



WATREX

Providing HPLC since 1990

2021 Product catalog

TABLE OF CONTENTS

ABOUT US.....	3
PUMPS	
Streamline™ P1/P1s pump.....	4
DeltaChrom™ P102 pump.....	5
AUTOSAMPLERS	
Streamline™ AS1/AS2 Autosampler.....	6
DETECTORS	
Streamline™ LV1 detector	7
Streamline™ PDA1 detector.....	8
Streamline™ RI1 refractive index detector.....	9
Streamline™ VD1 viscosimetric detector.....	10
FRACTION COLLECTORS	
Streamline™ FC1 Fraction Collector.....	11
COLUMN THERMOSTATS	
Streamline™ CT1/CT1i column thermostat.....	12
SOLVENT SAVERS	
UFO™ Solvent recycler.....	13
POST-COLUMN DERIVATIZATION	
PCRS-300 Post-column derivatization.....	14
HPLC SYSTEMS	
Streamline™ isocratic HPLC.....	15
Streamline™ binary HPLC.....	16
Streamline™ ICC/ICE ion chromatography.....	17
Streamline™ GPC.....	18
DeltaChrom™ SCS202 sample cleanup.....	19
DeltaChrom™ OLE180 on-line SPE.....	20
HPLC COLUMNS	
<i>Ion chromatography</i>	
IonPlus™ CS19.....	21
IonPlus™ AS19.....	22
IC Anion I.....	22
<i>Reversed-phase chromatography</i>	
DeltaSil™ 100.....	23
<i>Carbohydrate analysis</i>	
Polymer IEX™	24
<i>Gel-permeation chromatography</i>	
DeltaGel™.....	25
<i>Empty column hardware.....</i>	26

ABOUT US

Watrex Praha is a leading Czech inventor, manufacturer, and distributor of liquid chromatography instruments and systems. The company was established in 1990 by Dr. Milan Minarik, who is regarded as one of the founding fathers of GPC and HPLC in the former Czechoslovakia. In the early years Watrex acted as a general distributor in Czech Republic and Slovakia for Waters, division of Millipore and, later, for Hewlett-Packard. In 1992 Watrex has assumed a distributorship for LDC Analytical company (acquired by Thermo Separation Products (TSP)). At the same time, Watrex has also served as an exclusive distributor for a number of manufacturers of chromatography consumables and column technology. A strong chromatography background of Watrex has been built on a team of HPLC specialists with expertise in method development and service for a wide range of HPLC instruments. During the 1990s and 2000s Watrex has transformed from sole distribution to manufacturing resulting in a range of own chromatography products such as the DeltaChrom™ LC Pumps and detectors, automated SPE solutions, solvent savers etc. The instrument manufacturing was complemented by a signature Polymer IEX™ ion exclusion chromatography and DeltaSil™ C18 phase columns and packings.



Dr. Milan Minarik at the Czechoslovak Academy of Sciences (circa 1966)



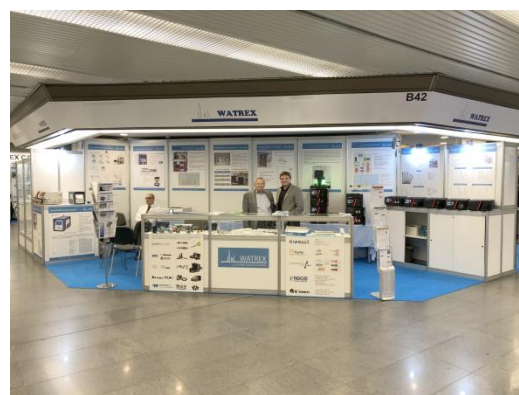
Dr. Milan Minarik (center) and Dr. Marek Minarik (right) with prof. Berry L. Karger (left) at Watrex booth during the HPLC 2017 in Prague

Since 2015, ownership of the Watrex company has gradually transitioned from father to son. Dr. Marek Minarik, who received his Ph.D. in Bioanalytical chemistry in Boston working with Barry L. Karger - one of the most notable figures in chromatography, assumed the position of a General manager. During the subsequent years Watrex has introduced a redesigned line of chromatography instrumentation to further serve analytical chemist's needs for top quality products at reasonable cost. The new instruments sold under a Streamline™ trademark cover a full range of traditional HPLC components from robust double piston solvent delivery systems (in isocratic and binary gradient formats), detectors (including variable wavelength, photodiode array, refractive-index and conductivity), column thermostats and fraction collectors, combined with OEM autosamplers. The product range is further emphasized with dedicated systems for ion chromatography (with conductivity suppression) and gel-permeation chromatography with viscosimetric detection. All Streamline™ components

are made of parts manufactured in either USA or EU.

The development of new products at Watrex relies upon multiple scientific collaborations with leading academic centers. Over the past 10 years Watrex has taken part in over a dozen of research projects supported by the Technology Agency of the Czech Republic or the Czech Ministry of Industry and Trade.

In 2020 Watrex was awarded an EU patent no. 3396372 covering a method for improvement of HPLC resolution by zero-dead volume recycle chromatography. The technology is used in REPETTO™ system, which was awarded a price for analytical instrumentation at the LABOREXPO 2017 exhibition.



Watrex Praha booth at the bi-annual LABOREXPO conference



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Streamline™ P1/P1s pump



Watrex Streamline™ P1 high performance liquid chromatography (HPLC) pumps are designed to be a reliable component within a basic analytical or sophisticated research instruments. Streamline™ P1 pumps use overlapped linear cams and a high precision stepping motor to provide stable and accurate flow. The pumps can be controlled by Clarity datasystem or manually by the color touch panel.

- Optimized pump mechanics with parallel piston design offers excellent flow rate accuracy and low pulsation.
- Available in type 316 stainless steel or biocompatible (metal-free) PEEK™.
- Can be used in a high pressure gradient system, where one of the pumps acts as a master (P1) controlling the second, which acts as a slave (P1s).

Specifications:

- **Flow rates:** 0.000 to 10.000 mL/min
- **Pressure:** 0 to 6,000 psi (420 bar)
- **Flow precision:** > 0.2% RSD
- **Flow accuracy:** ± 2 % @ 1mL/min and 1000 psi,
- **Pressure accuracy:** ± 2% of full-scale, with 80:20 H2O/IPA @ 1000psi
- **Pulsation:** ± 0.5 % @ 1mL/min and 1000 psi
- **Remote inputs:** RS-232

ORDERING INFO:

Part no.	Description	Price (€)
SP101-001	Streamline™ P1 Pump, Stainless Steel	3 959.00
SP101-002	Streamline™ P1 Pump, PEEK	3 959.00
SP101-003	Streamline™ P1s slave Pump, Stainless Steel	3 624.00
SP101-004	Streamline™ P1s slave Pump, PEEK	3 624.00

DeltaChrom™ P102 pump



Watrex DeltaChrom™ P102 high performance liquid chromatography (HPLC) pump is designed to be a reliable component within a basic analytical or sophisticated research instruments. While ideal for HPLC applications, the Model P102 pump is also useful as a metering pump for general laboratory or industrial use. The pump features dual self flushing pump heads with overlapping cams for reduced pulsation

- Dual inlet and outlet check valve assure reliability
- Autoflush piston wash
- Biocompatible design available
- Prime purge valve
- Low volume dampener

Specifications:

- **Flow Rates:** 0,01 ml/min – 9,99 ml/min with step 0.01 ml/min (analytical)
0,10 ml/min – 40,0 ml/min (preparative)
- **Pressure:** 42 MPa/6000 psi (analytical, stainless steel)
35 Mpa/5000 psi (analytical, PEEK)
10 Mpa/1500 psi (preparative)
- **Flow precision:** ± 0,2% RSD @ 1mL/min. and 1,000 psi (analytical)
- **Flow accuracy:** ± 2% @ 1mL/min. and 1,000 psi (analytical)
- **Pressure accuracy:** ± 2% of full-scale, with 80:20 H2O/IPA @ 1000psi
- **Pulsation:** better than ± 0.5% @ 1mL/min. and 1,000 psi (analytical)
- **Remote inputs:** RS-232

ORDERING INFO:

Part no.	Description	Price (€)
D2K6091801	P102 Pump analytical, stainless steel	3 674.00
D2K6091805	P102 Pump analytical, PEEK	3 674.00

AUTOSAMPLERS

Streamline™ AS1/AS2 Autosampler



Watrex Streamline™ AS1/AS2 is a reliable X-Y-Z variable volume autosampler with capacity of 60/120 vials, flow-trough concept of sampling, programming injection volume 0.1 - 999.9 µl. Derivatization and cooling options extend the application variability of this autosampler. AS1/2 is controlled by Clarity data station.

