**Technical Specification for Ion Chromatography**

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

**Core Specifications:**

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| **S.No** | **Specifications** | **Descriptions** |
| 1 | Ion Chromatography system | Gradient system - Compatibility with mobile phases (like KOH, NaOH for anions and MSA for cations) with Conductivity Detector, Self Regenerating Suppressors for both for anions and cations, columns for analyzing anions (like - fluoride, chlorite, chloride, chlorate, bromide, bromate, nitrite, nitrate, phosphate, sulfate etc.), cations (like alkali-alkali earth metals, amines, ammonium etc.),organic acids, oxy anions etc., with fully system control software.  Ion Chromatography system can quantitatively analyze carbohydrates like monosaccharides, disaccharides, trisaccharides, alditols, glycoprotein oligosaccharides, sialic acids, glycols in fermentation broths and other cultures. |
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**Pump:**

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| **S.No** | **Specification** | **Descriptions** |
| 1 | Quaternary gradient pump PEEK with built in degassing system | Should be compatible with aqueous eluent of pH 0-14 and reversed phase solvents |
| 2 | Flow rate range | 0.001 – 10.0 mL/min or better |
| 3 | Maximum operating pressure | 6000 psi or better |
| 4 | Pressure ripple | <1% @ 1.0 mL/min / typical or better |
| 5 | Flow precision and accuracy | <0.1% or better |
| 6 | Gradient proportioning accuracy and precision | ±0.5% at 2 mL/min or better |
| 7 | Vacuum degasser | Built-in |

**Detector, Column and Other Specification:**

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| **S. No** | **Specifications** | **Descriptions** |
| 1 | Detector Chromatography Module with Dual heating zones and PEEK Rheodyne injection valve | Houses Electrochemical detector and conductivity detector and columns |
| 2 | Conductivity Detector with integrated flow cell. | Range: 0 - 15,000 µS or better,  Analog: 0 - 15,000 µS or better.  Maximum operating pressure: 500 psi or better. Cell temperature stability: <0.001⁰C or better. |
| 3 | Suppressor unit | Membrane based self regenerating suppressor for both anions and cations using de-ionized water for regeneration. |

**Software:**

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| **S. No** | **Specifications** | **Descriptions** |
| 1 | Fully system control Chromatography management software | Chromatography Management Software should support Windows XP or Vista with automated procedure wizards, system smart startup and shutdown, system wellness and predictive performance, multivendor automation support of 3rd party, customized reporting (unlimited report workbooks automated system qualification (detailed comprehensive qualification reports). |

**Optional and Data Acquisition**

1. Columns for carbohydrates (mono and di saccharides), oligo saccharides, alditols, sulphide, cyanide etc., are to be quoted separately.
2. Necessary working electrodes for carbohydrates, sulphides, cyanide are to be quoted along with necessary working electrodes.
3. PTFE working electrode should be quoted for carbohydrates analysis for high sensitivity applications.
4. The system should be supplied with a branded PC and printer having USB high speed communication protocol, preloaded with the software.
5. Installation and commissioning of instrument should be carried out at site.
6. Minimum 3 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