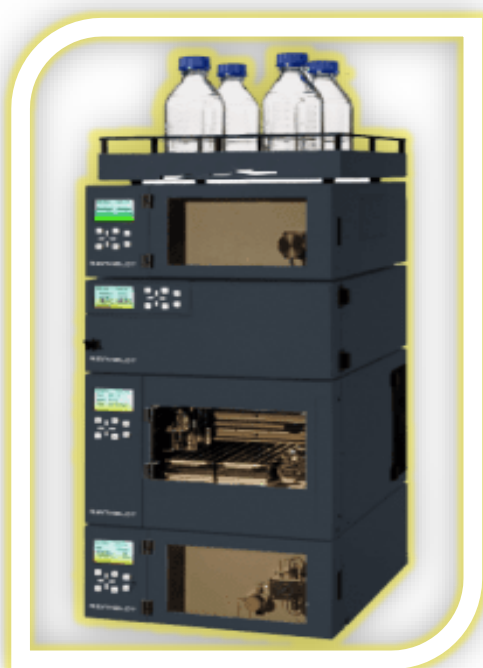
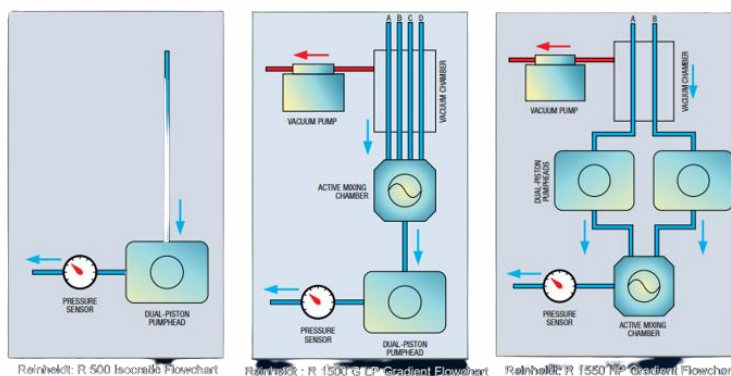


HPLC SYSTEM (MODEL NO.- R 3000 SERIES)



Description

R 1500 HPLC Pump System is powerful and flexible HPLC solvent delivery system, our modular Setup make Our R 1500 HPLC Pump one of the most adapted to many different functions or activities that's why our R 1500 pump system special place in world market. The possible configuration includes:





- Isocratic
- Quaternary Gradient Pump &
- Binary High-Pressure Gradient Pump

Stepper motor

The R 1500 is driven by a high-power stepper motor. The stepper motor has a much better resolution in the low-flow range than a conventional DC motor.

Active mixer

The R 1500 low pressure and high pressure gradient module has an active mixer to achieve highly precise and accurate gradient results.

Lubrication System

The R 1500 camshaft is constantly lubricated within a sealed chamber to guarantee long lifetime and low maintenance.

Dual-Piston Pump head

The R 1500 pumps use a dual-piston pump head for low pulsation. Together with electronic pressure compensation the R 1500 pumps are suitable for all analytical tasks in HPLC and GPC.

Optional: Piston Backflushing

The R 1500 's pump head incorporates an optional active piston backflushing system.

R 1500G Quaternary Gradient Pump

Vacuum Degassing	optional: < 20% dissolved gases remaining in water @ 1.000 ml/min o
Gradient Range	0.0 – 100.0 %, 4 channels
Gradient Accuracy	< 0.50 %
Gradient Mixing	Active
Mixer Volume	adjustable: 10 – 500 µl