Specifications:

- **Sampling System:** X-Y-Z-Operation; stepper motor driven syringe
- **Sample Capacity:** 60/120 vials
- **Sample Loop:** standard: 20µl
- **Material:** Stainless Steel or PEEK
- **Reproducibility:** Fix Volume: < 0.5%, Variable Volume: <1.0%
- **Carry-over:** <0.01%
- **Wash Program:** freely programmable
- **External Control:** analog control & RS-232
- **Display:** 4-character
- **Dimensions:** 415 x 300 x 445 mm
- **Power:** 110/220 V, 50/60 Hz
- **Weight:** 20 kg
- **Options:** cooling, derivatization (only for AS2)

ORDERING INFO:

Part no.	Description	Price (€)
SAS101-001	Streamline AS1 Autosampler 60 vials	5 700.00
SAS201-001	Streamline AS2 Autosampler 120 vials	6 074.00
SAS201-002	Streamline AS2d Autosampler 120 vial, derivatization	7 409.00
SAS201-003	Streamline AS2c Autosampler 120 vial, cooling	8 076.00
SAS201-004	Streamline AS2cd Autosampler 120 vial, cooling + derivatization	9 410.00

DETECTORS

Streamline™ UV1 detector

Watrex Streamline™ UV1 UV1 programmable UV/VIS detector exhibits excellent signal-to-noise ratio for even the most demanding applications. It is equipped with standard analytical cell. It has a 2-lamp, variable wavelength detector configuration suitable for operation between 190 and 800 nm.



Specifications:

- **Light Source:** Deuterium Lamp, Tungsten Lamp
- **Wavelength Range:** 190 – 800 nm
- **Baseline Noise:** 1×10^{-5} AU (@240 nm, 2 sec. risetime)
- **Baseline Drift:** $< 1 \times 10^{-4}$ AU/h
- **Wavelength Accuracy:** ± 1 nm
- **Wavelength Reproducibility:** ± 0.1 nm
- **Linearity:** > 2.5 AU
- **Wavelength Program:** Programmable, 10 steps
- **Analog Output:** 1x 1 V
- **Options:** Dual channel configuration, thermostated flow cell

ORDERING INFO:

Part no.	Description	Price (€)
SUV101-001	Streamline™ UV1 detector with stainless steel or PEEK analytical flowcell	4 607.00

DETECTORS

Streamline™ PDA1 detector



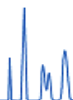
Watrex Streamline™ PDA1 photodiode-array detector for routine analysis and sophisticated research. The dual lamp design offers a wavelength range of 190 – 720 nm (256 Diodes) with a low baseline noise.

Specifications:

• Light Source:	Deuterium Lamp, Tungsten Lamp
• Wavelength Range:	190 – 720 nm
• Baseline Noise:	$\pm 1 \times 10^{-5}$ AU (@240 nm, 2 sec. risetime)
• Baseline Drift:	$< 3 \times 10^{-4}$ AU/h
• Wavelength Accuracy:	± 0.5 nm
• Wavelength Reproducibility:	± 0.1 nm
• Mean Pixel Pitch:	2.2 nm
• Resolution (λ FWHM):	7 nm
• Linearity:	> 2.5 AU
• Wavelength Program:	Programmable, 10 steps
• Analog Output:	1x 1 V
• Options:	Dual channel configuration, thermostated flow cell

ORDERING INFO:

Part no.	Description	Price (€)
SPDA101-001	Streamline™ PDA1 detector (256 diodes) with stainless steel or PEEK flow cell	7 709.00



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DETECTORS

Streamline™ RI1 detector



Watrex Streamline™ RI1 refractive index detector It is suitable for detecting compounds with little or no UV activity such as alcohols, sugars, lipids or polymers. This instrument is designed for use in analytical HPLC (high performance liquid chromatography) as well as for GPC (gel permeation chromatography) applications.

- Advanced temperature control for high sensitivity and reproducibility
- Long-life LED light source
- Pressure resistant flow cell

Specifications:

• Light Source:	Long-life LED
• Refractive index Range:	1.00 - 1.75 RIU
• Baseline Noise:	± 2.5 nRIU
• Baseline Drift:	200 nRIU/h
• Linearity:	> 1000 µRIU
• Flow cell pressure resistance	5 barl
• Flow cell volume:	15 µl
• Time constant:	0.00/0.01/0.02/0.05/0.1/0.2/0.5/1.0/2.0/5.0/10.0 s
• Analog Output:	1x 0-2.5V
• Outputs:	Event 1, Start (OUT), Error (OUT), + 5 V, 24 V Valve

ORDERING INFO:

Part no.	Description	Price (€)
SRI101-001	Watrex Streamline™ RI refractive index detector	5 998.00

DETECTORS

Streamline™ VD1 detector



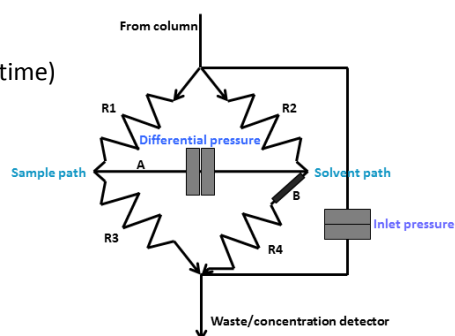
Watrex Streamline™ VD1 viscosimetric detector measures absolute intrinsic viscosity and is ideal as a detector for online monitoring in any GPC system. VD1 enables measurement of absolute molecular size using Wheatstone bridge operating principle.

- High sensitivity and stability
- Low-noise
- Open protocol digital data format
- Direct dual analog output

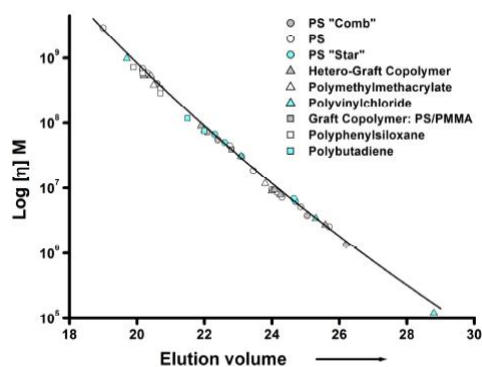
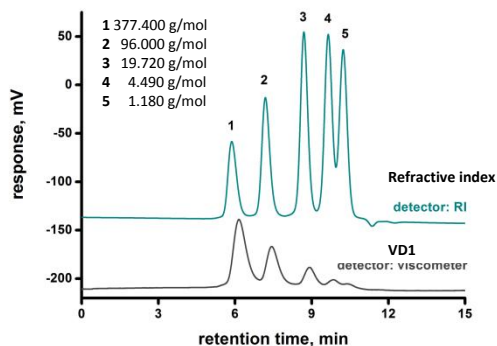
Specifications:

