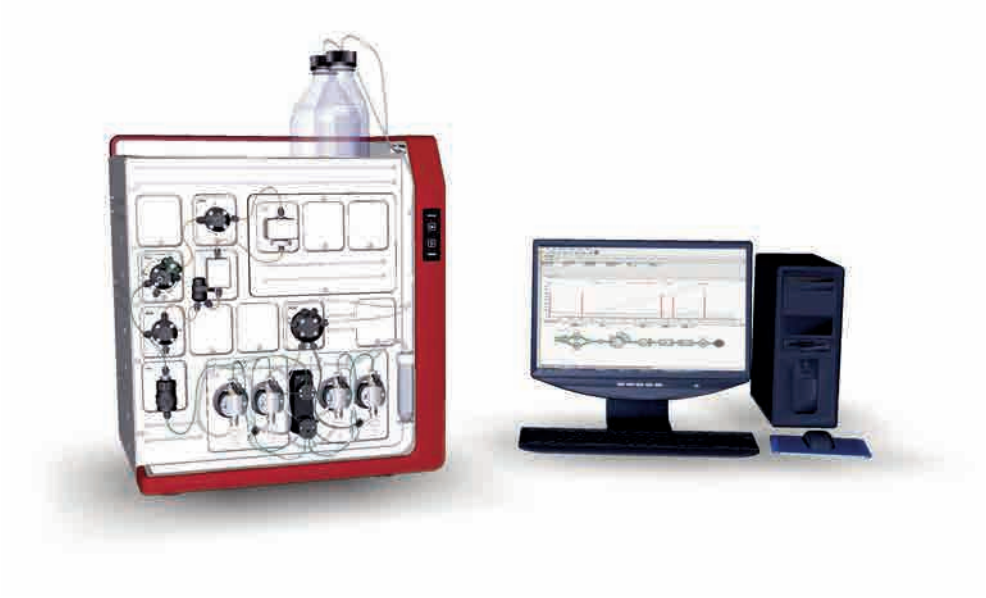
cytiva

ÄKTA pure 25

Product Documentation



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1 Introduction

In this chapter

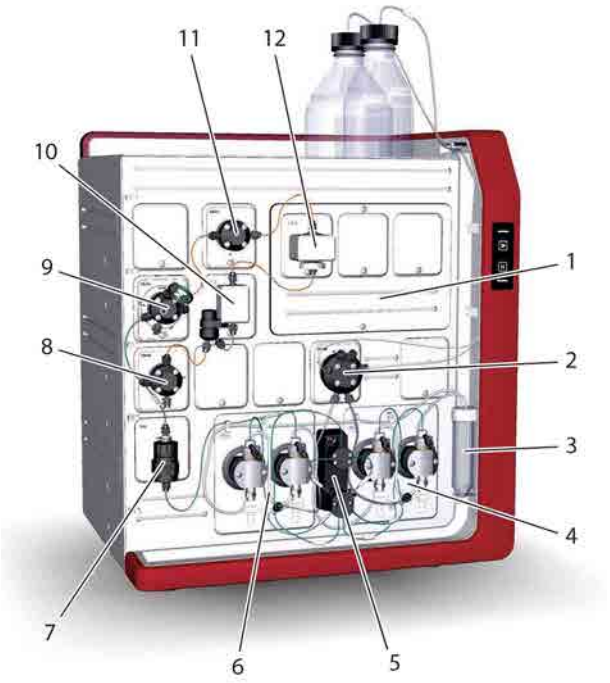
Purpose of this document

This document provides an overview of ÄKTA™ pure 25 and general specifications. For more information about ÄKTA pure 25, refer to the user documentation.

1.1 Instrument view

Example of a typical configuration of the wet side

A typical configuration of ÄKTA pure 25 is illustrated below.



Part	Function
1	Multi-module panel
2	Inlet valve
3	Pump rinsing liquid tube
4	System pump B
5	Pressure monitor
6	System pump A
7	Mixer
8	Outlet valve

Part	Function
9	Injection valve
10	Conductivity monitor
11	Column valve
12	UV monitor

Available modules

The modular design allows the user to customize the system in multiple ways. ÄKTA pure 25 is always delivered with the core modules, but one or more optional modules may be added to the flow path. The tables below contain information on core modules and optional modules.

Core modules

Core module	Description
System pump **P9 A**	A high precision pump, which delivers buffer or sample in purification runs.
System pump **P9 B**	A high precision pump, which delivers buffer in purification runs.
Pressure monitor **R9**	Reads the system pressure after System pump A and System pump B.
Mixer **M9**	Mixes the buffers delivered from the system pumps to a homogeneous buffer composition. Three Mixer chambers are available for ÄKTA pure 25, their volumes are: 0.6 mL, 1.4 mL (mounted at delivery) and 5 mL.
Injection valve **V9-Inj**	Directs sample onto the column.

Optional modules

Module	Description
Inlet valve **V9-IA**	Inlet valve for System pump A with seven inlet ports and integrated air sensor.
Inlet valve **V9-IB**	Inlet valve for System pump B with seven inlet ports and integrated air sensor.
Inlet valve **V9-IAB** or **V9H-IAB**	Inlet valve with two A inlet ports and two B inlet ports. No integrated air sensor.

