WATREX


streamline
streamline PDA1 detector
streamline CT1 column oven
streamline P1m pump
mL/min
Bar
0.500
000
IDLE
START
PRIME
SET
streamline P1s pump
mL/min
0.500
IDLE
START
PRIME
SET

SMART SOLUTION FOR YOUR LAB

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TABLE OF CONTENTS

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.

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

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. 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 colectors, combined with OEM autosamplers. The product range is further emphasiced with dedicated systems for ion chromatography (with conductivity suppresion) 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.

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

Watrex Praha booth at the bi-annual LABOREXPO konference.

Milan Minarik with Herbert and Roswitha Knauer at the Analytica 2008 exhibition in Munich.

Watrex management at the Analytica 2004 conference in Munich, Germany.

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Watrex Praha

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WATREX

High quality

Inventor

Excelent customer service

Manufacturer

Instruments and systems

Distributor

Columns

Consumables

Liquid chromatography

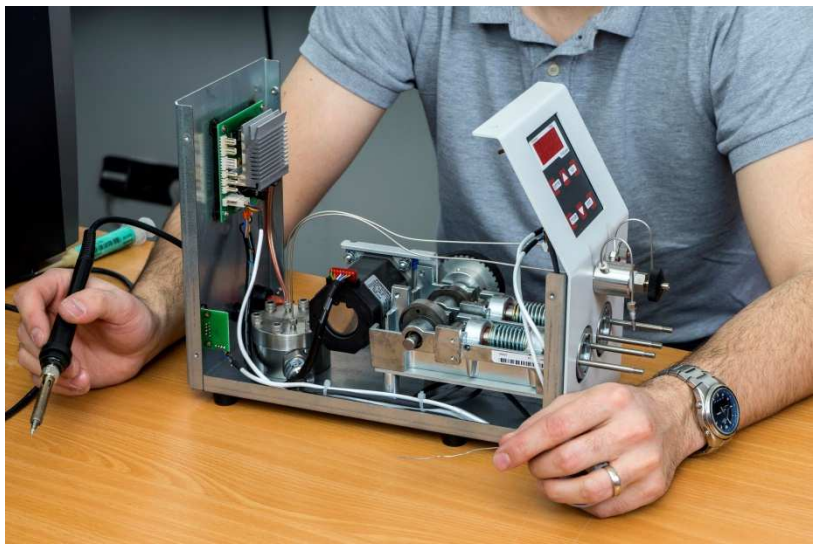
Service and validation

Watrex Praha, s.r.o. for most HPLC systems offers

- Service including deliveries of spare parts from primary manufacturers (Optimize technologies, LabAlliance, etc.).
- Preventive maintenance according to the agreement with the customer.
- Performing extended preentice maintenance, including measurement and calibration of instrument parameters specified by the manufacturer.
- Implementation of IQÚOQ and PQ qualifications, including the development of validation documentation.
- Sevice contrats for maintenance and validation of HPLC systems.