- **Light Source:** Deuterium Lamp, Tungsten Lamp
- **Wavelength Range:** 190 – 720 nm
- **Baseline Noise:** $\pm 1 \times 10^{-5}$ AU (@240 nm, 2 sec. risetime)
- **Baseline Drift:** $< 3 \times 10^{-4}$ AU/h
- **Wavelength Accuracy:** ± 0.5 nm
- **Wavelength Reproducibility:** ± 0.1 nm
- **Mean Pixel Pitch:** 2.2 nm
- **Resolution (λ FWHM):** 7 nm
- **Linearity:** > 2.5 AU
- **Wavelength Program:** Programmable, 10 steps
- **Analog Output:** 1x 1 V
- **Options:** Dual channel configuration, thermostated flow cell

Wheatstone bridge measurement



Universal calibration from VD1 data



ORDERING INFO:

Part no.	Description
SVD101-001	Watrex Streamline™ VD1 viscosimetric detector

Price (€)
18 996.00



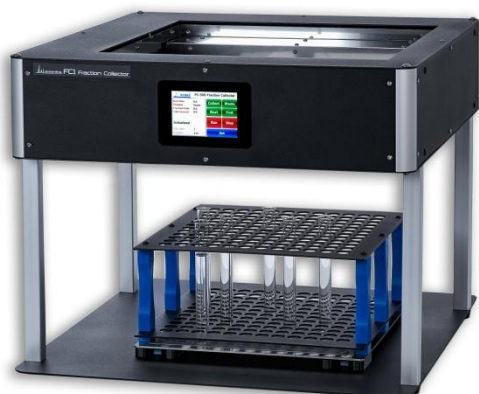
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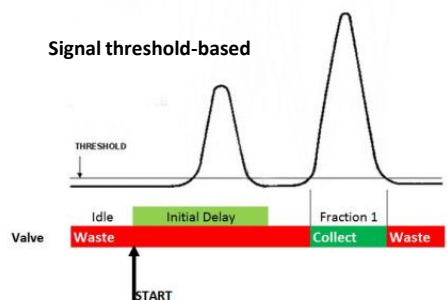
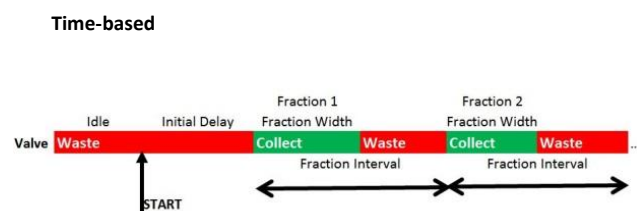
FRACTION COLLECTORS

Streamline™ FC1 Fraction Collector



Watrex Streamline™ FC1 Fraction Collector offers a universal solution for a number of applications requiring fraction collection, eg protein purification, preparative chromatography or other methods to obtain samples by fractionation. Robust design provides reliable X-Y feed, on which the fraction switch is mounted on the slider. Location fraction switches immediately above the collecting vessel minimizes dead volume between fractions. The

FC1 is controlled from a touch display and is also equipped with a USB interface for advanced programming and connection to the chromatographic software. A control module for Clarity Chromatography Station software is provided. An optional extension is the equipment with an analog input for monitoring the signal from the detector and collecting the fraction according to the signal level from the detector. It is also possible to equip the FC1 collector with a cooled module for placing up to four microplates. Peltier cooling provides a temperature of 4 °C at or below an ambient of 25 °C.



Specifications:

- **Max. flow:** 50 ml/min
- **Fraction duration:** 0,1 – 99 min
- **Control:** Color 3,2" touch display
- **Input:** TTL – start, next, collect, abort
- **Output:** TTL – collect, running
- **Collection containers:** Racks (12/16/18/25/50mm tubes), 96-well plates
- **Voltage supply:** External adaptor 19 V/4,7A
- **Signal threshold collection (optional):** 0-1V analog input from detector
- **Cooling (optional):** 4,0°C at ambient 25 °C

ORDERING INFO:

Part no.	Description	Price (€)
SFC101-001	Streamline™ FC1 Fraction Collector	3 675.00
SFC101-002	Cooling option for FC1 Fraction Collector	3 400.00
SFC101-003	Analog Signal Monitoring, Input for FC1 Fraction Collector	790.00

COLUMN THERMOSTATS

Streamline™ CT1/CT1i column thermostat



Watrex Streamline™ CT1i column thermostat is an ideal tool to grant stable separation temperature even if laboratory temperature fluctuates during the day. It is also essential instrument in sugar analysis and/or many applications requiring higher column temperature. An optional built-in manual syringe front loaded sample injector increases usage comfort.

- The vertical column thermostat with Peltier cells
- Up to 3 columns with a length of 250 mm can be placed in the thermostat.
- Possibility of installing an additional valve for column switching.

Specifications:

- **Temperature range** 10 °C above ambient temperature to 100 °C
- **Temperature accuracy deviation** less than 0,5 °C
- **Temperature stability** RSD < 0,4%
- **Setting and display resolution** 0,1 °C
- **T-compartment dimensions** 320 x 50 x 30 mm (L x W x H)
- **Time to stabilization @ 80 °C** 30 minutes maximum, 15 minutes typical

Manual injector (optional)

- **Injection principle:** Syringe front-loaded external loop injector
- **Sample valve Pressure resistance:** 40 MPa

ORDERING INFO:

Part no.	Description	Price (€)
ST101-001	Streamline CT1 Column Thermostat	1 476.00
ST101-002	Streamline CT1i Column Thermostat with manual injector	2 566.00

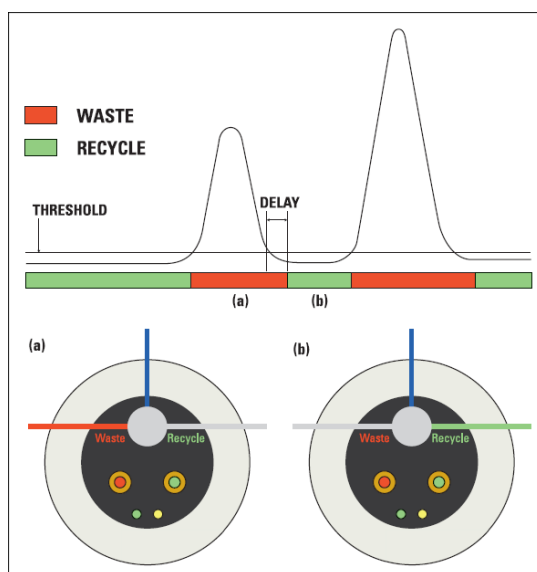
SOLVENT SAVERS

UFO Solvent Recycler



Watrex UFO™ Solvent Recycler saves up to 90% of mobile phase by redirection of the pure solvent to the solvent reservoir during the isocratic HPLC. The very compact instrument is powered directly from chromatography data system PC, no power adapter is required. User friendly software is provided to configure the parameters, and to perform on-line monitoring/audit trail.

UFO™ Solvent Recycler continuously monitors output signal of the chromatographic detector. Analog-to-digital converter produces digital data for further evaluation in build-in processor. If the input signal level exceeds the preset value (threshold), UFO™ Solvent Recycler redirects the flow to the waste, respecting the transport time from detector to the switching valve. When signal goes down UFO™ Solvent Recycler is waiting for transport delay again and then switch the mobile phase back to the reservoir. Autosampler injection marker connected to the UFO™ Solvent Recycler may ensure the zeroing of signal input at the moment of injection.



