

# LC 5000 HPLC



Liquid chromatograph for analytical and preparative chromatography



The LC 5000 is a device giving very accurate results at a low cost. Whether you need the HPLC system for analytical or preparative chromatography, the LC 5000 is the right solution.

Choose the components you need and put together a system that will fill your needs. The LC 5000 can be used as a PC-controlled interconnected system. All components may be also used separately and controlled through a keyboard and screen. For your analytical or preparative application the HPLC LC 5000 offers:

- a product with an exceptional price/quality ratio
- selection of corresponding columns
- warranty and post-warranty consultations free of charge

The LC 5000 has applications in basic research, the pharmaceutical industry, industrial research and many other fields.

## Pumps

### LCP 5020

This high-pressure pump with adjustable and fully reproducible pumped flow ranging from 0.05 to 20.0 ml/min at a pressure of 0 to 40 Mpa is fit for use both in analytical and preparative HPLC. It can also be used wherever fluids need to be pumped precisely at low and high pressures and where the fluids pumped may be strongly aggressive. The LCP 5020 may be supplemented with a three-component gradient on the low pressure side. The dual-component gradient on the high pressure side is implemented by two pumps.



### LCP 5080

For semi-preparative or preparative chromatography where a flow rate of 20 ml/min is not sufficient, the LCP 5080 pump with a flow rate of up to 80 ml/min at a pressure from 0 to 40 Mpa has been designed. This pump enables implementing dual-component gradients with connection of two pumps.

## Detectors

### LCD 5000 UV - VIS

This detector with variable wavelength in the range of 190 to 700 nm with an integrated deuterium and halogen lamp with an analytical cuvette is designated for analytical and preparative fluid chromatography.

The LCD 5000 is a detector with high accuracy and reproducibility of the wavelength and low noise and drift. By replacing the cuvette, the detector may be used for preparative chromatography and micro-column chromatography.

It is also applicable for measuring the absorbance in the continuous cuvette wherever a sample can be sucked into the cuvette and absorbance can be measured, both for a single wavelength and a partial spectrum.



### LCD 5000 UV

Detector with variable wavelength ranging from 190 to 370 nm with a standard deuterium tube.

## Column thermoregulator

### LCT 5100

The thermoregulator is designed for maintaining the column temperature of the fluid chromatograph. Heat distribution is provided through an aluminium block. The temperature is controlled at two points depending on the column length. Heating and cooling is done by Peltier cells. The column thermoregulator control module, besides its own thermoregulator, may measure and/or control temperature also at two other points.



## Dosing

The **LCS Autosampler 5040** is a doser for 40 microtubes with a volume of 0.5 ml, closed with piercing lids. The automatic doser enables setting sample temperatures from ambient temperature up to a temperature reduced by 24°C. Between samplings the loop is rinsed and dried up.

The **SV11 Manual Doser SV11** is a six-input valve designated for bringing the sample from the injection syringe to the mobile phase high pressure in front of the chromatographic column. After spraying using the injection syringe with entire or partial fill-up of the measuring loop, the dose is executed by turning the dosing valve lever. The valve in the SV11 design may be placed between the pump and detector and two fluid circuits switched between.



# HPLC sets

INGOS supplies the HPLC as separate modules or full sets consisting of separate modules.

## Basic gradient analytical set

A set made of a pump with a ternary gradient, flow rate up to 20 ml, UV – VIS detector and manual dosing valve.

- LCP5020
- LCD5000
- SV11

This set will find extensive use in the HPLC.

## Extended gradient analytical set

A set made of a pump with ternary gradient, flow rate up to 20 ml, UV – VIS detector, column thermoregulator and automatic doser.

- LCP5020
- LCD5000
- LCT5100
- LCS5000

Thanks to the column thermoregulator, this set enables the use of the temperature gradient. The automatic doser offers the possibility of continuous device operation without user intervention.

## Preparative set

A set consisting of a pump with flow rate up to 80 ml, UV – VIS detector and manual dosing valve.

- LCP5080
- LCD5000
- SV11

This set is suitable for a wide range of semi-preparative and preparative applications.