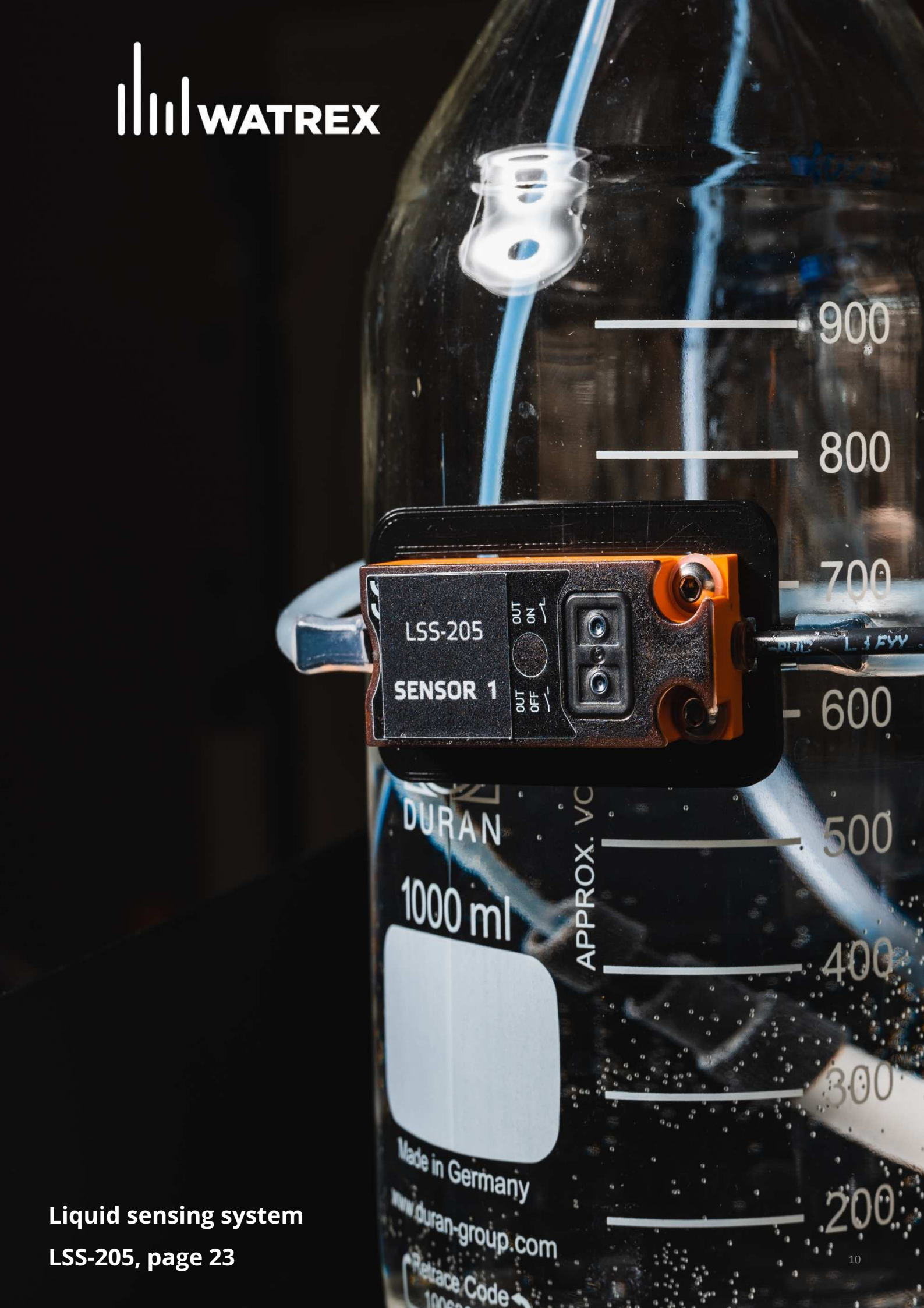
Watrex Praha, s.r.o. for the water purification equipment we offer offers:

- Service including deliveries of spare
- Preventive maintenance according to the agreement with the customer.



Laboratory

The Watrex laboratory will be happy to perform one of our standard analyzes, custom analysis or help with the development of methods. We focus mainly on liquid chromatography methods and we are prepared to meet a wide range of requirements from the development and optimization of methods through validation and verification of external methods to training and troubleshooting. In our laboratory we also produce and fill our own chromatographic columns and pre-columns for basic HPLC modes (reverse and normal phases, ion chromatography and ion-exklusive chromatography).



Liquid sensing system

LSS-205, page 23

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:** 0.001 to 10.000 mL/min
- **Pressure:** 0 to 6,000 psi (420 bar)
- **Flow precision:** > 0.2% RSD
- **Flow accuracy:** ± 1 % @ 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
SP101-001	Streamline™ P1 Pump, Stainless Steel
SP101-002	Streamline™ P1 Pump, PEEK
SP101-003	Streamline™ P1s slave Pump, Stainless Steel
SP101-004	Streamline™ P1s slave Pump, PEEK

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: (analytical)	0,01 ml/min – 9,99 ml/min with step 0.01 ml/min
	0,10 ml/min – 40,0 ml/min (preparative)
Pressure:	42 MPa/6000 psi (analytical, stainles 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:	± 1% @ 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**
D2K6091801	P102 Pump analytical, stainless steel
D2K6091805	P102 Pump analytical, PEEK

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, programing injection volume 0.1 - 999.9 µl. Derivatizatiobn and cooling options extend the application variability of this autosampler. AS1/2 is controlled by Clarity datastation.

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: analoge 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
SAS101-001	Streamline AS1 Autosampler 60 vials
SAS201-001	Streamline AS2 Autosampler 120 vials
SAS201-002	Streamline AS2d Autosampler 120 vial, derivatization
SAS201-003	Streamline AS2c Autosampler 120 vial, cooling
SAS201-004	Streamline AS2cd Autosampler 120 vial, cooling + derivatization

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 x 10^{-5} AU (@240 nm, 2 sec. risetime)
- **Baseline Drift:** < 3 x 10^{-4} AU/h
- **Wavelength Accuracy:** ± 1 nm
- **Wavelenghth Reproducibility:** ± 0.1 nm
- **Linearity:** > 2.5 AU
- **Wavelength Program:** Programmable, 10 steps
- **Analog Output:** 1x 1 V
- **Options:** Dual channel configuration

Ordering info

Part no.	Description
SUV101-001	Streamline™ UV1 detector with stainless steel or PEEK analytical flowcell

Streamline™
PDA1 Detector

Watrex Streamline™ PDA1 is a photo-diode-array (PDA) 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. The front-accessible flowcell can easily be exchanged.
It features 4-Wavelength channels to measure chromatograms at 4 different wavelengths at the same time. With this feature the optimum wavelength can be selected for each analyzed substance.

