Fraction collector F9-C

Operating Instructions

Original instructions

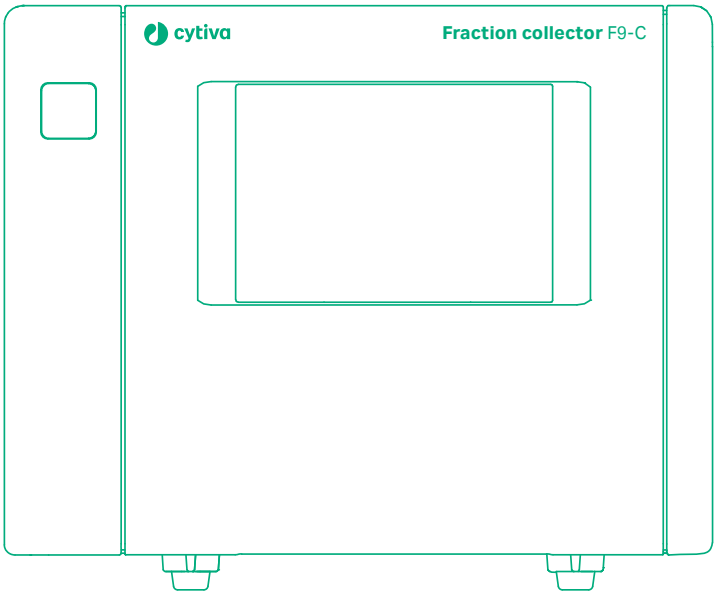

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Table of Contents

1 Introduction

About this chapter

This chapter contains information about this manual and associated user documentation, important user information and intended use of the product.

In this chapter

1.1 Important user information

Read this before operating the product

All users must read the entire *Operating Instructions* before installing, operating or maintaining the product.

Always keep the *Operating Instructions* at hand when operating the product.

Do not install, operate, or perform maintenance on the product in any other way than described in the user documentation. If you do, you may be exposed or expose others to hazards that can lead to personal injury and you may cause damage to the equipment.

Intended use

Fraction collector F9-C is an automated fraction collector intended for the collection of fractions from purification runs. It is intended for research use only, and shall not be used in clinical procedures, or for diagnostic purposes.

Prerequisites

In order to operate Fraction collector F9-C in the way it is intended:

- The user must know how to use a computer with Microsoft® Windows®.
- The user should understand the concepts of liquid chromatography.
- The user must be familiar with the purification system and have read the *Operating Instructions* for the system.
- The user must read and understand the Safety Instructions chapter in the *Operating Instructions*.
- Fraction collector F9-C must be installed in accordance with the site requirements and instructions in the *Operating Instructions*.

1.2 About this manual

Purpose of this manual

The Operating Instructions manual provides information needed to install, operate and maintain the product in a safe way.

Scope of this manual

The *Operating Instructions* manual covers Fraction collector F9-C, in the manual also referred to as the product.

Typographical conventions

Software items are identified in the text by ***bold italic*** text.

Hardware items are identified in the text by **bold** text.

In electronic format, references in *italics* are clickable hyperlinks.

Notes and tips

Note: *A note is used to indicate information that is important for trouble-free and optimal use of the product.*

Tip: *A tip contains useful information that can improve or optimize your procedures.*

1.3 Associated documentation

Introduction

This section describes the user documentation delivered with the product, and how to find related literature that can be downloaded or ordered from Cytiva.

User documentation for Fraction collector F9-C

The user documentation is listed in the table below. The manuals are delivered on removable media together with the product, but can also be downloaded from *cytiva.com*.

Documentation	Main contents
Fraction collector F9-C Operating Instructions	Instructions needed to install and operate the Fraction collector F9-C in a correct and safe way.
Translations of *Fraction collector F9-C Operating Instructions*	Translated versions of the original instructions.

User documentation for compatible purification systems

This section lists examples of user documentation for purification systems that can be used together with this product. The manuals can be downloaded from *cytiva.com*.

Documentation	Main contents
Operating Instructions for the ÄKTA™ instrument	Instructions needed to install and operate the ÄKTA instrument in a correct and safe way. Translated versions are delivered together with the printed *Operating Instructions* and are also found on cytiva.com.
Cue Cards (if available) for the ÄKTA instrument	Condensed information on how to operate the ÄKTA instrument.
User Manual for the ÄKTA instrument	Additional information in order to get the optimal performance from the system.

Help and user documentation within the UNICORN software

For help regarding UNICORN™, mark the area of interest in the software and press **F1**.

It is then possible to navigate further to find, for example, software manuals.

Tip: *There are specific help texts for instructions that only can be reached by marking the instruction and pressing* **F1**.

2 Safety instructions

About this chapter

This chapter describes safety precautions, labels and symbols that are attached to the equipment. In addition, the chapter describes emergency and recovery procedures.

In this chapter

Important

WARNING

Before installing, operating or maintaining the product, all users must read and understand the entire contents of this chapter to become aware of the hazards involved.

2.1 Safety precautions

Introduction

Fraction collector F9-C handles materials that can be hazardous.

Before installing, operating or maintaining the system, you must be aware of the hazards described in this manual.

Definitions

This user documentation contains safety notices (WARNING, CAUTION, and NOTICE) concerning the safe use of the product. See definitions below.

WARNING

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury. It is important not to proceed until all stated conditions are met and clearly understood.

CAUTION

CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury. It is important not to proceed until all stated conditions are met and clearly understood.

NOTICE

NOTICE indicates instructions that must be followed to avoid damage to the product or other equipment.

General precautions

WARNING

Do not operate Fraction collector F9-C in any other way than described in the *Operating Instructions*.

WARNING

Operation and user maintenance of Fraction collector F9-C should be performed by properly trained personnel only.

WARNING

Accessories. Use only accessories supplied or recommended by Cytiva.

WARNING

Do not use Fraction collector F9-C if it is not working properly, or if it has suffered any damage, for example:

- damage to the power cord or its plug
- damage caused by dropping the equipment
- damage caused by splashing liquid onto it

Flammable liquids

CAUTION

Explosion hazard during fractionation of flammable liquids. Do not use a covered fraction collector (Fraction collector F9-C) to fractionate flammable liquids. When using an open fraction collector (Fraction collector F9-R), do not place the fraction collector in a closed compartment and make sure that the room ventilation meets the local requirements.

CAUTION

Fire Hazard. Do not fractionate flammable liquids using Fraction collector F9-C. When running RPC methods, or other procedures using organic solvents, collect fractions through the outlet valve or Fraction collector F9-R.

CAUTION

Explosion hazard if flammable liquid leaks during cleaning of the flow path. When cleaning the flow path of Fraction collector F9-C with a flammable liquid like ethanol, carefully inspect the flow path, including the waste tubing, to make sure there will be no leakage.

Personal protection

CAUTION

Always use appropriate personal protective equipment during operation and maintenance of Fraction collector F9-C.

CAUTION

Hazardous substances. When using hazardous chemical and biological agents, take all suitable protective measures, such as wearing protective glasses and gloves resistant to the substances used. Follow local and/or national regulations for safe operation, maintenance and decommissioning of the equipment.

Installing and moving the fraction collector

WARNING

UniNet cable. Only use UniNet cables delivered or approved by Cytiva.

CAUTION

Heavy object. Use proper lifting equipment, or use two or more persons when moving Fraction collector F9-C. All lifting and moving must be performed in accordance with local regulations.

NOTICE

Vents on Fraction collector F9-C . To ensure adequate ventilation, keep papers and other objects away from the vents of the fraction collector.

