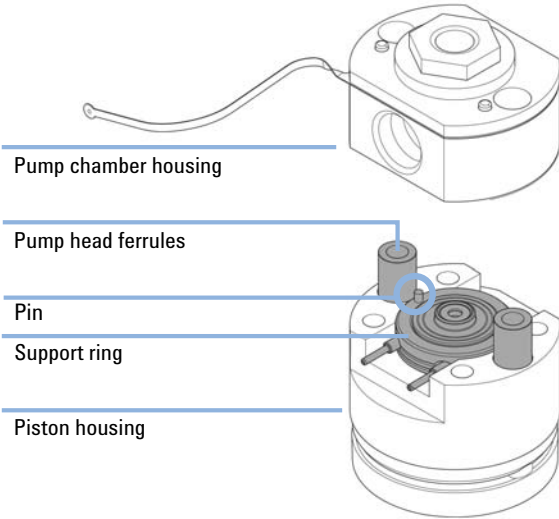
- 1 Use the soft plastic side of the insert tool for inserting the piston seal to the pump chamber housing. Wet the piston seal with isopropanol or another suitable solvent before insertion.



- 2 Insert the support ring and pump head ferrules into the piston housing. Observe the pins on the support ring, which help you assembling the pump head correctly.



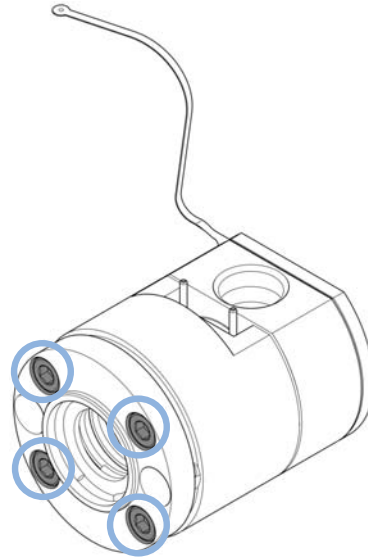
**3** Assemble the pump head by putting the pump chamber housing on top of the support ring. Observe correct orientation of the pin.



**NOTE**

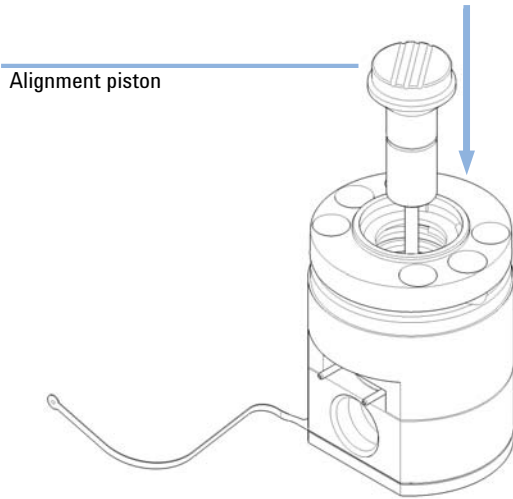
Do NOT install the inlet and outlet valves and the outlet filter at this stage.

**4** Loosely close the 4 screws at the rear of the pump head. The screws will be fixed tightly later.



### 3 Pump Head Maintenance (Quaternary and Flexible Pumps) Assembling the Pump Head

- 5 Insert the alignment piston of the pump head alignment tool. Lubricate the alignment piston with isopropanol or another suitable solvent before insertion.



#### CAUTION

**Damage to the pump head.**

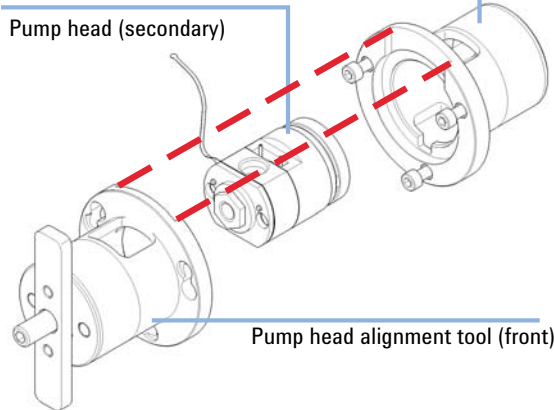
→ Using the alignment tool is mandatory.

→ Not using will break the pump head.