Module	Description
Sample inlet valve **V9-IS**	Inlet valve with eight inlet ports (seven sample inlets and one buffer inlet) and an integrated air sensor. Sample inlet valve **V9-IS** requires the external module Sample pump S9.
Inlet valve **V9-IX**	Inlet valve with eight inlet ports. No integrated air sensor.
Mixer valve **V9-M**	Directs the flow to the Injection valve, bypassing the Mixer, or to the Injection valve via the Mixer.
Loop valve **V9-L**	Enables the use of up to five loops connected to the instrument.
Column valve **V9-C**	Connects up to five columns to the instrument, and directs the flow to one column at a time. The Column valve features two integrated pressure sensors. Allows the user to choose flow direction through the column, or to bypass the column.
Column valve **V9-Cs**	Connects a single column to the instrument. Allows the user to chose flow direction through the column, or to bypass the column.
pH valve **V9-pH**	Enables the pH electrode to be included in the flow path or bypassed during a run. The pH electrode may be calibrated when installed in the pH valve.
Outlet valve **V9-O**	Directs the flow to the Fraction collector, Fraction collector 2 (out 10), any of the ten outlet ports, or waste.
Outlet valve **V9-Os**	Directs the flow to the Fraction collector, Fraction collector 2, the outlet port, or waste.
Versatile valve **V9-V**	A 4-port, 4-position valve, which can be used when adding extra features to the flow path.
UV monitor **U9-L**	Measures the UV absorbance at a fixed wavelength of 280 nm.
UV monitor **U9-M**	Measures the UV/Vis absorbance at up to three wavelengths simultaneously in the range 190-700 nm.
Conductivity monitor **C9**	Measures the conductivity of buffers and eluted proteins.
External air sensor **L9-1.5** or **L9-1.2**	Prevents air from being introduced into the flow path.
Fraction collector **F9-C**	Flexible fraction collector that can collect up to 576 fractions. Up to two fraction collectors can be connected at the same time, of which only one (the primary) can be a Fraction collector F9-C.
Fraction collector **F9-R**	Round fraction collector that can collect up to 175 fractions. Up to two fraction collectors can be connected at the same time.

Module	Description
I/O-box **E9**	Receives analog or digital signals from, or transfers analog or digital signals to, external equipment that has been incorporated in the system.
Sample pump **S9**	A high precision pump with an integrated pressure monitor. The sample pump delivers buffer or sample in purification runs.

1.2 Liquid flow path

Introduction

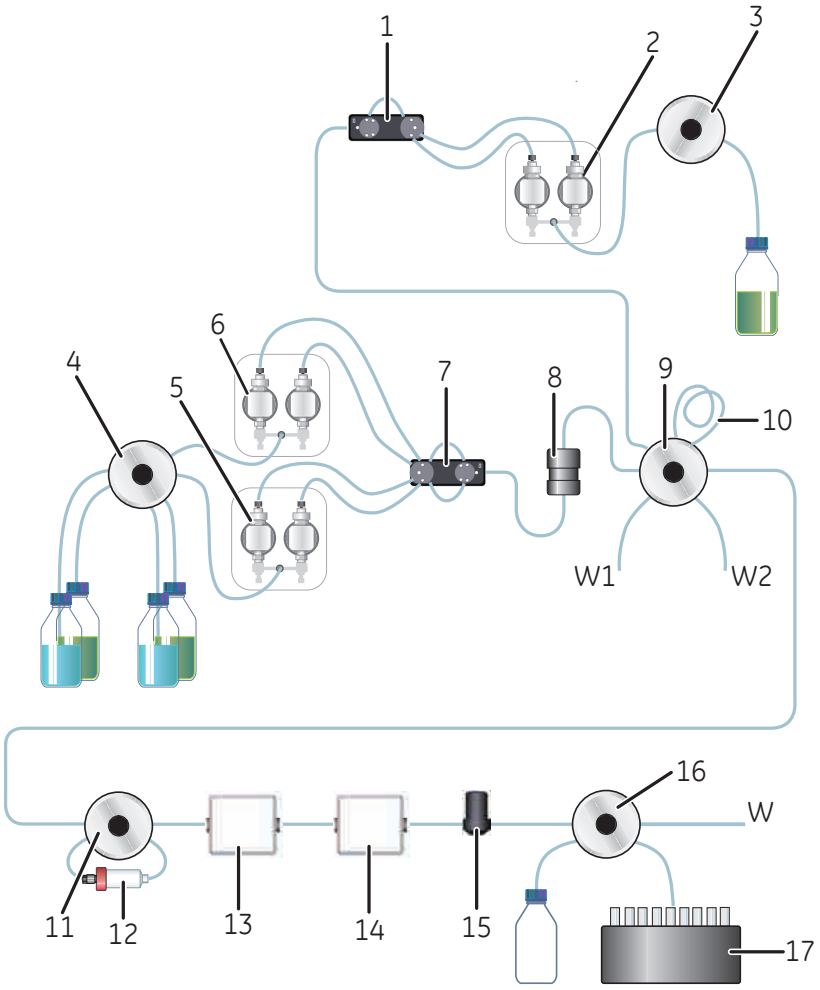
ÄKTA pure 25 is a liquid chromatography system with a customizable flow path.