Technical Specifications

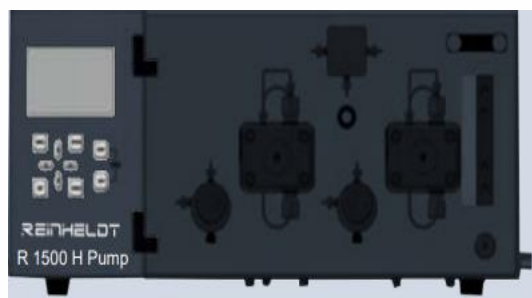
Wetted Materials:	Stainless Steel / PEEK*, Teflon AF®, PVDF, Ceramics, Sapphire, Ruby
Flow Rate	Programmable n Micro: 0.001 - 4.000 ml/min Analytical: 0.001 - 10.000 ml/min Semi-Preparative: 0.1 - 40.000 ml/min
Flow Accuracy	± 1.0 % 1.000 ml / min
Flow Precision	± 1.0 % 1.000 ml / min
Flow Precision	± 0.1 % RSD 1.000 ml/min
Pressure Range	0– 40 MPa (0 – 6000 PSI), Semi-Preparative: 20 MPa (up to 20.000 ml/min); 10 MPa (up to 40.000 ml/min)
* Pressure	Typical < 0.1 MPa or < 1.0 % ml/min); 10 MPa (up to 40.000 m
Pulsation: Compressibility Compensation:	user-adjustable for different solvents
Dimensions (W x H x D)	310 x 165 x 478 mm
Power Supply	100 - 250 ~V (47 - 63 Hz)

R 1500 High-Pressure Binary Gradient Pump

R 1500 High-Pressure Binary Gradient Pump consolidate two pump systems with active high pressure mixer with adjustable chamber volume. An optional integrated vacuum degasser removes dissolved gases in the eluents and prevents airbubbles in the system.

The system available is with.

- Miro
- Analytical &
- Preparative pump head in Stainless Steel or PEEK



R 1500 Isocratic HPLC Pump

The R 1500 Isocratic Pump is a robust, low-pulsation solvent delivery system. The pump head is easily accessible from the front panel to make routine maintenance, like changing pump seals, easy and fast. The system is available with Micro, Analytical or Semi-Preparative pumphead in Stainless Steel or PEEK.





R 1500 G Low-Pressure Quaternary Gradient Pump

The R 1500 G Low-Pressure Quaternary Gradient Pump incorporates an active low pressure mixer with adjustable mixing volume. The mixing chamber volume can be freely adjusted. An optional integrated vacuum degasser removes dissolved gases in the eluents and prevents air bubbles in the system. The system is available with Micro, Analytical or Semi Preparative pumphead in Stainless Steel or PEEK.



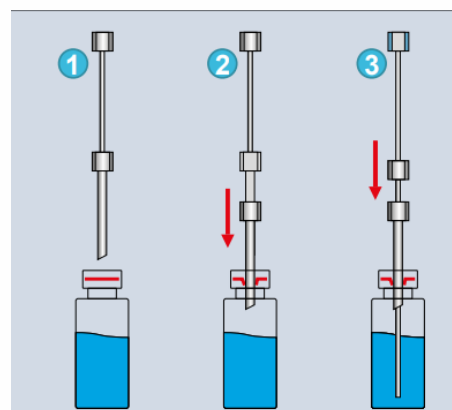
R 550 SAMPLE INJECTOR SYSTEM

R 550 Sample Injector System is a very flexible and powerful HPLC auto sampler with excellent reproducibility and linearity properties. Variable vial racks and adaptors for microtiter plates as well as a multitude of firmware options make this system highly adaptable and suitable for any analytical application.



Robust Design

The R 550 Sample Injector System features a mechanically durable X/Y/Z-Sampling-Mechanic designed for long life operation. The self-lubricating bearings keep the routine maintenance at a minimum and avoid troubles caused by dusty environments. High precision stepper motors drive the X/Y axis for accurate positioning. Microstepping mode enables a high resolution for the syringe dosing and vial positioning.



Accessibility

The injection valve with sample loop and injection port can be accessed directly from the instrument front without removing any protective covers. The dosing syringe can be accessed from the side of the instrument through a hinged glass panel. The exchange of the syringe can be done without the requirement of any tools.