- 6 Insert the pump head to the pump head alignment tool, which is included to the 1290 Infinity Service Kit p/n 5067-4699. There are openings for the seal wash support ring and heat exchanger of the secondary pump head. Observe the correct orientation of all parts.

Pump head alignment tool (rear)

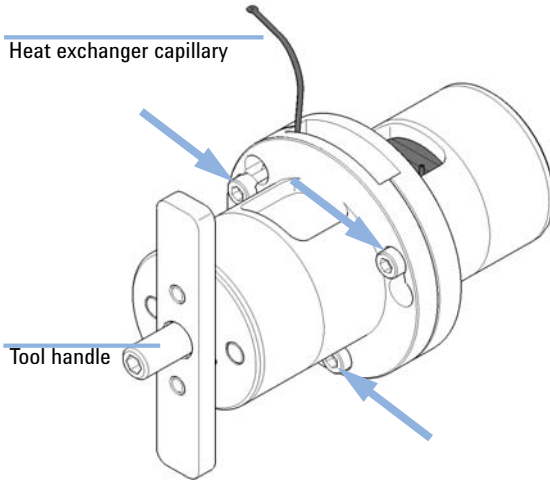
Pump head (secondary)



Pump head alignment tool (front)



- 7 Close the tool by closing the three screws at the connection ring.

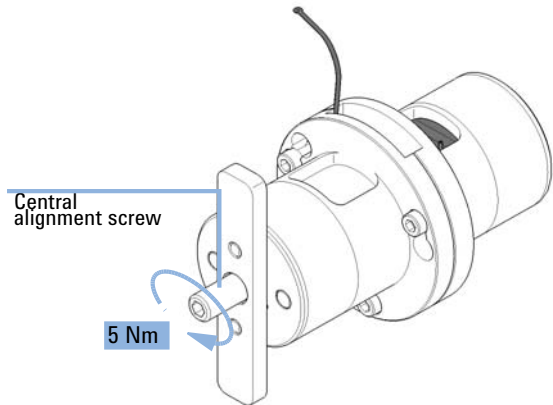


**CAUTION**

**Damage to the pump head**  
Using a wrong torque will damage the pump head.

→ For handling the torque wrench, setting and applying the right torque, consult the manual of your torque wrench.

- 8 Using a torque key, which is included to the 1290 Infinity Service Kit p/n 5067-4699, set 5 Nm and fix the central alignment screw.



### 3 Pump Head Maintenance (Quaternary and Flexible Pumps)

#### Assembling the Pump Head

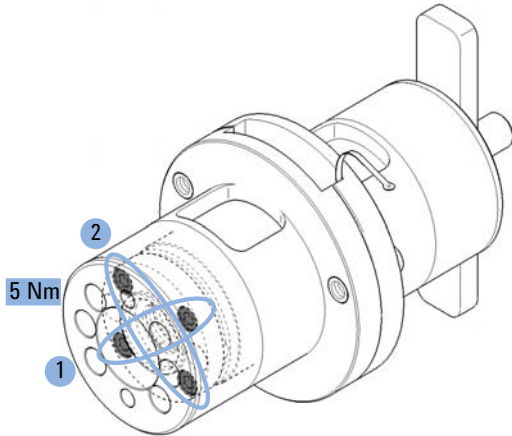
#### CAUTION

##### Damage to the pump head

Using a wrong torque will damage the pump head.

→ For handling the torque wrench, setting and applying the right torque, consult the manual of your torque wrench.

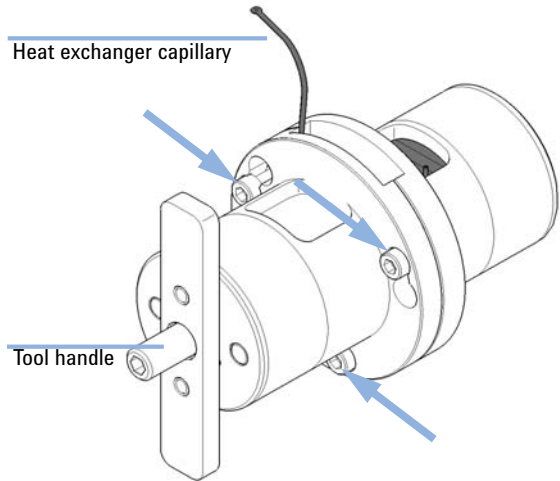
- 9 Using a torque key, which is included to the 1290 Infinity Service Kit p/n 5067-4699, set 5 Nm and fix the 4 screws at the rear of the alignment tool. Tighten screws crosswise.