Specifications

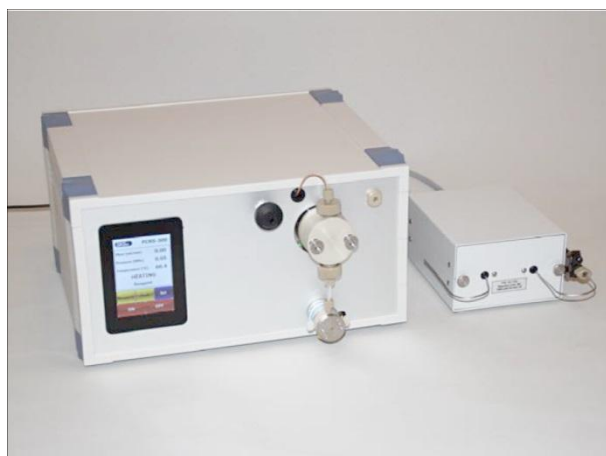
- Powered from PC USB port
- Input range $\pm 1V$, optimized for "integrator" detector output
- User configurable TTL/contact closure input (start, valve position, zero ...)
- Compatible with any HPLC detector, wetted material: PTFE
- Connection: $\frac{1}{4}$ -28 Flat Bottom
- Maximum pressure: 30 psi/0,2 MPa

ORDERING INFO:

Part no.	Description	Price (€)
UFO000-001	UFO™ Solvent Recycler , PEEK version	550.00
UFO000-002	UFO™ Solvent Recycler , PTFE version	550.00

POST-COLUMN DERIVATIZATION

PCRS-300 Post-column derivatization



Watrex PCRS-300 post-column derivatization is a compact system allowing operation at temperatures from 10 °C above ambient temperature to 150 °C. A controller with a graphic touch display is used to set the operating parameters of the derivatization system and display its current status.

- Rupture proof designed for long term reliability
- Interchangeable reactor cartridges for optimizing reaction volume
- Simple control interface (no computer required)
- Works with any HPLC system

A diverter valve is connected to the pump inlet to allow choice between reagents (reagent / flushing fluid). The liquid is sucked from the reservoir by an inlet filter and led by a PTFE capillary to the inlet of the pump head. From the pump outlet, the liquid proceeds to the diaphragm pulse damper with its pressure sensor and further to the purge valve. The restriction capillary located behind it provides the overpressure necessary for the effective operation of the damper. The pulseless flow of liquid is led to the outlet port. An adjustable upper pressure limit is used for the system, the pressure gauge is equipped with the autozero function. Automatic flush and stand-by mode.

Specifications

- **Materials:** Stainless steel, sapphire, ruby, PTFE, PEEK, HDPE (metal-free version)
- **Flow rate:** 0,01 – 9,99 ml/min
- **Relative flow accuracy:** < 2%
- **Flow precision:** RSD 0,5%
- **Number of inputs for liquids:** 2 (reagent/rinse selection by valve)
- **Connectors:**
Inlet: 1/8", 1"-28 flat tip
Outlet: 1/16", 10-32 UNF
- **Temperature:** 1°C - 150°C
- **Temperature stability:** 0,1 °C

ORDERING INFO:

Part no.	Description	Price (€)
PCRS300-001	Post Column Reaction System	4 360.00
PCRS300-002	Reaction coil select from 250µl - 2000µl in Stainless Steel	240.00
PCRS300-003	Reaction coil select from 500µl - 1000µl in PEEK	240.00
PCRS300-004	Reaction coil select from 500µl - 1000µl in PTFE	240.00
PCRS300-999	Reaction coil , customized	280.00



Streamline™ isocratic HPLC



Watrex Streamline™ isocratic HPLC system consists of one P1 pump, CT1i column thermostat with manual injector and UV1 UV/Vis detector.

- Optimized pump mechanics with parallel piston design offers excellent flow rate accuracy and low pulsation.
- Excellent signal-to-noise ratio of the UV1 detector
- Data acquisition, processing and instrument control is done by Clarity Chromatography Station

This HPLC system is suited for even the most demanding applications including microbore and capillary separations. Modular concept offers easy and economical upgrades or configuration modifications such as additional detectors, autosampler or fraction collector.

Component specifications:

P1 HPLC pump: Flow Rates : 0.000 to 10.000 mL/min, Pressure: 0 to 6,000 psi (420 bar), Pressure accuracy $\pm 2\%$ of full-scale, pulsation: $\pm 0.5\%$ @ 1 mL/min and 1000 psi, Flow accuracy: $\pm 2\%$ @ 1 mL/min and 1000 psi, with 80:20 Water/IPA @ 1000psi, Flow precision: 0.2% RSD.

UV1 UV detector: Light Source: Deuterium Lamp, Tungsten Lamp, Wavelength Range: 190–800 nm, Baseline Noise: $\pm 1 \times 10^{-5}$ AU (@240 nm, 2 sec. risetime), Baseline drift: $< 3 \times 10^{-4}$ AU/h, Wavelength accuracy: ± 2 nm, Linearity: > 2.0 AU, Wavelength Program: Programmable, 10 steps.

CT1 Column thermostat: Temperature range 10°C above ambient temperature to 120°C , Tem-perature accuracy: $\pm 0,5^\circ\text{C}$, Temperature stability: RSD $< 0,4\%$, Setting and display resolution: $0,1^\circ\text{C}$, T-compartment dimensions 320x50x30mm (LxWxH), T-stabilization @ 80°C 15min (30min. max).

Clarity™ Chromatography Station: Advanced data acquisition and evaluation, enables routine separations with pre-set methods for experimental settings. PC Win 10 Professional with LCD monitor included.

ORDERING INFO:

Part no.	Description	Price (€)
PN: SSI101-001	Streamline™ isocratic system (Includes P1 pump,UV1 detector, CT1i column thermostat with manual injector, solvent rack, Clarity datastation)	14 859,00

OPTIONAL CONFIGURATIONS:

Part no.	Description	Price (€)
PN: SUV99-001	Remove UV1 detector from system	-4 837,00
PN: ST99-002	Remove CT1i column thermostat with manual injector from system	-2 566,00
PN: SPDA90-001	Add PDA1 265 photodiode detector to system	+8 094,00
PN: SPDA90-201	Add PDA2 512 photodiode detector to system	+15 330,00
PN: SRI90-001	Add RI1 Refractive index detector to system	+5 998,00
PN: SAS90-001	Add AS1 Autosampler to system	+5 700,00
PN: SFC90-001	Add FC1 Fraction collector to system	+3 657,00

HPLC SYSTEMS

Streamline™ binary HPLC



Water Streamline™ binary gradient HPLC system consists of two P1 pumps, static mixer, CT1 column thermostat, PDA2 diode-array detector, AS1 auto-sampler, and Clarity PDA data station.

- Optimized pump mechanics with parallel piston design offers excellent flow rate accuracy and gradient composition at all solvents ratios.
- Variable volume injection range 0.1 - 999.9 μ l, high precision and reproducibility, and low carryover AS1 autosampler
- Excellent signal-to-noise ratio of the PDA2 detector
- Data acquisition, processing and instrument control is by Clarity Chromatography Station

Component specifications:

Gradient solvent delivery system consisting of two P1 HPLC pumps: Flow Rates : 0.000 to 10.000 mL/min, Pressure: 0 to 6,000 psi (420 bar), Pressure accuracy $\pm 2\%$ of full-scale, pulsation: $\pm 0.5\%$ @ 1 mL/min and 1000 psi, Flow accuracy: $\pm 2\%$ @ 1 mL/min and 1000 psi, with 80:20 Water/IPA @ 1000psi, Flow precision: 0.2% RSD.

