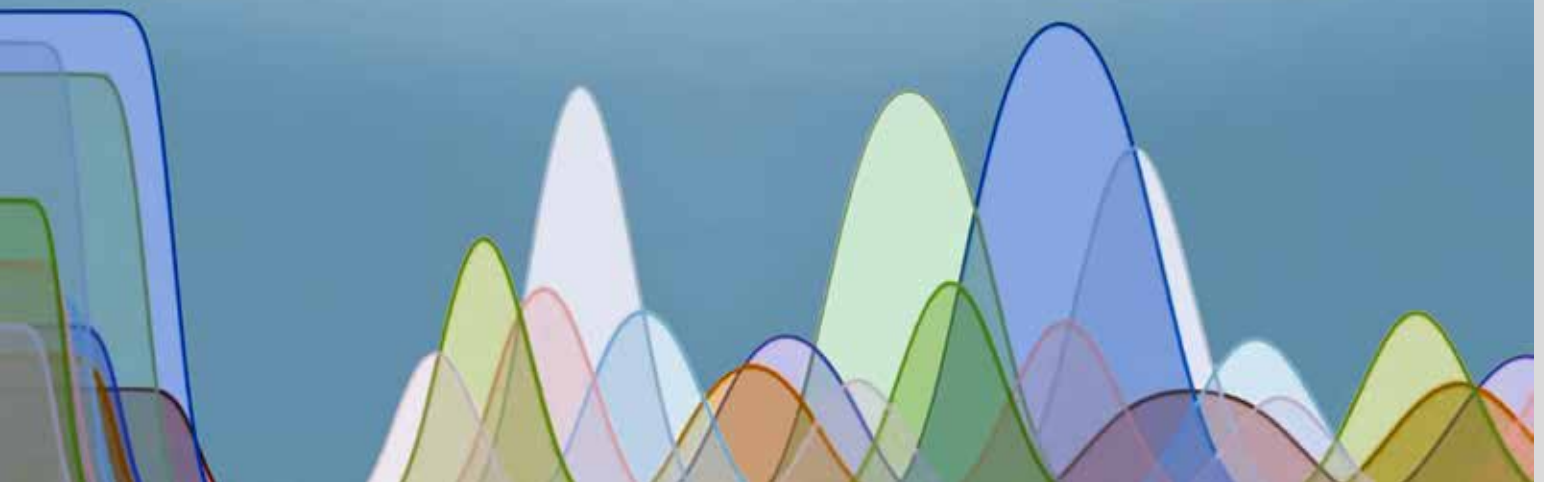


SYNAM CHROMATOGRAPHY

CHROMATOGRAPHY SYSTEMS MADE IN GERMANY

PREPARATIVE HIGH-PERFORMANCE LIQUID CHROMATOGRAPHY SOLUTIONS





HIGH PERFORMANCE SEPARATIONS



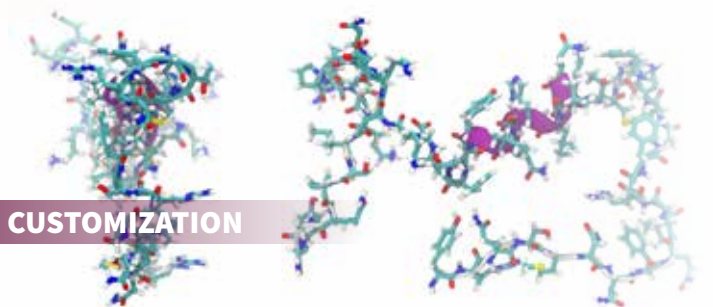
REVERSED PHASE



NORMAL PHASE



BIOCHROMATOGRAPHY



LIMITLESS CUSTOMIZATION

INTRODUCTION

The Sykam S 700 series of preparative LC modules and preparative LC systems offers the user a wide range of possible system configurations.

Whether you need a simple isocratic chromatography system with manual sample injection or a fully automated quaternary high pressure gradient system for multi-dimensional chromatography with column switching and reversed flow capabilities, the S 700 series offers the user maximum flexibility to configure the system for virtually any preparative chromatographic application.

Following general features apply to the Sykam S 700 chromatography systems:

- Stainless steel or biocompatible (PEEK) flow paths
- Pumps with flow rate ranges of 150 ml/min up to 1000 ml/min as isocratic system or as low pressure mixing or high pressure mixing gradient configurations and pressure ranges up to 400 bar
- UV/Vis detectors: 1-channel, 2-channel or PDA detector with integrated peak detection and switching valve and/or fraction collector control
- Several autosampling methods: a combined manual and automatic injector for large volume sample injection and a combined fraction collector/autosampler with a variable choice of tube and bottle sizes
- Motorized automatic single valve and multiple valve units for variable flow path configurations - functions like reversed flow, solvent recycling, large volume sample uptake, column switching and multidimensional chromatography can be easily configured and automated
- Fraction collectors configurable for a variety of tube sizes and bottles up to 500 ml or container fraction collection for even larger volumes

Specific details are listed with each instrument and the preconfigured integrated systems on the next pages of this brochure. You are invited to contact Sykam or your local distributor for specialized support and advice.



S 1525 & S 1535 PUMP SERIES

We believe it is correct to say that the pumps of a preparative chromatography system - if not with any chromatography system - are the heart of the system.

Notwithstanding that any part of a chromatography system can play an essential role, it is quite undisputed that the pumps are a key component defining any achievable chromatographic performance.

In order to achieve maximum performance for each desired flow rate range we propose two pump units, each of which configurable for specific needs.

For a flow rate range of up to 150 ml/min or up to 250 ml/min and the possibility for a built-in quaternary gradient mixer we propose the S 1535 pump.

For larger flow rates of up to 500 ml/min or up to 1000 ml/min and/or the use of an external binary, ternary or quaternary gradient mixer we propose the S 1525 pump.

Both the S 1525 and the S 1535 pumps are available as stainless steel version and a metal-free flow path PEEK version.

Both the S 1525 and the S 1535 pumps stand out with a well oversized and powerful drive system, enabling working pressures of up to 400 bar - even at 1000 ml/min.



The S 1535 Preparative Pump, with a flow rate range of up to 250 ml/min and pressure range up to 400 bar with stainless steel pump heads and optional built-in low pressure mixing quaternary gradient mixer



The S 1525 Preparative Pump, with metal-free PEEK pump heads, a flow rate range of up to 1000 ml/min and pressure range of up to 350 bar

THE S 1535 PREPARATIVE LC PUMP



An optional built-in low pressure quaternary gradient mixer gives the user flexibility for running applications needing complex water/solvent gradients as often encountered in straight phase and reversed phase chromatography, as well as reliable gradient formation and robust operation for high salt containing buffer gradients - as often used in protein chromatography applications.



The S 1535 Preparative LC Pump is available as a 150 ml/min and a 250 ml/min version and a pressure range of 400 bar with stainless steel pump heads, and up to 350 bar with PEEK pump heads.

Preparative Pump System S 1535 Stainless Steel

Catalog No.	Description	Specifications
S008806	Preparative Pump S 1535-150 150 ml stainless steel pump head	Max. flow rate: 150 ml/min Max. pressure: 400 bar (5800 psi)
S008761	Preparative Pump S 1535-250 250 ml stainless steel pump head	Max. flow rate: 250 ml/min Max. pressure: 400 bar (5800 psi)

Preparative Pump System S 1535 PEEK

Catalog No.	Description	Specifications
S008845	Preparative Pump S 1535-150 150 ml PEEK pump head	Max. flow rate: 150 ml/min Max. pressure: 350 bar (5000 psi)
S008844	Preparative Pump S 1535-250 250 ml PEEK pump head	Max. flow rate: 250 ml/min Max. pressure: 350 bar (5000 psi)

Update Options/Accessories

Catalog No.	Description	Notes
S008805	Quaternary Gradient Mixer	Low pressure quaternary gradient mixer with integrated degasser

Technical Specifications

Flow accuracy	± 2 %
Flow precision	≤ 0.1 %
Wetted materials	PEEK/stainless steel, PE, PTFE, ceramic
Max. pressure	350 / 400 bar (PEEK / stainless steel)
Piston backflush	Passive
Gradient accuracy	± 2.5 % (low pressure gradient)
Gradient precision	≤ 2% RSD (low pressure gradient)

Operation	Manual, RS232, USB, LAN, digital I/O
Digital I/O	Start, stop, 3 x input, 4 x output
Dimensions	383 x 165 x 460 mm
Weight	12.2 kg
Power supply	100 - 240 V, 50 - 60 Hz

THE S 1525 PREPARATIVE LC PUMP



The S 1525 LC pump aims to serve the highest demands in terms of operability and longevity at pressures of up to 400 bar, even at the highest flow rates.