This section provides an overview of the liquid flow path, and its possibilities.

Example of a typical liquid flow path

The liquid flow path and system functionality can be customized in multiple ways to fit the user's needs. One or more optional components can be added to the flow path. External equipment can also be connected to the instrument via the I/O-box E9.

The illustration below shows the flow path for a typical system configuration. The individual instrument modules are presented in the table below. The configuration of the system is defined by the user.


1
2
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W1
W2
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W
17

Part	Description
1	Pressure monitor
2	Sample pump
3	Sample inlet valve
4	Inlet valve
5	System pump B
6	System pump A
7	Pressure monitor
8	Mixer
9	Injection valve
10	Sample loop or Superloop™
11	Column valve
12	Column
13	UV monitor
14	Conductivity monitor
15	Flow restrictor
16	Outlet valve
17	Fraction collector
W, W1, W2	Waste

Note: *For the best possible performance when using ÄKTA pure 25 with a fraction collector, remove the flow restrictor from the flow path.*

2 General specifications

In this chapter

2.1 System specifications

Parameter	Data
System configuration	Benchtop system, external computer
Control system	UNICORN™ 6.3 or later version
Connection between PC and instrument	Ethernet
Dimensions (W x D x H)	535 x 470 x 630 mm
Weight (excluding computer)	up to 53 kg
Power supply	100-240 VAC, 50-60 Hz
Power consumption	300 VA (typical) 25 VA (power-save)
Enclosure protective class	IP 21
Tubing and connectors	• Inlet: FEP tubing, i.d. 1.6 mm, 5/16-24 UNF connections • Pump to injection valve: PEEK tubing, i.d. 0.75 mm, 10-32 UNF connections • After Injection valve: PEEK tubing, i.d. 0.50 mm, 10-32 UNF connections • Outlet and waste: ETFE tubing, i.d. 1.0 mm, Fingertight connector, 1/16" • Optional tubing kits: i.d. 0.25 mm, i.d. 0.75 mm, i.d. 1.0 mm

2.2 Environmental ranges

Parameter	Data
Storage and transport temperature range	-25°C to +60°C
Chemical environment	See *ÄKTA pure User Manual*.

2.3 Operating range

Parameter	Data
Operating temperature range	4°C to 35°C
Relative humidity	20% to 95%, non-condensing

2.4 Module specifications

System pumps

Parameter	Data
Pump type	Piston pump, metering type
Flow rate range	0.001 to 25 mL/min (up to 50 mL/min column packing flow)
Pressure range	0 to 20 MPa
Viscosity range	0.35 to 10 cP (5 cP above 12.5 mL/min)
Flow rate specifications	• Accuracy: ± 1.2% • Precision: RSD < 0.5% (Conditions: 0.25 to 25 mL/min, < 3 MPa, 0.8 to 2 cP)

Sample pump

Parameter	Data
Pump type	Piston pump, metering type
Dimensions (W x D x H)	215 x 370 x 210 mm
Weight	11 kg
Flow rate range	0.001 to 50 mL/min
Pressure range	0 to 10 MPa
Viscosity range	0.7 to 10 cP
Flow rate specifications	• Accuracy: ± 2% • Precision: RSD < 0.5% (Conditions: 0.25 to 50 mL/min, < 3 MPa, 0.8 to 3 cP)

Valves

Parameter	Data
Type	Rotary valves

Parameter	Data
Number of valves	Up to 12
Functions	Standard: Injection Options: Inlet A, Inlet B, Sample inlet, Extra inlet, Mixer by-pass, Loop selection, Column selection, pH, Outlet, Versatile

Inlet options

Parameter	Data
Inlet A	1, 2 or 7 inlets
Inlet B	1, 2 or 7 inlets
Sample inlet	Up to 7 sample inlets and 1 buffer inlet

Outlet options

Parameter	Data
Number of outlets	1 or 10

Mixer

Parameter	Data
Mixing principle	Chamber with magnetic stirrer
Mixer volume	0.6, 1.4 or 5 mL

Gradient formation

Parameter	Data
Gradient flow rate range	0.1 to 25 mL/min
Gradient composition accuracy	± 0.6% (Conditions 5 to 95% B. 0.5 to 25 mL/min, 0.2 to 2 MPa, 0.8 to 2 cP)

Pressure monitors

Parameter	Data
Number of sensors	Up to 4
Placement of sensors	Standard: The System pressure monitor is located after the System pump Options: • The Pre-column pressure monitor and the Post-column pressure monitor are integrated in Column valve **V9-C**. • The Sample pressure monitor is located after the Sample pump.
Pressure range	0 to 20 MPa
Accuracy	± 0.02 MPa or ± 2%, whichever is greater