Operation

WARNING

Moving parts. Do not open the door of Fraction collector F9-C while the fraction collector is active. If you need to access the fraction collector, press ***Pause*** on the chromatography instrument, and make sure that no parts are moving before opening the door.

CAUTION

Risk of breaking test vials. Do not use excessive force to press vials with incorrect dimensions into the fraction collector. Glass vials may break and cause injuries.

CAUTION

Avoid spillage and overflow. Make sure that the equipment is prepared according to the settings in the method to be run.

CAUTION

Maximum weight on the top of Fraction collector F9-C. Do not place more than 30 kg on top of Fraction collector F9-C.

Maintenance

CAUTION

Electrical shock hazard. All repairs should be done by service personnel authorized by Cytiva. Do not open any covers or replace parts unless specifically stated in the user documentation.

CAUTION

Disconnect power. Always switch off power to Fraction collector F9-C, before cleaning any of its components, unless stated otherwise in the user documentation. This is done by switching off the chromatographic instrument that provides Fraction collector F9-C with power.

CAUTION

Hazardous chemicals and biological agents. Before maintenance, service and decommissioning, wash Fraction collector F9-C with a neutral solution to make sure that any hazardous solvents and biological agents have been flushed out from the fraction collector.

CAUTION

Always use appropriate personal protective equipment when decommissioning the equipment.

CAUTION

Cleaning Fraction collector F9-C before decommissioning.

- Wipe Fraction collector F9-C with a damp tissue using a cleaning agent so that no hazardous solvents or biological agents remain on the surface. Do not forget to clean the interior of Fraction collector F9-C.
- Perform a system CIP using a neutral solution. Make sure that any hazardous solvents or biological agents are flushed out from the fraction collector.

CAUTION

Explosion hazard if flammable liquid leaks during cleaning of the flow path. When cleaning the flow path of Fraction collector F9-C with a flammable liquid like ethanol, carefully inspect the flow path, including the waste tubing, to make sure there will be no leakage.

NOTICE

Cleaning. Keep Fraction collector F9-C dry and clean. Wipe regularly with a soft damp tissue and, if necessary, a mild cleaning agent. Let Fraction collector F9-C dry completely before use.

2.2 Labels and symbols

Introduction

This section describes the product nameplate (label) and other safety and regulatory labels attached to the product.

System label

The system label is located on the back of the equipment. The system label identifies the equipment and shows electrical data, regulatory compliance, and warning symbols.

Safety label

It is not allowed to fractionate flammable liquids using Fraction collector F9-C due to the risk of build-up of flammable and explosive gases. When running RPC methods, or other procedures using organic solvents, collect fractions through the Outlet valve or with Fraction collector F9-R.

The safety label below is located on the inside of the door of Fraction collector F9-C.

Label information

The label contains information on the serial number, regulatory compliance symbols, recycling symbols, and specifications.

The label information is explained in the table below.

Label text	Meaning
Code no	Fraction collector code number
Serial no	Fraction collector serial number
Mfg Year	Manufacturing year and month
Voltage	Supply voltage
Max Power	Max power consumption
Protection class	Protection class, ingress protection according to IEC 60529
	Warning! Read the Operating Instruction before using the module. Do not open any covers or replace parts unless specifically stated in the *Operating Instructions*.

Label text	Meaning
	This symbol indicates that electrical and electronic equipment must not be disposed of as unsorted municipal waste and must be collected separately. Please contact an authorized representative of the manufacturer for information concerning the decommissioning of equipment.
	The fraction collector complies with applicable European directives
	The equipment complies with the applicable requirements for Australia and New Zealand

2.3 Emergency procedures

Introduction

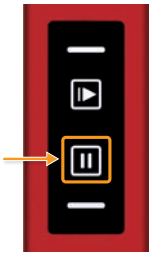
The ÄKTA instrument supplies the Fraction collector F9-C with power. This section describes how to perform an emergency shutdown of the Fraction collector F9-C by shutting down the ÄKTA instrument.

This section also describes the result in the event of power failure or network interruption.

For more information on how to shut down and restart the instrument, refer to the *Operating Instructions* for the ÄKTA instrument.

Emergency shutdown

In an emergency situation, stop the run by either pausing the run or switching off the instrument as described below:

If you want to...	then...
pause the run	• press the **Pause** button on the Instrument control panel:  ***Note:*** *The buttons on the Instrument control panel may be locked. This is an option available in the* ***System settings****.* or • click the ***Pause*** icon in UNICORN:  *Result:* All pumps in the instrument are stopped.

If you want to...	then...
switch off the instrument	• press the **Power** switch to the **0** position, or • disconnect the power cord from the wall socket. *Result:* The run is interrupted immediately. ***Note:*** *The sample and data may be lost as a result of switching off the power.*

Power failure

In case of a power failure or if communication is lost, the run is interrupted immediately and all moving parts in the fraction collector are stopped.

3 Overview

About this chapter

This chapter gives an overview of Fraction collector F9-C and suitable disposables and accessories to be used with the fraction collector.

In this chapter

3.1 Function

The fraction collector collects fractions from ÄKTA pure purification runs.

The fraction collector can be used for:

- Fixed volume fractionation
- Peak fractionation
- Combined fixed volume fractionation and peak fractionation

Fraction collector F9-C has the following functions for reducing sample spill during fractionation:

- Drop Sync
- Accumulator

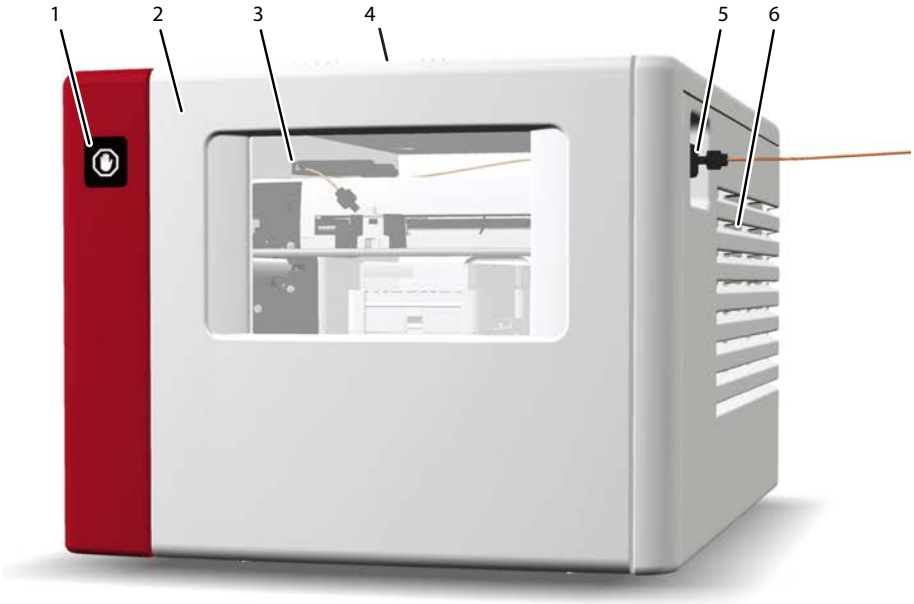
3.2 Illustrations

Introduction

This section provides illustrations of Fraction collector F9-C. The main features and components are indicated.

Front view

The illustration below shows the main parts of the exterior of Fraction collector F9-C.



