UNIVERSAL TESTING MACHINE 30kN (UTM30)

The **NL PavePro Universal Testing Machine (UTM30)** is a premier servo-hydraulic system custom-engineered for high performance pavement research and asphalt materials characterization. Designed to withstand rigorous cyclic loading, its high-rigidity frame layout maintains strict structural alignment to ensure completely uniform stress distribution. A key hallmark of this platform is its advanced dual-measurement architecture, which captures comprehensive stress gradients from both ends of the specimen simultaneously. To facilitate precise environmental profiling, the system integrates an advanced thermal chamber featuring multi-directional airflow circulation and anti-fog panoramic windows for unobstructed visual monitoring during test cycles.

Driven by an energy-efficient hydraulic delivery system, the UTM30 offers exceptional waveform responsiveness while maintaining a quiet, low-noise laboratory footprint. High-speed control loops ensure seamless transitions across complex dynamic wave profiles, supporting fully automated stress, strain, and fatigue evaluation. To streamline laboratory workflows and prevent operational errors, the platform features integrated smart-chip fixture recognition that automatically syncs hardware setups with software configurations, making it an indispensable asset for advanced pavement research and quality compliance.

Main Features:-

- **High-Rigidity 4-Column Reaction Frame** — Delivers exceptional structural alignment and strict parallelism, eliminating unintended load vectors to ensure uniform stress distribution across the specimen during intense cyclic test phases.
- **Advanced Dual-Measurement Sensor Design** — Captures bi-directional load data from both the top and bottom of the specimen simultaneously, allowing researchers to evaluate fine stress gradients across the entire sample.
- **On-Board Host Adjustment Screen** — Features a convenient frame-mounted LCD interface for immediate, at-the-machine monitoring of real-time sensor positions and load values to streamline initial specimen setup.
- **Heated Panoramic 3-Sided Windows** — Provides multi-angle, unobstructed visual access to the specimen area through large viewing windows equipped with integrated anti-fog heating elements.
- **Smart Pump-Controlled Servo Hydraulics** — Driven by an energy-efficient servo motor that dynamically scales speed and torque on demand, ensuring responsive waveform fidelity and a quiet laboratory footprint.
- **Active Laminar Airflow Circulation** — Combats thermal dead zones by smoothly channeling air from the top directly to the bottom of the chamber, ensuring outstanding temperature uniformity across the sample.
- **Vibration-Isolated Chamber Mounts** — Connects the environmental chamber to the frame via specialized dampening materials, completely preventing mechanical compressor vibrations from affecting sensitive test results.
- **Smart-Chip RFID Fixture Recognition** — Incorporates integrated RFID chips within the test clamps to automatically sync the physical setup with software configurations, eliminating operational mismatch errors.

PavePro series

Technical Specifications :

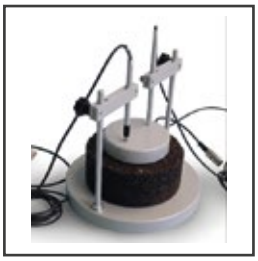
Model Number	NL PV / P7
MAIN FRAME	
Maximum Loading Capacity	30 kN (Compression & Tension)
Load Cell Accuracy	0.1% of Full Scale
Dynamic Operating Frequency	Up to 25 Hz
External Dimensions	700 (W) x 700 (D) x 1580 (H) mm
Internal Chamber Dimensions	840 (W) x 500 (D) x 770 (H) mm
Weight	350 kg
Power	400 VAC, 3 Ph, 50/60 Hz, 10 A
TEMPERATURE CHAMBER	
Temperature Control Range	-20°C ~ 80°C
Temperature Stability	±1°C
Chamber Dimensions	700 (W) x 600 (D) x 1580 (H) mm
Weight	200 kg
Power	220~240 V, 4.5 kW, 1 Ph, 50 Hz
HYDRAULIC STATION	
Maximum Oil Flow Rate	40 L/min
Maximum Pressure	21 Mpa
Dimensions	920 (W) x 620 (D) x 850 (H) mm
Approx. Weight	280 kg
Power	400 VAC, 22 kW, 50/60 Hz

Temperature Chamber

Hydraulic Station

Accessories for UTM :

Model Number	Parts Description
NL PV / P7 – P1	**Indirect Tensile Resilient Modulus** **Standard : EN 12697-26 (Annex C)**
To evaluate the elastic stiffness of bituminous mixtures by applying non -destructive, repeated load pulses across the vertical diameter of a cylindrical specimen and measuring the resulting recoverable horizontal deformation.	
NL PV / P7 – P2	**Uniaxial Cyclic Compression Test with Confinement** **Standard : EN 12697-25 (Method A)**
To determine the resistance of bituminous mixtures to permanent deformation (rutting) by applying cyclic axial pressure to a cylindrical specimen using a loading platen smaller than the specimen's diameter, which creates an inherent lateral confinement.	
NL PV / P7 – P3	**Indirect Tensile Test** **Standard : EN 12697-24 (Annex E)**
To characterize the fatigue resistance of bituminous mixtures by applying repeated, constant-stress or constant-strain compressive load pulses along the vertical diameter of a specimen until cracking failure occurs.	



Accessories for UTM :

Model Number	Accessories Description	Qty
NL PV / P7 – A1	LVDT 0.5 mm	2 pcs
NL PV / P7 – A2	LVDT 1.0 mm	2 pcs
NL PV / P7 – A3	LVDT 5 mm	2 pcs

**LVDT - Linear Variable Differential Transformer

LVDT