R 550 Dual-Needle Design

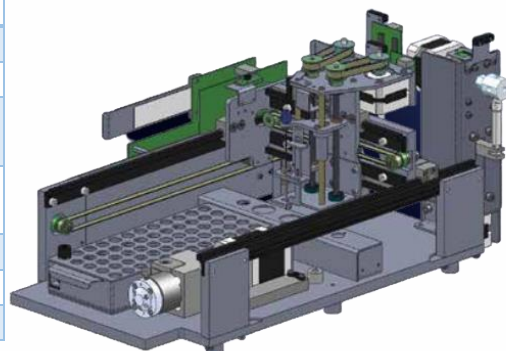
The Dual-Needle design of the R 550 Sample Injector System avoids system blockages caused by septum particles injected into the system. The ventilation needle pierces the septum before the injection needle moves into the sample vial (see figure on the left). As the more fragile injection needle does not need to pierce the vial septum, stronger vial caps or plastic vials can be used without problems.

R 550 Precision & Modularity

R 550 Performance

The modular nature of the R 550 Sample Injector System offers the possibility to “just buy what you need”. Modular options include sample heating/cooling for any sensitive sample material and derivatization for automatized pre-column derivatization tasks from reagent derivatization to automatic sample dilution.

Wetted Materials	Stainless Steel / PEEK*, Teflon, Glass
Sample Capacity	60/80 (1.5 ml), 96 (microtiter plates)
Injection Volume	Programmable 0.1 - 999.9 μ l
Injection Precision	< 0.5 % Variable Volume Injection (10 μ l; typically ~0.25 %)
Linearity	Correlation Factor > 0.999 (10 μ l injection volume, 500 μ l Syringe)
Carry Over	<0.05 % with wash program
Dimensions	310 x 165 x 478 mm
Power Supply	100 - 250 ~V (47 - 63 Hz)



R 300 UV/VIS DETECTOR

R 300 UV/Vis Detector is a variable wavelength UV/Vis detector for routine analysis and sophisticated research. The dual lamp design offers a wavelength range of 190 – 800nm with a low base-line noise. The front-accessible flow cell can be easily exchanged, as well as the lamps which are accessible through a side panel in the instrument housing.



R 300 Integrated Wavelength Program

- The R 300 UV/Vis Detector features a wavelength program to change the selected wavelength over time. With this feature the optimum wavelength can be selected for each analyzed substance according to its retention time.

R 300 Optional – Dual-Wavelength

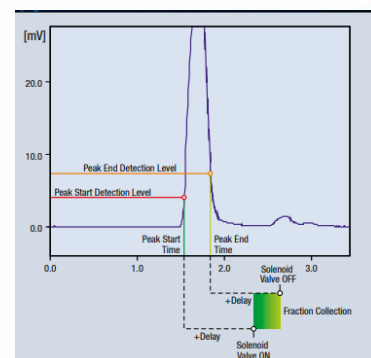
- The R 300 UV/Vis Detector is available with an optional second wavelength. This feature enhances the Wavelength Program feature that you can measure 02 different wavelengths at the same time. A second D/A converter output comes with this option to keep the system flexible to be used with any data acquisition software available.

R 300 Optional – Online-Scan Another option for the

- R 300 UV/Vis Detector is the Online Scan. With the Online Scan whole spectrum information can be gathered at a certain time. This scan information is stored internally and can be accessed at any time. The Online Scan is a good alternative to a full UV PDA detector.

R 300 Integrated Peak Detector

- The integrated Peak Detector works as a basic fraction collector. The peak detection level can be freely programmed for peak start and peak end to enhance the collection purity. An integrated 24V output for switching a solenoid valve is used for the fraction collection, which is automatically operated with a selectable time delay