Part	Description
1	Fractionation indicator Symbol indicating that fractionation is ongoing. Do not open the door while the indicator is lit.
2	Door
3	Window
4	Door handle
5	Tubing connector for outlet valve tubing
6	Vents

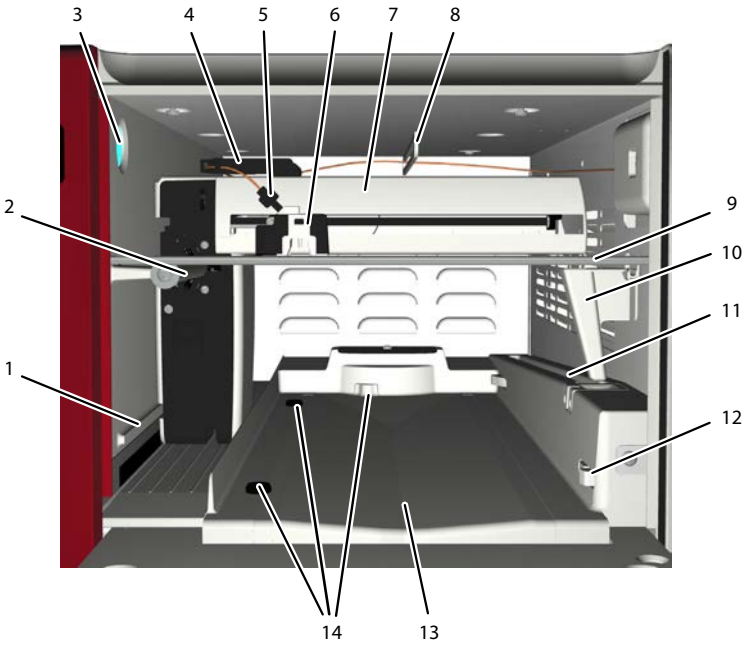
Rear view

The illustration below shows the rear view of Fraction collector F9-C.

Part	Description
1	Vents
2	UniNet-9 D-type connector (for communication and power supply)
3	Waste tube

Interior

The illustration below shows the main parts of the interior of Fraction collector F9-C.

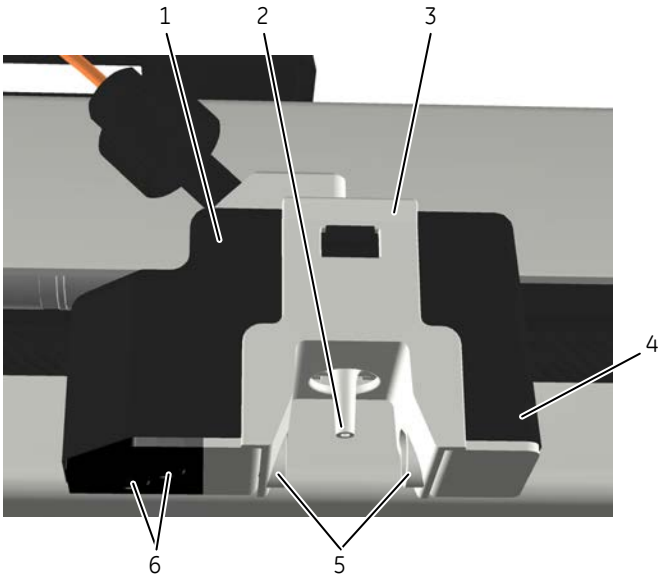


Part	Description
1	Fractionation arm guide rail
2	Fractionation arm main rail
3	Lamp
4	Tubing guide
5	Tubing connection
6	Dispenser head
7	Fractionation arm
8	Tubing guide
9	Height exclusion bar
10	Waste funnel
11	Waste tube
12	Tray catch

Part	Description
13	Waste groove, in case of overflow
14	Tray guides

Dispenser head

The illustration below shows the Dispenser head of Fraction collector F9-C.



Part	Description
1	Dispenser head
2	Nozzle
3	Dispenser head cover
4	Accumulator (back part of Dispenser head)
5	Drop sync sensor
6	Type code reader

3.3 Cassettes, cassette tray and racks

Introduction

Fractions can be collected in deep well plates and in tubes of different sizes. A number of cassettes, trays and racks for different tubes and deep well plates are available. The cassettes are placed on a tray with six cassette positions.

The cassette type codes, tray type code and rack type codes are scanned by the type code reader to determine the type of cassettes, trays and racks used. For more information on requirements that need to be fulfilled by the tubes and deep well plates to be used in Fraction collector F9-C, see the *ÄKTA pure User Manual (29119969)*.

Available cassettes, trays and racks

The following cassettes and racks are available:

- Cassette 3 mL tubes (for 40 tubes)
- Cassette 5 mL tubes (for 40 tubes)
- Cassette 8 mL tubes (for 24 tubes)
- Cassette 15 mL tubes (for 15 tubes)
- Cassette 50 mL tubes (for 6 tubes)
- Cassette for deep well plate (24, 48, 96 wells)
- Cassette tray (for six cassettes)
- Rack for 50 mL tubes (for 55 tubes)
- Rack for 250 mL bottles (for 18 bottles)

For information on dimension requirements for tubes and deep well plates to be used in the fraction collector, see *Fraction collector tubes and bottles, on page 26* and *Deep well plates, on page 26* respectively.

Illustrations of Fraction collector F9-C tray and racks

The illustrations below show the cassette tray, the rack for 50 mL tubes and the rack for 250 mL bottles.

The fronts of the tray and the racks are marked with the Cytiva logo.

In the cassette tray, the cassette positions are marked 1 to 6.

Cassette tray

Rack for 50 mL tubes

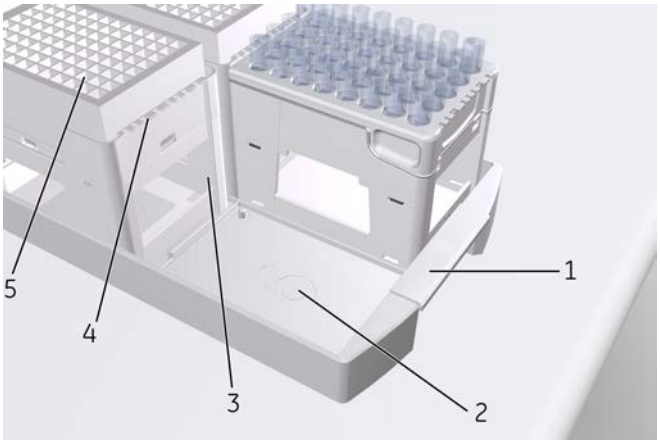
Rack for 250 mL bottles

Note: *The tray and racks are inserted into the fraction collector with the Cytiva logo facing outwards.*

Note: *Do not use the cassette tray when a rack for tubes or bottles is placed in the fraction collector.*

Illustration of cassettes on the cassette tray

The illustration below shows cassettes placed on the cassette tray.



Part	Description
1	Cassette tray
2	Cassette position number
3	Cassette
4	Cassette type code
5	Tubes or deep well plates placed in a cassette

Fraction collector tubes and bottles

The tubes and bottles used in Fraction collector F9-C must fulfill the requirements listed in the table below. Examples of manufacturers are also listed in the table.

Tube or bottle size (mL)	Diameter (mm)		Height (mm)		Examples of manufacturers
	Min.	Max.	Min.	Max.	
3	10.5	11.5	50	56	Nunc™
5	10.5	12	70	76	VWR™
8	12	13.3	96	102	BD Biosciences, VWR
15	16	17	114	120	BD Biosciences
50	28	30	110	116	BD Biosciences
250 mL bottle	L: 55 W: 55[1]	L: 64.5 W: 64[1]	-	121	Nalgene™, Kautex™

[1] Length and width of the rectangular bottle base

Deep well plates

The deep well plates used in Fraction collector F9-C must fulfill the requirements listed in the table below.