The oversized motorization and mechanics implemented at the S 1525 pump warrant low maintenance and high durability for demanding chromatographic applications.

The S 1525 Preparative LC pump is the largest heavy duty pump of the preparative LC product range. The S 1525 pump is available with four flow rate ranges. These are 150, 250, 500 or 1000 ml per minute. Each available as stainless steel version or as metal-free PEEK versions.



Preparative Pump System S 1525 Stainless Steel

Catalog No.	Description	Specifications
S007020	Preparative Pump S 1525-150 150 ml stainless steel pump head	Max. flow rate: 150 ml/min Max. pressure: 400 bar (5800 psi)
S006978	Preparative Pump S 1525-250 250 ml stainless steel pump head	Max. flow rate: 250 ml/min Max. pressure: 400 bar (5800 psi)
S006979	Preparative Pump S 1525-500 500 ml stainless steel pump head	Max. flow rate: 500 ml/min Max. pressure: 400 bar (5800 psi)
S006981	Preparative Pump S 1525-1000 1000 ml stainless steel pump head	Max. flow rate: 1000 ml/min Max. pressure: 350 bar (5000 psi)

Preparative Pump System S 1525 PEEK

Catalog No.	Description	Specifications
S007021	Preparative Pump S 1525-150 150 ml PEEK pump head	Max. flow rate: 150 ml/min Max. pressure: 350 bar (5000 psi)
S006983	Preparative Pump S 1525-250 250 ml PEEK pump head	Max. flow rate: 250 ml/min Max. pressure: 350 bar (5000 psi)
S006984	Preparative Pump S 1525-500 500 ml PEEK pump head	Max. flow rate: 500 ml/min Max. pressure: 350 bar (5000 psi)
S006986	Preparative Pump S 1525-1000 1000 ml PEEK pump head	Max. flow rate: 1000 ml/min Max. pressure: 350 bar (5000 psi)

Update Options/Accessories

Catalog No.	Description	Notes
S006988	Quaternary Gradient Mixer	Low pressure quaternary gradient mixer
S007085	Binary Gradient Mixer	Low pressure binary gradient mixer
S007081	Tertiary Gradient Mixer	Low pressure tertiary gradient mixer

Technical Specifications

Flow accuracy	± 2 %
Flow precision	≤ 0.1 %
Wetted materials	PEEK/stainless steel, PE, PTFE, ceramic
Max. pressure	350 / 400 bar (PEEK / stainless steel)
Piston backflush	Passive
Gradient accuracy	± 2.5 % (low pressure gradient)
Gradient precision	≤ 2% RSD (low pressure gradient)

Operation	Manual, RS232, USB, LAN, digital I/O
Digital I/O	Start, stop, 3 x input, 4 x output
Dimensions	383 x 165 x 460 mm
Weight	16.1 kg
Power Supply	100 - 240 V, 50 - 60 Hz



AUTOSAMPLING

The choice for a certain strategy of sample injection is largely dependent on the type of application. Such as:

- High value peptide purifications with repetitive smaller volume injections
- Large volume injections where one or more sample cartridges need to be switched into the flow path for flash chromatography purifications
- Biochromatography with protein purification strategies including affinity, ion-exchange, hydrophobic interaction, and gel permeation chromatography

Each of the above examples will typically require a different level of flexibility and lead to a specific choice of sampling instrument(s).



The S 5405 Sample Loading Rack and 10-port valve for automatic large volume sample loading in combination with the S 5400 Sampling Module



Shown above the S 5400 Sampling Module with a manual and automatic injection valve and integrated variable volume dosing pump



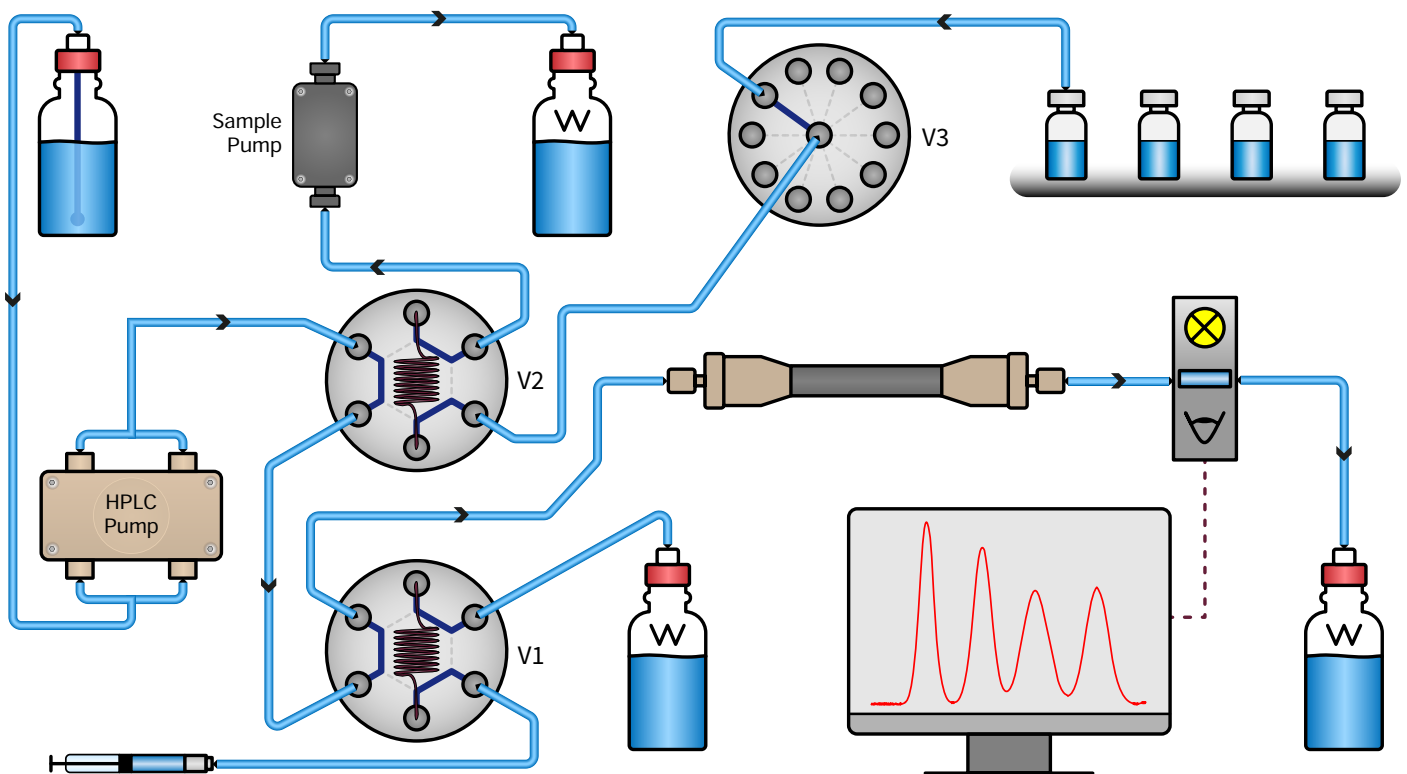
The S 6425 Autosampler/Fraction Collector that can be used as autosampler only, or as fraction collector only or a combination thereof with a wide choice of sample and collection racks

THE S 5400 SAMPLING MODULE



The S 5400 Sampling Module with built-in sampling pump and two separate injection valves offers manual syringe injection and variable volume injection controlled by the sampling pump.

The S 5400 in combination with the S 5405 Sample Loading rack with 10 closed 50 ml tubes and a 10-port switching valve is a fully automatic large volume sample injection system.



Shown above: the S 5400 sampling flow path. Valve 1 is the manual injection valve. Valve 2 is the automatic injection valve. Valve 1, valve 2 and the sample pump are integral parts of the S 5400 sampling module. Valve 3 is the optional external valve for automatic sampling of up to 10 samples. The sample inlet lines to the 10-port valve can be connected to any external sample container or to the optional S 5405 sample loading rack with 10 closed tubes of 50 ml.