Specifications

- **Light Source:** Deuterium Lamp, Tungsten Lamp
- **Wavelength Range:** 190 – 720 nm
- **Number of Diodes:** 256
- **Baseline Noise:** ± 1 x 10^{-5} AU (@240 nm, 2 sec. risetime)
- **Baseline Drift:** < 3 x 10^{-4} AU/h
- **Wavelength Accuracy:** ± 0.5 nm
- **Wavelenghth Reproducibility:** ± 0.1 nm
- **Mean Pixel Pitch:** 2.2 nm
- **Linearity:** > 2.0 AU
- **Data Rate:** 1 Hz – 100 Hz
- **Wavelength Program:** Programmable, 10 steps
- **Analog Output (optinal):** 4x 1 V
- **Flowcells:** analytical – 10 mm pathlength, 10 µl
  preparative – 3 mm pathlength, 5 µl
- **Options:** optional 4-channel analog output

Ordering info

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

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 bar
- **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

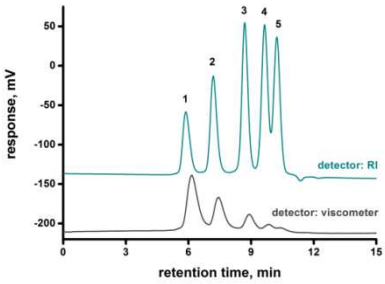
Part no.	Description
SRI101-001	Watrex Streamline™ RI refractive index detector

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.

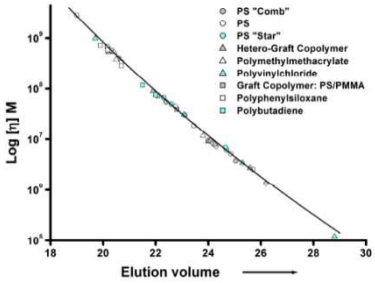
- • High sensitivity and stability
- • Low-noise
- • Open protocol digital data format
- • Direct dual analog output

Universal calibration from VD1 data



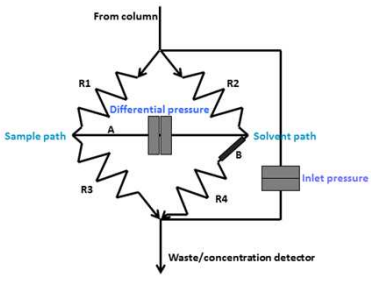
Specifications

- **Light Source:** Deuterium Lamp, Tungsten Lamp
- **Wavelength Range:** 190 – 720 nm
- **Baseline Noise:** ± 1 x 10^{-5} AU (@240 nm, 2 sec. riseti
- **Baseline Drift:** < 3 x 10^{-4} AU/h
- **Wavelength Accuracy:** ± 0.5 nm
- **Wavelenghth 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

Wheatstone bridge measurement



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

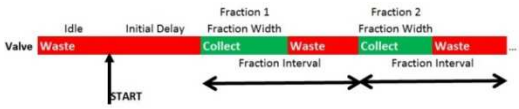
Streamline™

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 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

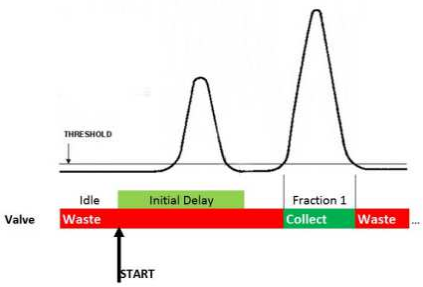
Time-based



- **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

Signal threshold-based



Part no.	Description
SFC101-001	Streamline™ FC1 Fraction Collector
SFC101-002	Cooling option for FC1 Fraction Collector
SFC101-003	Analog Signal Monitoring, Input for FC1 Fraction Collector

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
ST101-001	Streamline CT1 Columm Thermostat
ST101-002	Streamline CT1i Columm Thermostat with manual injector

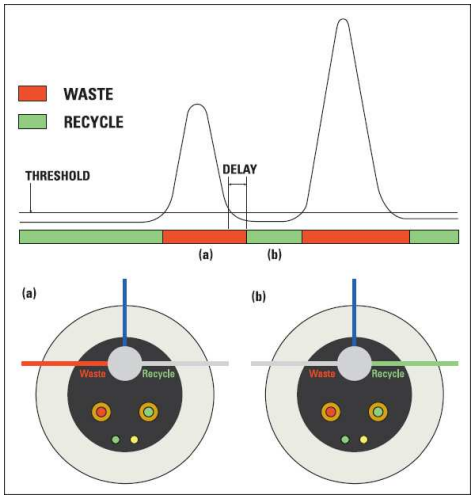
Watrex UFO™

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 ±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: ¼-28 Flat Bottom
- Maximum pressure: 30 psi/0,2 MPa



Ordering info

Part no.	Description
UFO000-001	UFO™ Solvent Recycler , PEEK version
UFO000-002	UFO™ Solvent Recycler , PTFE version

SPR-200

Solvent recycler

SPR-200 Solvent Recycler saves up to 90% of mobile phase by redirection of the pure solvent to the solvent reservoir during the isocratic HPLC. SPR-200 continuously monitors the output signal of the chromatographic detector. High resolution analog-to-digital converter produces digital data for further evaluation in the built-in processor. If the input signal level exceeds the preset value (threshold), solvent recycler redirects the flow to the waste. External contact closure (i.e. autosampler injection marker output) may be used for zeroing the recycler analog input at the moment of injection.