Property	Specification
No. of wells	24, 48, or 96
Shape of wells	Square, not cylindrical
Well volume	10, 5, or 2 mL

Refer to *Compatible deep well plates, on page 52* for information on compatible deep well plates.

4 Installation

About this chapter

This chapter provides required information on how to prepare for, and perform an installation of Fraction collector F9-C.

In this chapter

4.1 Site preparation

Introduction

This section describes the preparations necessary for the installation of Fraction collector F9-C.

The peformance specifications of the fraction collector can be met only if the laboratory environment fulfills the requirements stated in this section.

In this section

4.1.1 Delivery and storage

Introduction

This section describes the requirements for receiving the delivery box and storing the fraction collector before installation.

When you receive the delivery

- Record on the receiving documents if there is any apparent damage on the delivery box. Inform your Cytiva representative of such damage.
- Move the delivery box to a protected location indoors.

Storage requirements

The delivery box should be stored in a protected place indoors. The following storage requirements must be fulfilled for the unopened box:

Parameter	Allowed range
Ambient temperature, storage	-25°C to +60°C
Relative humidity	up to 90% atmospheric humidity at 40°C for 48 hours

4.1.2 Space requirements

Introduction

This section describes the different options of placement of Fraction collector F9-C and the space required.

Location

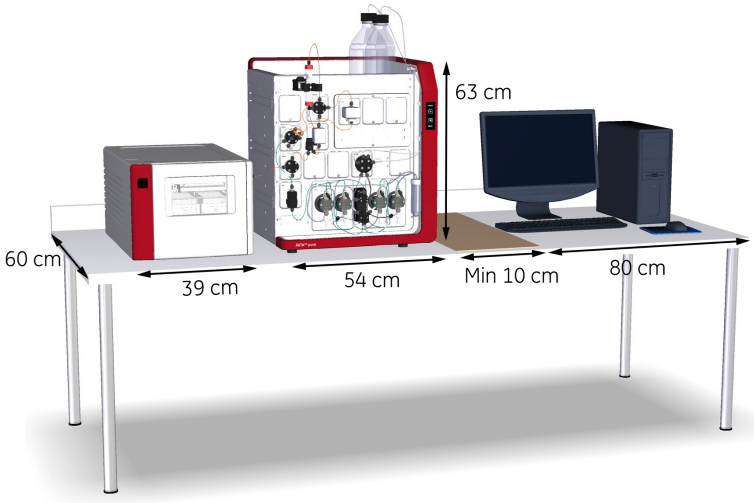
Place the fraction collector on a clean, flat and stable area that is able to support the weight of the fraction collector.

The following locations are recommended for the Fraction collector F9-C:

- on the bench to the left of the purification instrument
- on a shelf below the bench

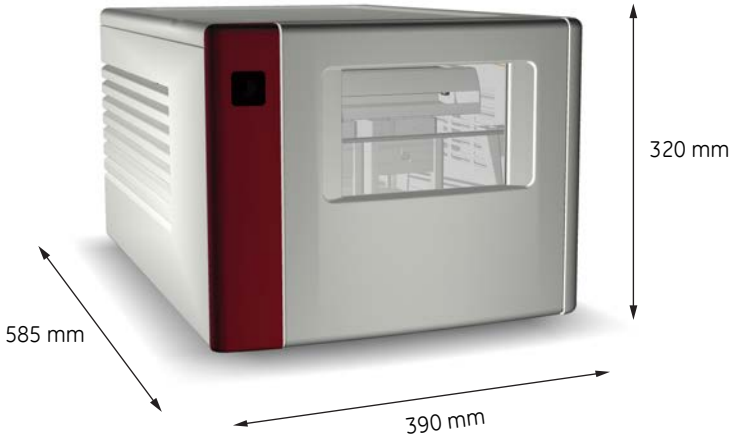
Note: *Longer tubing length increases back pressure and band broadening in the chromatographic process. Place the fraction collector so that the total tubing length is minimized.*

The illustration below shows the space recommended for the system including Fraction collector F9-C when used with ÄKTA pure.



Size and weight

The size and weight of the fraction collector are stated in the table below.



Parameter	Value
W (width)	390 mm
H (height)	320 mm
D (depth)	585 mm
Weight	21 kg

4.1.3 Site requirements

Introduction

This section describes the site requirements for installation of the fraction collector.

Environmental requirements

For environmental requirements, refer to the *Operating Instructions* for the ÄKTA instrument.

4.2 Connections to the ÄKTA instrument

Introduction

This section contains information on how to set up tubing and a connection for power and communication between Fraction collector F9-C and the ÄKTA pure instrument.

Note: *This information can apply to other ÄKTA purification instruments. Please check the purification instrument documentation for more information.*

It is possible to install up to two fraction collectors in the following combinations when using ÄKTA pure:

- one Fraction collector F9-C and one Fraction collector F9-R,
- one Fraction collector F9-T and one Fraction collector F9-R, or
- two Fraction collector F9-R.

If two fraction collectors are to be used, the following applies to the second one:

- it must be a Fraction collector F9-R,
- it has to be configured as ***Fraction collector F9-R, 2nd***,
- the node ID has to be changed, as described in the *Fraction collector F9-R Operating Instructions (29656880)*.

In this section

4.2.1 Power and communication

Introduction

This subsection describes how to set up the power and communication connection between Fraction collector F9-C and the ÄKTA pure instrument.

Connect fraction collector

The Fraction collector F9-C is connected to the ÄKTA pure instrument using a UniNet-9 cable, D-type.

> **WARNING**
>
> **UniNet cable**. Only use UniNet cables delivered or approved by Cytiva.

Follow the instructions below to connect the fraction collector to the ÄKTA instrument.

Step	Action
1	Switch off the power to the ÄKTA pure instrument.
2	Remove the jumper from the UniNet-9 port to be used on the rear of the ÄKTA pure instrument (port 7 or 8).

Step	Action
3	Connect the UniNet-9 cable between the UniNet-9 ports on the back of the fraction collector and on the back of the ÄKTA pure instrument.

NOTICE

Do not use the **Test** port on the ÄKTA pure instrument.

Step	Action
4	Make sure that all unused UniNet-9 ports on the ÄKTA pure instrument are plugged with jumpers.

Software configuration

When the fraction collector has been installed, the ***System properties*** for the system has to be updated in UNICORN. The system will restart automatically when the configuration has been changed and the system can be reconnected.

From hereon, UNICORN refers to UNICORN 6.3 or other compatible versions of the software. The examples given in these *Operating Instructions* refer to UNICORN 6.3.