Sampling Module S 5400 Stainless Steel / PEEK

Catalog No.	Description	Specifications
S009202	Sampling Module S 5400 SS	Stainless steel, 10 ml & 2 ml sample loops
S009826	Sampling Module S 5400 PEEK	PEEK, 10 ml & 2 ml sample loops

Technical Specifications

Injection accuracy	± 2 %
Injection precision	≤ 0.5 % RSD
Wetted materials	PVC, PTFE, stainless steel/PEEK, PPS
Max. pressure	250 bar (PEEK / stainless steel)

Operation	Manual, RS232, digital I/O
Digital I/O	
Dimensions	383 x 165 x 470 mm
Weight	9.1 kg
Power Supply	100 - 240 V, 50 - 60 Hz

Sampling Rack S 5405

Catalog No.	Description	Specifications
S009265	Sampling Rack S 5405	10 Sample positions

UV/VIS DETECTORS

UV/Vis detection is probably the most applied and easiest to use chromatographic detection method for preparative chromatography. As common as a UV/Vis detector may be for HPLC applications, it is relevant to know that a UV/Vis detector for preparative HPLC must serve some specific demands, different from a general analytical UV/Vis detector.

Among these demands are:

- An external flow cell for easy access and positioning in any preparative HPLC configuration
- Allowing high flow rates while maintaining low pressure drop
- A high pressure rating flow cell to handle possible high pressures downstream from the UV/Vis detector
- A short optical pathway, typically less than 1 mm, to allow monitoring of highly concentrated samples

The S 3255 UV/Vis Detector and S 3355 PDA Detectors are specifically designed for preparative HPLC.



The S 3255 UV/Vis Detector available as 1-channel or 2-channel detector with front-mounted external flow cell

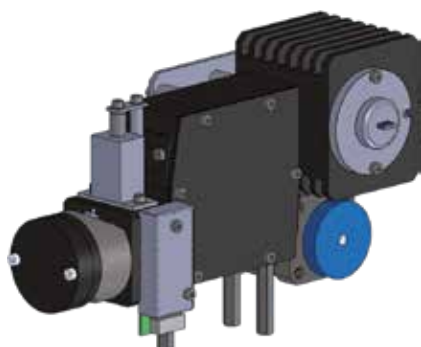


The S 3355 Photo Diode Array (DAD/PDA) Detector

THE S 3255 UV/VIS DETECTOR

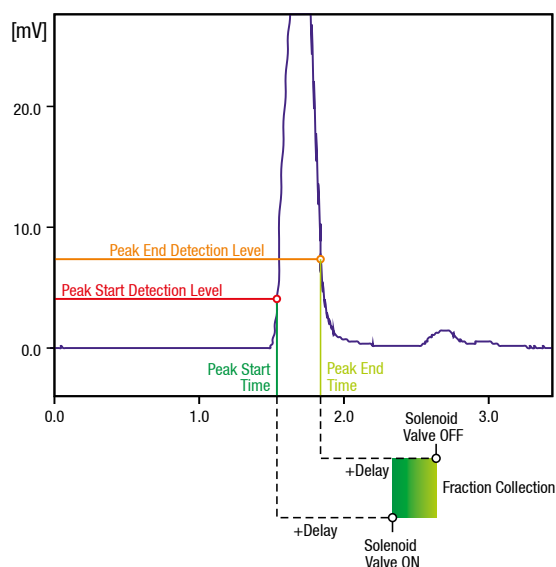


The Sykam S 3255 UV/Vis Detector is a single or optional dual channel variable wavelength detector with a wavelength range of 190 to 800 nm. Built around a high quality “moving monochromator” optics for minimal loss of light energy at any chosen wavelength, the result is a UV/Vis detector with an excellent dynamic measuring range and stability for routine applications as well as demanding preparative HPLC applications.



An integrated wavelength program allows for free programming of different wavelengths within a run. A special feature of the S 3255 is the integrated peak detector with the possibility of direct control of external solenoid valves by means of an integrated 24 volt output stage with a programmable delay function. Just adding an automatic three-way valve from the Sykam S 6000 series allows for fraction collection or solvent recycling.

The preparative flow cell is available in stainless steel and in PEEK versions.



Variable Wavelength UV/Vis Detector S 3255

Catalog No.	Description	Specifications
S009155	UV/Vis Detector S 3255 1-Channel without flow cell	190 - 800 nm
S009172	UV/Vis Detector S 3255 2-Channel without flow cell	190 - 800 nm; second measuring channel
S007050	Preparative Flow Cell, PEEK	1/8", 0.5mm path length, 350 bar
S007398	Preparative Flow Cell, stainless steel	1/8", 0.5mm path length, 400 bar

Technical Specifications

Injection accuracy	± 2 %
Injection precision	≤ 0.1 %
Wetted materials	PVC, PTFE, stainless steel/PEEK, PPS
Max. pressure	350 / 400 bar (PEEK / stainless steel)

Operation	Manual, RS232, digital I/O
Digital I/O	
Dimensions	383 x 165 x 460 mm
Weight	10.6 kg
Power supply	100 - 240 V, 50 - 60 Hz

THE S 3355 UV/VIS PHOTO DIODE ARRAY DETECTOR



If a standard one or two channel UV/Vis detector is not adequate for preparative purifications, a diode array detector offers simultaneous multi-wavelength or full UV/Vis spectrum - peak purity - analysis for complex chromatographic purifications.

The Sykam S 3355 PDA Detector is a photo diode array detector with a deuterium and a tungsten lamp, offering a wavelength range of 190 nm to 720 nm with the 256 diodes version, or 190 nm to 1040 nm with the 1024 diodes version. The front-mounted flow cell with a high flow rate rating and a high pressure rating of up to 400 bar allows easy access with standard 1/8" fittings.

Photo-Diode-Array (PDA) Detector S 3355

Catalog No.	Description	Specifications
S000172	PDA Detector S 3350 without flow cell	256 diodes, 190 - 720 nm
S011282	Preparative Flow Cell, PEEK	1/8", 0.5mm path length, 350 bar
S009787	Preparative Flow Cell, stainless steel	1/8", 0.5mm path length, 400 bar

Technical Specifications

Injection accuracy	± 2 %
Injection precision	≤ 0.1 %
Wetted materials	PVC, PTFE, stainless steel/PEEK, PPS
Max. pressure	350 / 400 bar (PEEK / stainless steel)

Operation	Manual, RS232, digital I/O
Digital I/O	
Dimensions	383 x 165 x 460 mm
Weight	10.6 kg
Power supply	100 - 240 V, 50 - 60 Hz

PREPARATIVE COLUMNS

BIOCOMPATIBLE COLUMN HARDWARE

Sykam offers a unique range of biocompatible inert PEEK columns of different dimensions.

Pressure Stable up to 250 bar

The PEEK columns are pressure stable and can be used up to 250 bar pressure. This pressure stability makes these columns a perfect alternative to the conventional glass columns.

Axial Compression

The PEEK columns are also available with an axial compression mechanism.



PREPARATIVE COLUMN STAND

The Sykam Preparative Column Stand is a robust solution for keeping your column in place. The stand is safely holding your column on the bench - even with larger dimensions. The integrated drain tray helps in containing any capillary leakage after a column change. Several column clamps are available to adjust the column stand to any column dimension.



Preparative Column Rack

Catalog No.	Description	Specifications
S009267	Preparative column stand	with a set of column clamps

FRACTION COLLECTION

The final stage of a preparative chromatography system is in fact proper and adequate fraction collection. Intelligent fraction collection is largely initiated and controlled by the detector signals and the chromatography control software. Sykam offers a choice of three fraction collectors. The S 6410 carousel fraction collector, the S 6420 rack-type fraction collector and the S 6425 combination instrument as rack-type fraction collector and autosampler as described on page 11 of this brochure.