PDA2 detector: 1024 diodes. The dual lamp design offers a concurrent measurement at 4 different wavelengths from the range from 190 to 1015 nm. Light source: Deuterium lamp, Tungsten Lamp, Baseline noise: $\pm 5 \times 10^{-5}$ AU (@240 nm, 1 sec. risetime), Baseline drift: $< 5 \times 10^{-4}$ AU/h, Wavelength accuracy: ± 1 nm, Linearity: > 2.0 AU, Wavelength program: Programmable, Analog output: 1x 1 V

CT1 Column thermostat: Temperature range 10 °C above ambient temperature to 120 °C, Temperature accuracy: $\pm 0,5$ °C, Temperature stability: RSD $< 0,4\%$, Setting and display resolution: 0,1 °C, T-compartment dimensions 320x50x30mm (LxWxH), T-stabilization @ 80 °C 15min (30min. max).

AS1 autosampler: X-Y-Z-Operation; motor driven syringe, Capacity: 60 vials, Sample Loop: standard: 20 μ l, Reproducibility: Fix Volume: $< 0.5\%$, Variable Volume: $< 1.0\%$, Carry-over: $< 0.01\%$, Programmable wash.

Clarity™ Chromatography Station: PDA data acquisition and evaluation, gradient, and autosampler control with pre-set methods for experimental settings. PC Win 10 Professional with LCD monitor .

ORDERING INFO:

Part no.	Description	Price (€)
PN: SSG101-001	Streamline™ binary HPLC system (Includes P1m+P1s pumps, PDA2 detector, CT1 thermostat, AS1 autosampler, solvent rack, Clarity PC station)	35 549,00

OPTIONAL CONFIGURATIONS:

Part no.	Description	
PN: SPDA99-201	Remove PDA2 diode-array detector from system	-15 330,00
PN: ST99-001	Remove CT1 column thermostat from system	-1 476,00
PN: SAS99-001	Remove AS1 autosampler from system	-5 700,00
PN: SUV90-001	Add UV1 Variable UV/Vis detector to system	+4 837,00
PN: SFC90-001	Add FC1 Fraction collector to system	+3 657,00
PN: SCT90-002	Add CT1i column thermostat with manual injector from system	+2 566,00



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HPLC SYSTEMS

Streamline™ ICC/ICE ion chromatography



Watrex Streamline™ Ion chromatography system with chemically (ICC) or electrolytically (ICE) regenerated conductivity suppression is preferentially suited for analysis of anions. The system consists of isocratic or gradient solvent delivery system and either IC1c (chemically regenerated) or IC1e (electrolytically regenerated) ion module with cation conductivity suppression.

- Both, Isocratic with P1 pump, and/or High pressure gradient with P1s and P1m pumps and static gradient mixer, offer excellent flow rate accuracy and low pulsation, compatible with carbonate-, as well as hydroxide mobile phases
- CD1 conductivity detector with detection cell positioned inside the column oven compartment, provide high signal stability.
- Chemically or electrolytically regenerated membrane suppressor extremely suppresses mobile phase conductivity, and raises anion conductivity during anion analysis.
- Data acquisition, processing and instrument control is done by Clarity DataStation

Component specifications:

P1 HPLC pump: Flow Rates : 0.000 to 10.000 mL/min, Pressure: 0 to 6,000 psi (420 bar), Pressure accuracy $\pm 2\%$ of full-scale, pulsation: $\pm 0.5\%$ @ 1 mL/min and 1000 psi, Flow accuracy: $\pm 2\%$ @ 1 mL/min and 1000 psi, with 80:20 Water/IPA @ 1000psi, Flow precision: 0.2% RSD.

IC1c/IC1e module with built-in CT1i Column thermostat

Conductivity range: 20 nS/cm - 20,000 μ S/cm, Volume of flow cell: 0.76 μ l, Temperature range 10 °C above ambient temperature to 120 °C, temperature accuracy: better than $\pm 0,5$ °C , Temperature stability RSD < 0,4%, Setting and display resolution 0,1 °C, T-compartment dimensions 320 x 50 x 30 mm (L x W x H), Time to stabilization @ 80 °C 30 minutes maximum, 15 minutes typical, Suppressor, continually regenerated by external regenerant (H2SO4 or MSA). Suppression level: < 30 nS/cm, or electrolytically regenerated suppressor with constant current source, Suppression level: < 45 nS/cm.

Clarity™ Chromatography Station: Advanced chromatographic datastation for data acquisition and evaluation supported with modules for instruments controll. Enables routine separations with pre-set methods, containing all experimental and instruments settings. Computer /OS WIN 10 Professional 64 bit and LCD monitor included.

ORDERING INFO:

Part no.	Description	Price (€)
PN: SIC101-001	Watrex Streamline™ ICC system with chemically regenerated suppressor (Includes P1 pump, IC1c module with CT1i Column thermostat and manual injector, solvent rack, Clarity PC station)	15 517.00
PN: SIC101-002	Watrex Streamline™ ICE system with electrochemically regenerated suppressor (Includes P1 pump, IC1e module with CT1i Column thermostat and manual injector, solvent rack, Clarity PC station)	14 290.00

OPTIONAL CONFIGURATIONS:

Part no.	Description	
PN: SMI99-001	Remove manual injector from system	-1 586.00
PN: SP99-001	Remove P1 pump from system	-3 959.00
PN: SAS90-001	Add AS1 Autosampler to system	+5 700.00
PN: SP90-005	Add Binary High Pressure Gradient to system	+7 824.00



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HPLC SYSTEMS

Streamline™ GPC



Watrex Streamline™ GPC system is an isocratic HPLC system consisting of one P1 pump, CT1i column thermostat with manual injector and RI1 refractive index detector.

- Optimized pump mechanics of P1 pump with parallel piston design offers excellent flow rate accuracy and low RI signal pulsation.
- The thermal isolated optic with a counter-current heat exchanger and programmable temperature control, results in an extremely stable baseline and an optimal Signal/Noise ratio of RI1
- The system can be upgraded with autosampler and fraction collector, or VD 400 Viscometer Detector.
- Data acquisition, processing and instrument control is done by Clarity Chromatography Station with GPC option or Agilent TriSEC software

Component specifications:

P1 HPLC pump: Flow Rates : 0.000 to 10.000 mL/min, Pressure: 0 to 6,000 psi (420 bar), Pressure accuracy $\pm 2\%$ of full-scale, pulsation: $\pm 0.5\%$ @ 1 mL/min and 1000 psi, Flow accuracy: $\pm 2\%$ @ 1 mL/min and 1000 psi, with 80:20 Water/IPA @ 1000psi, Flow precision: 0.2% RSD.

RI1 refractive index detector offers the sensitivity, stability and reproducibility required for optimal RI detection. The thermal isolated optic with a countercurrent heat exchanger and with its programmable temperature control, results in an extremely stable baseline and an optimal Signal/Noise ratio.

RI1 provide autopurge and autozero capabilities, as well as RS232 communication to acquire data directly without using any external signal interface.

CT1 Column thermostat: Temperature range 10 °C above ambient temperature to 120 °C, Temperature accuracy: $\pm 0,5$ °C, Temperature stability: RSD < 0,4%, Setting and display resolution: 0,1 °C, T-compartment dimensions 320x50x30mm (LxWxH), T-stabilization @ 80 °C 15min (30min. max).

Clarity™ Chromatography Station: Advanced chromatographic data station for data acquisition and evaluation supported with GPC module for MWD, Mw, Mn, Mz calculation. Enables routine separations with pre-set methods, containing all experimental and conditions and data evaluation settings. PC Win 10 Professional with LCD monitor included.