Specification

- stand alone operation
- saves up to 90 % of mobile phase in isocratic HPLC separation
- compatible with any HPLC detector with analog output
- selectable analog input range ± 1V/ ± 100 mV
- 22 bit A/D converter
- threshold/delay operating parameters
- forced manual switching available
- 6 button membrane keyboard, 8 character backlit LCD display
- USB computer connection
- Liquid connection: ¼"-28 flat bottom standard fittings
- 5V power supply (USB port of PC, wall mount adapter included)
- wetted materials: PEEK+PTFE (PTFE only - optional)
- maximum operating back pressure: 0,21 MPa (30 p.s.i.)

Ordering info

Part no.	Description
SPR200-001	SPR-200, PEEK version
SPR200-002	SPR-200, PTFE version

Post column derivatization

PCRS-300

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)
- **Temperature:** 1°C - 150°C
- **Temperature stability:** 0,1 °C

Ordering info

Part no.	Description
PCRS300-001	Post Column Reaction System
PCRS300-002	Reaction coil select from 250µl - 2000µl in Stainless Steel
PCRS300-003	Reaction coil select from 500µl - 1000µl in PEEK
PCRS300-004	Reaction coil select from 500µl - 1000µl in PTFE

Liquid sensing system

LSS-205

Watrex Liquid Sensing Systém LSS-205 is a universak sensing system for monitoring the level of your chromatographic systém liquids. The daily task in the chromatographic laboratory is the manipulation of mobil phases. The operator must check the supply of solvents at the inlet of the device and regular monitor the condition of the waste solvent container. The LSS-205 greatly simplifies these tasks.
LSS-205 is a universal accessory for any (chromatographic) system. The level sensors used in the LSS-205 system are contactless, do not require immersion in liquid, and are installed on the outer shell of a non-metallic solvent container. The method of mounting the sensor allows placement on a container of virtually any shape and size.

Specifications

- **Power supply:** 5V (wall mount power supply or USB port of PC)
- **Number of liquid sensors:** 1-5
- **Alarm condition:** individually adjustable for each sensor (off, missing liquid, liquid present)
- **Internal alarm indication:** high intensity LED for each sensor
- **Internal acoustic alarm suppression:** 80dB, common for all sensors
- **External optical signaling:** connector on the central unit
- **External acoustic alarm:** optional 105 dB external horn
- **Computer connection:** micro USB connector, simple text communication protocol
- **Dimension:** 130x80x30 mm, **Sensor dimensions:** 50x30x15 mm
- **Sensor connection cable:** 2 m length
- **Sensor mounting:** plastic holder with flexible silicon tube (length 700 mm, other lengths on request)

Ordering info

Part no.	Description
40-0728	LSS-205 Starter Kit (incl. 1 sensor + light)
40-0738	LSS-205 Additional Sensor
40-0841	LSS-205 Additional 2 Sensors
40-0842	LSS-205 Additional 3 Sensors
40-0843	LSS-205 Additional 4 Sensors
40-0838	LSS-205 External Alarm Horn

OLE 180
On line SPE

The OLE 180 automated SPE/pre-concentration unit is intended for concentrating a given substance on a precolumn with its subsequent elution and determination on an analytical column.
This system, unlike the classic SPE, is fast and fully automatic. In addition, it allows the analysis of a larger number of samples. The OLE 180 assembly is connected to the HPLC system in place of the dosing device between the pump and the analytical column.
The instrument includes an electronically switched solvent Selector, a dosing pump, an injection valve, and a SPE cartridge selector. The whole device is controlled using the Clarity data system. Solvent selector valve selects the processed sample or one of up to three conditioning solvents. High-accuracy dosing pump apply the programmed sample volume into a selected SPE cartridge, where trace enrichment occurs. Subsequently, the injection valve is switched to the “inject” position and the contents of the SPE column are eluted into the analytical system where chromatographic separation takes place.