The S 6420 Rack Type Fraction Collector

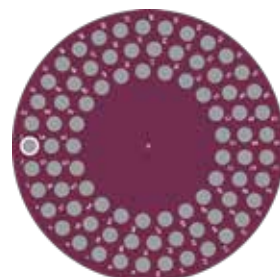


The S 6410 Carousel Type Fraction Collector

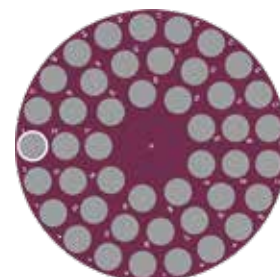


A dual function instrument. The S 6425 Rack Type Fraction Collector and Autosampler

THE S 6410 FRACTION COLLECTOR



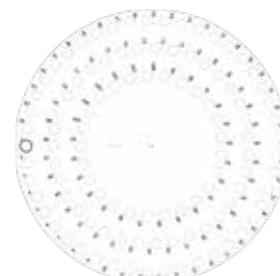
Rack 1 - 81 x 14 ml tubes



Rack 2 - 45 x 50 ml tubes



Rack 3 - 9 x 250 ml bottles



Rack 4 - 105 x 1.5 ml vials

The Sykam S 6410 Fraction Collector is an easy to use basic fraction collector for preparative LC/HPLC. A choice of 4 interchangeable tube racks and simple digital I/O and RS232 control function allowing an easy integration with virtually any preparative chromatography system.

Fraction Collector System S 6410

Catalog No.	Description	Specifications
S009855	Fraction Collector S 6410 Preparative incl. Collector Rack 1	81 x 14 ml tubes (diameter 16 mm)
S009856	Fraction Collector S 6410 Preparative incl. Collector Rack 2	45 x 50 ml tubes (diameter 30 mm)
S009857	Fraction Collector S 6410 Preparative incl. Collector Rack 3	9 x 250 ml bottles (diameter 71 mm)
S009858	Fraction Collector S 6410 Preparative incl. Collector Rack 4	105 x 1.5 ml conical vials (diameter 11 mm)

Collector Racks

Catalog No.	Description	Notes
S006971	Collector Rack 1	81 x 14 ml tubes (diameter 16 mm)
S006972	Collector Rack 2	45 x 50 ml tubes (diameter 30 mm)
S006973	Collector Rack 3	9 x 250 ml bottles (diameter 71 mm)
S007805	Collector Rack 4	105 x 1.5 ml conical vials (diameter 11 mm)

Other rack dimensions are available on request!

Technical Specifications

Description	Notes
RS-232	Collect/drain, init position, next position, previous position, goto position, error reporting
Digital I/O	Collect/drain, init position, next position, previous position, error output
Wetted materials	PEEK, PVDF
Max. flow rate	100 ml/min (optional: 1000 ml/min)

SWITCHING VALVES AND VALVE CONTROL

As soon as a preparative chromatography system must be configured for more than a straightforward isocratic system with a single column, applying one or more switching valves gives the user flexibility to configure and automate application specific flow paths.

Sykam offers a complete range of high pressure and low pressure multiport switching valves. With the S 6510 single valve actuator or the S 6515 multiple valve actuator for up to 5 switching valves virtually any flow path can be configured.



The S 6510 Valve Actuator for a single valve

THE S 6515 MULTIPLE VALVE ACTUATOR

The Sykam S 6515 Automatic Multiple Valve Actuator can be configured with up to 5 independent multiport switching valves with any valve of the Sykam S 6000 or S 6800 valve series, enabling automation of switching flow paths for column switching, reversing flow directions, eluent recycling, sample loading and fraction collection.

The S 6515 Valve Actuator can also be used as a standalone unit. The RS232 control and TTL control enables flexible integration with most chromatography systems from other brands as well.



The S 6515 Multiple Valve Actuator for up to five switching valves. The PrepCon5 control program allows control of multiple S 6515 modules offering virtually unlimited flow path configurations

Multiple Valve Actuator S 6515

Catalog No.	Description	Specifications
S009201	Preparative Multiple Valve Actuator S 6515	includes 1 valve actuator (without valve)

Options & Upgrades

Catalog No.	Description	Notes
S009252	additional Valve actuator (max. 4)	without valve

Technical Specifications

Operation	RS232
Dimensions	120 x 510 x 440 mm
Weight	6.5 kg
Power supply	100 - 240 V, 50 - 60 Hz

THE S 6510 (SINGLE) VALVE ACTUATOR

The Sykam S 6510 Automatic Valve Actuator can be configured with any multiport switching valve of the Sykam S 6000 or S 6800 valve series. For less complicated flow paths a single multiport valve is sufficient.

Just as the S 6515 Multiple Valve Actuator the S 6510 Valve Actuator can also be used as a standalone unit for implementation in any chromatography system.

(Single) Valve Actuator S 6510

Catalog No.	Description	Specifications
S008426	Fraction Valve Actuator S 6510 w. S 6831 4-Fraction Valve	1/8" Connection
S008427	Fraction Valve Actuator S 6510 w. S 6841 6-Fraction Valve	1/8" Connection
S008428	Fraction Valve Actuator S 6510 w. S 6881 10-Fraction Valve	1/8" Connection

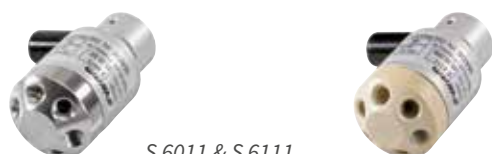
Technical Specifications

Dimensions	120 x 160 x 250 mm
Weight	2.6 kg
Power supply	100 - 240 V, 50 - 60 Hz

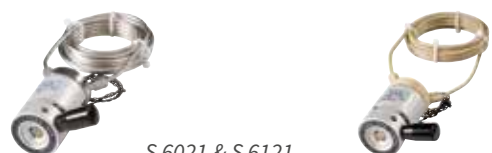
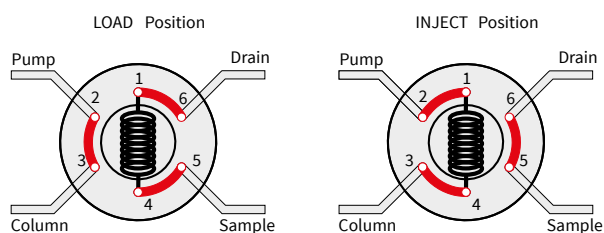
S 6000 & S 6800 SERIES VALVES

The Sykam S 6000 series is the range of high pressure multiport switching valves and injection valves. The S 6000 series valves are made of stainless steel or biocompatible versions made of PEEK. The S 6800 series valves are low pressure inert switching valves.

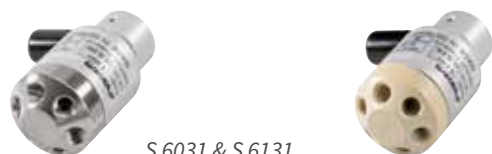
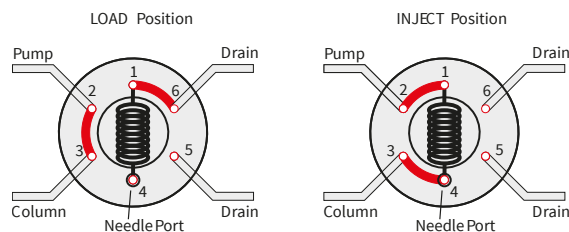
See the Sykam website or the S 6000 and S 6800 series brochure for more details.



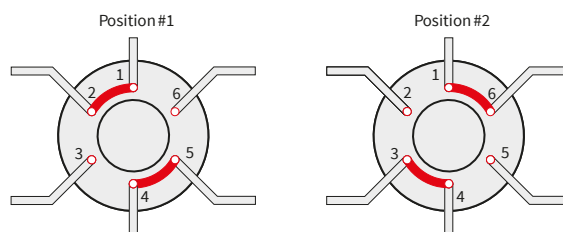
S 6011 & S 6111
3x3-Way Preparative HPLC Valves/Injection Valves



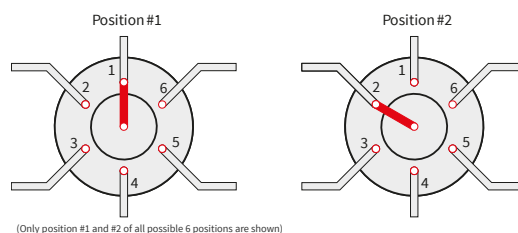
S 6021 & S 6121
Preparative Needle Injection HPLC Valves



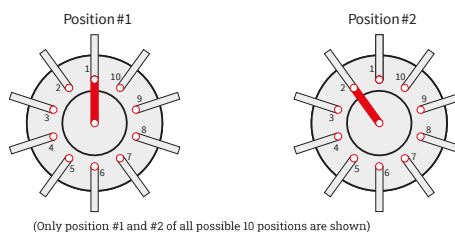
S 6031 & S 6131
2x3-Way Preparative HPLC Valves



S 6041 & S 6141
1x6-Way Preparative HPLC Valves



S 6051 & S 6151
1x10-Way Preparative Manual HPLC Valves



S 681x 3/2-Way Preparative LC Valve



S 683x 4-Pos Selection Preparative LC Valve



S 684x 6-Pos Selection Preparative LC Valve



S 688x 10-Pos Selection Preparative LC Valve

CONTROL AND DATA HANDLING SOFTWARE

PREPCON 5

The PrepCon 5 computer control system offers the possibility to configure preparative HPLC systems for virtually any application.

