

HPLC USER REQUIREMENT SPECIFICATION.

HPLC Components	Specification	PARTY Specification (For each row specification has to write in detailed instead of writing yes or NO)
Pump		
1. Pumping method	Parallel-type double plunger	
2. Flow rate setting range	0.0001 to 10 mL/min	
3. Flow rate accuracy	±1% or ±2 µL/min of set value whichever is larger	
4. Flow rate precision	less than ±0.06% RSD	
5. Configuration	Parallel double plunger Quaternary Low-Pressure Gradient pump	
6. Maximum pressure	>6300 psi with an option upgradable to >9500 psi.	
Degassing unit		
	5 Lines: Mobile phase 4 + Rinse solution 1 (Volume 400µL)	
Auto-Sampler		
1. Injection method	Total-volume sample injection	
2. Injection volume accuracy	±1%	
3. Injection volume setting range	Sample injection volume should be variable between 0.1 µl to 100 µL, with option to increase to 2000µL	
4. Cross-contamination	<0.003 %	
5. Injection cycle time	<15sec/sample	
6. Samples for processing	more than 300 for 1ml vial volume, more than 200 for 1.5ml, more than 100 for 4ml and 384 for 4X96 wells microtitre plates	
7. Sample cooler	4 to 45°C	
8. Injection linearity	> 0.9999	
Column Oven		
1. Heating and cooling method	Forced air circulation method	
2. Containable column size	Capable of >5 pieces at 10 cm max., >2 pieces at 10 cm to 30 cm	
3. Temperature control range	4 to 85°C	
4. Temperature control precision	±0.1°C	

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UV-VIS Detector		
1. Wavelength range	190 to 700 nm	
2. Wavelength accuracy	$\leq \pm 1$ nm	
3. Noise level	$\leq \pm 2.5 \times 10^{-6}$ AU	
4. Sampling rate	Upto 100Hz	
5. Light source	Deuterium (D2) lamp	
Fluorescence Detector		
1. light source	Xenon lamp and a low-pressure mercury lamp should be available as an option for checking wavelength accuracy	
2. Wavelength range	200nm to 650nm. An option should be available to achieve the range of 200 to 750 nm	
3. Spectral bandwidth	20nm	
4. Wavelength accuracy	± 2 nm	
5. Wavelength reproducibility	± 0.2 nm	
6. Signal to noise ratio for Water Raman peak	minimum 1200	
7. Flow cell	12 μ L volume, 2 MPa pressure max	
8. Detector Monitoring	The detector must be capable of monitoring any 2 wavelengths between 200 and 650nm simultaneously.	
9. Ease of maintenance	Xenon lamp and Flow cell must be accessible from the front panel with no tools required and alignment free.	
HPLC Operating pH range	1 to 13	
Hardware Specifications	1. A built-in system controller should be with the system for standalone operation functions, with graphical user interface (GUI) and touch-screen functions.	
	2. System controller GUI should display status of flow line and should synchronise with workstation software using Interaction Communication Mode	
	3. Full compliant mode should also be available with system locking function available	

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	4. It must be controllable from a web-based interface via a network. It allows the system to be controlled, monitored and maintained via Internet Explorer Web browser or any smart devices	
	5. Usable solvent types should include both organic and aqueous solutions	
	6. The basic pump performance able to run HPLC method and should be fast LC analysis ready.	
Data Management System		
Hardware	Intel Core 2 Duo processor or higher	
	4GB RAM on board or higher	
	250 GB hard disk or higher	
	DVD-RW drive	
	21" TFT monitor	
	101 keys key board and mouse	
	Pre-installed Windows 7	
	Laser printer	
Chromatography Software		
	1. 32/64 bit Windows 7 based software	
	2. One-point digital instrument control, qualitative and quantitative processing, report creation and self-diagnosis	
	3. The data can be converted to other (AIA, ASCII) formats. Spread Sheet software and word-processing software can be readily employed to provide data in tables or graphs through industry standard protocols.	
	4. The software should allow automatic execution of system checks, auto-purge and baseline checks	

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5. Software must register all events (log files) audit trails for Data, Method, Batch, Report, System Policy and User Administration	
6. Software must display the online status of instruments (Name, Type, Analysis, Status, User Running, Queued Count, Estimated End time)	
7. In-built PDF generator feature	
8. Functions to check PC Information, Software Program Files Check, User List, User Groups, Group Rights, Security Policy, Instrument Connection information from software and printable in PDF format	
9. An audio-visual multi-media CD-ROM for Maintenance and Troubleshooting must be provided	
10. System suitability, System security as well as System check functions must be provided which comply with Good Laboratory Practice (GLP) and Regulatory Conformity	
<u>Warranty</u>	
1. Warranty for equipment for a period of 12 months.	
2. Supply, Delivery, Installation, IQ, OQ&PQ Documentation and training, Commissioning must be provided.	

. Supply, Delivery, Installation and Commissioning of High Performance Liquid Chromatography System

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