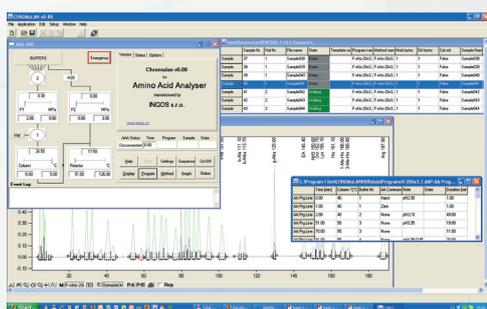
## Reliable service

For all devices made by INGOS we provide full user support from installation, to staff training and fast and readily available warranty and post-warranty service. The devices are serviced in the Czech Republic directly by INGOS or the service is provided by professionals trained directly by INGOS. You can therefore expect professional service carried out by experienced experts.



## Intuitive control software

The LC 5000 is controlled by the CHROMuLAN software. This software application provides comfortable and intuitive control of the device and working with data, including data export to different formats. A great advantage is the possibility of working with the results while the analysis is running. Up to six stations may be controlled by a single computer. The CHROMuLAN software is supplied with the LC 5000 free of charge.



# Technical specifications

## Pumps

Flow rate	
- LCP5020	0.01 - 20 ml/min
- LCP5080	0.01 - 80 ml/min
Pressure	max. 40 Mpa
Pressure limits	0 to 40 Mpa, optionally 1 Mpa increment
Flow rate reproducibility	±0.1%
Gradient creation	Ternary low-pressure gradient Binary high-pressure gradient (two pumps)
Time program	Up to 20 separate programs in times from 0 to 640 min with naming option.
Programmable values	Flow rate, concentration, output control signals, end of program, number of cycles
Communication	RS 485 or USB
Dimensions (w x h x d)	240 x 130 x 360 mm
Power supply	230 V ± 10%, 50 Hz

## Detectors

Wave length range	190 - 700 nm UV-VIS
Wave length accuracy	± 1 nm
Wave length reproducibility	± 0.1 nm
Spectral half-width	< 4 nm
Noise	±1.10 <sup>-5</sup> AU at time const. 1 s.
Drift	±5.10 <sup>-4</sup> AU/h
Analytical cuvette	Optical length 5 mm, volume 5 µl
Output and data processing	RS 485 or USB program CHROMuLAN
Controlled values	16-bit D/A inverter adjustable AU range
Controlled values	Wavelength, resetting, analog output, control signals, end of program, number of cycles.
Dimensions (w x d x h)	240 x 130 x 400 mm
Power supply	110 - 230 V, 50 - 60 Hz

## Column thermoregulator

Operating temperature	0°C to 80°C
Thermoregulator area	
- divided into three sections	320x25x25, 320x25x18 and 320x25x14
- or into two sections (upon request)	320x25x25 and 320x25x25
Measurement range of additional controllers	0°C to 100°C 0°C to 200°C at request
Output of additional controllers (heating only)	24V, 1 A jointly
Dimensions (w x d x h)	120 x 240 x 400 mm
Input	max. 200 VA
Power supply	230 V ± 10%, 50 Hz

## Automatic doser

Samples	40 microtubes of 0.5 ml, closed with piercing lids
Sample temperature	Adjustable cooling able to reduce ambient temperature by 24°C
Dosing loop	5 µl and more
Sample consumption	Loop volume + 30 µl
Mobile phase pressure	max. 35 Mpa
Sample preparation time	1 min.
Cycle length	max. 600 min. when controlled by its own program
Communication	RS 485 or USB
Dimensions (w x d x h)	240 x 260 x 400 mm
Power supply	230 V ± 10%, 50 Hz
Input	100 VA

## SV11 dosing valve

Dosing volume	5 µl - 3000 µl
Working pressure	max. 35 Mpa
Material in contact with sample and mobile phase	Stainless steel, PEEK, TEFLON
Connecting tubes	1/16", UNF10-32
Dimensions	Diameter 44 mm, height 30 mm



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