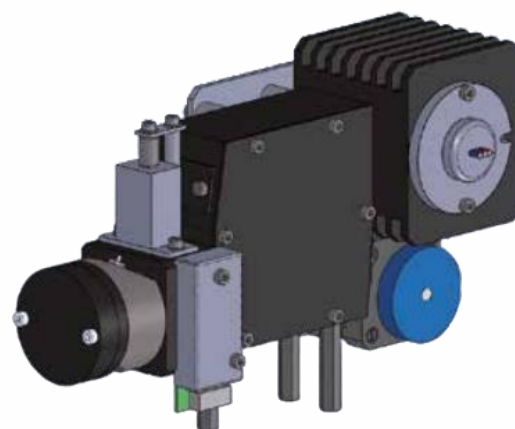
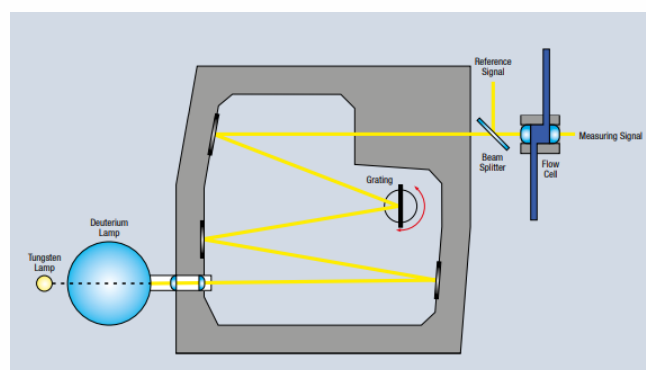


Principle of Operation

R 300 UV-VIS Technical Specifications

Technical Specifications

Wetted Materials	Stainless Steel / PEEK*, Teflon AF®, PVDF, Ceramics, Sapphire, Ruby
Baseline Drift	< 3 x 10 ⁻⁴ AU/h
Wavelength Range	190 – 800 nm
Baseline Noise	± 1 x 10 ⁻⁵ AU (@240 nm, 2 sec. Risetime)
Wavelength Accuracy	± 2 nm
Linearity	> 2.0 AU
Light Source	Deuterium Lamp, Tungsten Lamp
Dimensions (W x H x D)	310 x 165 x 478 mm
Analog Output	1x 1 V (optional: 2x 1V)



R350 PDA DETECTOR

R350 UV/Vis Detector is a photo-diode-array (PDA) detector for routine analysis and sophisticated research. The dual lamp design offers a wavelength range of 190–720nm (256 Diodes) or 190-1015nm (1024 diodes) with a low baseline noise. The front-accessible flow cell can be easily exchanged as well as the lamps which are accessible through a side panel in the instrument housing.



Integrated Peak Detector

The integrated Peak Detector works as a basic fraction collector. The peak detection level can be freely programmed for peak start and peak end to enhance the collection purity. An integrated 24V output for switching a solenoid valve is used for the fraction collection, which is automatically operated with a selectable time delay.

4 Channel UV Detector

The R 350 PAD Detector 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.

Optional – Analog Output

The R 350 PDA Detector is available with an optional 4-Channel analog output. This D/A converter output option is offered to keep the system flexible to be used with any data acquisition software available.

R 350 PDA DETECTOR Technical Specification

Wetted Materials	Stainless Steel / PEEK*, Teflon, Glass
Baseline Noise	$\pm 1 \times 10^{-5}$ AU (@240 nm, 1 sec. Risetime)
Baseline Drift	$<3 \times 10^{-4}$ AU/h
Number of Diodes	256 or 1024
Wavelength Range	190 – 720 nm (256 Diodes) 190 – 1015 nm (1024 Diodes)
Wavelength Accuracy	0.5 nm (256 Diodes); 0.3 nm (1024 Diodes)
Mean Pixe Pitch	2.2 nm (256 Diodes), 0.8 nm (1024 Diodes)
Resolution(λ FWHM)	nm (256 Diodes), 3 nm (1024 Diodes)
Linearity	> 2.0 AU
Wavelength Program	Programmable, 10 steps
Light Source	Deuterium Lamp, Tungsten Lamp
Analog Output	(optional: 4x 1V)
Data Rate	1 Hz - 100 Hz
Control Features: (Wx H x D)	Internal Peak Detector with +24 V solenoid switching output.
Dimensions:	310 x 165 x 478 mm
Power Supply:	100 - 250 ~V (47 - 63 Hz)

