

**SPECIFICATION FOR MOVING DIE RHEOMETER**

<b>SL. No</b>	<b>Description</b>	<b>Specification/Requirement</b>
1.	Application	Evaluation of cure characteristics for rubber compounds, e.g. estimation of scorch time, cure time, cure rate etc.
2.	Die Structure	Bio conical <b><i>Detail the equipment features</i></b>
3.	Standards	Complies with ASTM D5289, ISO 6502
4.	Temperature	Microprocessor controlled, computer programmed; from Ambient + 10°C to 210°C (Min). Control accuracy: ±0.3 deg or better (3 term PID) <b><i>Detail the equipment features</i></b>
5.	Oscillation amplitude	+/- 0.5°, 1.0°
6.	Oscillation frequency	1.66 to 1.67 Hz
7.	Unit of measurement	Torque in dN.m, lb.in, kgf.cm Temp in °C, Time in Min/Sec, Min/Decimal
8.	Output type	Real time display of: Elastic torque, Viscous torque, Tan delta, Cure rate
9.	Electrical	230VAC+/-10%, 50+/-3Hz, 6A, single phase
10.	Pneumatics	Filtered air, 2 to 8 bar
11.	Data acquisition and display	Intel CORE i3 or better processor, Windows 10 pro or better with LaserJet colour printer, networking feature enabled PC. Storage capacity: 1 TB minimum, Graphics card, 8 gb ram, 19 inch LED monitor, keyboard, mouse. Loaded with latest licensed full data acquisition software with real time display of 1. Standard torque curve 2. Viscous curve 3. Tan delta 4. Cure rate 5. Programmable data points & limits 6. Automatic pass/fail limits The test results shall be performed and displayed as plotted curves on a graph. The information shall have provision for print out, via laser colour printer, under equipment supplier scope, as and when required or stored in a superior brand computer, also under equipment supplier scope, for future reference. Shall be provision with Quality Analyst, or any internationally recognized SPC package to generate control charts, and carry out full statistical analysis of test data, or any external quality control package.  <b><i>Detail the equipment features</i></b>

12.	Supply package shall include	<ul style="list-style-type: none"> <li>• All peripheral cables, air filter/regulator and connectors</li> <li>• Life time licensed software with data acquisition unit and HP make laser colour printer</li> <li>• Wheel mounted steel table with bottom shelf/drawers for accommodating the machine, data acquisition unit (PC) and printer.</li> <li>• Free technical support during warranty</li> <li>• One year traceable calibration certificate after installation at work site</li> </ul>
13.	Delivery, Installation & commissioning	To be attended by the party. VSSC shall arrange input electrical supply and compressed air supply. Party shall specify the pressure and current requirements for the machine in advance.
14.	Safety features	<ul style="list-style-type: none"> <li>• Emergency stop buttons</li> <li>• Guards, safety enclosures for operator safety</li> <li>• Audio visual alarm for any fault operation or safety lapse ( Temperature, pressure etc)</li> </ul> <p><b><i>Detail your equipment feature</i></b></p>
15.	Declaration of conformity	<p>Declaration of conformity international testing standards to be provided on manufacturer's letter head with signature of the Managing Director or CEO or person with equivalent status.</p> <p>The product (machine &amp; accessories) must be nationally/internationally certified and supporting documents to be provided.</p> <p><b><i>Detail your equipment feature</i></b></p>
16.	Experience	<p>Manufacturer must have at least 10 such installations across reputed organization /research establishment/premier companies</p> <p>Reference list with focal point name, address &amp; phone numbers must be provided.</p> <p>If required, VSSC technical team shall be allowed to perform a vendor evaluation in order to study the capability of party to supply the equipment&amp; evaluation of equipment quality, before the opening of price bid.</p> <p>Party shall accord approval for this, while submitting the offer.</p> <p><b><i>Technical offers forwarded without attaching the above details, will be rejected.</i></b></p>
17.	Warranty	<b>24 months</b> (min) performance guarantee from the date of supply, installation, commissioning & acceptance (onsite)
18.	Spares	Essential spare package for <b>2 years</b> (detailed list with part code and split cost to be included separately)
19.	AMC	Post warranty onsite non-comprehensive AMC charges for <b>five years</b> to be quoted separately
20.	Accessories	Volumetric Sample cutter, Complete tool box, cellophane sheet and 3 sets of operation-cum-maintenance manual with mechanical, pneumatic and electrical part drawings shall be supplied with the dispatch of machine

		<p>Required number of Anti-vibration mounts to be provided</p> <p>Original test certificates for the materials used during fabrication of machine, to be supplied.</p> <p>Machine to be equipped with handling provisions for easy handling during erection at VSSC</p>
21.	Erection, commissioning and training	<p>To be arranged by the party at VSSC site.</p> <p>Minimum essential support/facilities required for the installation work like any additional requirements like forklift, electric power, compressed air etc shall be provided by VSSC against advance intimation.</p> <p>Party must forward detailed utility list for site readiness, prior to dispatch of the machine.</p>
22.	Catalogue, technical leaflet	<p>Party must forward catalogue, technical leaflet for their equipment detailing the make, model no, features, construction material, photographs, videos, general arrangement drawings, detail drawings for conforming the dimensions as per ASTM/ISO standards.</p> <p><b><i>Technical offers forwarded without attaching the above details, will be rejected.</i></b></p>
23.	General guidelines	<p>Calibration shall be done by the party and item to be supplied with calibration certificates with traceability.</p> <p>Scope of supply includes installation, commissioning, calibration, and training at VSSC</p> <p>Subsystem wise cost breakup must be given in offer.</p> <p>Must quote any additional features, other than the specified ones, as optional extra only.</p> <p>Party shall submit the offer in two part basis: 1. Techno-commercial bid, 2. Price bid in separately (AMC cost + Equipment main cost in separate envelope).</p> <p>Party must attach point by point compliance chart with specific reasons if not complying, for the above discussed technical features, in manufacturer's letter head, signed by competent authorities.</p> <p><b><i>Technical offers forwarded without this chart will be rejected.</i></b></p>
24.	Pre-delivery inspection	<p>Party should agree pre-delivery inspection at their site and will be attended by VSSC team. Party shall detail and demonstrate the performance of equipment with ASTM standard rubber compound.</p>
25	Delivery Schedule	<p>The party has to supply the item within 6 months from the date of receipt of PO</p>