

LC-3600

Preparative HPLC with DAC Column



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The system is integrated design, the mobile phase delivery unit, detection unit and fraction collection unit is integrated in one set of shelves. It is beautiful and generous, the dead volume of the pipe connection is reduced and the column efficiency is significantly improved. All wetted material is metal-free for bio-molecular purification.

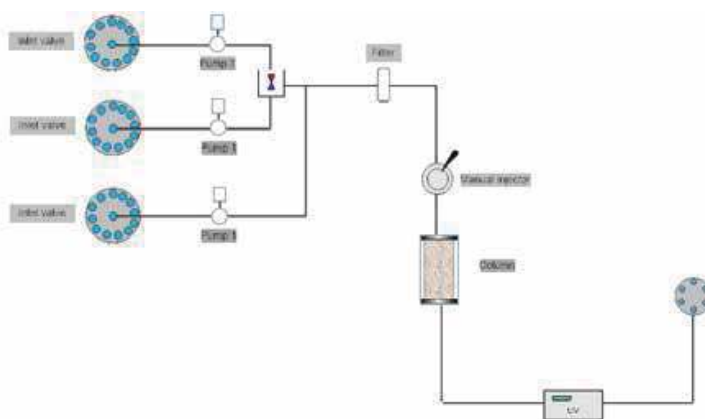
System configuration	
Pump /Max. pressure	100ml pump head 30Mpa 250ml pump head 15Mpa 500ml pump head 10Mpa 1000ml pump head 10Mpa
Detector	UV detector/or RI detector
Fraction collector valve	Azura 2.1L, 6 channels or 12 channels
Online filter	48mm or 100mm filter
Sample valve	A1360 sample injection valve
Mixing	Preparative mixing chamber
Frame and tube	System frame, converter, tube
Software	Clarity from DataApex
Kit	System start-up kit and accessories kit
Document	User manual, IQ/OQ/PQ

Note:

- 1.The mobile phase or sample selection valve is optional in system
- 2.Fraction collector valve is standard configuration. The alternative is fraction collector.
- 3.The flow cell of detector match flow rate of system
4. Sample pump is an optional in the system

SYSTEM REQUIREMENTS

Dimension	500mm*320mm*700mm
Communication	LAN
System connection	Ferrule
Wetted material	PEEK and PTFE etc.
Power	Less than 1500W



The Flow path of LC system
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P6000 PUMP	0.1~99.9ml /min	30Mpa
	0.1~249.9ml /min	15Mpa
	0.1~499.9ml/min	10Mpa
	0.1~999.9ml/min	10Mpa
Pressure pulsation	1% at 10Mpa	
Flow rate accuracy	$\pm 1\%$	
Flow rate reproducibility	$RSD \leq 0.5$	
Gradient accuracy	$\pm 2\%$	
Pump inlet tube	$\Phi 4$ (100ml, 250ml, 500ml)	$\Phi 6$ (1000ml)
Pump outlet tube	1/8" (100ml, 250ml, 500ml)	DN4 (1000ml)

sample pump		
Flow rate	0.1~49.9ml /min	30Mpa
Pressure pulsation	1% at 10Mpa	
Flow rate accuracy	$\pm 1\%$	
Flow rate reproducibility	RSD ≤ 0.5	
Pump inlet tube	$\Phi 3$	
Pump outlet tube	1/16"	

UV DETECTOR

Wavelength range	190-400nm, 400!800nm	
Band width	8nm	
Wavelength accuracy	$\pm 2\text{nm}$	
Wavelength reproducibility	0.4nm	
Baseline noise	3x10!5Au	
Base line draft	1x10!4Au/h	
Flow cell	1/16", PEEK, optical path 10mm	
PH Sensor Range	0 to 14	
Conductivity sensor range	0 to 900ms.cm	

SELECTION VALVE

Valve type	6 ports multi!position	
Valve head material	PEEK/PPS	
Rotor seal material	vespel	
Maximum pressure stability	150BAR	
Capillary connection	1/8"	