Whether it is a simple isocratic application or a demanding multidimensional chromatography application, PrepCon 5 is a user friendly flexible configurable software and control system.

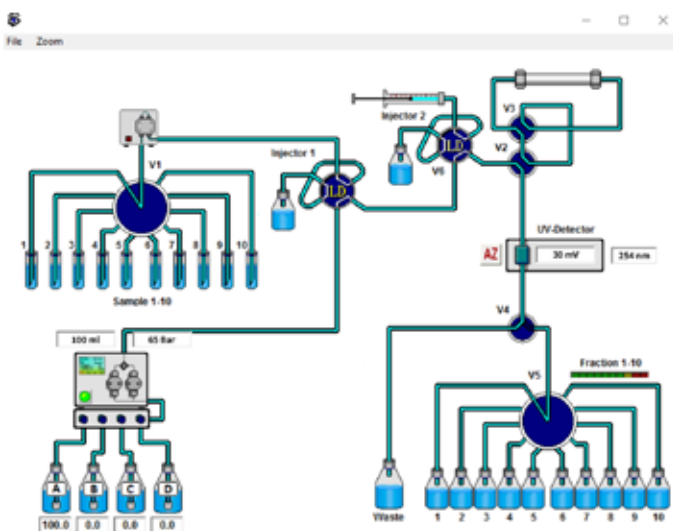
PrepCon 5 is compliant with FDA CFR Part 11 directives.

Key features:

- Control of any combination of pumps, switching valves, autosamplers, detectors and fraction collectors
- Simultaneous monitoring of up to 8 analog signals
- Dynamic visualization of the active flow path and fraction collection
- Up to eight signal thresholds (e.g. UV, pH, conductivity) programmable for dynamically optimized fraction collection and system control
- Advanced peak sampling parameters for reliable and precise fraction collection

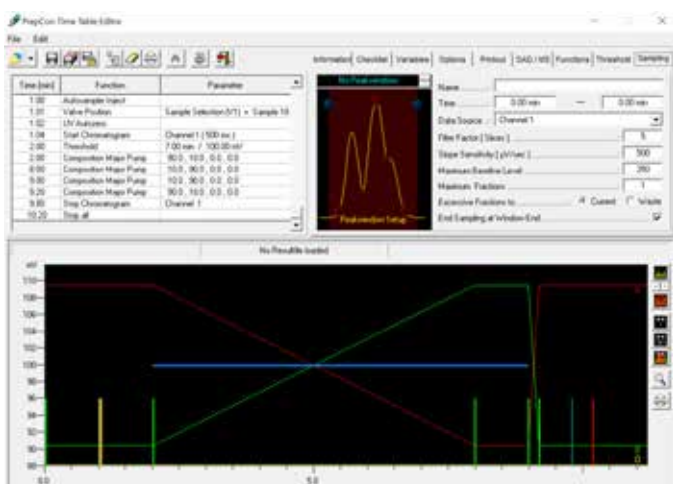


The PrepCon 5 Main control window

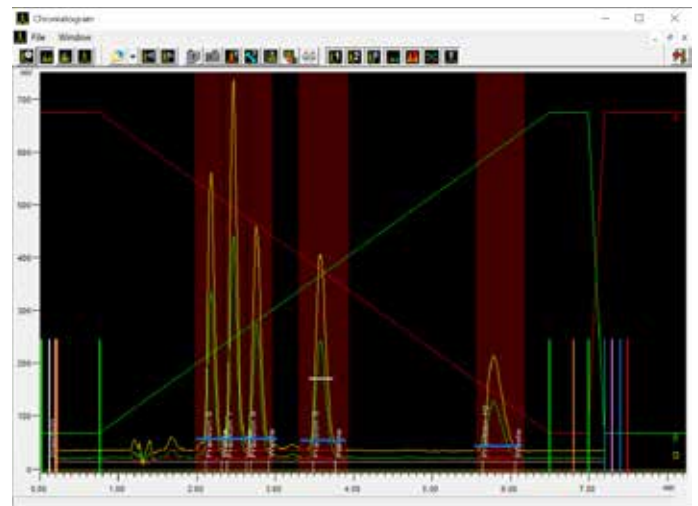


Fraction collection visualization

Monitoring and dynamic control of the system.
 Example shown: a quaternary gradient system with manual and automatic sample injection, reversed flow switching and fraction collection



Creating a chromatographic method:
 Peak collection parameters, gradient properties,
 method events, graphical method editing



Visualisation of signals: fraction collection windows, gradient profile A/B, collection threshold, fraction number

No	Volume	Start Time	End Time	Start Event	End Event
006	19.7 ml	2.10 min	2.30 min	Threshold 1 Over Event	Threshold 1 Under Event
007	24.0 ml	2.37 min	2.61 min	Threshold 1 Over Event	Threshold 1 Under Event
008	23.0 ml	2.67 min	2.90 min	Threshold 1 Over Event	Threshold 1 Under Event
009	28.4 ml	3.47 min	3.75 min	Threshold 2 Over Event	Threshold 2 Under Event
010	41.6 ml	5.63 min	6.05 min	Threshold 3 Over Event	Threshold 3 Under Event

Fraction collection listing

PrepCon 5 Options & Upgrades

Catalog No.	Description	Descriptions
S007388	PrepCon 5	Program for control of preparative or analytical liquid chromatography systems, including solvent supply monitoring, system visualization, user administration and graphical timetable editor
S007955	PrepCon 5 Basic	Program for control of preparative or analytical liquid chromatography systems, including solvent supply monitoring, system visualization and user administration
S007956	Peak sampling module for PrepCon 5	Program extension for peak dependent fractionating
S007389	Data acquisition module for PrepCon 5	Program extension for recording and integration of up to 8 data channels
S007958	DAD module for PrepCon 5	Program extension for recording of up to 8 wavelengths or wavelength ranges, UV spectra (emission or absorbance) and 3D data of various diode array detectors
S007959	PrepCon 5 Flash	Program for control of preparative or analytical liquid chromatography systems, including solvent supply monitoring, system visualization and user administration. One channel A/D converter board included
S007960	PrepCon 5 Flash Ethernet	<p>Program for control of preparative or analytical liquid chromatography systems, including solvent supply monitoring, system visualization and user administration. Network A/D converter board included.</p> <ul style="list-style-type: none"> • 2 independent analog inputs (Range: -1.3 ... +10.0 Volt) • Noise <0.5 ΔV RMS • Drift <3 ΔV/h @ ambient temperature • Dynamic range >150 dB • Sample rates 0.1 ... 100 Hz • 2 Start/Stop inputs • TCP/IP Protocol • Eventbox: 4 inputs and 4 relais outputs • RS232 interface for instrument control and/or network parameter configuration
S007390	Detector driver	Software for data acquisition and function control of an HPLC detector via RS232 or network (replaces Multcom interface and A/D converter)
S007397	Software driver for instrument control	
S007961	Software driver pack	For control of 3 or more components

S 700 PREPARATIVE HPLC SYSTEM CONFIGURATIONS

When configuring a preparative HPLC system the key starting point is usually to define the necessary flow range, the pressure range and to choose an isocratic or gradient pump configuration.