ORDERING INFO:

Part no.	Description	Price (€)
PN: SGPC01-001	Streamline™ manual GPC system with Refractive index detector (Includes P1 pump, RI1 detector, CT1i column thermostat with manual injector, solvent rack, Clarity PC station)	17 080.00

OPTIONAL CONFIGURATIONS:

Part no.	Description	
PN: ST99-002	Remove CT1i column thermostat with manual injector from system	-2 566.00
PN: SAS90-001	Add AS1 Autosampler to system	+5 700.00
PN: SFC90-001	Add FC1 Fraction collector to system	+3 675.00

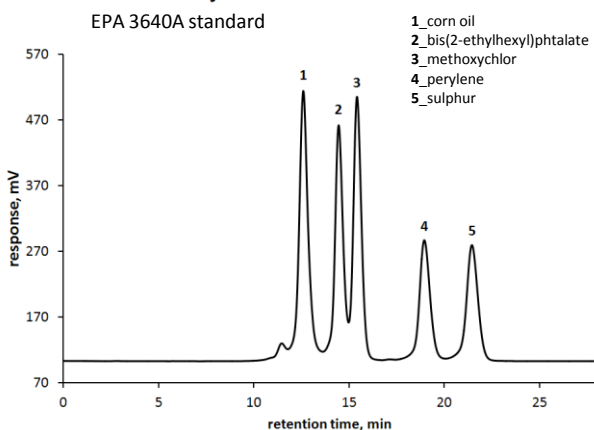
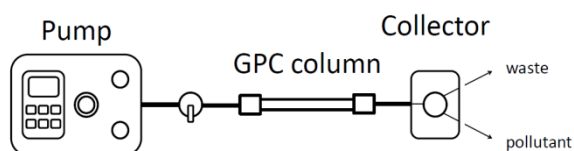
HPLC SYSTEMS

DeltaChrom™ SCS202 sample cleanup



Watrex DeltaChrom™ SCS202 sample clean-up is a system for GPC isolation of PAH, PCB and pesticides fraction from high molecular lipid matrix.

The system consists of isocratic P102 pump, manual injector, fraction collector FC 005 with SCU control unit, start-up kit and PAH/PCB prep column with a capacity of 200 mg oil per injection.



Specifications:

- **Sampling System:** manual valve
- **Sample volume:** 2 mL loop
- **Fraction collection:** 50mL flask
- **Collection time programming:** alternating valve switching to waste/collect/waste
- **Display:** 4-character

ORDERING INFO:

Part no.	Description	Price (€)
D2K9130212	Sample Clean-up system CSC 202	6 423.00
W102077	WATREX 250x16 mm PAH Prep column, 10 µm	1 361.00
DGD.3008	WATREX 300x8 mm DeltaGel Mixed-D column, 5 µm	1 101.00
DGB.25020	WATREX 250x20 mm DeltaGel Mixed-B column, 5 µm	2 702.00

HPLC SYSTEMS

DeltaChrom™ OLE180 on-line SPE



Watrex DeltaChrom™ OLE180 on-line SPE is an automatic on-line SPE/pre-concentration unit equipped with 10 port selection valve for samples and washing solvents, high pressure cartridge selector for 7 cartridges, high pressure pump, and injection valve connected to HPLC instrument. The pump sucks through 10 port selection valve up to 7 samples to 7 SPE cartridges. Then collected components are washed with one or two slushing eluents, and eluted via sample valve into a HPLC system.

Specifications:

- **Cartridge selector:** twin 10-port high pressure selector, 40MPa 10x4mm
- **Cartridge dimensions:** Rheodyne 6 port sample valve
- **Connection to HPLC instrument:** low-pressure 10-port selection valve IDEX
- **Selector:** high-pressure single piston ss pump
- **Sample load pump:** driver for all valves and pump controll included
- **Instrument control:** SPE cartridges taylor-filled or empty
- **Options:**

ORDERING INFO:

Part no.	Description	Price (€)
D2K2062401	DeltaChrom™ On-line SPE system OLE 180	16 918.00
	SPE insert 10x4.0 mm ss, end caps with frits, custom packed, 10 pcs	245.00

HPLC COLUMNS

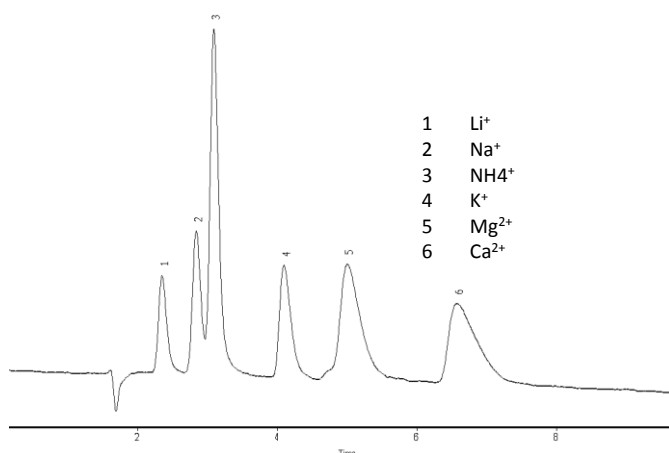
Ion chromatography

Analysis of cations



Watrex IonPlus™ CS19

Styrene-divinylbenzene, 55% cross-linking.(7 µm particle i.d.)



Column: 200x4mm Watrex® IonPlus™ CS19
Eluent: 8mM HNO₃
Flow Rate: 1.0 ml/min
Detection: Conductivity without suppression

ORDERING INFO:

Part no.	Description	Price (€)
WCS19250046	Watrex IonPlus™ CS19 IC Column 250x4,6mm, 7 µm	1 169.00
WCS19150030	Watrex IonPlus™ CS19 IC Column 150x3mm, 7 µm	753.00
WCS19150040	Watrex IonPlus™ CS19 IC Column 150x4mm, 7 µm	912.00
WCS19250030	Watrex IonPlus™ CS19 IC Column 250x3mm, 7 µm	950.00