FRACTION VALVE

Valve type	6 ports multi!position
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Valve head material	PEEK/PPS
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Rotor seal material	vespel
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Maximum pressure stability	150BAR
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Capillary connection	1/8"
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SOFTWARE

Package	ClarityChrom
compliance	21CFR Part 11 compliance
Operating system	Windows XP SP3, Windows Vista SP2 32!bit and 64!bit, Windows 7 32!bit and 64!bit, Windows 8 32!bit and 64!bit Windows 10 (32 and 64 bit)
Multiuser environment	Selectable system of user accounts with independently customizable behavior and appearance for individual users
Instrument connection	Supports RS!232, Ethernet, PCI interface card, A/D!D/A interface
Recommended PC hardware	Pentium 2 GHz, 2 GB RAM, 10 GB free hard disk space, separate graphics card if one PC should control more than one system
Graphics capabilities	Multiple chromatogram view and overlay, PDA view
Integration	27 integration parameters (peak width, threshold, tangent slope ratio etc.) integration parameters programmable in time, automatic re!
Security and GLP	Installation qualification test of the software; FDA 21 CFR Part 11 conformance, validation with virtual detector
Instrument control	method!based instrument control, Instrument status display and Direct!Control mode
Chromatogram operations	Overlay view, custom labels and settings, also applying mathematical operations to chromatograms
Automation	Sequences, automatic launch of selected commands or applications immediately following chromatogram acquisition – Post run, Batch
FRC option	for preparative HPLC, adds tools for detector controlled fraction collection and solvent recycling
FRC features	Fractionation can be controlled by time (volume), level, slope including AND/OR combination of these criteria, manual control of fractionation during a run
System suitability test	automates the calculation of system suitability parameters for system validation

- ▶▶ The DAC (dynamic axial compression) column adopts latest design by ATL. The piston of column always produces a stable pressure on packing bed which can effectively prevent the collapse and loose of the column bed.

The Characteristic of DAC column:

Short length, Large inner diameter, Pancake shaped. The length of the preparative column is similar with the analysis one, about 20cm to 50cm. It is far shorter than the open column which length is always more than 1m. Besides, its inner diameter is 10mm to 1000mm, so there will be no high pressure at high flow rate, the separation cycle of the pure material will be shorter and the yield will be higher.

Small packing material particle size, Narrow distribution. We can get higher column efficiency by using 10"20 μ m spherical porous packing material with narrow pore and particle size distribution instead of the big particle size (40"200 μ m) irregular one with wide distribution to pack the preparative column. Usually the theory plate can reach 20000 per meter. In suitable condition it can reach 40000 per meter just like the analytical column.

Packing process. It is difficult to packing a column more than 50mm by high pressure slurry packing method, in order to pack small particles into larger preparative column evenly, we always use column bed compression technique. As the DAC columns have been applied more each day in preparative chromatography, more and more research is concerned with the DAC performance and reproducibility, the result is the column efficiency is influenced by packing material character, slurry solvent character, pressure etc.

ID50mm DAC column	
Dimensions	500mm×500mm×1900mm
Weight	100kg
Inner diameter	50mm
Total column length	500mm
Max. bed height	300mm"NP 0.3kg packing material; RP 0.39kg packing material)!
Filter	Material: 316L Pore size: 3~5μm
Distributor	Two, in piston and column bottom, Material: 316L Distribution mode: Divergent
High pressure seal	Material: PTFE+316L
Design pressure	10Mpa
Operating temperature	5~60℃
Control Panel	air pressure gauge, oil gauge, regulating valve, Emergency stop switch, Change direction valve, Shut"off valve
Air source	≥6bar, output≥0.5m ³ /min
Column tube material	316L
Column bracket material	304
Roughness	Inner surface Ra≤0.4μm, outer surface Ra<1.6μm
Inlet diameter	1/16"
Outlet diameter	1/16"
Air inlet diameter	Φ8

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