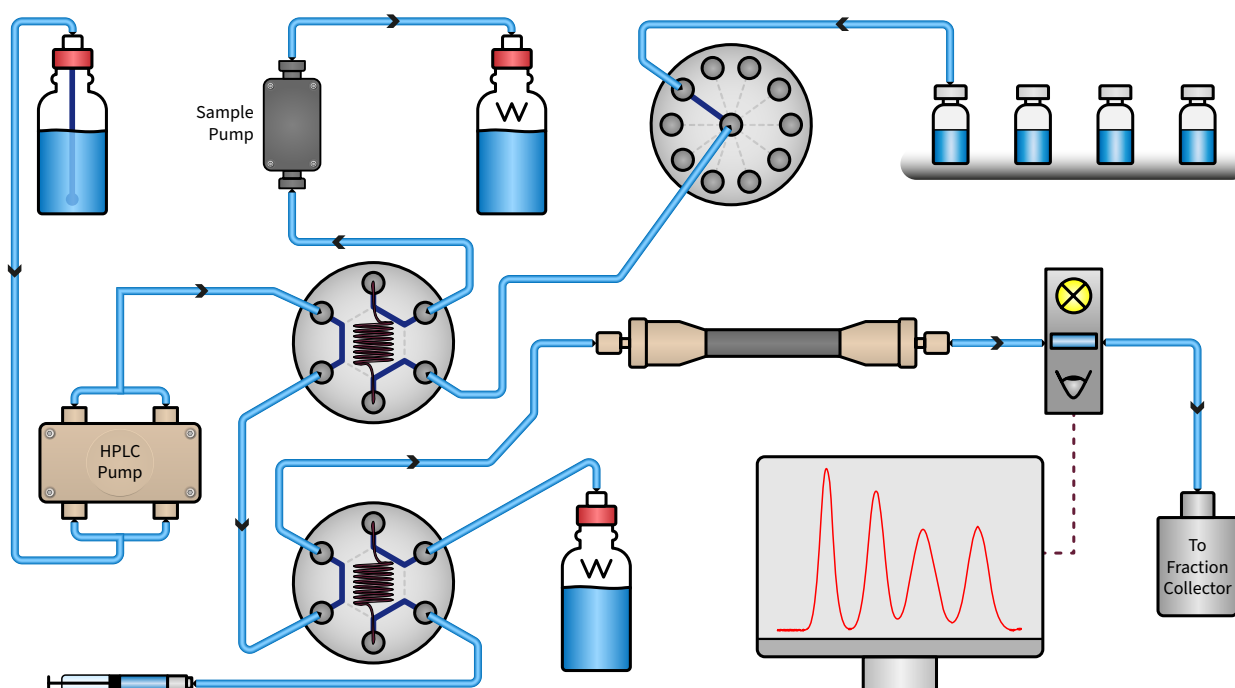
On the next pages we show some configurations to illustrate the flexibility to realize virtually any flow path.



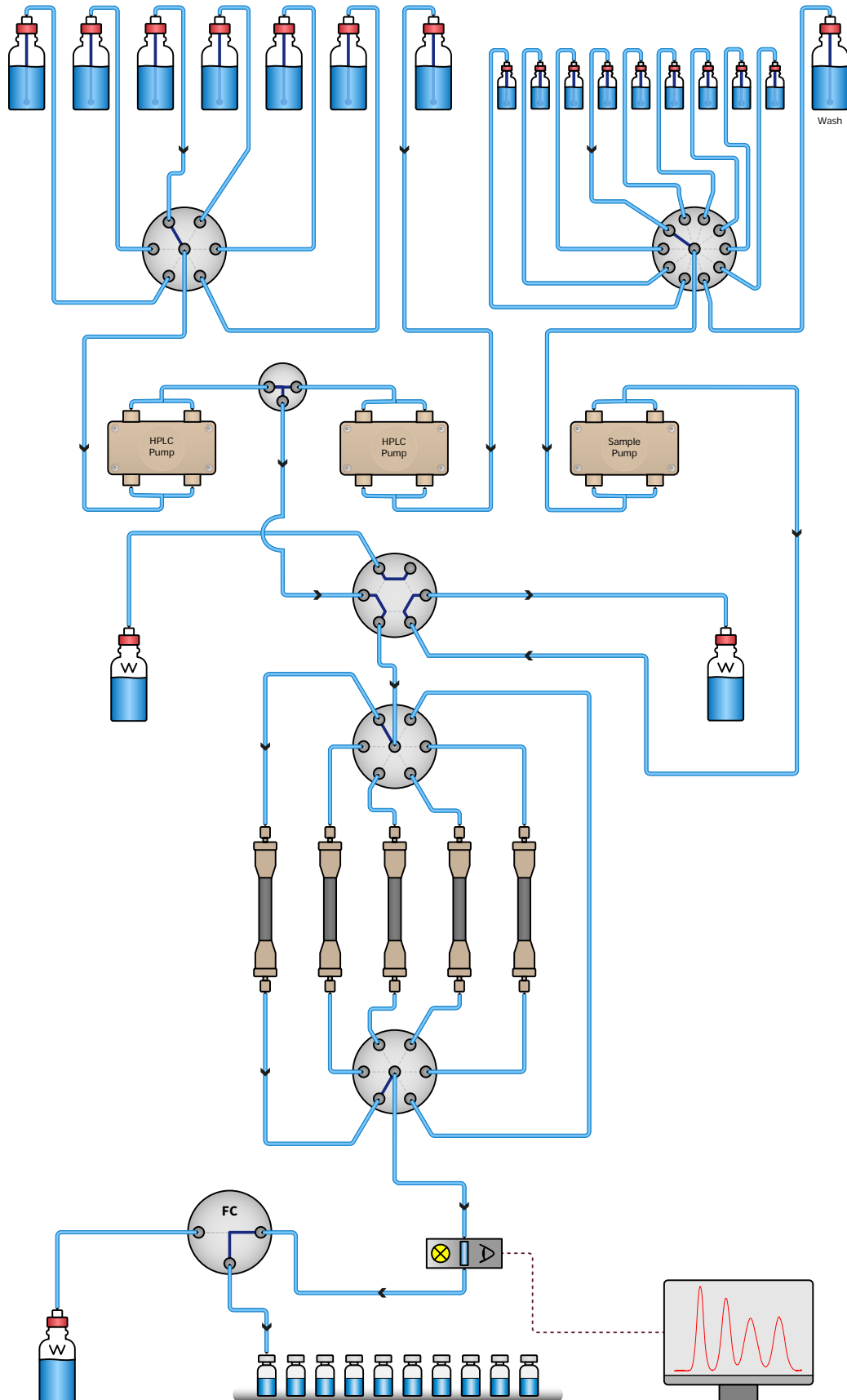
Sykam S 724 quaternary low pressure mixing gradient HPLC system (PEEK version)



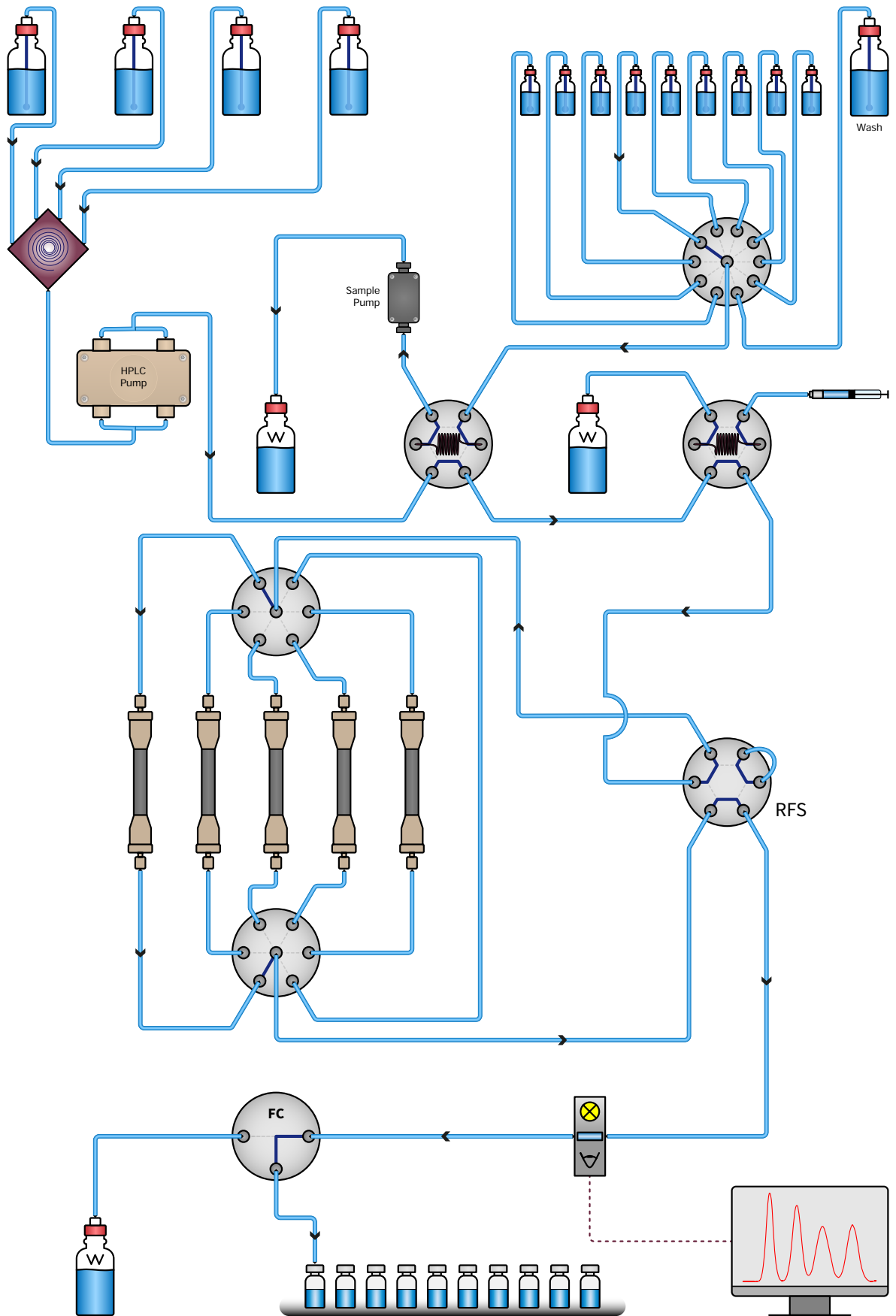
Sykam S 712 binary high pressure gradient HPLC system (stainless steel version)