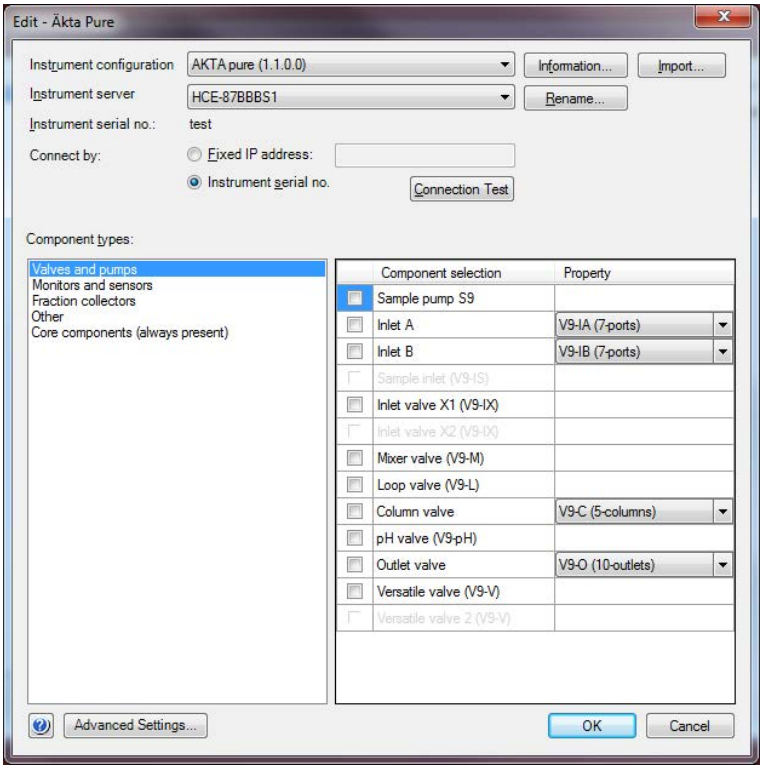
Follow the instructions below to update the system in UNICORN.

Step	Action
1	In the ***Administration*** module, choose ***Tools*** →***System Properties*** or click the ***System Properties*** icon to open the dialog. *Result:* The ***System Properties*** dialog is displayed.
2	Select a system in the ***System Properties*** dialog. ***Note:*** *Only active systems can be edited.*
3	Click the ***Edit*** button.

Step	Action

Result:

The ***Edit*** dialog is displayed.



4 In the ***Edit*** dialog, select ***Fraction collectors*** from the ***Component types*** list.

Note:

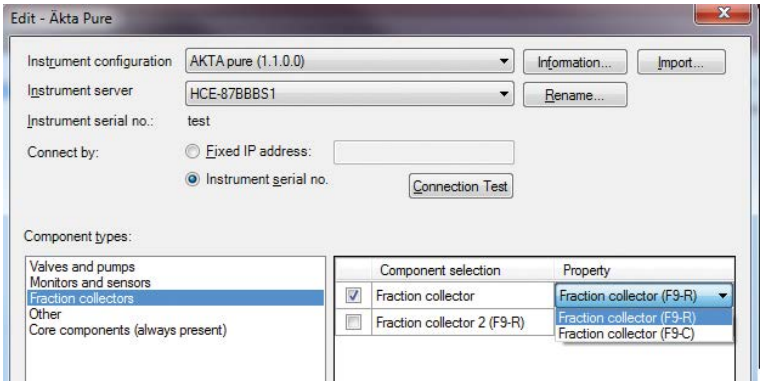
Instrument modules are referred to as ***Components*** *in UNICORN.*

Note:

An outlet valve has to be selected in order to select a fraction collector.

Result:
All available fraction collectors are shown in the ***Component selection*** list.

Step	Action
5	Select the ***Fraction collector*** check box. Choose what kind of fraction collector to add from the drop down list box.



Note:
Fraction collector 2 *is only available in the* ***Component selection*** *list if* ***Fraction collector*** *is already selected.*

6	Click the ***OK*** button to apply the changes.

4.2.2 Tubing connections

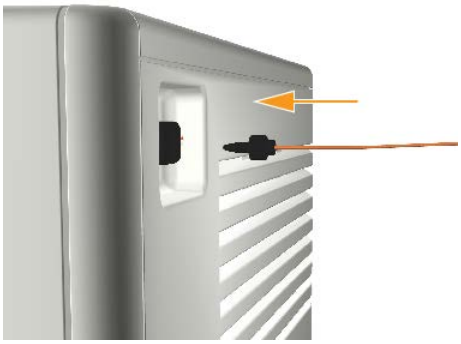
Introduction

This subsection contains information on how to connect tubing from the ÄKTA instrument to Fraction collector F9-C.

Connect tubing for fractionation

Fraction collector F9-C is delivered with all internal tubing in place. The tubing between the fraction collector and purification instrument need to be installed.

Follow the instructions in the table below to connect the tubing from the ÄKTA pure instrument to the fraction collector.

Step	Action
1	Connect the tubing **Frac** to the **Frac** port on the outlet valve on the ÄKTA pure instrument.
2	Connect the other end of the **Frac** tubing to the inlet port on the fraction collector.
	
3	Adjust the delay volume setting in UNICORN, see *Section 4.3 Delay volume, on page 41* for more details.

Prepare the waste tubing

The waste outlet is located on the rear of the fraction collector.

Follow the steps below to prepare the waste tubing.

Step	Action
1	Insert the waste tubing in a vessel.

NOTICE

The maximum level of the vessel for the waste tubing must be lower than the fraction collector.

Step	Action
2	Cut the waste tubing to appropriate length. It is important that the tubing is not bent and will not be submerged in liquid during the run.

Note:

If the tubing is too short, replace it with new tubing. Do not lengthen the tubing as this might cause obstruction of the tubing.

3	Securely fasten the tubing to the waste vessel.

CAUTION

Make sure that the waste vessel will hold all the produced volume of the run.

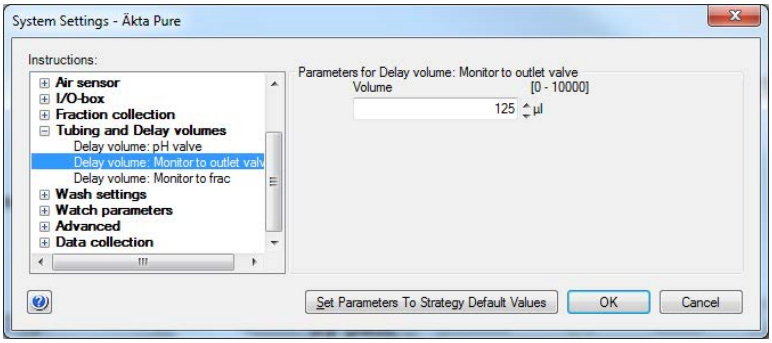
4.3 Delay volume

Introduction

The delay volume settings are used to make sure that the fractions collected during fractionation, using the outlet valve or the fraction collector, correspond to the fractions indicated in the chromatogram.

Set the delay volume

Follow the instructions below to set the delay volume between the UV monitor and the outlet valve and between the UV monitor and the fraction collector. Refer to the *User Manual* of the purification instrument for more information about delay volumes.

Step	Action
1	Select ***System*** →***Settings*** in the ***System Control*** module. *Result:* The ***System Settings*** dialog opens.
2	Select ***Tubing and Delay Volumes*** →***Delay volume: Monitor to outlet valve***. Type in the volume in the ***Volume*** field and click ***OK***. 
3	In the ***System Settings*** dialog: • Select ***Delay volume: Monitor to outlet valve*** or ***Delay volume: Monitor to frac***, according to the configuration you are using. • Type in the volume in the ***Volume*** field and click ***OK***. ***Note:*** *The system uses the delay volume appropriate to the configuration in use and ignores other settings (e.g., the value for **Monitor to outlet valve** is ignored if you are using a fraction collector). It is however recommended to set all delay volumes so that the volumes remain correct if you change fractionation method.*

4.4 Performance test

Before taking the Fraction collector F9-C instrument into use, run a performance test to check the function of the equipment. See the *User Manual* of the purification instrument for further instructions.

5 Operation

About this chapter

This chapter describes how to prepare and assemble the fraction collector before a run.