#### NOTE

This procedure will align pump head parts to their correct positions and close the pump head tightly.

- 10 Open the 3 screws which have closed the pump head alignment tool and take out the aligned pump head. In case the pump head sticks inside the alignment tool, you can use the handle and insert it to the rear of the tool for pushing out the pump head.

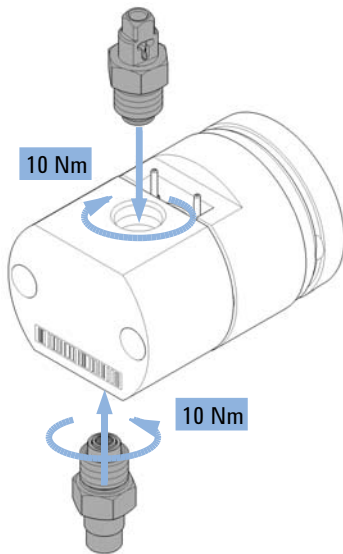


**CAUTION**

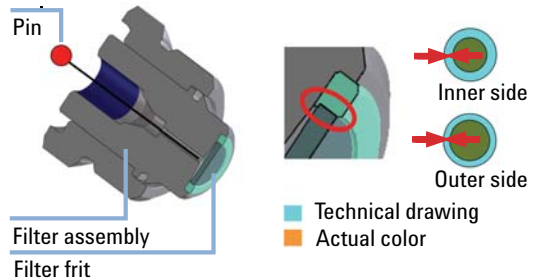
**Damage to the pump head**  
Using a wrong torque will damage the pump head.

→ For handling the torque wrench, setting and applying the right torque, consult the manual of your torque wrench.

**11** For the primary pump head, install the inlet valve and outlet valve using the torque wrench, which is included to the 1290 Infinity Service Kit p/n 5067-4699. Set 10 Nm for the inlet valve and 10 Nm for the outlet valve.



**12** Push in a thin pin for removing the old filter frit from the filter assembly. Insert a new filter frit (p/n 5067-5716) in the correct orientation (observe different thickness of holder on either side).



### 3 Pump Head Maintenance (Quaternary and Flexible Pumps)

#### Assembling the Pump Head

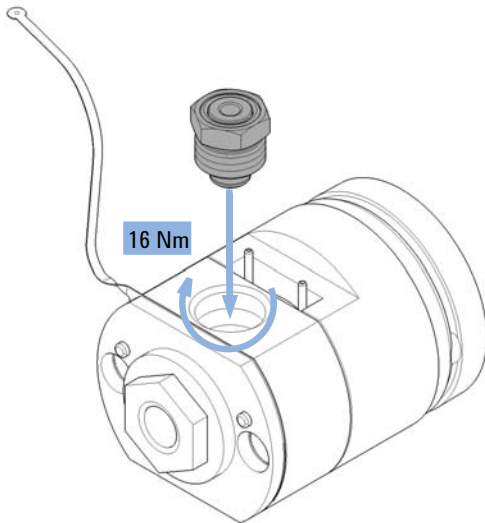
#### CAUTION

**Damage to the pump head**

Using a wrong torque will damage the pump head.

→ For handling the torque wrench, setting and applying the right torque, consult the manual of your torque wrench.

**13 G4204A:** For the secondary pump head, install the outlet filter using the torque wrench (14 mm hex bit), which is included to the 1290 Infinity Service Kit p/n 5067-4699, set to 16 Nm.