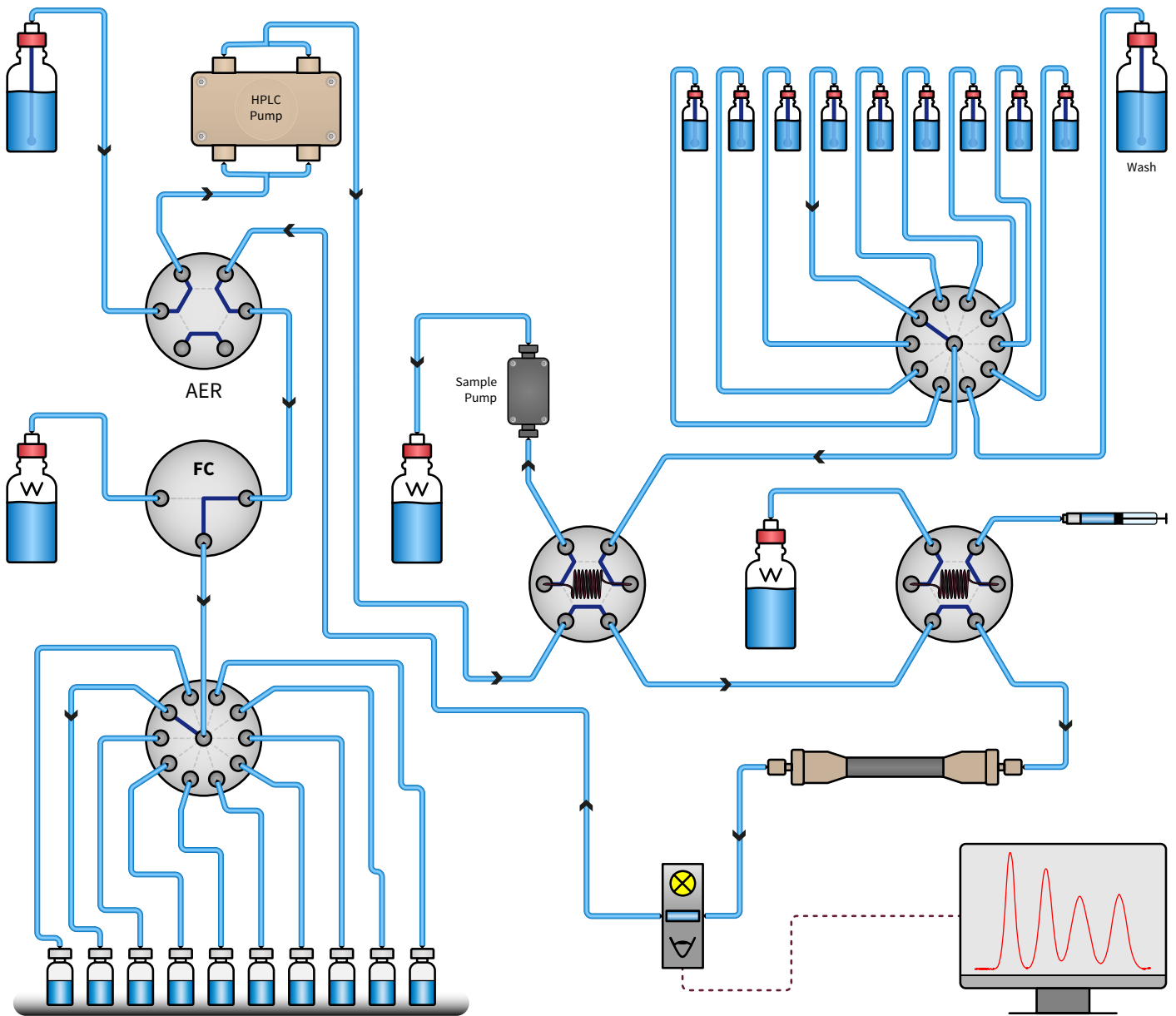
An isocratic configuration with manual injection port and automatic sample injection of up to 10 samples (fraction collector omitted)



A **binary high pressure gradient system** with additional 6-channel buffer/eluent selection for the primary pump. A sampling pump for large volume sample injection and a sampling valve for connecting up to 10 sample containers. Column switching up to 6 columns, or 5 columns and one bypass for flushing or sanitizing routines. Fraction collector.



A low pressure quaternary gradient system with manual and automatic injection. Column switching up to 6 columns, or 5 columns and one bypass for flushing or sanitizing routines. Reversed flow switching (RFS) for counter-current elution or column regeneration. Fraction collector.



An **isocratic system** with automatic eluent recycling (AER) possibility and manual and automatic sample injection. Fraction collection with a 10 port valve enabling large volume collection, useful for stacked (repeating) sample injection routines.

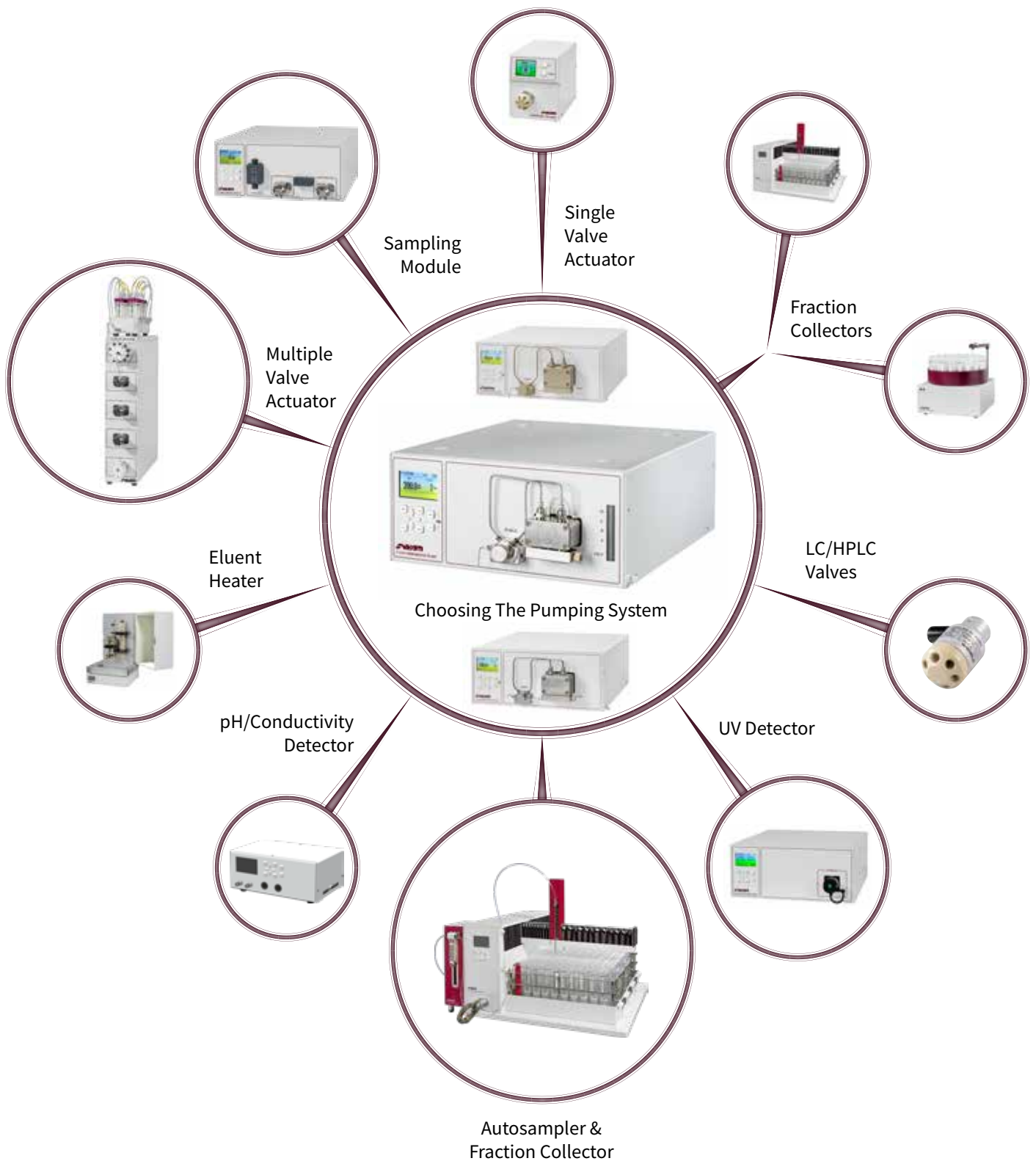
SYSTEM CONFIGURATION AND ADDING FUNCTIONALITY