External air sensor options

Parameter	Data
Number of sensors	Up to 7
Placement	• Integrated in inlet valve A, inlet valve B and sample inlet valve • After the injection valve • Before the system pumps • Before the sample pump
Sensing principle	Ultrasonic

UV monitor options

Parameter	Data
Number of monitors	Up to 2
Wavelength range	**U9-L**: 280 nm **U9-M**: 190 to 700 nm in steps of 1 nm, up to 3 wavelengths
Absorbance range	-6 to 6 AU
Resolution	0.001 mAU

Parameter	Data
Linearity	**U9-L**: within ± 5% at 0 to 2 AU **U9-M**: within ± 2% at 0 to 2 AU
Drift	**U9-L** (2 mm cell): ≤ | 0.2 mAU | AU/h **U9-M** (2 mm cell at 280 nm): ≤ | 0.2 mAU | AU/h
Noise	**U9-L**: < 0.1 mAU **U9-M**: < 0.08 mAU
Operating pressure	0 to 2 MPa
Lamp operating time	**U9-L**: > 10 000 h **U9-M**: > 5000 h
Flow cells: **U9-L**	Standard: Optical path length 2 mm Cell volume 2 µL Total volume: 30 µL Option: Optical path length 5 mm Cell volume 6 µL Total volume 20 µL

Parameter	Data
Flow cells: **U9-M**	Standard: Optical path length 2 mm Cell volume 2 µL Total volume: 11 µL Option: Optical path length 10 mm Cell volume 8 µL Total volume 12 µL Optical path length 5 mm Cell volume 7 µL Total volume 12 µL Optical path length 0.5 mm Cell volume 1 µL Total volume 10 µL

Conductivity monitor options

Parameter	Data
Conductivity reading range	0.01 to 999.99 mS/cm
Accuracy	± 0.01 mS/cm or ± 2%, whichever is greater, (within 0.3 to 300 mS/cm)
Operating pressure	0 to 5 MPa
Flow cell volume	Conductivty cell **C9n** 22 µL Conductivty cell **C9M** 6 µL
Temperature monitor range	0°C to 99°C
Temperature monitor accuracy	± 1.5°C within 4°C to 45°C

pH monitor option

Parameter	Data
pH reading range	0 to 14
Accuracy	± 0.1 pH unit within pH 2 to 12, temperature within ± 3°C from calibration temperature
Operating pressure	0 to 0.5 MPa (72 psi)
Flow cell volume	76 µL

Outlet valve fractionation option

Parameter	Data
Number of outlets	10
Fraction volumes	0.01 to 20 000 mL
Delay volume (UV – outlet valve)	125 µL 66 µL with optional tubing kit (i.d. 0.25 mm)

Fraction collector options

Parameter	Data
Number of fraction collectors	Up to two. The second fraction collector must be an **F9-R**.
Number of fractions	**F9-C**: Up to 576 **F9-R**: Up to 175
Vessel types	**F9-C**: • Deep well plates, 96, 48 or 24 wells • Tubes 3, 5, 8, 15, 50 mL • Bottle, 250 mL **F9-R**: 3, 5, 8, 15 or 50 mL tubes
Fraction volumes	**F9-C**: 0.1 to 250 mL **F9-R**: 0.1 to 50 mL
Spillage-free mode	**F9-C**: Automatic, Drop sync or Accumulator **F9-R**: Drop sync

Parameter	Data
Flammable liquids	**F9-C**: no **F9-R**: yes
Delay volume (UV – dispenser head)	**F9-R**: 205 µL, 86 µL with optional tubing kit (i.d. 0.25 mm) **F9-C**: 435 µL, 214 µL with optional tubing kit (i.d. 0.25 mm)
Dimensions (W x D x H)	• **F9-C**: 390 x 585 x 320 mm • **F9-R**: 320 x 400 x 250 mm
Weight	• **F9-C**: 21 kg • **F9-R**: 5 kg

I/O box

Parameter	Data
Number of ports	2 analog in, 2 analog out 4 digital in, 4 digital out
Analog range	In ± 2 V Out ± 1 V

3 Material conformity

In this chapter

3.1 Material definitions

Introduction

The tables below list the materials that come into contact with process fluids in the ÄKTA pure 25 system.

Primary flow path

Material	Abbreviation
Ethylene ChloroTriFluoroEthylene	ECTFE
Ethylene TetraFluoroEthylene	ETFE
Fluorinated Ethylene Propylene	FEP
Fluorinated Propylene Monomer	FPM/FKM
Fully Fluorinated Propylene Monomer	FFPM/FFKM
PolyChloroTriFluoroEthylene	PCTFE
PolyEtherEtherKetone	PEEK
PolyPropylene	PP
PolyTetraFluoroEthylene	PTFE
PolyVinylidene DiFluoride	PVDF
UltraHighMolecularWeightPolyEthylene	UHMWPE
Aluminum oxide	
Elgiloy™	
Hastelloy™ C-276	
Quartz glass	
Ruby	
Sapphire	
Titanium grade 2	
Titanium grade 5	

Pump rinse system

Material	Abbreviation
EthylenePropyleneDiene M-class rubber	EPDM
PolyEtherEtherKetone	PEEK
PolyPropylene	PP
PolyPhenylene Sulfide	PPS
PolyVinylidene DiFluoride	PVDF
Silicone	

3.2 Materials of construction

Introduction

The following tables list the materials used in flow path and pump rinse system components.

