03. TECHNICAL SPECIFICATIONS

03. SPECIFICATION OF FULLY AUTOMATED CLOUD POINT AND POUR POINT APPARATUS

This instrument should be fully complied with ASTM D 5950 & ASTM D 5771 test methods. Results should be obtained after fully automated process. Temperature measuring devices should have calibration certificate obtained from ISO 17025 Accredited body.

DEISCRIPTION	COMPLY/NOT COMPLY
1. Main Instrument Test Methods, *Cloud Point* - ASTM D 2500/ D 5771 -20 *Pour Point* - ASTM D 97 / D 5950-14(2020) Power supply: 230 volts ± 10 %, 50 - 60 Hz	
2. Measurement Range: Temperature Range *Cloud Point* – 60°C to +49°C, *Pour Point* – 66°C to +51°C Resolution 0.10°C Accuracy ±0.1°C	
3. Instrument Equipped with a microprocessor controller that is capable of controlling one or more independent test cells & with display or computer controlled with a computer, Accuracy : +/- 0.1 °C or better Resolution : 0.1 °C or better Data Storage : Should be store > 100 Nos. test results in built or facility store to external devices. Printing : Result printing facility or data transferable to external storage should be available. The apparatus shall include provisions for independently controlling the temperature of each cell according to the specified cooling profile, continuously monitoring the specimen temperature.	
Cloud Point: Consist of a microprocessor controller that is capable of controlling one or more independent test cells. The apparatus shall include provisions for independently controlling the temperature of each cell according to the specified cooling profile, continuously monitoring the specimen temperature detecting the appearance of the cloud point at the bottom of the test jar without removing it from the jacket, and displaying the 0.1°C or 1.0°C result.	

Pour Point: The automatic pour point apparatus described in this test method consists of a microprocessor controller that is capable of controlling one or more independent test cells. The apparatus shall include provisions for independently controlling the temperature of each cell according to the specified cooling profile, monitoring continuously the specimen temperature, and detecting any movement of the specimen during tilting. The instrument shall be operated according to the manufacturer's instructions.	
Test Jar: clear cylindrical glass, mirrored flat bottom, 34 ± 0.5-mm outside diameter, 1.4 mm ± 0.15-mm wall thickness, 120mm ± 0.5-mm height, thickness of the bottom 2.0mm ± 0.5mm, marked with a line to indicate the sample height 54 mm ± 0.5-mm above the inside bottom.	
Temperature Probe, IEC 751 Class A: $\Delta T = \pm (0.15 + 0.002 \|T\|)$, capable of measurement from -50°C to +80°C, (+70°C down to -80°C for pour point). The temperature probe shall be in contact with the bottom of the test jar as D 5771. (The temperature probe shall be incenter of the test jar and the top of the platinum tip immersed 3mm below the surface of the oil as D 5950)	
Jacket, Brass, cylindrical, flat bottom, 113mm ± 0.2mm in depth, 45mm ± 0.1-mm inside diameter. It shall be cooled according to the cooling profile specified.	
Cooling System, either an internal system equipped with a circulating pump and capable of maintaining a temperature at least 10°C below the last required jacket temperature level, or an internal system capable of maintaining the required jacket temperatures.	
Cork Disk, 6mm ± 0.2 mm thick to fit loosely inside the jacket. Felt may be used but special attention must be given to the potential for moisture in the felt disk. The felt must be dried before each test.	
Cork Ring, to fit snugly around the outside of the test jar and loosely inside the test cell. It purpose is to prevent the test jar from touching the jacket.	
Ultrasonic Bath (for D 5950)**,** unheated(optional) with an operating frequency between 25kHz to 60kHz and a typical power output ≤100W, of suitable dimensions to told container(s) placed inside of the bath, for use in effectively dissipating and removing air or gas bubbles that can be entrained in viscous sample types prior to analysis.	
Required hardware to run the software.	

4. **Reference Material** Certified Reference materials with certificate of ISO 17034 Accredited Laboratory or reputed National Measured Institute. E.g. NIST or equal should be provided for the point including +21°C, 0°C, -6°C or available.	
5. Consumables for 2000 Nos. analysis should be supplied (if cells, should be 2000 nos.).	
6. Spare Accessories should be provided for 02 years uninterrupted service.	
Other Requirements: I) Manufacturing and assembly of the total unit should be in the country of origin.	
ii) Should manufacture in USA, UK, Europe and Japan.	
iii) Supplier should supply all technical details with the brochure containing all above for evaluation purposes.	
iv) Those who do not provide supportive literature of manufacturer / equipment may not be considered for evaluation.	
v) Capability of attend breakdown of within 24hrs	
vi) Supply Equipment should be in the latest model.	
vii) Equipment should not be obsolete within next 05 years.	
viii) Minimum of 02 years warranty period.	
ix) Capability and facilities of after sales services available in Sri Lanka	
x) Details of previous customers	
xi) Availability of training facilities	

Signature of the Bidder: …… Date:…… **(Common Company Seal)**