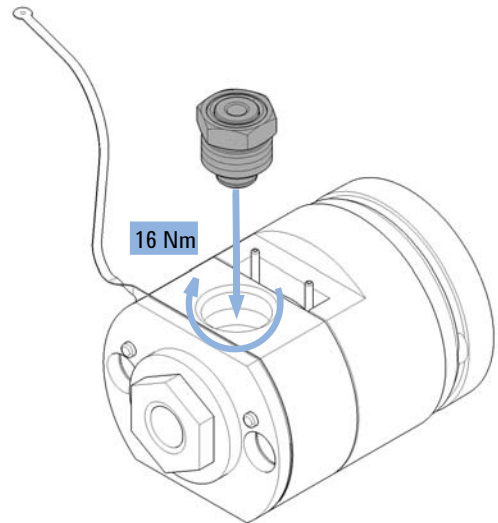
#### CAUTION

**Damage to the pump head**

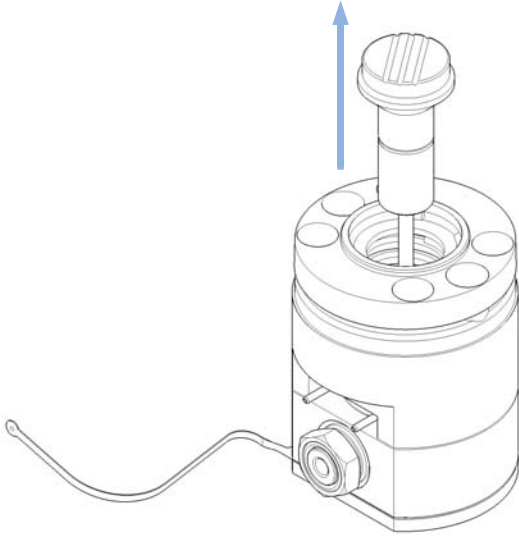
Using a wrong torque will damage the pump head.

→ For handling the torque wrench, setting and applying the right torque, consult the manual of your torque wrench.

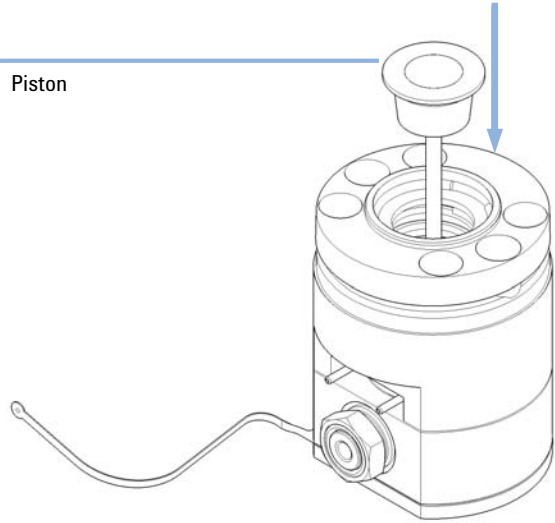
**14 G7104A:** For the secondary pump head, install the outlet adapter using the torque wrench (14 mm hex bit), which is included to the 1290 Infinity Service Kit p/n 5067-4699, set to 16 Nm.



**15** Remove the alignment piston.



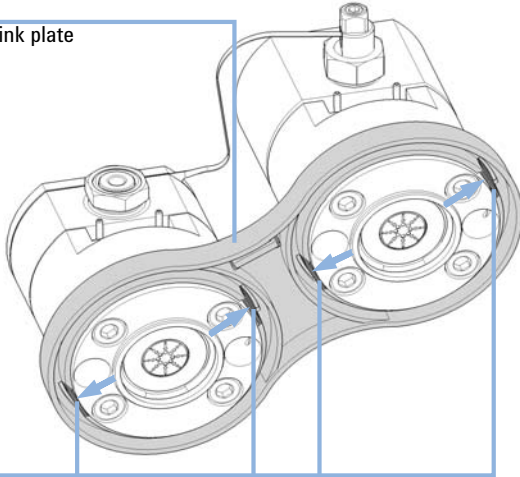
**16** Lubricate the pump piston with isopropanol or another suitable solvent, and insert it.



### 3 Pump Head Maintenance (Quaternary and Flexible Pumps) Assembling the Pump Head

- 17** Insert both pump heads to the link plate and make sure that the clips snap in that fix the pump heads.

Link plate



Clips

#### NOTE

Observe the correct orientation of the primary and the secondary pump head. This is important for correct fixation of the heat exchanger and the capillaries, as described in the following steps.

#### NOTE

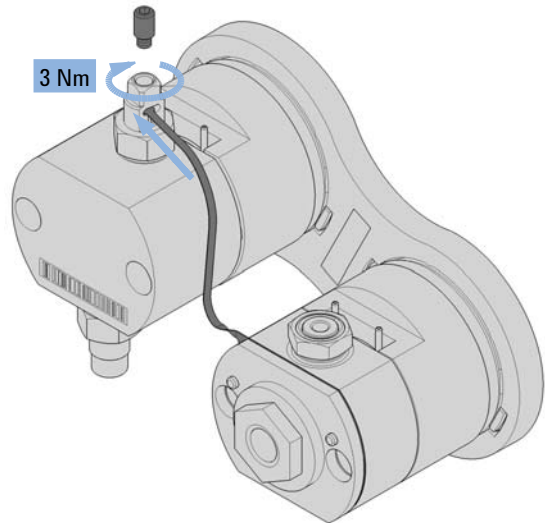
Mind the orientation of the ID tag.