Specification:

- Number of samples: up to 9
- Conditioning solvents: up to 3
- HPLC connection: high pressure 6 port injection valve, 1/16” 10-32 standard chromatography fittings
- SPE cartridges: up to 5 connected to the 6 position column selection valve
- Instrument control: Clarity CDS driver
- Power supply: 24 VDC, power adapter included

Ordering info

Part no.	Description
D2K2062401	Ole-180 On-line SPE

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 : 0.001 to 10.000 mL/min, Pressure: 0 to 6,000 psi (420 bar), Pressure accuracy ±2% of full-scale, pulsation: ±0.5% @ 1 mL/min and 1000 psi, Flow accuracy: ± 1% @ 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: ± 1 x 10^{-5} AU (@240 nm, 2 sec. risetime), Baseline drift: < 3x10^{-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, Temperature accuracy: ± 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 data acquisition and evaluation, enables routine separations with pre-set methods for experimental settings. PC Win 10 Professional with LCD monitor included.

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 datastation.

- 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 µl, high precision and reproducibility, and low carryover AS1 autosapler
- 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 : 0.001 to 10.000 mL/min, Pressure: 0 to 6,000 psi (420 bar), Pressure accuracy ±2% of full-scale, pulsation: ±0.5% @ 1 mL/min and 1000 psi, Flow accuracy: ± 1% @ 1 mL/min and 1000 psi, with 80:20 Water/IPA @ 1000psi, Flow precision: 0.2% RSD.

PDA1 detector: 256 diodes. The dual lamp design offers a concurrent measurement at 4 different wavelengths from the range from 190 to 720 nm. Light source: Deuterium lamp, Tungsten Lamp, Baseline noise: ± 5 x 10^{-5} AU (@240 nm, 1 sec. risetime), Baseline drift:<5 x 10^{-4} AU/h, Wavelength accuracy: ± 1 nm, Linearity: > 2.5 AU, Wavelength program: Programmable, Optional analog output: 4 x 1 V

CT1 Column thermostat: Temperature range 10 °C above ambient temperature to 120 °C, Temperature accuracy: ± 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: 20µl, 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 .

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 condu-ctivity, 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 : 0.001 to 10.000 mL/min, Pressure: 0 to 6,000 psi (420 bar), Pressure accuracy ±2% of full-scale, pulsation: ±0.5% @ 1 mL/min and 1000 psi, Flow accuracy: ± 1% @ 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 µS/cm, Volume of flow cell: 0.76 µl, Temperature range 10 °C above ambient temperature to 120 °C, temperature accuracy: better 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, 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 rutine separations with pre-set methods, containing all experimental and instruments settings. Computer /OS WIN 10 Professional 64 bit and LCD monitor included.

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 extremly stable baseline and an optimal Signal/Noise ratio od 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 : 0.001 to 10.000 mL/min, Pressure: 0 to 6,000 psi (420 bar), Pressure accuracy ±2% of full-scale, pulsation: ±0.5% @ 1 mL/min and 1000 psi, Flow accuracy: ± 1% @ 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 extremly 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: ± 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).

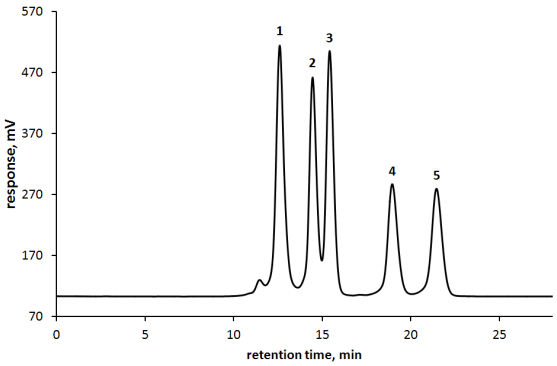
Clarity™ Chromatography Station: Advanced chromatographic datastation for data acquisition and evaluation supported with GPC module for MWD, Mw, Mn, Mz calculation. Enables rutine separations with pre-set methods, containing all experimental and conditions and data evaluation settings. PC Win 10 Professional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

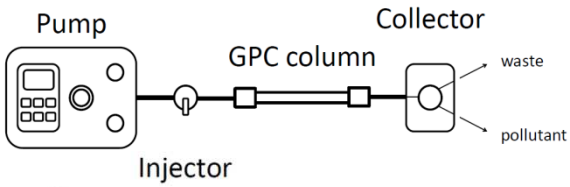
Deltachrom™

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 od 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