Primary flow path

Part	Product code	Component	Material
P9 A **P9 B**	-	**28942298 Pump P9 Cpl (primary flow path)** 56116124 Piston 28945400 Y-Connector 56119415 Membrane 28939480 Pump Head P9 20939097 Pump Head 28943626 Purge Valve 56118261 Seal **Check valves in/out** 28963058 Outlet Check valve 28962655 Valve housing Out 28962657 Ball retainer 28962659 Washer 28950137 Ball and Seat 28963062 Inlet Check Valve 28962653 Valve housing In 28962657 Ball Retainer 28950137 Ball and Seat 56305879 Purge Valve	 Sapphire ECTFE EPDM Titanium PEEK UHMWPE/Elgiloy PEEK PEEK PEEK Sapphire/Ruby PEEK PEEK Sapphire/Ruby PEEK

Part	Product code	Component	Material
P9-S	-	**28945183 Pump P9 Cpl (primary flow path)**	
		28945183 Piston	Aluminium Oxide
		56117787 Y-Connector	ECTFE
		28978573 Membrane	EPDM
		28952471 Pump Head P9-S	Titanium
		56305641 Pump Head	PEEK
		28943626 Purge Valve	UHMWPE/Elgiloy
		28962521 Seal	
		Check valves in/out	
		28963058 Outlet Check valve	PEEK
		28962655 Valve housing Out	PEEK
		28962657 Ball retainer	PEEK
		28962659 Washer	Sapphire/Ruby
		28950137 Ball and Seat	
		28963062 Inlet Check Valve	PEEK
		28962653 Valve housing In	PEEK
		28962657 Ball Retainer	Sapphire/Ruby
		28950137 Ball and Seat	PEEK
		56305879 Purge Valve	
R9 (System pumps)	-	**28944995 Pressure monitor R9 (System)**	
		with pump restrictor	
		28951451 Pressure monitor R9 (System)	PEEK
		28947686 Pressure connector	Titanium
		28933525 Pressure sensor	Hastelloy C-276
		28945164 Restrictor Housing R9 (System) Assembly	FFPM/FFKM
		28977560 Compression Spring	PEEK
		28966920 Membrane	PEEK
		28989942 Plunger	PEEK
		28946870 Restrictor Stopper	
		28946577 Pump Restriction Housing	

Part	Product code	Component	Material
R9 (Sample pump)	-	**28944998 Pressure monitor R9 (Sample) with pump restrictor** 28951453 Pressure monitor R9 (Sample) 28947688 Pressure connector 28933525 Pressure sensor 28945174 Restrictor Housing R9 (Sample) Assembly 28977560 Compression Spring 28966920 Membrane 28989942 Plunger 28946870 Restrictor Stopper 28947779 Pump Restriction Housing	 PEEK Titanium Hastelloy C-276 FFPM/FFKM PEEK PEEK PEEK
M9-0.6	**28956186**	**28922334 Mixer chamber 0.6 mL** 56302238 Filter 10PP (1 µm) 56302237 Support net 28945536 Mixer top 28963112 Stirring magnet 9.1 mm 28916429 Mixer chamber 0.6 mL 28945544 O-ring 13.1 x 1.6	 PP PP PEEK PTFE PEEK FPM/FKM
M9-1.4	**28956225**	**28924642 Mixer chamber 1.4 mL** 56302238 Filter 10PP (1 µm) 56302237 Support net 28945536 Mixer top 28924648 Stirring magnet 12 mm 28924646 Mixer chamber 1.4 mL 28945544 O-ring 13.1 x 1.6	 PP PP PEEK PTFE PEEK FPM/FKM
M9-5	**28956246**	**28924700 Mixer chamber 5 mL** 56302238 FILTER 10PP (1 µm) 56302237 Support net 28945536 Mixer top 56105749 Stirring magnet 12 mm 28924702 Mixer chamber 5 mL 28945544 O-ring 13.1 x 1.6	 PP PP PEEK PTFE PEEK FPM/FKM