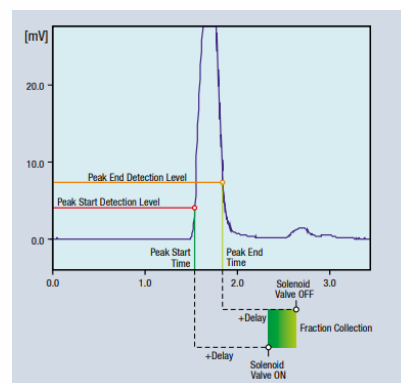


Figure: R 350PeakDetector

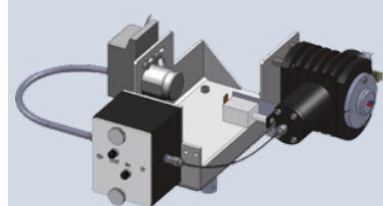


Figure: R 350 Optical Module

R 390 REFRACTIVE INDEX DETECTOR

R 390 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. The Reinheldt R 390 Refractive Index Detector provides autopurge and autozero capabilities, as well as RS232 communication to acquire data directly without using any external signal interface.

Reinheldt R 390 Refractive Index Detectors are available for:

- micro
- analytical
- semi preparative mode



Technical Specification

	Micro	Analytical	Semi-Preparative
Detection Method		Deflection	
Refractive Index Range		1.00 to 1.75	
Flow Rate	0.2 - 3.0 ml/min	0.2 - 3.0 ml/min	1 - 50 ml/min
Cell Volume	4 µl, 45° angle	9 µl, 45° angle	7 µl, 5° angle
Flow Cell Pressure	6 kg/cm ²		
Dead Volume	6 µl	24 µl	88 or 353 µl
Linearity Range	0 - 500 µRIU	0 - 1000 µRIU	0 - 20000 µRIU
Noise Level	10 x 10 ⁻⁹ RIU	5 x 10 ⁻⁹ RIU	10 x 10 ⁻⁸ RIU
Drift with 1ml H₂O/min	< 1mv/hour	< 1mv/hour	< 1mv/hour
Integrator Output	± 1 V		
Recorder Output	± 10 mV/ 100 mV/ 1 V		
Recorder Offset	0 mV/ 10 mV/ 100 mV		
Recorder Range	8 steps (1:8) - 16:1)		
Digital Interface	RS232, Purge, Autozero, Start, Stop, DataOut: 1 Hz, 10 Hz		
Digital Output	TTL: Intensity Alarm		
Digital Input	TTL: Purge, Autozero, Start, Marker		
Temperature Setting	Ambient, 35°C to 55°C in 1 °C steps, Thermal Fuse 75°C		
Time Constant	RAW (0.0 sec.), Fast (0.4 sec.), Medium (0.8 sec.), Slow (1.2 sec.)		
Weight:	13 kg		
Dimensions: (W x H x D)	310 x 165 x 478 mm		
Power Supply:	100-120/220-240 ~V (50/60 Hz), 50 VA		

R 535 COLUMN OVEN

R 535 Column OVEN is a contact heat transfer oven for high temperature stability and accuracy. The columns are mounted inside the column oven in optimized column holder which enclose the complete column to get the best temperature transfer between the heater and the column. Up to two columns (max. length 250 mm) can be mounted at the same time (max. O.D. 8 mm).

R 535 Heating

R 535 Column Oven standard version features a high temperature controller for stable column temperatures of +30°C up to +150°C. The temperature accuracy is within 0.1 °C.

R 535 Heating / Cooling

R 535 Column Oven is also available with active Heating/Cooling with Peltier technique. The temperature range is +5°C up to +100°C. The Heating/Cooling unit uses the same efficient controller as the basic version with temperature accuracy better than 0.1 °C. * R 535 Temperature Time Program The Heating/Cooling variant offers an optional temperature Time Program for stand-alone operation.

R 535 Integrated Valve System Option T

R 535 Column Oven offers the option to include an automatic switching valve of the Reinheldt R 600 Valve Series, for example the R 607 Column Selection Valve, but all R 600 Valves can be integrated.

R 535 Leakage Sensor

The R 535 Column Oven offers a high sensitive Leakage Sensor which detects the vapors of organic solvents.

R 535 Temperature Fuse

Besides a Leakage Sensor the R 535 offers a temperature fuse which shuts down the unit when the temperature becomes too high, because of an electronic defect.

