



**INDIAN INSTITUTE OF TECHNOLOGY BOMBAY**  
**MATERIALS MANAGEMENT DIVISION**  
**Powai, Mumbai 400076.**

Ref No.(PR No.1000039530)

(Rfx No. 6100001700)

### **Technical Specifications : HPLC System**

Sr. No	Technical Specifications	Qty	Compliance
1	<p><b>Complete HPLC System.</b></p> <ul style="list-style-type: none"> <li>a. The system should be an all-in-one system, pump, degasser, auto sampler, detector and column oven readily available</li> <li>b. Usable solvent types should include both organic and aqueous solutions.</li> <li>c. Automated functions like time-controlled instrument autostart up, auto purge and automatic validation should be available.</li> <li>d. The system should be able to auto-shut down to reduce power consumption.</li> </ul>	1	
2	<p><b>Solvent Delivery System/Pump</b></p> <ul style="list-style-type: none"> <li>a. Quaternary solvent delivery system equipped with a pump that should be able to deliver 4 solvents</li> <li>b. The pump shall have an integrated degasser with four chambers or more, which operates up to the maximum flow rate, with an independent channel for each solvent</li> <li>c. The maximum operating pressure of the pump must be a minimum 18000 PSI</li> <li>d. System Operating Pressure should be appropriate enough for the use of columns with Particle Size from 1.6<math>\mu</math> to 5<math>\mu</math></li> <li>e. Pump must contain all accessories such as solvent cabinet/tray, solvent bottles, tubing, filters and connectors</li> <li>f. Flow rate range needed is: from 0.001 to 5.0 mL/min</li> <li>g. Flow rate accuracy needed: <math>\pm 1\%</math></li> <li>h. Gradient precision/accuracy needed: <math>\leq 0.5\%</math> R.S.D.</li> <li>i. Flow path must be able to tolerate pH from 2-12</li> </ul>	1	
3	<p><b>Autosampler</b></p> <ul style="list-style-type: none"> <li>a. Sample capacity of minimum 100 vials of standard 1.5 mL/2.0 mL</li> <li>b. Operating pressure range should be able to tolerate 18000 PSI or more</li> <li>c. Should be compatible with sample capacity extension</li> <li>d. Injection volume range: 0.1-20 <math>\mu</math>L with optional sample loop up to 1000 <math>\mu</math>L should be available as option.</li> <li>e. Sample Cooling Range: 4- 40 <math>^{\circ}</math>C</li> <li>f. Carry over: <math>\leq 0.005\%</math></li> </ul>	1	

	<ul style="list-style-type: none"> <li>e. pH range: 2-12</li> <li>f. Flow line rinsing after sampling should be possible Injection Needle Wash</li> </ul>		
4.	<p><b>Column Oven</b></p> <ul style="list-style-type: none"> <li>a. Should have cooling and be able to maintain temperatures in the range of 20 °C below ambient (minimum 4 °C) to 110 °C</li> <li>b. Required temperature accuracy: ±1.0 °C</li> <li>c. Required temperature precision: 0.1 °C</li> <li>d. Should have capacity to hold 3 columns of ~30 cm length (Including guard columns) simultaneously or 6 columns of 10 cm length or better.</li> <li>e. Should come with accessories such as tubing, connections and column clip</li> </ul>	1	
5.	<p><b>Photo Diode Array Detector</b></p> <ul style="list-style-type: none"> <li>a. Must be high-sensitivity diode array detector with 1024 elements or more</li> <li>b. Wavelength range: 190-900 nm or better</li> <li>c. Drift: &lt;1x 10<sup>-3</sup> AU/hour or better</li> <li>d. Increments for setting wavelength: 1 nm</li> <li>e. Light source: Deuterium lamp and Tungsten Halogen Lamp.</li> <li>f. The selection of light source should be flexible to select D2, W or both lamps for analysis.</li> <li>g. Data rate: 80 Hz or better</li> <li>h. Noise: &lt; 0.7 x 10<sup>-5</sup> AU</li> <li>i. Slit-width: Fixed -between 1 to 8 nm</li> <li>j. Wavelength accuracy: at least 1.0 nm</li> <li>k. Linearity: 2.0 AU or better</li> </ul>	1	
6.	<p><b>Data management system or software</b></p> <ul style="list-style-type: none"> <li>a. Complete and most advanced version of the licensed software should be quoted, which is capable of detecting, recording,</li> <li>b. processing and system or software analyzing the data. It should cover full one-point digital instrument control, qualitative and quantitative processing, report creation and self-diagnosis.</li> <li>c. Operation of the system should be very easy and intuitive via a state-of-the-art 32/64-bit latest Windows based software</li> <li>d. Software must be able to link with Windows Users or Active Directory Users</li> <li>e. It should be compatible with diode array detector and ELSD</li> </ul>	1	
7.	<p><b>Installation, Warranty and Training</b></p> <ul style="list-style-type: none"> <li>a. Tendered price should include delivery, installation, commissioning and training for at least 4 users at customer's location.</li> <li>b. Comprehensive warranty for complete equipment for a period of 36 months should be provided.</li> <li>c. Travel and Labour expenses of Customer Engineer</li> <li>d. Service Parts used for repairs</li> <li>e. Vendor to provide service guarantee: should the system require service during the warranty period, vendor must guarantee or replacement of instrument for free.</li> <li>f. Vendor to have logistic support to ensure that over at least</li> <li>g. 95% of the service parts are readily available and upkeep delivery within 48 hours.</li> <li>h. Vendor to provide on-site operator training for users on system start-up, usage, maintenance, trouble shooting, etc. including comprehensive classroom training.</li> <li>i. Vendor to provide a copy of Site-Preparation checklist.</li> <li>j. All required kits, tubings, joints, tool kit etc. essential for running &amp; maintenance of the system shall be supplied along with the system</li> </ul>	1	

8.	<p><b>Service</b>  Provide details of minimum three Supply and installations of the quoted model in last 5 years in reputed Govt. of India Organizations OR reputed private organization. Complete user list with contact details such as email and mobile numbers preferably with the name of the end user. Please provide installation completion certificate. Vendor must have service as well as application engineers based within Mumbai city.</p>		
9	<p><b>Warranty</b></p>	3 years	