Part	Product code	Component	Material
	29011326	**28948433 O-ring 13.1 x 1.6 mm**	FFKM
V9-Inj	-	**28920910 Injection valve V9-Inj**	
		28943034 Valve stator injection	PEEK
		28943040 Valve rotor injection	PEEK + PTFE
FR	**18112135**	**56304545 Flow restrictor FR-902**	
		56302557 Housing	PEEK
		56303929 Diaphragm	FFPM/FFKM
V9-IS	**29027746**	**Sample Inlet Valve Kit (V9-IS, 7 ports)**	
		28920915 Sample Inlet Valve V9-IS	
		28934791 Valve stator inlet 1.5 asm.	PEEK
		28934276 Valve stator inlet 1.5	PEEK
		28934290 Valve rotor inlet	PEEK
		28934287 Valve inlet plug	PEEK
		29032923 Tubing S1	FEP
		29032924 Tubing S2	FEP
		29032925 Tubing S3	FEP
		29032926 Tubing S4	FEP
		29032927 Tubing S5	FEP
		29032928 Tubing S6	FEP
		29032929 Tubing S7	FEP
		29032921 Tubing InS	FEP
		56119885 Ferrule	FEP
V9-V	**29011353**	**28992313 Versatile valve V9-V**	
		28987417 Stator versatile valve	PEEK
		28987420 Valve rotor versatile	PEEK + PTFE
V9-M	**29011354**	**Mixer valve kit V9-M**	
		28987417 Stator versatile valve	PEEK
		28987420 Valve rotor versatile	PEEK + PTFE
3-1		29010289 Tubing 3-1	PEEK
3-2		29010290 Tubing 3-2	PEEK
3-2		29010292 Tubing 3-3	PEEK

Part	Product code	Component	Material
V9-Cs	**29011355**	**Column valve V9-Cs**	
		28987417 Stator versatile valve	PEEK
		28987420 Valve rotor versatile	PEEK+PTFE
V9-Os	**29011356**	**Outlet Valve Kit (V9-Os, 1-outlet)**	
		28987417 Stator versatile valve	PEEK
		29021988 Valve rotor outlet	PEEK
Out		29010372 Tubing Out	ETFE
V9-IAB	**29011357**	**Inlet valve kit (V9-IA B)**	
		28995489 Valve Stator Inlet	PEEK
		28995500 Valve Rotor Inlet	PEEK
InA		28996724 Tubing InA	FEP
InB		28996729 Tubing InB	FEP
A1		29009606 Tubing A1	FEP
A2		29009607 Tubing A2	FEP
B1		29009608 Tubing B1	FEP
B2		29009609 Tubing B2	FEP
		56119885 Ferrule	FEP
V9-L	**29011358**	**Loop valve kit (V9-L)**	
		28987182 Stator Loop Valve	PEEK
		28924597 Valve rotor column	PEEK + PTFE
L1		29011637 Tubing L1	PEEK
L2		29011638 Tubing L2	PEEK

Part	Product code	Component	Material
V9-O	**29012261**	**Outlet Valve Kit (V9-O, 10 outlets)**	
		28920867 Valve stator out	PEEK
		28933172 Valve rotor out	PEEK + PTFE
Out1		29010374 Tubing Out1	ETFE
Out2		29010375 Tubing Out2	ETFE
Out3		29010376 Tubing Out3	ETFE
Out4		29010377 Tubing Out4	ETFE
Out5		29010378 Tubing Out5	ETFE
Out6		29010379 Tubing Out6	ETFE
Out7		29010380 Tubing Out7	ETFE
Out8		29010381 Tubing Out8	ETFE
Out9		29010382 Tubing Out9	ETFE
Out10		29010383 Tubing Out10	ETFE
V9-IA	**29012263**	**Inlet valve kit V9-IA**	
		28934791 Valve stator inlet 1.5 assembly	PEEK
		28934287 Valve inlet plug	PEEK
		28934276 Valve stator inlet 1.5	PEEK
A1		28934290 Valve rotor inlet 1.5	FEP
A2		29009606 Tubing A1	FEP
A3		29009607 Tubing A2	FEP
A4		29011613 Tubing A3	FEP
A5		29011614 Tubing A4	FEP
A6		29011615 Tubing A5	FEP
A7		29011616 Tubing A6	FEP
InA		29011617 Tubing A7	FEP
		28996724 Tubing InA	FEP
		56119885 Ferrule	

Part	Product code	Component	Material
V9-IB	**29012370**	**Inlet valve kit V9-IB**	
		28934791 Valve stator inlet 1.5 assembly	PEEK
		28934287 Valve inlet plug	PEEK
		28934276 Valve stator inlet 1.5	PEEK
B1		28934290 Valve rotor inlet 1.5	FEP
B2		29009608 Tubing B1	FEP
B3		29009609 Tubing B2	FEP
B4		29011618 Tubing B3	FEP
B5		29011619 Tubing B4	FEP
B6		29011620 Tubing B5	FEP
B7		29011621 Tubing B6	FEP
InB		29011622 Tubing B7	FEP
		28996729 Tubing InB	FEP
		56119885 Ferrule	
V9-pH	**29011359**	**pH valve kit V9-pH**	
		28939643 Valve stator pH	PEEK
		28939641 Valve rotor pH	PEEK+PTFE
		56322802 Dummy pH	
		56119556 pH Electrode dummy	PTFE
		56119557 O-ring 5.3 x 2.4	FFPM/FFKM
		29010303 Tubing 8pH	PEEK
		29010304 Tubing 9pH	PEEK
		29010305 Tubing 1R	PEEK
		29010306 Tubing 2R	PEEK
		29010426 Tubing W3	ETFE