The Fraction collector F9-C is connected to ÄKTA pure and controlled by UNICORN. Control of the fraction collector can be achieved automatically in a method run, or manually.

Prepare the fraction collector

Before starting to prepare Fraction collector F9-C, check the fractionation settings in the method to be run. Perform the steps described below according to the settings in the method.

- Insert the cassette tray or a rack for tubes or bottles. See *Prepare and insert the cassette tray, on page 43* or *Prepare and insert a rack for tubes or bottles, on page 47* for instructions.
- Change the ***System Settings*** in UNICORN to set the fractionation mode and other settings for fraction collection.

For information on how to change the ***System Settings*** before a run, see either the *ÄKTA pure User Manual (29119969)* or the *ÄKTA avant User Manual (29035184)*. The available ***System Settings*** are described in the *ÄKTA pure User Manual (29119969)*.

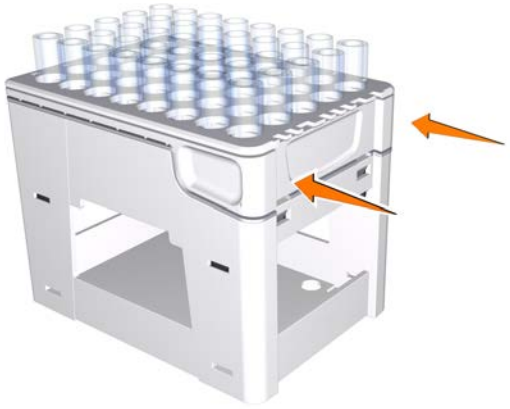
Prepare and insert the cassette tray

Follow the instructions below to add cassettes to the cassette tray and insert the tray into the fraction collector.

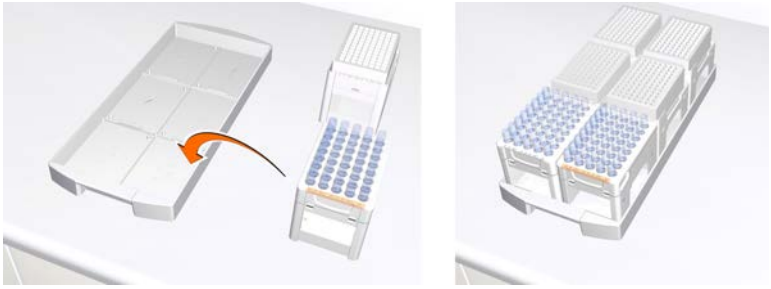
Step	Action
1	If you are to use cassettes with the QuickRelease function, open the cassettes. For more information on the QuickRelease function see the ÄKTA pure *User manual*.

2	Place the tubes and deep well plates in the cassettes. Make sure that the deep well plates are rotated so that the well marked **A1** is positioned above the **A1** marking on the cassette.

Step	Action
3	Close the cassettes that have the QuickRelease function.

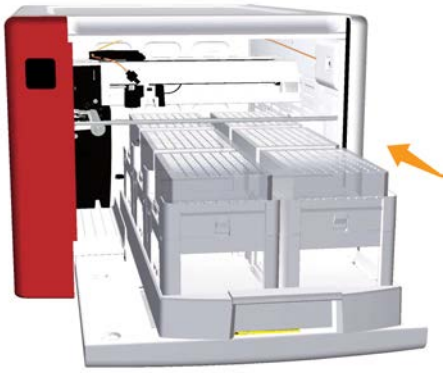


4	Place the cassettes on the cassette tray. Make sure that the cassette type code (see illustration below) faces the front of the tray marked with the Cytiva logo.

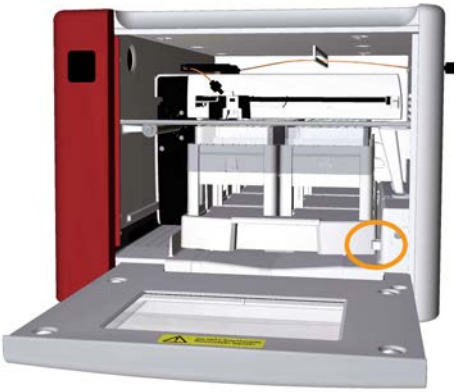


5	Open the door of the fraction collector using the handle.
6	Insert the tray into the fraction collector by following the steps below: a. Position the tray with the front of the tray (marked with the Cytiva logo) facing outwards. b. Slide the tray into the fraction collector until it reaches the end.

Step	Action



c. Make sure that the tray catch snaps into closed position, as shown below.



Note:

- *The tray can tilt slightly when not fully inserted into the fraction collector and may harm the fractionation arm. The tilt is due to the height difference between the door and the floor of the fraction collector. The tendency to tilt is affected by the placement and weight of the cassettes.*
- *A height exclusion bar ensures that the tubes or deep well plates are correctly positioned and cannot damage the Dispenser head.*

7 Close the door. Make sure that it closes properly.

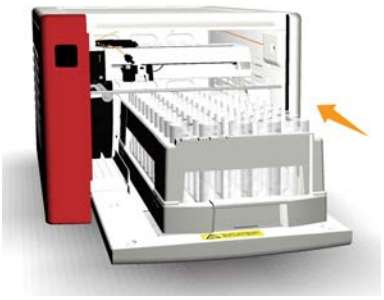
Result:

After the door has been closed, the fractionation arm scans the cassette type code of each cassette to identify the cassette types. If deep well plates are used, the instrument also identifies the types of deep well plates.

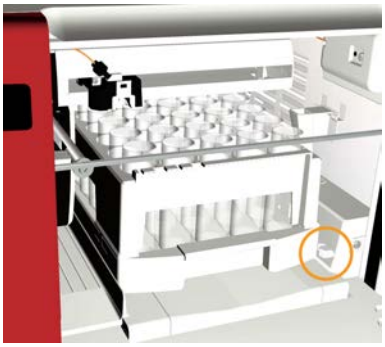
Step	Action
	Note: *If the tray is inserted with the front of the tray facing the wrong way it will not be possible to close the door.*

Prepare and insert a rack for tubes or bottles

Follow the instructions below to insert a rack for tubes or bottles into the fraction collector.

Step	Action
1	Place the tubes or bottles in the rack.
2	Open the door of the fraction collector using the handle.
3	Insert the rack into the fraction collector by following the steps below:: a. Position the rack with the front of the rack (marked with the Cytiva logo) facing outwards. b. Slide the rack into the fraction collector until it reaches the end.  c. Make sure that the tray catch snaps into closed position, as shown below.

Step	Action



Note:

- *The rack can tilt slightly when not fully inserted into the fraction collector and may harm the fractionation arm. The tilt is due to the height difference between the door and the floor of the fraction collector. The tendency to tilt is affected by the placement and weight of the tubes or bottles.*
- *A height exclusion bar ensures that the tubes or bottles are correctly positioned and cannot damage the Dispenser head.*
- *Do not use the cassette tray when the rack for 50 ml tubes or the rack for 250 ml bottles is placed in the fraction collector.*

4 Close the door. Make sure that it closes properly.

Note:

If the rack is inserted with the front of the rack facing the wrong way it will not be possible to close the door.

6 Maintenance

About this chapter

This chapter provides instructions for how to clean the fraction collector.

For further information, refer to the *User Manual* for the ÄKTA instrument.

Maintenance interval

Clean the Fraction collector when required, for example if liquid has been spilled in the Fraction collector chamber. The internal tubing of the fraction collector may need to be replaced for maintenance or for process purposes. Information on how and when to replace the internal tubing can be found in the ÄKTA pure *User manual*.