#### CAUTION

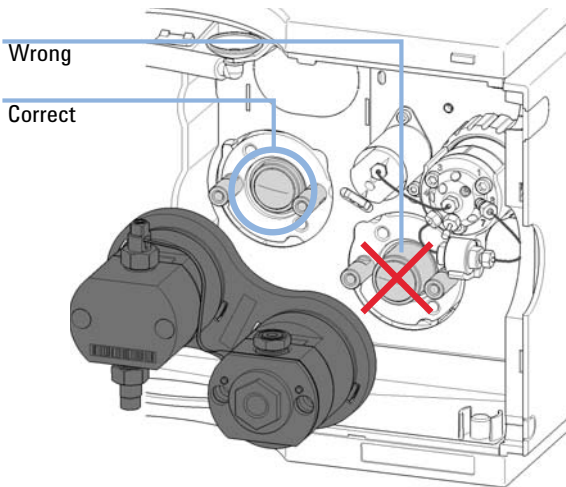
**Damage to the pump head**  
Using a wrong torque will damage the pump head.

→ For handling the torque wrench, setting and applying the right torque, consult the manual of your torque wrench.

- 18** Insert the heat exchanger capillary into the outlet of the primary pump head. Using a torque key, which is included to the 1290 Infinity Service Kit p/n 5067-4699, set 3 Nm and close the hex screw at the top of the outlet.



**19** Bring the pump drive to the maintenance position using the Lab Advisor user interface, see “Disassembling the Pump Head” on page 54. Both pump drives must be retracted.

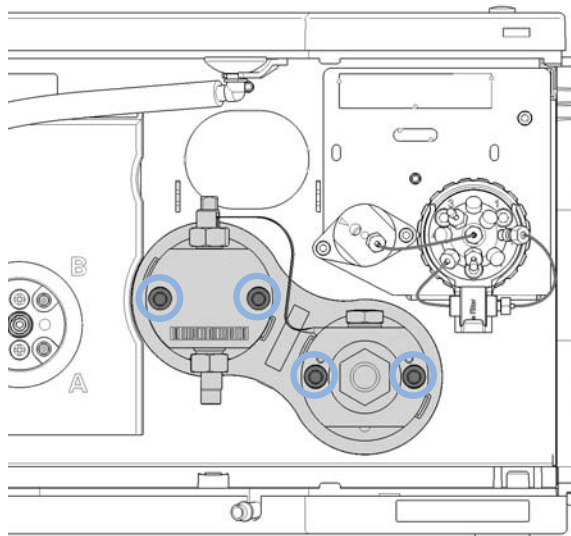


**CAUTION**

**Damage to the pump head**  
Using a wrong torque will damage the pump head.

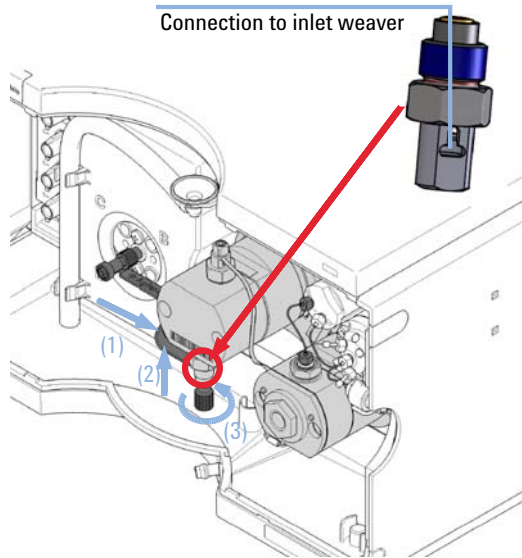
→ For handling the torque wrench, setting and applying the right torque, consult the manual of your torque wrench.

**20** Install the new pump head assembly by tightening the screws step by step. Apply 5 Nm using a torque hex key, which is included to the 1290 Infinity Service Kit p/n 5067-4699.