Part	Product code	Component	Material
V9-C	**29011367**	**Column valve kit V9-C**	
		28924597 Valve rotor column	PEEK/PTFE
		28920925 Valve stator column assembly	PEEK
		28931925 Valve stator column 2.0	PEEK
		28920897 Valve column plug	PEEK
		56119406 Tubing i.d. 0.5 mm, o.d. 1.58 mm	PEEK
		56119888 Tubing i.d. 0.75 mm, o.d. 1.58 mm	
F9-C	**29027743**	**Fraction collector F9-C**	
		29015434 Nozzle	PEEK
		29017557 Capillary connection	PEEK
		56119406 Tubing i.d. 0.5 mm, o.d. 1.58 mm	PEEK
		28902730 Piston	UHMWPE/Elgiloy
		28921813 Glass tube	Borosilicate
F9-R	**29011362**	**Fraction collector F9-R**	
		56119406 Tubing i.d. 0.5 mm, o.d. 1.58 mm	PEEK

Part	Product code	Component	Material
S9	**29027745**	29014378 Sample pump cabinet CPL	
		28959252 Pump P9-S Cpl	PEEK
		28924380 Tubing 2S	PEEK
		28924378 Tubing 1S2	PEEK
		28924377 Tubing 1S1	
		Sample pump S9	
		28945183 Pump P9 Cpl (primary flow path)	Aluminium Oxide
		28945183 Piston	ECTFE
		56117787 Y-Connector	EPDM
		28978573 Membrane	Titanium
		28952471 Pump Head P9-S	PEEK
		56305641 Pump Head	UHMWPE/Elgiloy
		28943626 Purge Valve	
		28962521 Seal	
		Check valves in/out	PEEK
		28963058 Outlet Check valve	PEEK
		28962655 Valve housing Out	PEEK
		28962657 Ball retainer	Sapphire/Ruby
		28962659 Washer	
		28950137 Ball and Seat	PEEK
		28963062 Inlet Check Valve	PEEK
		28962653 Valve housing In	Sapphire/Ruby
		28962657 Ball Retainer	PEEK
		28950137 Ball and Seat	
		56305879 Purge Valve	
C9n	**29011363**	**Conductivity monitor C9n**	
		28921084 Thread housing	PEEK
		28902003 Electrode	Titanium
		28902005 Insulator	PCTFE

Part	Product code	Component	Material
U9-L	**29011325**	**56305582 UV Cell 2 mm for U9-L**	
		56305584 Cuvette	Titanium
		56305586 Fix bushing	Titanium
		56068200 Cuvette ANS. 2 U	Quartz glass
		56068800 Seal assembly	
		56068900 Seal	PTFE
U9-2	**28979380**	**28975936 UV flow cell 2.0**	
		28975932 Cell In 1000 assembly	
		28975442 Cell In 1000	PEEK
		28975447 Cone 1000	PEEK
		28977556 UV Fiber 1000	Quartz glass
		28975445 Cell Shims 2.0 1000	PEEK
		28975934 Cell Out 2.0 assembly	
		56001792 Cone 400	PEEK
		28975444 Cell Out 2.0	PEEK
	29011327	**Tubing kit i.d. 0.5 mm, standard**	
1A1		28924371 Tubing 1A1	PEEK
1A2		28924374 Tubing 1A2	PEEK
1B1		28924375 Tubing 1B1	PEEK
1B2		28924376 Tubing 1B2	PEEK
2A		28955484 Tubing 2A	PEEK
2B		28955485 Tubing 2B	PEEK
3		28996745 Tubing 3	PEEK
4		28996751 Tubing 4	PEEK
5		28996768 Tubing 5	PEEK
6		28996769 Tubing 6	PEEK
7		28996764 Tubing 7	PEEK
8		28996771 Tubing 8	PEEK
9		28996772 Tubing 9	ETFE
W1		28996777 Tubing W1	ETFE
W2		29010370 Tubing W2	ETFE
W		28996779 Tubing W	

Part	Product code	Component	Material
	29011328	**Tubing kit i.d. 0.25 mm 0.25 mm**	
5		29010431 Tubing 5	PEEK
6		29010432 Tubing 6	PEEK
7		29010433 Tubing 7	PEEK
8pH		29010434 Tubing 8pH	PEEK
9pH		29010435 Tubing 9pH	PEEK
8		29010436 Tubing 8	PEEK
1R		29010437 Tubing 1R	PEEK
2R		29010438 Tubing 2R	PEEK
9		29010439 Tubing 9	PEEK
		56119945 Tubing i.d. 0.25 mm, o.d.1.58 mm	PEEK
	29011329	**Tubing kit i.d. 0.75 mm**	
5		29010293 Tubing 5	PEEK
6		29010294 Tubing 6	PEEK
7		29010295 Tubing 7	PEEK
8pH		29010296 Tubing 8pH	PEEK
9pH		29010297 Tubing 9pH	PEEK
8		29010298 Tubing 8	PEEK
1R		29010299 Tubing 1R	PEEK
2R		29010300 Tubing 2R	PEEK
9		29010301 Tubing 9	PEEK
		56119888 Tubing i.d. 0.75 mm, o.d.1.58 mm	PEEK