Required material

The following material is required:

- Wash bottle
- Water or 20% ethanol
- Cloth

Clean the fraction collector

Follow the instruction below to clean the interior of the fraction collector.

Step	Action
1	Perform a fraction collector wash: In ***System Control***, select ***Manual*** →***Execute Manual Instructions*** →***Fraction collection*** →***Fraction collector wash***. Click ***Execute***.

NOTICE

- If no column valve is used, make sure to replace any columns in the flow path with tubing before a fraction collector wash is performed.
- Lower the flow for the fraction collector wash in the instruction ***Fraction collector wash settings*** if the system back pressure is elevated during the wash.
- Make sure not to exceed the pressure limits for any of the modules that are part of the flow path.

Step	Action
2	In ***System Control***, select ***Manual*** →***Execute Manual Instructions*** →***Fraction collection*** →***Frac cleaning position*** . Click ***Execute***. *Result:* The Dispenser head moves to cleaning position, and the Instrument display states ***System pause***.
3	Open the door of the fraction collector and remove the rack
4	Wash the cassette tray or rack and the cassettes (if applicable), with water and a mild cleaning agent.
5	Lift off the Waste funnel and wash it with water and a mild cleaning agent. Refit the Waste funnel.
6	Wipe off the interior of the fraction collector using a damp cloth. Wipe off stains using a mild cleaning agent or 20% ethanol.
7	Wipe off the Dispenser head and its diode windows (the Drop sync sensor and the Type code reader) using a wash bottle with water or 20% ethanol and a cloth.
8	Let the fraction collector dry completely before starting a run.
9	Close the door of the fraction collector. *Result:* Automatic scanning is performed.
10	In the System Control module, press the ***End*** icon in the toolbar. *Result:* The Dispenser head moves to home position.

7 Reference information

About this chapter

This chapter lists the technical specifications of the fraction collector. The chapter also includes a chemical resistance guide, recycling information, regulatory information and ordering information, and Health and Safety Declaration form for service.

In this chapter

7.1 Specifications

Technical specification

Parameter	Specification
Flow rate range	0 to 150 mL/min
Drop sync [1]	Up to 2 mL/min
Accumulator	0 to 150 mL/min
Connection between fraction collector and ÄKTA instrument	UniNet-9 cable, D-type
Dimensions (W × H × D)	390 × 320 × 585 mm
Weight	21 kg
Enclosure protective class	IP 21
Acoustic noise level	< 60 dB(A)
Heat output	Typically 6 W Maximum 18 W

[1] Using water-based buffers at room temperature.

Environmental requirements

Parameter	Requirement
Allowed location	Indoor use only
Ambient temperature, operation	4°C to 35°C
Ambient temperature, storage and transport	-25°C to 60°C during 48 h
Relative humidity	20% to 95%, non-condensing
Altitude, operating	Up to 2000 m
Pollution degree of the intended environment	Pollution degree 2
Chemical environment	Refer to the *User Manual* for the ÄKTA instrument.

Compatible deep well plates

The plates listed in the table below are tested and approved by Cytiva to be used with Fraction collector F9-C.

Plate type	Manufacturer	Part no.
96 deep well plate	Cytiva	7701-5200 (Whatman™)
	BD Biosciences	353966
	Greiner Bio-One	780270
	Porvair Sciences	219009
	Seahorse Bioscience	S30009
	Eppendorf™	951033405/ 0030 501.306
48 deep well plate	Cytiva	7701-5500 (Whatman)
	Seahorse Bioscience	S30004
24 deep well plate	Cytiva	7701-5102 (Whatman)
	Seahorse Bioscience	S30024

7.2 Chemical resistance

Refer to the *Operating Instructions* for the ÄKTA instrument for chemical resistance specifications.

7.3 Recycling information

Introduction

This section contains information about the decommissioning of the product.

CAUTION

Always use appropriate personal protective equipment when decommissioning the equipment.

Decontamination

The product must be decontaminated before decommissioning. All local regulations must be followed with regard to scrapping of the equipment.

Disposal of the product

When taking the product out of service, the different materials must be separated and recycled according to national and local environmental regulations.

Recycling of hazardous substances

The product contains hazardous substances. Detailed information is available from your Cytiva representative.

Disposal of electrical components

Waste electrical and electronic equipment must not be disposed of as unsorted municipal waste and must be collected separately. Please contact an authorized representative of the manufacturer for information concerning the decommissioning of the equipment.

7.4 Regulatory information

Introduction

This section lists the regulations and standards that apply to the product.

In this section

7.4.1 Contact information

Contact information for support

To find local contact information for support and sending troubleshooting reports, visit *cytiva.com/contact*.

Manufacturing information

The table below summarizes the required manufacturing information.

Requirement	Information
Name and address of manufacturer	Cytiva Sweden AB Björkgatan 30 SE 751 84 Uppsala Sweden
Telephone number of manufacturer	+ 46 771 400 600

7.4.2 European Union and European Economic Area

Introduction

This section describes regulatory information for the European Union and European Economic Area that applies to the equipment.

Conformity with EU Directives

See the EU Declaration of Conformity for the directives and regulations that apply for the CE marking.

If not included with the product, a copy of the EU Declaration of Conformity is available on request.

CE marking

The CE marking and the corresponding EU Declaration of Conformity is valid for the instrument when it is:

- used according to the *Operating Instructions* or user manuals, and
- used in the same state as it was delivered, except for alterations described in the *Operating Instructions* or user manuals.

7.4.3 Eurasian Economic Union Евразийский экономический союз

This section describes the information that applies to the product in the Eurasian Economic Union (the Russian Federation, the Republic of Armenia, the Republic of Belarus, the Republic of Kazakhstan, and the Kyrgyz Republic).

Introduction

This section provides information in accordance with the requirements of the Technical Regulations of the Customs Union and (or) the Eurasian Economic Union.

Введение

В данном разделе приведена информация согласно требованиям Технических регламентов Таможенного союза и (или) Евразийского экономического союза.

Manufacturer and importer information

The following table provides summary information about the manufacturer and importer, in accordance with the requirements of the Technical Regulations of the Customs Union and (or) the Eurasian Economic Union.

Requirement	Information
Name, address and telephone number of manufacturer	See *Manufacturing information*
Importer and/or company for obtaining information about importer	Cytiva RUS LLC 109004, Moscow internal city area Tagansky municipal district Stanislavsky str., 21, building 3, premises I, office 57 Russian Federation Telephone: +7 499 609 15 50 E-mail: *rucis@cytiva.com*

Информация о производителе и импортере

В следующей таблице приводится сводная информация о производителе и импортере, согласно требованиям Технических регламентов Таможенного союза и (или) Евразийского экономического союза.

Евразийский экономический союз

Требование	Информация
Наименование, адрес и номер телефона производителя	См. *Информацию об изготовлении*
Импортер и/или лицо для получения информации об импортере	ООО "Цитива РУС" 109004, город Москва вн.тер.г. муниципальный округ Таганский улица Станиславского, дом 21, строение 3, помещение I, комната 57 Российская Федерация Телефон: +7 499 609 15 50 Адрес электронной почты: *rucis@cytiva.com*

Description of symbol on the system label
Описание обозначения на этикетке системы

This Eurasian compliance mark indicates that the product is approved for use on the markets of the Member States of the Customs Union of the Eurasian Economic Union

Данный знак о Евразийском соответствии указывает, что изделие одобрено для использования на рынках государств-членов Таможенного союза Евразийского экономического союза

7.4.4 Regulations for North America

Introduction

This section describes the information that applies to the product in the USA and Canada.

