



INDIAN INSTITUTE OF TECHNOLOGY DHARWAD  
Off Pune Bengaluru Highway, Near High Court,  
Dharwad, Karnataka - 580011

No. IITDH/MMD/MMAE/2021-22/035

Dt.: 08/02/2022

**CORRIGENDUM**

TENDER FOR SUPPLY, INSTALLATION AND DEMONSTRATION OF EQUIPMENT (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY (HPLC) INSTRUMENT) AT INDIAN INSTITUTE OF TECHNOLOGY DHARWAD

Ref: Tender No. IITDH/MMD/MMAE/2021-22/035

Kind attention is invited to the tender referred above for supply, installation and demonstration of equipment (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY (HPLC) INSTRUMENT) at Indian Institute of Technology Dharwad.

Prospective bidders may kindly note that the table of compliance as in Section IV (ii) of the above referred tender document has been replaced as below and prospective bidders are requested to use the same for submitting the bids:

SL NO	Features	IIT Dharwad HPLC (Modified specs)	Whether complied Yes or No	Specifications of the quoted product
1	Operation pressure range	The instrument must have an operation pressure range of 0 – 60 MPa (0 – 600 bar, 0 – 8700 psi) over the flow rate range up to 5 ml/min or better		
2	Number of solvent channels	Number of channels must be 4. The pump must be capable of delivering aqueous and organic solvents at operating pressures. The pump must have integrated vacuum degassing of all mobile phase lines The pump must provide automatic solvent blending capabilities. The pump must be able to program both isocratic and gradient methods. The system should be efficient for both analytical and semi-preparative scale separation.		
3	Hydraulic system	Dual pistons in series		
4	Maximum flow rate	Must deliver a flow rate up to 5mL/min or better		
5	pH range	Must have a pH range 1.0 — 12.5		



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SL NO	Features	IIT Dharwad HPLC (Modified specs)	Whether complied Yes or No	Specifications of the quoted product
6	Injection volume range	0.1 to 100 $\mu$ L or 1500 $\mu$ L by seat loop extention		
7	Cycle Time	30 seconds Injection cycle time or better		
8	Cooling Accuracy	4 °C or better		
9	Capacity	Minimum of 96 vials (2 mL) or better and should be able to accommodate microtitre plates		
10	Integrated sample thermostat	Cooling and heating in the range from 4 °C - 40 °C or better		
11	Lowest carryover	<0.004 % (40 ppm) with needle wash or better		
12	Combined specification	up to four columns with 30 cm length and a temperature range from 10°C below ambient to 85°C		
13	independent temperature zones	at least two independent temperature zones required		
14	Temperature accuracy	Temperature accuracy must be $\pm$ 0.5 °C with calibration		
15	No. of Columns & Column dimensions	Atleast 2 Columns of up to 30cm length must be supported		
16	Stackable	Must be a stackable, self-contained module with solvent resistant material used in all areas which may have contact with the mobile phase.		
17	Software	Software must be available on the local controller and on the data system for single point control of the thermostatted column compartment as well as other modules of the same family. Suitable licensed software to control all modules of HPLC should be provided		
18	Pre column heating and post column cooling	The module must enable pre column heating and post column cooling		
19	Temperature range	from 5-10°C below ambient to 85°C or better		
20	Temperature Precision	0.05 °C		
21	slit width	Fixed or programmable or better		
22	RFID/software detection	Should be available		
23	Number of signals	Simultaneous acquisition of up to 8 compound specific wavelength or better		
24	Linearity	> 2 AU (upper limit)		
25	compatibility with wide range of flow cells	Should be compatible with wide range of flow cells for various HPLC applications		
26	Noise	< $\pm$ 0.7 x 10 <sup>-5</sup> AU at 254 nm and at 750 nm or better (cell path length 10		



भारतीय प्रौद्योगिकी संस्थान धारवड  
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SL NO	Features	IIT Dharwad HPLC (Modified specs)	Whether complied Yes or No	Specifications of the quoted product
		mm, response time 2 s, flow 1 ml/min LC-grade		
27	Wavelength range	Wavelength range must be at least 190-800 nm or better		
28	Light source	Deuterium or better		
29	Operating temperature	The temperature operating range of instrument must be from 4°C to 40°C or better		
30	Maximum sampling rate	80 Hz or better		
31	Drift	Signal drift must be equal or smaller 1 x 10 <sup>-3</sup> AU/h or better		
32	Detector type	512-element diode array or better		
33	Raman noise (noise reference measured at dark value 450 nm)	The instrument must have in single wavelength mode a Raman signal- to-noise of >1000 or better , with Ex350nm/Em397nm and using the dark value at 450nm as reference point, water filled standard flow cell.		
34	Excitation and emission wavelength range	Excitation wavelength must be at least 200 – 980 nm or better, Emission wavelength must be at least 200 – 980 nm or better		
35	Lamp lifetime	Xenon flash lamp, normal mode (20 W), economy mode (5 W), lifetime 4000 hours.		
36	Flash lamp technology	The lamp can be switched on directly before the analysis because it needs no warm up time		
37	Temperature Control	The RI detector must have a temperature control from +5° above ambient to 55°C		
38	Refractive index range	1.00 – 1.75 RIU, calibrated		
39	Measurement range	± 600·10 <sup>-6</sup> RIU		
40	Recycle Valve	The RI detector must have a recycle valve		
41	Sample cell volume	Suitable RID sample cell volume should be quoted		
42	Automated delay calibration	Automated delay calibration facilitates highest fraction purity while maintaining high-precision sample recovery		
43	Fraction collection capacity	Suitable per module fraction collection capacity of up to several fractions simultaneously should be available in glass tubes or in microtiter plates		



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वसुधैव कुटुम्बकम्  
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44	Fraction collection trigger modes	Multiple collection modes with fraction triggering based on time, peak or mass for exact collection of required fractions		
45	Forced fume extraction	Forced fume extraction enables use of fraction collector outside a fume cupboard		
46	Maximum Flowrate	5mL/min or better		
47	Fraction Containers	Different Fraction Containers options with different collection volume ranges compatible with the instrument should be available and should be included appropriately		
48	Warranty	Comprehensive on-site support and maintenance for a period of 3 years from the date of successful installation and commissioning of the equipment. Offer of 2 Years Extra Warranty from the date of expiry of 3 years initial warranty to be provided by the bidder		
49	HPLC Columns	C18 Column: 2 Nos. must be provided Additional C8 or C4 Columns could be quoted separately		
50	Suitable PC, Printer and UPS should be provided	Branded PC with suitable configuration and Windows 10 OS Laser Printer Online UPS: 3 KVA of min. 60 minutes backup		
51	Additional buffer lines, frit filters, sample vials, fraction collection vials, and other relevant accessories are to be provided along with the equipment.			

We, M/s \_\_\_\_\_ comply with the above requirements.

**(Authorised signature & seal of the bidder)**

Sd/-

Assistant Registrar (MMD), IIT Dharwad  
(For and on behalf of Director, IIT Dharwad)