Amended Technical Specification for Laser Diffraction based Particle Size and Distribution Analyzer	
Specification as per the Tender Notification in Chapter 4	**Amended Specifications as per the Pre-Bid meeting held on 05-03-2020 in Chapter 4**
Measurement principle: should be laser diffraction, and should comply with the guidance provided by ISO13320-1	**Measurement principle:** should be laser diffraction, and should comply with the guidance provided by ISO13320-2009.
Particle Size Range: Preferably 0.01 to 3000 Micron or better (by using a single lens only)	Preferably 0.02 to 3000 Micron or better (by using a single lens only)
Size distribution: By Volume/Number/Surface Area (Specific)	No changes
Size class: Customs designed Classes with a minimum of 90 size classes.	No changes
Optical Model: Both Mie & Fraunhofer.	No changes
Light Sources: Dual (632.8 nm and 470 nm)	Laser diode (610-785 nm Red State and 405-480 nm Blue State)
Detector: Array of Detector	No changes
Measurement time: <10 sec or better	<35 sec or better
Optical Bench: Should be less than 700mm.	No changes
Accuracy: Better than ± 1%; **Resolution:** Preferably 0.001	No changes
Reproducibility: Better than ± 0.5% and this must be tested using a NIST Traceable polydisperse standard meeting the requirements of ISO13320-1	Better than +/- 1.0% and this must be tested using a NIST Traceable polydisperse standard meeting the requirements of ISO13320-1
Detector system: Multi element high resolution silicon photodiodes.	No changes
Data Acquisition Rate: Must be 8 KHz or higher in order to ensure representative sampling.	No changes
Optical Alignment: It should be checked prior to each measurement and, if required, the alignment should be manually and automatically adjusted.	No changes
Cell Windows: The measurement cell windows must be removable and easily cleaned and/or replaced by the user without opening the instrument covers.	No changes
Change of dispersion unit: It must be possible for the user to change dispersion units easily (<30sec). When this is done, the software must automatically detect which dispersion unit is in use and also realign the system preferably with 60 sec.	It must be possible for the user to change dispersion units easily (<30sec). When this is done, the software must automatically detect which dispersion unit is in use and also realign the system preferably with 60-180 sec or less than that.
At site future field up-gradation facility to Dry Dispersion Unit.	No changes
Wet dispersion unit, small dispersant volume for precious materials	
It must be possible to specify the amplitude and duration of sonication as part of a measurement procedure.	No changes
The amplitude of the applied ultrasound must be able to be set at least 100 different levels across the range, in order to allow the dispersion conditions to be correctly specified.	No changes
Variable stirrer speed from 500 rpm to 1800 rpm, with resolution ± 10 rpm, Speed accuracy: ± 50 rpm	Variable stirrer speed from 500 rpm to 1800 rpm or better, with resolution ± 10 rpm or better, Speed accuracy: ± 50 rpm or better Pump speed: 0 to 3500 rpm or better Sonication Power: Min 30W or better
The software should be able to automatically detect which type of dispersion unit is connected to the optical bench.	No changes
It must be possible to use minimum sample volume: 5.6ml maximum up to 7ml or better	Minimum sample volume Preferably 180 ml or less
Software	
The software must be able to be operated using Windows 10.	No changes
Must be able to customize reports, allowing the display of different paramters, graphs and tables within the software as well as on print-outs.	No changes
Must be able to specify the display of different result graphs (scattering data, analysis residuals, size frequency plots, undersize / oversize plots) for use both on-screen and in reports.	No changes
Users must be able to define their own size distribution parameters for inclusion on any screen views or reports.	No changes

It should be possible to display greater than 20 measurements within any trend graphs or overplots in order to facilitate result comparisons.	No changes
The software should be able to be installed on a stand-alone computer (separate from the computer used to make measurements) in order to allow users to review and recalculate results.	No changes
Users must be able to define their own automated measurement sequences.	No changes
Real-time monitoring of the dispersion conditions must be provided, allowing the actual dispersion conditions used during a measurement to be validated.	No changes
Should have **Optical Property Selection tools**.	No changes
It must be possible to change the size classes to mimic sieve sizes.	No changes
It must be possible to export data to other programs via drag and drop, ASCII (tab-delimited or CSV format) files.	No changes
During the measurement process, the software must provide the user with a live update showing the current scattering data and the calculated results.	No changes
Any trend graphs and over-plots must update automatically as new measurements are stored within the software.	No changes
The software must provide a measurement mode where the dispersion conditions can be changed during a measurement and the changes in particle size observed in real-time.	No changes
A method of quickly comparing and reporting the SOP settings used within multiple measurements should be provided	No changes
Users can define and save the software set-up, allowing personalization of the interface (workspaces).	No changes
Users can provide links to external method support documents from within the software.	No changes
Expert advice must be provided on the quality of measurements.	No changes
Other Parameters	
Pc (i5), Printer (Colour) and all essential accessories for the operation of system should be quoted.	No changes
Support (i) Remote area (ii) Readily available complete service spare kit optical alignment on the fault identification and rectification.	No changes
Installation/Demonstration/Application Training at site: It should be free of cost by the supplier.	No changes
Application Training at site: at least 2-3 days to the group of users	No changes
Warranty: 3 year from the date of Installation	No changes
User list: Complete user list with sufficient Installation in North East Region.	No changes
Service Downtime: 24 Hrs	No changes
Nearest Service Centre: Should be in or around Guwahati.	No changes
Support (i) Remote area (ii) Readily available complete service spare kit optical alignment on the fault identification and rectification.	No changes