

**Specifications of Equipment for Tender Bid cum Quotation**

Name of Equipment/ Assembly	In-plane permeability test apparatus for Geosynthetics
Related Standards to be accorded	IS 17179, ASTM D4716, ISO 12958-1, ISO 12958-2
Features/capabilities /Specifications	<ul style="list-style-type: none"> <li>• Main working unit mounted on Table Top Bench with back support</li> <li>• Shall be able to house the sample width 300 mm and sample length at least 350 mm.</li> <li>• Geo-textile specimen holder assembly with arrangement for loading with leak-tight arrangement.</li> <li>• Capable for seating loads of 2kPa and 10kPa and loading of 20kPa, 25kPa, 50kPa, 100kPa, 250 kPa and 500 kPa and arrangement for measurement of load.</li> <li>• Shall be capable of testing specimens up to a thickness of 50 mm.</li> <li>• Foam rubber with appropriate to specimen thickness shall be provided.</li> <li>• Inlet and outlet valves with non-corrosive pipe network</li> <li>• Stopwatch</li> <li>• Adjustable Hydraulic gradient from 0.1 to 1.</li> <li>• Inlet water Tank with 10 litre capacity with de-airing arrangement</li> <li>• Arrangement for monitoring Dissolved-oxygen and temperature with digital display.</li> <li>• Outlet tank with measuring device, i.e. digital flow meter with accuracy of 0.1 ml/sec</li> <li>• Arrangement for pumping of discharge water to pump to inlet tank</li> <li>• Arrangement for monitoring of thickness, digital dial gauge with accuracy of 0.001 mm and maximum travel length of 25 mm.</li> </ul>
Make	<ul style="list-style-type: none"> <li>• Clear mention <b>Make</b> in the bid</li> </ul>
Electrical Supply Requirement	<ul style="list-style-type: none"> <li>• Electricity supply requirements (voltage and phase) shall be clearly mentioned</li> <li>• Mention in case of Requirement of UPS (Uninterrupted Power Supply) with capacity</li> </ul>
Size and weight	<ul style="list-style-type: none"> <li>• Mention area required for positioning of equipment.</li> <li>• Mention total weight of the equipment.</li> <li>• Mention specific requirement of foundation/pedestal for resting the equipment, if any.</li> <li>• Mentioned need of vibration isolated, if needed</li> </ul>
Water and air supply requirements	<ul style="list-style-type: none"> <li>• Mention the requirement to supply of compressed air, if any.</li> <li>• Mention the requirement and arrangement of water supply, if any.</li> </ul>
Compatibility of parts	<ul style="list-style-type: none"> <li>• In case of accessories from make differing to the make of equipment, compatibility shall be checked and certified by the bidder.</li> </ul>
Calibration Certificates, technical manual and SOP	<ul style="list-style-type: none"> <li>• The calibration certificates shall be provided with equipment and accessories.</li> <li>• Validity of calibration certificate for all devices shall not be less than one year.</li> <li>• Technical manual and Standard Operating Procedure document shall be provided.</li> </ul>