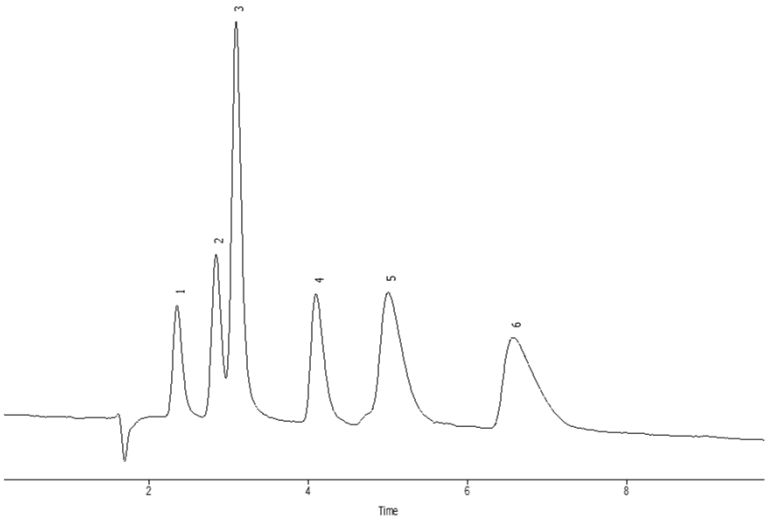
Part no.	Description
D2K9130212	Sample Clean-up system CSC 202
WI02077	WATREX 250x16 mm PAH Prep column, 10 um
DGD.3008	WATREX 300x8 mm DeltaGel Mixed-D column, 5 um
DGB.25020	WATREX 250x20 mm DeltaGel Mixed-B column, 5 um

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 HNO_3
Flow Rate:	1.0 ml/min
Detection:	Conductivity without suppression

Ordering info

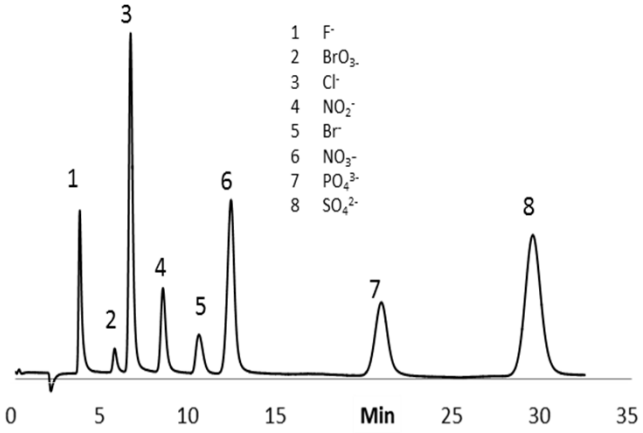
Part no.	Description
WCS19250046	Watrex IonPlus™ CS19 IC Column 250x4,6mm, 7 µm
WCS19150030	Watrex IonPlus™ CS19 IC Column 150x3mm, 7 µm
WCS19150040	Watrex IonPlus™ CS19 IC Column 150x4mm, 7 µm
WCS19250030	Watrex IonPlus™ CS19 IC Column 250x3mm, 7 µm

Ion chromatography

Analysis of anions

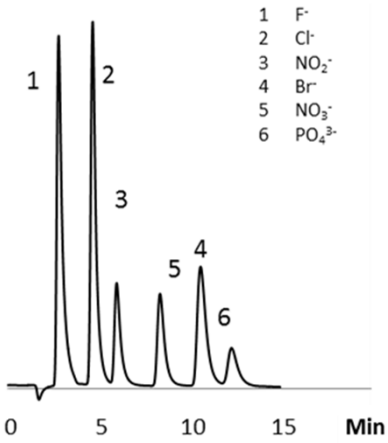
Watrex IonPlus™ AS19

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
WI021540	Watrex IC Anion I150x4 mm, 7 µm
WAS19250046	Watrex IonPlus™ AS19 IC Column 250x4.6mm, 10 µm
WAS19150030	Watrex IonPlus™ AS19 IC Column 150x3mm, 10 µm
WAS19150040	Watrex IonPlus™ AS19 IC Column 150x4mm, 10 µm
WAS19250030	Watrex IonPlus™ AS19 IC Column 250x3mm, 10 µm

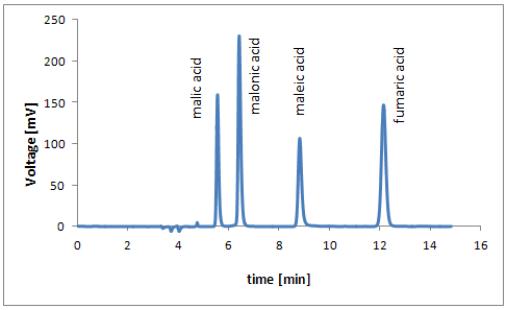
Reversed phase chromatography

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.