HPLC COLUMNS

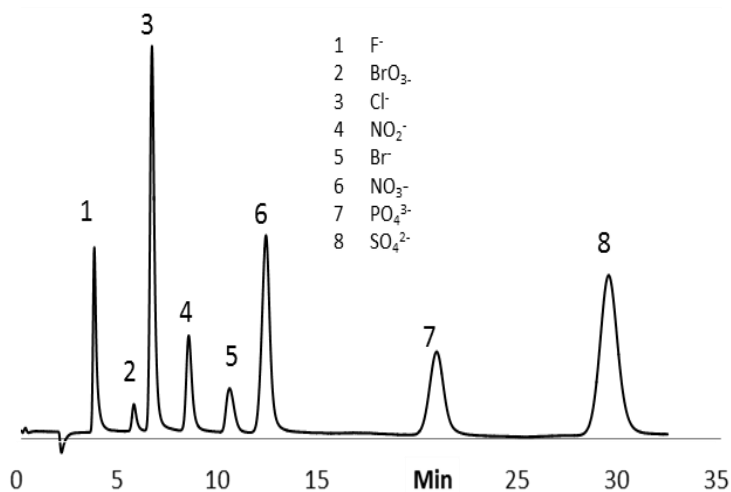
Ion chromatography

Analysis of anions



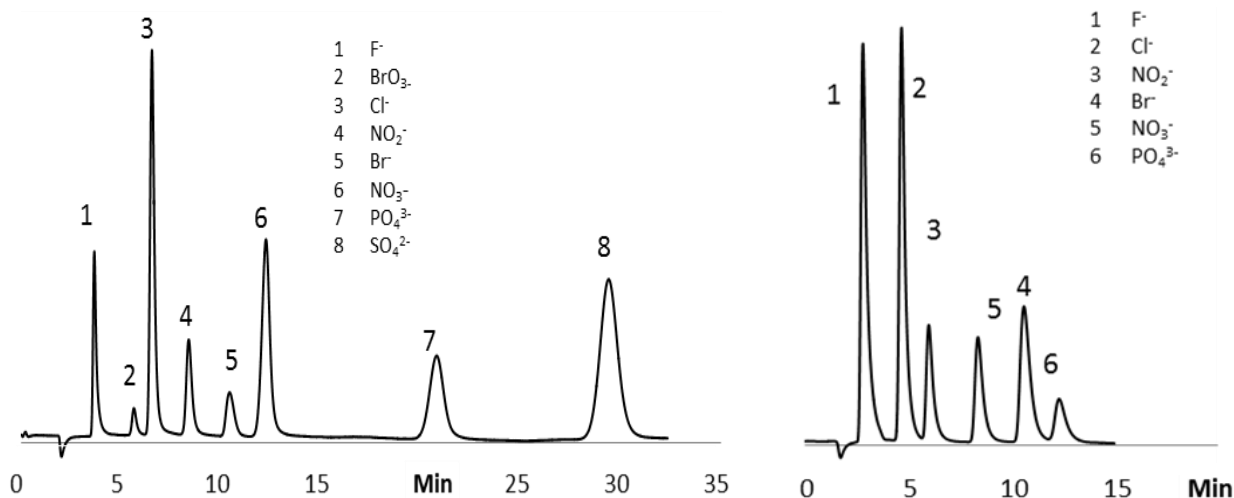
Watrex IonPlus™ AS19

Styrene-divinylbenzene, 55% cross-linking (7 µm particle i.d.).



Watrex IC Anion I

Styrene-divinylbenzene (7 µm particle i.d.).



ORDERING INFO:

Part no.	Description	Price (€)
W1021540	Watrex IC Anion I 150x4 mm, 7 µm	641.00
WAS19250046	Watrex IonPlus™ AS19 IC Column 250x4.6mm, 10 µm	1 090.00
WAS19150030	Watrex IonPlus™ AS19 IC Column 150x3mm, 10 µm	698.00
WAS19150040	Watrex IonPlus™ AS19 IC Column 150x4mm, 10 µm	912.00
WAS19250030	Watrex IonPlus™ AS19 IC Column 250x3mm, 10 µm	879.00



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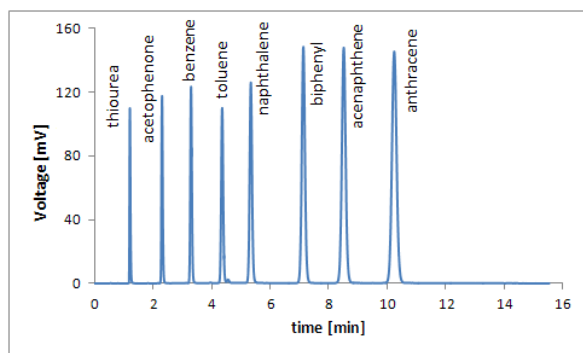
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Reversed-phase chromatography

Watrex DeltaSil™ 100 C18

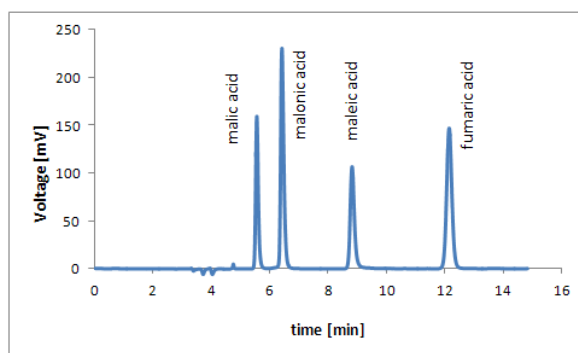


Watrex DeltaSil™ 100 C18 column is a standard reversed phase for wide field of applications in analysis of drugs, organic compounds, peptides and others. Stationary phase is based on synthetic 5 µm silica-gel with 100 Å pores and 15% carbon content. The column has a good peak symmetry and efficiency. Theoretical plate count value for non-polar compounds, such as naphthalene, reaches up to 90.000 theoretical plates per meter.



Non-polar compounds

Mobile phase: 70% ACN; flowrate: 1.5 ml/min;
pressure: 126 bar; detection: 254 nm; injection: 20 µl



Organic acids

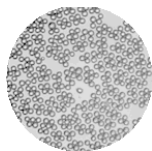
Mobile phase: 10% MeOH, 90% 200 mM H₃PO₄; flow-rate: 0.5 ml/min; pressure: 72 bar; detection: 210 nm; sample: 20 µl

ORDERING INFO:

Part no.	Description	Price (€)
WI02DC181254	Watrex DeltaSil™ 100 C18, 5 µm column 125x4 mm	110.00
WI02DC1815046	Watrex DeltaSil™ 100 C18, 5 µm column, 150x4.6 mm	123.00
WI02DC182504	Watrex DeltaSil™ 100 C18, 5 µm column, 250x4 mm	165.00
WI02DC1825046	Watrex DeltaSil™ 100 C18, 5 µm column, 250x4.6 mm	174.00
WI02DC182508	Watrex DeltaSil™ 100 C18, 5 µm column, 250x8 mm	318.00
WI02241	Watrex DeltaSil™ 100 C18, 10 µm column, 250x20 mm	1 085.00
WI02242	Watrex DeltaSil™ 100 C18, 10 µm column 300x20 mm	1 310.00
WI02246	Watrex DeltaSil™ 100 C18, 10 µm column 250x30 mm	3 962.00
WI02243	Watrex DeltaSil™ 100 C18, 5 µm column 250x20 mm	1 872.00
WI02244	Watrex DeltaSil™ 100 C18, 5 µm column 300x20 mm	2 078.00
WI02245	Watrex DeltaSil™ 100 C18, 5 µm column 250x30 mm	4 675.00
WI02247	Watrex DeltaSil™ 300 C18, 5 µm column 250x20 mm	2 533.00
WI02248	Watrex DeltaSil™ 300 C18, 10 µm column 250x20 mm	2 154.00
WI02249	Watrex DeltaSil™ 300 C18, 10 µm column 250x30 mm	4 154.00

HPLC COLUMNS

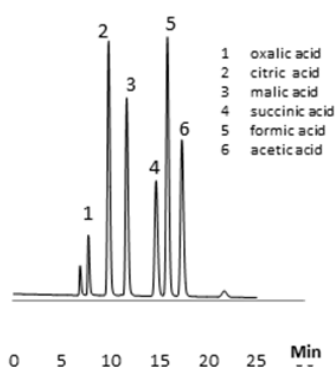
Carbohydrate Analysis



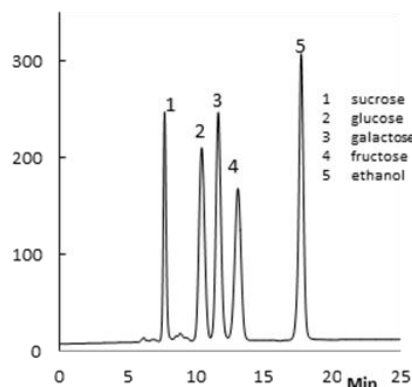
Watrex Polymer IEX™

Watrex Polymer IEX™ is the Europe's leading sorbent for ion exclusion analysis of alcohols, carboxylic acids, sugars, and polysaccharides

- H⁺, Ca²⁺, Pb²⁺ and K⁺ forms
- Unique monodispersed sorbent based on sulfonated polystyrene.
- Bulk packing materials available



Column: 250x8mm IEX H
 Eluent: 9M H₂SO₄
 Flow Rate: 0.5 ml/min
 Pressure: 45 bar
 Inj. Volume: 20 µl
 Concentration: 20
 Temperature: ambient
 Detection: UV 210nm



Column:	250x8mm Polymer IEX Ca
Eluent:	H ₂ O
Flow Rate:	0.5 ml/min
Pressure:	26 bar
Inj. Volume:	20 µl
Concentration:	20 ppm
Temperature:	90°C
Detection:	RI 101 SHODEX 125UV/1V