Wetted Materials	Stainless Steel / PEEK*, Teflon AF®, PVDF, Ceramics, Sapphire, Ruby
Temperature Range	+30°C – +150°C (min.: ambient optional: +5°C – +100 °C (Peltier)2
Temperature Accuracy	< 0.1 °C
Switching Valve	optional: any R 600 Series Valve
Temperature Program	optional with Heating/Cooling
Safety Features	Temperature Fuse; Leakage Sensor
Dimensions (W x H x D)	183 x 566 x 270 mm
Power Supply	100 - 250 ~V (47 - 63 Hz)



Figure: R 535 Column Compartment



R 536 COLUMN OVEN

R 536 Column Oven is a contact heat transfer oven for high temperature stability and accuracy. The columns are mounted inside the column oven in optimized column holder which enclose the complete column to get the best temperature transfer between the heater and the column. Up to three 350mm columns can be mounted at the same time.

R 536 Heating

R536 Column Oven standard version features

a high temperature controller for stable column temperatures of +30°C

up to +150°C. The temperature accuracy is within 0.1 °C.

R 536 Heating/Cooling

R536 Column Oven is also available with active Heating/Cooling with

Peltier technique. The temperature range is +5°C up to +100°C. The

Heating/Cooling unit uses the same efficient controller as the basic version with

temperature accuracy better than 0.1 °C.

R 536 Integrated Valve

R536 Column Oven offers the option to include an automatic switching

valve of the Reinheldt R 600 Valve Series, for example the R 607 Column S

election Valve, but all R 600 Valves can be integrated.



R 536 Leakage Sensor

The R 536 Column Oven offers a high sensitive Leakage Sensor which detects the vapors of organic solvents.

R 536 Temperature Fuse

Besides a Leakage Sensor the R 536 offers a temperature fuse which shuts down the unit when the temperature becomes too high, because of an electronic defect.

Wetted Materials	Stainless Steel / PEEK1, PPS1
Temperature Range	+30°C – +150°C (min.: ambient +5 °C)
Temperature Accuracy	< 0.1 °C
Switching Valve	optional: any R 600 Series Valve
Temperature Program	optional with Heating/Cooling (Peltier)
Safety Features	Temperature Fuse; Leakage Sensor
Dimensions: (W x H x D)	183 x 566 x 270 mm
Power Supply	100 - 250 ~V (47 - 63 Hz)



R 515 VACUUM DEGASSER

R515 Vacuum Degasser is an online degasser system with high efficiency. Dissolved gases are removed from the solvents by applying vacuum to a semi-permeable membrane.

High Efficiency

The high efficient Teflon-AF® capillary has a much higher efficiency than a normal Teflon capillary of similar size. This allows the usage of a smaller length of capillary to reduce the dead volume of the system considerably.

2 Operation Modes

The R 515 can be run either with constant speed or in Hysteresis Mode, which switches the vacuum pump on or off. * 5-Year Membrane Warranty The R 515 vacuum pump uses a membrane for creating the vacuum. This membrane is made of a specific Teflon material specifically designed for fast movements. Reinheldt offers a 5-year warranty on the lifetime of this membrane.

Multi-Channel

The R515 Vacuum Degasser is available as 1-Channel, 2-Channel, 3-Channel, or 4-Channel version. Each solvent channel can be used for a different solvent. Several channels can be used in series to increase the efficiency even more.

Working Principle

The solvent flows through a short length of Teflon AF® capillary inside a sealed chamber. This chamber (vacuum chamber) is completely sealed to the environment and vacuum is applied with a pump. Due to this vacuum any dissolved gases in the solvent running through the inner capillary are removed through its semi-permeable membrane wall. The high efficiency of the Teflon AF® material allows the usage of a very short length of capillary inside the vacuum chamber.



Wetted Materials	Teflon AF®, Teflon, Stainless Steel, Aluminium, EPDM
Degassing Capacity	< 20% dissolved gases remaining in water at 1.0 ml/min
Volume / Channel	< 500µl
Dimensions: (W x H x D)	125 x 167 x 270 mm
Weight	3.2 kg
Power Supply	100 - 250 ~V (47 - 63 Hz)