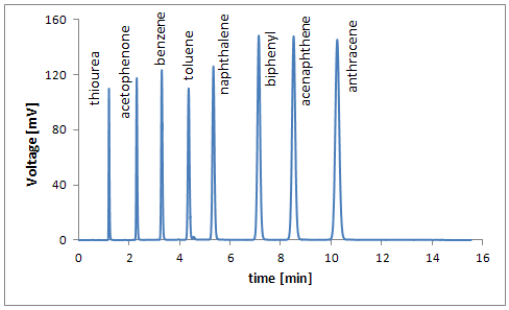
Ordering info

Part no.	Description
WI02DC181254	Watrex DeltaSil™ 100 C18, 5 µm column 125x4 mm
WI02DC1815046	Watrex DeltaSil™ 100 C18, 5 µm column, 150x4.6 mm
WI02DC182504	Watrex DeltaSil™ 100 C18, 5 µm column, 250x4 mm
WI02DC1825046	Watrex DeltaSil™ 100 C18, 5 µm column, 250x4.6 mm
WI02DC182508	Watrex DeltaSil™ 100 C18, 5 µm column, 250x8 mm
WI02241	Watrex DeltaSil™ 100 C18, 10 µm column, 250x20 mm
WI02242	Watrex DeltaSil™ 100 C18, 10 µm column 300x20 mm
WI02246	Watrex DeltaSil™ 100 C18, 10 µm column 250x30 mm
WI02243	Watrex DeltaSil™ 100 C18, 5 µm column 250x20 mm
WI02244	Watrex DeltaSil™ 100 C18, 5 µm column 300x20 mm
WI02245	Watrex DeltaSil™ 100 C18, 5 µm column 250x30 mm
WI02247	Watrex DeltaSil™ 300 C18, 5 µm column 250x20 mm
WI02248	Watrex DeltaSil™ 300 C18, 10 µm column 250x20 mm
WI02249	Watrex DeltaSil™ 300 C18, 10 µm column 250x30 mm



Organic acids

Mobile phase:10% MeOH, 90% 200 mMH3PO4; flow-rate:0.5 ml/min; pressure:72 bar;detection:210 nm; sample:20 µl



Non-polar compounds

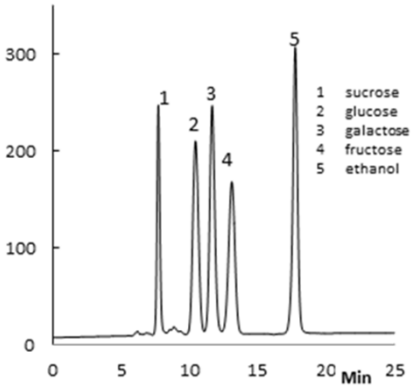
Mobile phase: 70% ACN; flowrate:1.5 ml/min; pressure:126 bar;detection:254 nm; injection:20 µl

Carbohydrate analysis

Watrex Polymer IEX ™

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

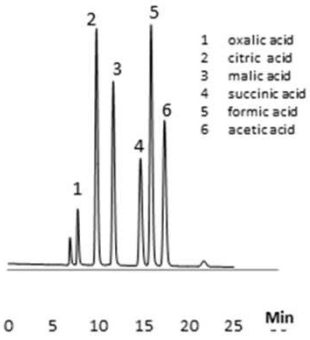
- H^+, Ca^{2+}, Pb^{2+} and K^+ forms
- Unique monodispersed sorbent based on sulfonated polystyrene.
- Bulk packing materials available



Column:	250x8mm Polymer IEX Ca
Eluent:	H_2O
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
WI020223	WATREX 300x8 mm Polymer IEX H form, 8 um
WI020213	WATREX 300x8 mm Polymer IEX Ca form, 8 um
WI020253	WATREX 300x8 mm Polymer IEX Pb form, 8 um
WI02022	WATREX 250x8 mm Polymer IEX H form, 8 um
WI02021	WATREX 250x8 mm Polymer IEX Ca form, 8 um
WI02025	WATREX 250x8 mm Polymer IEX Pb form, 8 um
WI02122	Guard column insert 10x4.0 mm PEEK Polymer IEX H 8 um, 10 pcs
WI02121	Guard column insert 10x4.0 mm PEEK Polymer IEX Ca 8 um, 10 pcs
WI029012	Guard column holder (for 10x4,0 mm PEEK insert)

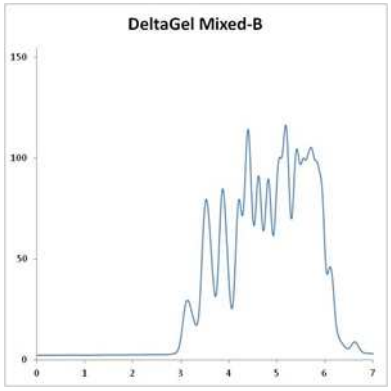


Column: 250x8mm IEX H
Eluent: 9M H_2SO_4
Flow Rate: 0.5 ml/min
Pressure: 45 bar
Inj. Volume: 20 µl
Concentration: 20
Temperature: ambient
Detection: UV 210nm