FCC compliance

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: *The user is cautioned that any changes or modifications not expressly approved by Cytiva could void the user's authority to operate the equipment.*

CAN ICES/NMB compliance

This product complies with the Canadian standard ICES-001/NMB-001 concerning electromagnetic compatibility.

7.4.5 Regulatory statements

Introduction

This section shows regulatory statements that apply to regional requirements.

EMC emission, CISPR 11: Group 1, Class A statement

NOTICE

This equipment is not intended for use in residential environments and may not provide adequate protection to radio reception in such environments.

South Korea

Regulatory information to comply with the Korean technical regulations.

NOTICE

Class A equipment (equipment for business use).

This equipment has been evaluated for its suitability for use in a business environment.

When used in a residential environment, there is a concern of radio interference.

유의사항

A급 기기 (업무용 방송통신 기자재)

이 기기는 업무용환경에서 사용할 목적으로 적합성평가를 받은 기기

로서 가정용 환경에서 사용하는 경우 전파간섭의 우려가 있습니다.

7.4.6 Declaration of Hazardous Substances (DoHS)

This section describes the information that applies to the product in China.

根据 SJ/T11364-2014《电子电气产品有害物质限制使用标识要求》特提供如下有关污染控制方面的信息。

The following product pollution control information is provided according to SJ/T11364-2014 Marking for Restriction of Hazardous Substances caused by electrical and electronic products.

电子信息产品污染控制标志说明
Explanation of Pollution Control Label

该标志表明本产品含有超过中国标准 GB/T 26572《电子电气产品中限用物质的限量要求》中限量的有害物质。标志中的数字为本产品的环保使用期，表明本产品在正常使用的条件下，有毒有害物质不会发生外泄或突变，用户使用本产品不会对环境造成严重污染或对其人身、财产造成严重损害的期限。单位为年。

为保证所申明的环保使用期限，应按产品手册中所规定的环境条件和方法进行正常使用，并严格遵守产品维修手册中规定的定期维修和保养要求。

产品中的消耗件和某些零部件可能有其单独的环保使用期限标志，并且其环保使用期限有可能比整个产品本身的环保使用期限短。应到期按产品维修程序更换那些消耗件和零部件，以保证所申明的整个产品的环保使用期限。

本产品在使用寿命结束时不可作为普通生活垃圾处理，应被单独收集妥善处理。

This symbol indicates the product contains hazardous materials in excess of the limits established by the Chinese standard GB/T 26572 Requirements of concentration limits for certain restricted substances in electrical and electronic products. The number in the symbol is the Environment-friendly Use Period (EFUP), which indicates the period during which the hazardous substances contained in electrical and electronic products will not leak or mutate under normal operating conditions so that the use of such electrical and electronic products will not result in any severe environmental pollution, any bodily injury or damage to any assets. The unit of the period is “Year”.

In order to maintain the declared EFUP, the product shall be operated normally according to the instructions and environmental conditions as defined in the product manual, and periodic maintenance schedules specified in Product Maintenance Procedures shall be followed strictly.

Consumables or certain parts may have their own label with an EFUP value less than the product. Periodic replacement of those consumables or parts to maintain the declared EFUP shall be done in accordance with the Product Maintenance Procedures.

This product must not be disposed of as unsorted municipal waste, and must be collected separately and handled properly after decommissioning.

有害物质的名称及含量
Name and Concentration of Hazardous Substances

产品中有害物质的名称及含量
Table of Hazardous Substances' Name and Concentration

部件名称 Component name	有害物质 Hazardous substance					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
29027743	X	0	0	0	0	0
29011362	X	0	0	0	0	0

0: 表示该有害物质在该部件所有均质材料中的含量均在 GB/T 26572 规定的限量要求以下。

X: 表示该有害物质至少在该部件的某一均质材料中的含量超出 GB/T 26572 规定的限量要求。

- 此表所列数据为发布时所能获得的最佳信息.

0: Indicates that this hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement in GB/T 26572.

X: Indicates that this hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement in GB/T 26572

- Data listed in the table represents best information available at the time of publication.

7.5 Health and Safety Declaration Form

On site service

cytiva

On Site Service Health & Safety Declaration Form

Service Ticket #:	

To make the mutual protection and safety of Cytiva service personnel and our customers, all equipment and work areas must be clean and free of any hazardous contaminants before a Service Engineer starts a repair. To avoid delays in the servicing of your equipment, complete this checklist and present it to the Service Engineer upon arrival. Equipment and/or work areas not sufficiently cleaned, accessible and safe for an engineer may lead to delays in servicing the equipment and could be subject to additional charges.

Yes	No	Review the actions below and answer "Yes" or "No". Provide explanation for any "No" answers in box below.
○	○	**Instrument has been cleaned of hazardous substances**. Rinse tubing or piping, wipe down scanner surfaces, or otherwise make sure removal of any dangerous residue. Make sure the area around the instrument is clean. If radioactivity has been used, perform a wipe test or other suitable survey.
○	○	**Adequate space and clearance is provided to allow safe access** for instrument service, repair or installation. In some cases this may require customer to move equipment from normal operating location prior to Cytiva arrival.
○	○	**Consumables, such as columns or gels, have been removed or isolated from the instrument and from any area that may impede access to the instrument.**
○	○	**All buffer / waste vessels are labeled. Excess containers have been removed from the area to provide access.**
Provide explanation for any "No" answers here:		

Equipment type / Product No:		Serial No:	

I hereby confirm that the equipment specified above has been cleaned to remove any hazardous substances and that the area has been made safe and accessible.

Name:		Company or institution:	
Position or job title:		Date (YYYY/MM/DD):	
Signed:			

Product return or servicing

cytiva

Health & Safety Declaration Form for Product Return or Servicing

Return authorization number:		*and/or* **Service Ticket/Request:**	

To make sure the mutual protection and safety of Cytiva personnel, our customers, transportation personnel and our environment, all equipment must be clean and free of any hazardous contaminants before shipping to Cytiva. To avoid delays in the processing of your equipment, complete this checklist and include it with your return.

1. Note that items will NOT be accepted for servicing or return without this form
2. Equipment which is not sufficiently cleaned prior to return to Cytiva may lead to delays in servicing the equipment and could be subject to additional charges
3. Visible contamination will be assumed hazardous and additional cleaning and decontamination charges will be applied

Yes	No	Specify if the equipment has been in contact with any of the following:	
◯	◯	Radioactivity (specify)	
◯	◯	Infectious or hazardous biological substances (specify)	
◯	◯	Other Hazardous Chemicals (specify)	

Equipment must be decontaminated prior to service / return. Provide a telephone number where Cytiva can contact you for additional information concerning the system / equipment.

Telephone No:		
Liquid and/or gas in equipment is:	☐	**Water**
	☐	**Ethanol**
	☐	**None, empty**
	☐	**Argon, Helium, Nitrogen**
	☐	**Liquid Nitrogen**
	Other, specify	

Equipment type / Product No:		**Serial No:**	

I hereby confirm that the equipment specified above has been cleaned to remove any hazardous substances and that the area has been made safe and accessible.

Name:		**Company or institution:**	
Position or job title:		**Date (YYYY/MM/DD)**	
Signed:			

For local office contact information, visit cytiva.com/contact.
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To receive a return authorization number or service number, call local technical support or customer service.

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For local office contact information, visit cytiva.com/contact

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