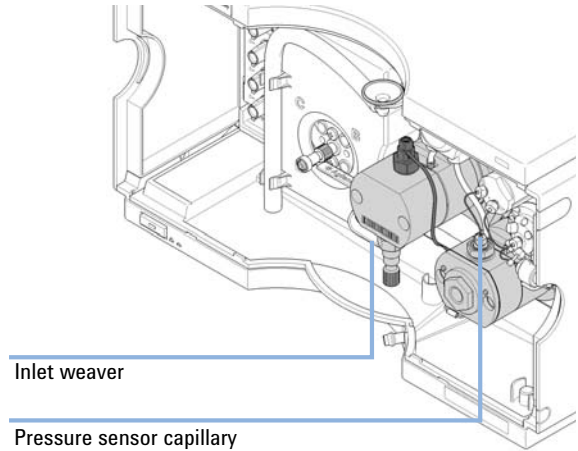


### 3 Pump Head Maintenance (Quaternary and Flexible Pumps) Assembling the Pump Head

**21** Insert the inlet weaver to the inlet valve (1, 2). Fix the weaver with the plastic screw to the inlet valve (3).



**22** Install flow connections as described in *Replacing the Pump Heads* in the user manual.







## 4

# Overview of 1290 Infinity Pump Service Kit

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## 4 Overview of 1290 Infinity Pump Service Kit

Overview of 1290 Infinity Pump Service Kit

# Overview of 1290 Infinity Pump Service Kit

Pump head alignment tool  
(lower part)

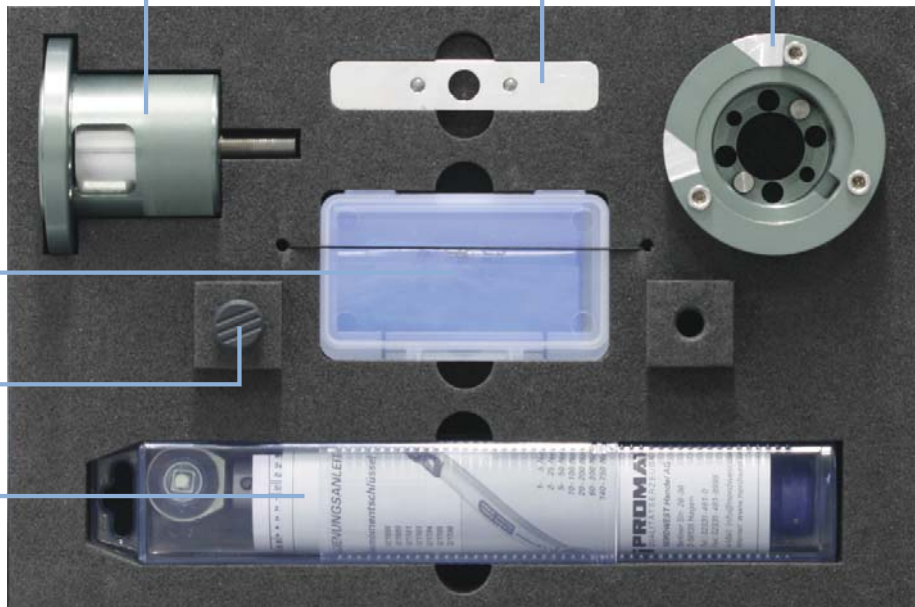
Tool handle

Pump head alignment part  
(upper part)

Bit kit

Alignment piston

Torque wrench 2-25 Nm



**Figure 15** Overview of the 1290 Infinity pump service kit

### 1290 Infinity Pump Service Kit

<b>p/n</b>	<b>Description</b>
5067-4699	1290 Infinity pump service kit Pump head alignment tool
5067-5688	Torque wrench 1 – 25 Nm with 14 mm wrench Bit kit contains the following items:
G4220-20013	4 mm hex bit
G4220-20014	2.5 mm Hex Bit
G4220-20015	Adapter ¼ in square to hex
G4220-20041	Bit Torx 10x25 mm

#### NOTE

Reprints of this technical note 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>.

### Replacement Kit

<b>p/n</b>	<b>Description</b>
5023-0285	Replacement kit for 1290 Infinity pump head alignment tool (piston/handle)

#### NOTE

The replacement kit is not part of the pump service kit, but can be ordered under the given number.

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