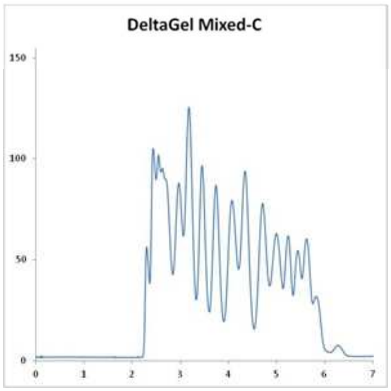
Gel-permeation chromatography

Watrex DeltaGel ™

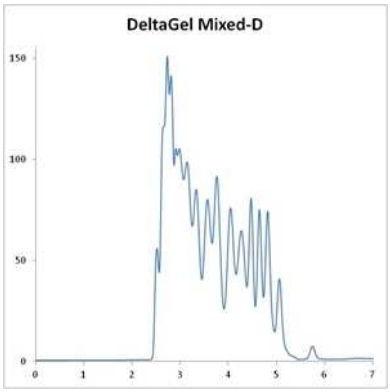
Mixed-bed GPC columns for SEC chromatography in organic solvents.



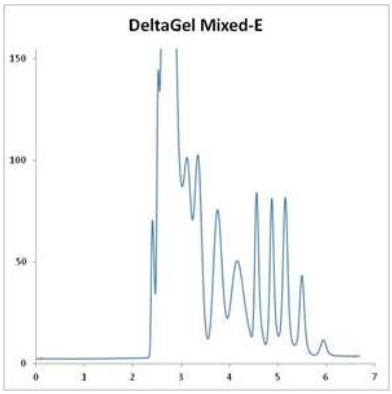
Mw linear range (polystyrene): 20 000 – 7 000 000 Da



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
DGB.3008	WATREX 300x8 mm DeltaGel™ Mixed-B, 5 um
DGC.3008	WATREX 300x8 mm DeltaGel™ Mixed-C, 5 um
DGD.3008	WATREX 300x8 mm DeltaGel™ Mixed-D, 5 um
DGE.3008	WATREX 300x8 mm DeltaGel™ Mixed-E, 5 um
DGB.25020	WATREX 250x20 mm DeltaGel™ Mixed-B, 5 um
DGC.25020	WATREX 250x20 mm DeltaGel™ Mixed-C, 5 um
DGD.25020	WATREX 250x20 mm DeltaGel™ Mixed-D, 5 um
DGE.25020	WATREX 250x20 mm DeltaGel™ Mixed-E, 5 um
DGB.25020G	WATREX 30x20 mm DeltaGel™ Mixed-B, 5um, Guard Column

Empty columns

Stainless steel

PN: 616.150.2	Empty Column, Stainless Steel, 150 x 2 mm
PN: 616.150.3	Empty Column, Stainless Steel, 150 x 3 mm
PN: 616.150.4	Empty Column, Stainless Steel, 150 x 4 mm
PN: 616.150.46	Empty Column, Stainless Steel, 150 x 4.6 mm
PN: 616.150.8	Empty Column, Stainless Steel, 150 x 8 mm
PN: 616.250.2	Empty Column, Stainless Steel, 250 x 2 mm
PN: 616.250.3	Empty Column, Stainless Steel, 250 x 3 mm
PN: 616.250.4	Empty Column, Stainless Steel, 250 x 4 mm
PN: 616.250.46	Empty Column, Stainless Steel, 250 x 4.6 mm
PN: 616.250.8	Empty Column, Stainless Steel, 250 x 8 mm

PEEK

PN: 33.021.0100-5	Empty Column, PEEK, 100 x 2.1 mm ID, 5 µm
PN: 33.046.0100-5	Empty Column, PEEK, 100 x 4.6 mm ID, 5 µm
PN: 33.075.0100-5	Empty Column, PEEK, 100 x 7.5 mm ID, 5 µm
PN: 33.021.0150-5	Empty Column, PEEK, 150 x 2.1 mm ID, 5 µm
PN: 33.046.0150-5	Empty Column, PEEK, 150 x 4.6 mm ID, 5 µm
PN: 33.075.0150-5	Empty Column, PEEK, 150 x 7.5 mm ID, 5 µm
PN: 33.021.0250-5	Empty Column, PEEK, 250 x 2.1 mm ID, 5 µm
PN: 33.046.0250-5	Empty Column, PEEK, 250 x 4.6 mm ID, 5 µm
PN: 33.075.0250-5	Empty Column, PEEK, 250 x 7.5 mm ID, 5 µm
PN: 33.046.0030-5	Empty Column, PEEK, 30 x 4.6 mm ID, 5 µm
PN: 33.046.0300-5	Empty Column, PEEK, 300 x 4.6 mm ID, 5 µm
PN: 33.021.0050-5	Empty Column, PEEK, 50 x 2.1 mm ID, 5 µm
PN: 33.046.0050-5	Empty Column, PEEK, 50 x 4.6 mm ID, 5 µm
PN: 33.075.0050-5	Empty Column, PEEK, 50 x 7.5 mm ID, 5 µm
PN: DGC.25020G	Watrex 30 x 20 mm DeltaGel Mixed-C, 5 µm, Guard Column

WATREX

Worldwide distribution

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Catalog 2022