ORDERING INFO:

Part no.	Description	Price (€)
WI020223	WATREX 300x8 mm Polymer IEX H form, 8 um	477.00
WI020213	WATREX 300x8 mm Polymer IEX Ca form, 8 um	524.00
WI020253	WATREX 300x8 mm Polymer IEX Pb form, 8 um	524.00
WI02022	WATREX 250x8 mm Polymer IEX H form, 8 um	404.00
WI02021	WATREX 250x8 mm Polymer IEX Ca form, 8 um	444.00
WI02025	WATREX 250x8 mm Polymer IEX Pb form, 8 um	511.00
WI02122	Guard column insert 10x4.0 mm PEEK Polymer IEX H 8 um, 10 pcs	360.00
WI02121	Guard column insert 10x4.0 mm PEEK Polymer IEX Ca 8 um, 10 pcs	360.00
WI029012	Guard column holder (for 10x4,0 mm PEEK insert)	98.00



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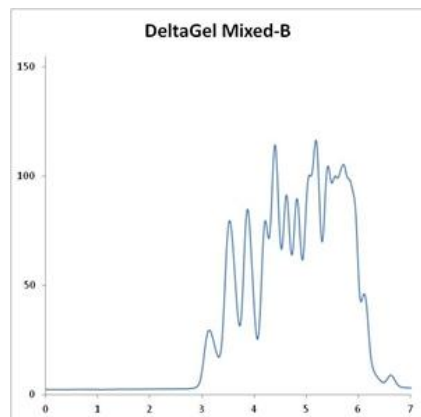
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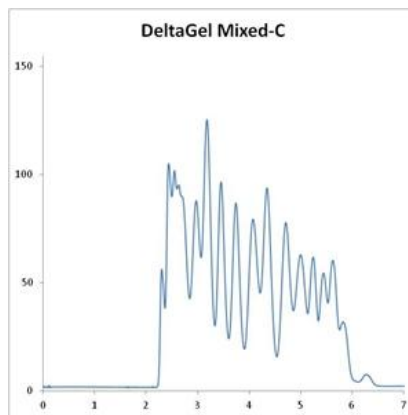
Gel-permeation chromatography

Watrex DeltaGel™

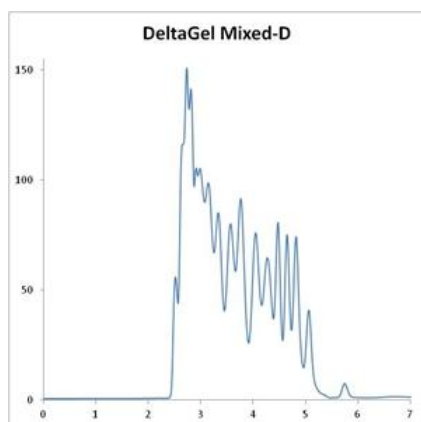
Mixed-bed GPC columns for SEC chromatography in organic solvents.



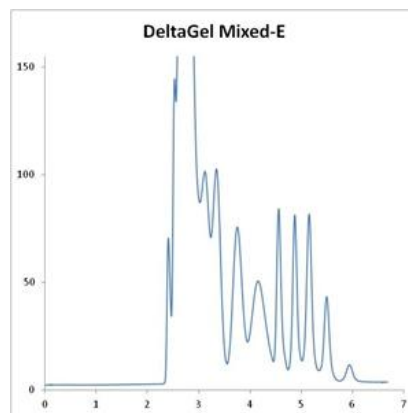
Mw linear range (polystyrene):
20 000 – 7 000 000 Da



Mw linear range (polystyrene):
5000 – 500 000 Da



Mw linear range (polystyrene):
1 000 - 200 000 Da



Mw linear range (polystyrene):
0 - 33 000 Da

ORDERING INFO:

Part no.	Description	Price (€)
DGB.3008	WATREX 300x8 mm DeltaGel™ Mixed-B, 5 um	1 075.00
DGC.3008	WATREX 300x8 mm DeltaGel™ Mixed-C, 5 um	1 075.00
DGD.3008	WATREX 300x8 mm DeltaGel™ Mixed-D, 5 um	1 101.00
DGE.3008	WATREX 300x8 mm DeltaGel™ Mixed-E, 5 um	1 075.00
DGB.25020	WATREX 250x20 mm DeltaGel™ Mixed-B, 5 um	2 702.00
DGC.25020	WATREX 250x20 mm DeltaGel™ Mixed-C, 5 um	2 702.00
DGD.25020	WATREX 250x20 mm DeltaGel™ Mixed-D, 5 um	2 867.00
DGE.25020	WATREX 250x20 mm DeltaGel™ Mixed-E, 5 um	2 702.00
DGB.25020G	WATREX 30x20 mm DeltaGel™ Mixed-B, 5um, Guard Column	324.00

HPLC COLUMNS

Empty column hardware

Stainless steel

Part. No.	Description	Price (€)
PN: 616.150.2	Empty Column, Stainless Steel, 150 x 2 mm	29.00
PN: 616.150.3	Empty Column, Stainless Steel, 150 x 3 mm	27.00
PN: 616.150.4	Empty Column, Stainless Steel, 150 x 4 mm	24.00
PN: 616.150.46	Empty Column, Stainless Steel, 150 x 4.6 mm	26.00
PN: 616.150.8	Empty Column, Stainless Steel, 150 x 8 mm	59.00
PN: 616.250.2	Empty Column, Stainless Steel, 250 x 2 mm	37.00
PN: 616.250.3	Empty Column, Stainless Steel, 250 x 3 mm	33.00
PN: 616.250.4	Empty Column, Stainless Steel, 250 x 4 mm	30.00
PN: 616.250.46	Empty Column, Stainless Steel, 250 x 4.6 mm	33.00
PN: 616.250.8	Empty Column, Stainless Steel, 250 x 8 mm	66.00



PEEK

Part. No.	Description	Price (€)
PN: 33.021.0100-5	Empty Column, PEEK, 100 x 2.1 mm ID, 5 µm	148.00
PN: 33.046.0100-5	Empty Column, PEEK, 100 x 4.6 mm ID, 5 µm	143.00
PN: 33.075.0100-5	Empty Column, PEEK, 100 x 7.5 mm ID, 5 µm	194.00
PN: 33.021.0150-5	Empty Column, PEEK, 150 x 2.1 mm ID, 5 µm	164.00
PN: 33.046.0150-5	Empty Column, PEEK, 150 x 4.6 mm ID, 5 µm	153.00
PN: 33.075.0150-5	Empty Column, PEEK, 150 x 7.5 mm ID, 5 µm	214.00
PN: 33.021.0250-5	Empty Column, PEEK, 250 x 2.1 mm ID, 5 µm	200.00
PN: 33.046.0250-5	Empty Column, PEEK, 250 x 4.6 mm ID, 5 µm	164.00
PN: 33.075.0250-5	Empty Column, PEEK, 250 x 7.5 mm ID, 5 µm	276.00
PN: 33.046.0030-5	Empty Column, PEEK, 30 x 4.6 mm ID, 5 µm	123.00
PN: 33.046.0300-5	Empty Column, PEEK, 300 x 4.6 mm ID, 5 µm	173.00
PN: 33.021.0050-5	Empty Column, PEEK, 50 x 2.1 mm ID, 5 µm	132.00
PN: 33.046.0050-5	Empty Column, PEEK, 50 x 4.6 mm ID, 5 µm	128.00
PN: 33.075.0050-5	Empty Column, PEEK, 50 x 7.5 mm ID, 5 µm	173.00
PN: DGC.25020G	Watrex 30 x 20 mm DeltaGel Mixed-C, 5 µm, Guard Column	309.00





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