The central determining point for any preparative chromatography system is to determine the necessary flow rate and pressure range. This means in fact choosing the right pump(s). Additional considerations for the pump are if you need any gradient formation and if you need a metal free (bio-inert) flow path.

After choosing the pumping system it is a matter of adding functionality to the system by choosing the right detector(s), type of sample introduction, the type of valves for realising specific flow paths and the type of fraction collection via valves or a dedicated fraction collector.

The next pages serve as a guide for easy configuration of your preparative LC system.

OUR PREPARATIVE CHROMATOGRAPHY LANDSCAPE



Details and specifications of each component listed in the tables below are presented in the product description pages of this brochure.

Choosing the pump configuration

Flow rate range	Pump Model	Low pressure gradient option	High pressure gradient configuration	Pressure range (bar)
150 ml/min	S-1535-150 (SS)	Quaternary integrated	2, 3 or 4 pumps	400
	S 1535-150 (PEEK)	Quaternary integrated	2, 3 or 4 pumps	350
	S 1525-150 (SS)	External mixer binary/ternary/quaternary	2, 3 or 4 pumps	400
	S 1525-150 (PEEK)	External mixer binary/ternary/quaternary	2, 3 or 4 pumps	350
250 ml/min	S 1535-250 (SS)	Quaternary integrated	2, 3 or 4 pumps	400
	S 1535-250 (PEEK)	Quaternary integrated	2, 3 or 4 pumps	350
	S 1525-250 (SS)	External mixer binary/ternary/quaternary	2, 3 or 4 pumps	400
	S 1525-250 (PEEK)	External mixer binary/ternary/quaternary	2, 3 or 4 pumps	350
500 ml/min	S1525-500 (SS)	External mixer binary/ternary/quaternary	2, 3 or 4 pumps	400
	S1525-500 (PEEK)	External mixer binary/ternary/quaternary	2, 3 or 4 pumps	350
1000 ml/min	S 1525-1000 (SS)	External mixer binary/ternary/quaternary	2, 3 or 4 pumps	400
	S 1525-1000 (PEEK)	External mixer binary/ternary/quaternary	2, 3 or 4 pumps	350

Choosing the detector(s)

UV/Vis detector	Model	Flow Cell	Remarks
190 - 800 nm (1 channel)	S 3255 (1 channel)	PEEK or stainless steel - 0.5 mm, 400 bar	Flow cell to be ordered separately
190 - 800 nm (2 channel)	S 3255 (2 channel)	PEEK or stainless steel - 0.5 mm, 400 bar	Flow cell to be ordered separately
190 - 720 nm (DAD)	S 3355	PEEK or stainless steel - 0.5 mm, 400 bar	Flow cell to be ordered separately
190 - 1040 nm (DAD)	S 3355	PEEK or stainless steel - 0.5 mm, 400 bar	Flow cell to be ordered separately
pH/conductivity detector	S 3128	pH (2 channel), conductivity (2 channel)	pH and conductivity flow cells to be ordered separately
Other brand detectors			Contact Sykam or an authorised local distributor

**COMING
SOON**

- Evaporative light scattering detector (ELSD) S 3720
- Active flow splitter for enabling the use of analytical (low flow rate) detectors

Choosing column temperature control

Eluent heating	S 4137 eluent heater with separate control module	Contact Sykam or an authorised local distributor
Eluent heater & column oven	S 4136 integrated eluent heater & column oven	Contact Sykam or an authorised local distributor

Choosing fraction collection

Basic Fraction collector	S 6410 Fraction Collector	Carrousel type collector with choice of 3 collection racks	
Advanced Fraction collector	S 6420 Fraction Collector	Rack type collector with choice of 5 collection racks (including funnel type with tubings for collecting to external containers)	Contact Sykam or an authorised local distributor

Choosing the sampling system

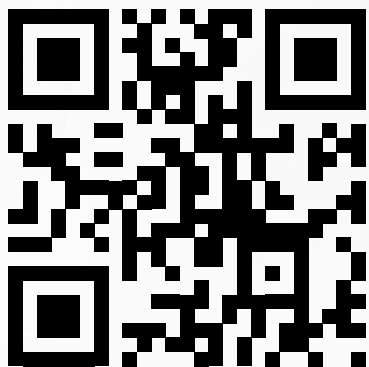
Manual Injection	S 6011 Preparative injection valve (stainless steel)	Luer port injection
	S 6111 Preparative injection valve (PEEK)	Luer port injection
	S 6021 Preparative needle injection valve (stainless steel)	Needle injection valve
	S 6121 Preparative needle injection valve (PEEK)	Needle injection valve
Automatic Injection	S 5400 (stainless steel)	Multiple injections from single feed solution and manual injections
	S 5400 (PEEK)	Multiple injections from single feed solution and manual injections
	S 5400 + S 6515 valve actuator + S 6880 valve + S 5405 sample loading rack	Multiple injections from up to 10 samples
	S 5400 (PEEK) + S 6515 valve actuator + S 6880 valve + S 5405 sample loading rack	Multiple injections from up to 10 samples
	S 6425 autosampler/fraction collector	Multiple injections from up to 20 samples + fraction collection function
	S 1535 (stainless steel or PEEK) sampling pump	Sampling pump for large volume sampling
	S 1535 (stainless steel or PEEK) sampling pump + S 6515 valve actuator + S 6880 valve	Sampling pump with for up to 10 large volume samples
	S 1525 (stainless steel or PEEK) sampling pump	Sampling pump for large volume sampling
	S 1525 (stainless steel or PEEK) sampling pump + S 6515 valve actuator + S 6880 valve	Sampling pump with for up to 10 large volume samples

Choosing the flow path options

Valve actuator	S 6510 automatic valve actuator for 1 switching valve	
Multiple valve actuator	S 6515 automatic valve actuator for up to 5 switching valves	
Low pressure valves	S 6810 3/2-way position selection valve	3 in/outlet lines, two positions
	S 6830 4 position selection valve	4 inlet lines, 1 outlet line
	S 6840 6 position selection valve	6 inlet lines, 1 outlet line
	S 6880 10 position selection valve	10 inlet lines, 1 outlet line
High pressure valves	S 6031 2x3-way selection valve (stainless steel)	2 position valve
	S 6131 2x3-way selection valve (PEEK)	2 position valve
	S 6041 1x6-way selection valve (stainless steel)	6 inlet lines, 1 outlet line
	S 6141 1x6-way selection valve (PEEK)	6 inlet lines, 1 outlet line
	S 6051 1x10-way selection valve (stainless steel)	10 inlet lines, 1 outlet line
	S 6151 1x10-way selection valve (stainless steel)	10 inlet lines, 1 outlet line

Accessories

Column stands	Column stand with column clamps	Upon request
Customized installation kits	Capillary and fittings kits for system installations	Customized kits upon request



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