# Servo-Hydraulic Universal Testing Machine – 100 kN

The Servo-Hydraulic Universal Testing Machine – 100 kN is a versatile universal testing machine designed and developed with the testing of pavement construction materials in mind.

Accurate waveforms are digitally generated by our next generation cDAC controller and applied by the actuator, producing repeatable conditions that are simulative of those created by moving or static vehicles. The actuator is double acting allowing both compressive and tensile forces to be applied to the specimen. Various systems are available for the measurement of the modulus of unbound materials. The optional programmable temperature controlled cabinet (TCC) provides the possibility to perform frequency/ temperature sweeps.

## Standards

- EN 12697-24 Annex E
- EN12697-25 Method A and B
- EN 12697-26 Annex C and E
- ASTM D4123
- ASTM D7369
- ASTM D7313
- ASTM D8044
- AASHTO TP31
- AASHTO TP62
- AASHTO TP 105
- AASHTO TP124
- AASHTO T307
- AASHTO T322
- AASHTO T342
- NCHRP 9-19

## Key Features

- Hydraulically adjustable crosshead and crosshead clamping (Moving Head version only)
- Double rod, equal area, fatigue rated actuator
- Direct coupled Star Hydraulics servo-valve with ‘Sapphire Technology’
- Direct coupled hydraulic safety block
- Axially mounted LVDT integral to the actuator
- Controlled with our next generation cDAC controller and flagship Dimension software (ask for detailed datasheet)
- Optional TCC is fully removable to allow increased daylight for testing large temperature independent specimens
- Optional TCC setpoint can be controlled directly from our Dimension software allowing the temperature to be varied throughout the test



Cooper Research Technology Limited
Tel: +44 (0) 1773 512 174 | Email: info@cooper.co.uk | Web: www.cooper.co.uk

- Issued with UKAS accredited certificate of calibration for EN 12697-24; EN 12697-25, EN 12697-26

## Control System and Software

This machine can be controlled using our Standard Acquisition and Control System along with Universal Software™. Universal Software™ is user friendly, intuitive and reliable Windows® software developed using LabVIEW™. Universal test software for the development of test methods using static, sinusoidal, haversine, square, triangular with user selected frequencies and data collection rates. Stored test data can be imported into a spreadsheet package to be analysed by the user. Utilities are included for transducer check, diagnostic routines and calibration. Alternatively, our next generation digital data acquisition and control unit cDAC™ Advanced Data Acquisition System brought together in alliance with our flagship software DIMENSION™ gives you the power to perform the most demanding of tests with your materials testing equipment. cDAC™, our next generation class leading digital controller is unparalleled in its field and suitable for advanced testing required for research.

## Accessories

Accessories are not included in the price of main device (unless stated otherwise) and may be purchased separately if required.

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| CRT-UTM-TCC | Temperature Controlled Cabinet for UTM-HYD100 |
| CRT-ITSMFAT-SET | Indirect tensile stiffness modulus and fatigue measurement system to perform EN 12697-26 (Annex C) EN 12697-24 (Annex E) Ø100&150mm specimens. |
| CRT-ITSM-SET | Indirect tensile stiffness modulus measurement system to perform EN 12697-26 (Annex C) Ø100&150mm specimens. |
| CRT-FAT-SET | Indirect tensile fatigue measurement system to perform EN 12697-24 (Annex E) for Ø100mm specimens. To be used with CRT-ITSM-SET. |
| CRT-FAT-SET100_150 | Indirect tensile fatigue measurement system to perform EN 12697-24 (Annex E) for Ø100mm specimens. To be used with CRT-ITSM-SET. |
| CRT-FAT-SET150 | Add-on for CRT-FAT-SET for 150mmØ specimens. To be used with CRT-ITSM-SET and CRT-FAT-SET. |
| CRT-PD-SET | Dynamic and static creep measurement system to perform EN12697-25 (Method A) |
| CRT-PRESTRIAX-SET | Dynamic and static creep measurement system - confining stress to perform test according to EN 12697-25 Method B. |
| CRT-IT-RESMOD | Resilient modulus test system to perform AASHTO TP31 and ASTM D4123 |
| CRT-IT-D7369 | Resilient modulus test system to perform ASTM D7369 |
| CRT-INDTENS-CREEP | Indirect Tensile Creep measurement system according to AASHTO T322 |
| CRT-DTC-HYD | Direct Compression & Tension Measurement System to perform test according to EN 12697-26 Annex E for CRT-UTM-HYD |
| CRT-T307 | Triaxial system to perform AASHTO T307 for Ø200x100mm specimens of unbound materials |
| CRT-T307+ | Triaxial system to perform AASHTO T307 for Ø200x100mm and Ø150x300mm specimens of unbound materials. To use with CRT-UTM-NU pillar extensions are required. |
| CRT-T307-EXTRA | Additional parts to upgrade from T307 to T307 |
| CRT-SPTLV | Test system to perform dynamic modulus according to AASHTO TP62, SPT flow number (NCHRP 9-19), SPT flow time (NCHRP 9-19) |
| CRT-INDTENS-CREEP | Indirect Tensile Creep measurement system according to AASHTO T322 |
| CRT-PUMA | PUMA - Precision Unbound Materials Analyser for 150mmØ specimens |
| CRT-PUMA-L | PUMA - Precision Unbound Materials Analyser for 300mmØ specimens |
| CRT-UTM-SCB | Semi circular bending system to perform EN 12697-44 SCB test |

## Specifications

Technical specifications are subject to change without notice.

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| Maximum Load | 100 - 130 kN |
| Load Transducer | 100 - 130 kN |
| Actuator Stroke mm | 100 |
| Frequency Hz | 0 to 100 |
| Electrical Supply[1] | Hydraulic power unit: 415 Volts, 50 Hz, three phase as standard<br>TCC: 240 Volts, 50 Hz, single phase as standard. Control Unit: Universal input 110/240 Volts, 50/60 Hz |
| Compressed Air | 7 bar @ 100 L/min<br>For accessories only |
| Dimension mm (W x D x H) | TM & Cabinet: 1150 x 1200 x 2750<br>Power Pack: 700 x 940 x 1110 |
| Working space required | 1m clearance at front and sides |
| Weight (approx.) Kg | UTM & Cabinet: 600<br>TCC: 200<br>Power Pack: 180 |
| PC | Included |



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## Software - DIMENSION

- User friendly, intuitive and reliable WindowsTM software developed using LabVIEWTM
- Standard test software available to meet specific EN, ASTM and AASHTO test methods
- Universal test software for the development of test methods using static, sinusoidal, haversine, square, triangular with user selected frequencies and data collection rates
- Stored test data can be imported into a spreadsheet package to be analysed by the user
- Utilities are included for transducer check, diagnostic routines and calibration

## Data Acquisition - cDAC

- 20 bit resolution, 5kHz per channel
- Will accept any voltage transducer in any channel using TEDS
- 1024 data points per cycle
- Up to 16 digital input & output channels
- Ethernet/USB/RS232 to PC communication

*cDAC & Dimension optional. Please enquire for details.

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*Datasheet Version: 19.05/02*



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