Part	Product code	Component	Material
	29032426	**Tubing kit i.d. 1.00 mm**	
5		29034580 Tubing 5	PEEK
6		29034614 Tubing 6	PEEK
7		29034622 Tubing 7	PEEK
8		29034624 Tubing 8	PEEK
L1		29034615 Tubing L1	PEEK
L2		29034617 Tubing L2	PEEK
8pH		29034627 Tubing 8pH	PEEK
9pH		29034621 9pH	PEEK
1R		29034628 1R	PEEK
2R		29034629 2R	PEEK
9		29034625 Tubing 9	PEEK
		29034630 Tubing i.d. 0.25 mm, o.d.1.58 mm	PEEK
	29011330	**Tubing kit for inlet valve V9-IAB**	
InA		28996724 Tubing InA	FEP
InB		28996729 Tubing InB	FEP
A1		29009606 Tubing A1	FEP
A2		29009607 Tubing A2	FEP
B1		29009608 Tubing B1	FEP
B2		29009609 Tubing B2	FEP
		56119885 Ferrule	FEP
	29011331	**Tubing kit for pH valve V9-pH, standard**	
8pH		29010303 Tubing 8pH	PEEK
9pH		29010304 Tubing 9pH	PEEK
1R		29010305 Tubing 1R	PEEK
2R		29010306 Tubing 2R	PEEK
W3		29010426 Tubing W3	ETFE

Part	Product code	Component	Material
	29011332	**Tubing kit for inlet valve V9-IA (7 ports)**	
A1		29009606 Tubing A1	FEP
A2		29009607 Tubing A2	FEP
A3		29011613 Tubing A3	FEP
A4		29011614 Tubing A4	FEP
A5		29011615 Tubing A5	FEP
A6		29011616 Tubing A6	FEP
A7		29011617 Tubing A7	FEP
InA		28996724 Tubing InA	FEP
		56119885 Ferrule	
	29011333	**Tubing kit for inlet valve V9-IB (7 ports)**	
B1		29009608 Tubing B1	FEP
B2		29009609 Tubing B2	FEP
B3		29011618 Tubing B3	FEP
B4		29011619 Tubing B4	FEP
B5		29011620 Tubing B5	FEP
B6		29011621 Tubing B6	FEP
B7		29011622 Tubing B7	FEP
InB		28996729 Tubing InB	FEP
		56119885 Ferrule	
	29035331	**Tubing kit for sample inlet valve V9-IS (7 ports)**	
S1		29032923 Tubing S1	FEP
S2		29032924 Tubing S2	FEP
S3		29032925 Tubing S3	FEP
S4		29032926 Tubing S4	FEP
S5		29032927 Tubing S5	FEP
S6		29032928 Tubing S6	FEP
S7		29032929 Tubing S7	FEP
InS		29032921 Tubing InS	FEP
		56119885 Ferrule	FEP

Part	Product code	Component	Material
	29011334	**Tubing kit for outlet fractionation (10 outlets)**	
Out1		29010374 Tubing Out1	ETFE
Out2		29010375 Tubing Out2	ETFE
Out3		29010376 Tubing Out3	ETFE
Out4		29010377 Tubing Out4	ETFE
Out5		29010378 Tubing Out5	ETFE
Out6		29010379 Tubing Out6	ETFE
Out7		29010380 Tubing Out7	ETFE
Out8		29010381 Tubing Out8	ETFE
Out9		29010382 Tubing Out9	ETFE
Out10		29010383 Tubing Out10	ETFE
	-	**56118577 Fingertight HPLC**	PEEK

Pump rinse system

Part	Product code	Component	Material
	29011348	**System Pump Rinse Tubing Kit**	
		59129200 Tube i.d. 2.1 mm, o.d. 4.1 mm	Silicone
	28997722	**Accessory Kit, ÄKTA pure 25**	
		28959057 BD Falcon™ 50 mL tube	PP
P9 A **P9 B**	**28953655**	**28942298 Pump P9 CpI (rinse system)**	
		28922118 Drainage check valve out (white)	PVDF/PEEK/ Aluminum oxide
		28945852 Drainage check valve holder (black)	PVDF
		28940285 Pump Wash Housing	PPS
		28940287 Pump Drainage Plate	PPS
		56119415 Membrane	EPDM

Part	Product code	Component	Material
P9-S	**18111203**	**28945183 Pump P9-S Cpl (Rinse system)** 28922118 Drainage check valve out (white) 28945852 Drainage check valve holder (black) Pump Wash House Pump Drainage Plate Fitting mail luer to M6 Membrane	 PVDF/PEEK/ Aluminum oxide PVDF PPS PPS PEEK EPDM

Note: ***System Pump Rinse Tubing Kit*** *and* ***Accessory Kit*** *can also be used with pump* **P9-S** *on Sample pump* **S9**.

Material conformity: Signature

The Quality System of Cytiva is certified according to ISO9001, and is thereby in control of the product realization process. Cytiva has a controlled process for quality assurance in selection, assessment and evaluation of supplier where strict adherence to specifications for all material is the basis.

Thomas Wallin
QA Site Leader
Cytiva

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