



Indian Institute of Technology Madras
Chennai-600 036
Department of Civil Engineering

Ref No: CIE/2015/ LCMS/SPLX
To

dated 17.6.2015

DUE DATE : 08.7.2015

Sir/Madam,

1. Quotations are invited **in duplicate (Two bidding covers)** for the **item/s shown as per enclosed Specifications.**
2. The quotations duly sealed and superscribed on the envelope with the enquiry reference No. & due date should be addressed to the **Head of the Department, and contain in 2 bid system i.e. Technical bid and Commercial bid in two separate envelopes and these two envelopes should be enclosed in a Single envelope so as to reach on or before the due date.**
3. The quotation should be valid for **(60) Sixty days from the due date and period of delivery time** required.
4. Relevant literature pertaining to the items quoted with full specifications (and drawing, if any) should be sent along with the quotations, **wherever applicable.** Samples if called for, submitted free of charge and collected back at the suppliers expenses.
5. Firms outside Chennai: Quotations should be for F.O.R. Chennai. If F.O.R. consignor station, freight charges by passenger train/lorry transport must be indicated. If Ex-godown, packing Forwarding and Freight charges must be indicated.
6. Local Firms: Quotations should be for free delivery to this Institute. If quotations are for Ex-godown, delivery charges should be indicated separately.
7. Goods should be **supplied by carriage paid and insured.**
8. Goods shall not be supplied **without an official supply order.**
9. PAYMENT: The mode of payment should be mentioned.
10. Rate of Sales/General Taxes and percent of such other taxes legally leviable and intended to be claimed should be distinctly shown along with the price quoted. Wherever this is not done, no claim for any taxes will be admitted at any stage and any ground whatsoever. The taxes leviable should take into consideration that we are entitled to have Concessional Sales Tax applicable to Non-Government Educational Institutions run with no profit motive for which a concession. Sales Tax Certificates will be issued at the time of final settlement of the bill. The Price should be quoted without Excise Duty, Since IIT Madras is exempt from payment of Excise duty.
11. Warranty period: Explicitly Warranty period is to be given by the firms.

Yours sincerely

For Head of the Department

Specifications for Liquid Chromatography with Mass Spectrometer (LC-MS)

System should be designed and manufactured under ISO-9001 and should comply with international regulatory, safety and electromagnetic compatibility requirement. The chromatography data system should be based on Microsoft Windows operating system for instrument control, data acquisition and data analysis.

Core Specifications:

S. No	Specifications	Descriptions
1	One Vendor Solution	Both the Liquid Chromatography (LC) and Single Quadruple Mass Spectrometer (MS) must be manufactured, supplied and installed by a single vendor to provide a seamless integration between the LC and MS.
2	Service and Support	The service of both the LC and MS must be fully supported by the supplier. Spares support must be provided at least for 10 years or more.

Liquid Chromatography Specifications:

S. No	Specification	Descriptions
1	Pump	Must be quaternary gradient pump capable of high pressure mixing and delivering solvents at a min 8000 psi pressure or better
2	Flow rate	Must be 0.001 - 2 mL/min in 0.001 mL increment or better
3	Flow precision	Must be less than 0.07% RSD
4	Flow accuracy	Must be better than 1%
5	Composition accuracy	0.4% or better
6	Composition range	Settable range should be 0-100%
7	Auto sampler	Auto sampler must be capable of holding minimum 96 samples or more. Furthermore, auto sampler must be having a cooler to control till 4 deg centigrade
8	Column oven	Column oven should go till 80 deg centigrade or better
9	UV	Should have capability to do analysis in the range of 190 - 600 nm

MS Specifications:

LAN based quadruple MS system with inert source conforming to International safety standards, designed and manufactured under a quality system registered to ISO-9001 with appropriate computer & printer to support the system from original manufacturer.

S. No	Specifications	Descriptions
1	Ion source	Must have ESI and further option of upgrade APPI source is mandatory. Facility of changing source without interrupting vacuum
2	Mass range	2 - 2,000 amu or better
3	Analyzer type	Quadrupole analyzer
4	Mass stability	Less than 0.1 amu or better
5	Scan speed	10,000 Da/sec or better
6	ESI sensitivity (SIM mode)	Should have sensitivity in level of pico gram
7	Mass accuracy	Should be ± 0.1 Da or better
8	Linear dynamic range	Must have 6 orders of linear dynamic range
9	Polarity switching	30 m sec or better
10	SIM dwell time	Should be 5 msec or better
11	Vacuum system	Highly efficient vacuum systems consist of Turbo molecular pumps followed by rotary mechanical pumps must be provided

Data Management System and other Accessories:

1. The following LC-MS columns must be provided along with the system
 - a) C-18 or equivalent
 - b) C-8 or equivalent
2. Integrated software to control MS and LC together and the software should be capable to do qualitative and quantitative work. Control software should be user friendly and should have all the features to fine-tune the data in the analysis, which are required for calibration and quantification and validation of the method. Automatic method tuning features will be preferred.
3. All necessary gases including imported nitrogen generator need to be supplied along with the instrument.
4. The system must be provided with a set of installation, operating and troubleshooting manuals both in paper and software forms.

5. A suitable PC compatible for the above instrument control should be supplied along with the instruments. The PC should meet the minimum requirements such as desktop with i-7 Processor, 8 GB RAM, HD 500 GB or more, Windows 7 home basic or better and 24'' or more LED monitor.
6. Minimum 2 years warranty with 1 or 2 year free service will be preferred
7. A service center must be available in Chennai for service engineers to attend to the instrument for maintenance or troubleshooting.
8. On-site training for the operation of the hardware and software systems should be included.

General Terms and Conditions:

System should be installed by company professional and thorough technical training to be provided in analyzing and troubleshooting