

# Automatic Multipurpose Testers

Versatile Electromechanical  
50 kN Load Frames



# Compact, versatile and high performing

Fully automatic multipurpose  
testers for small spaces



Our new Electromechanical Multipurpose 50 kN Load Frames are compact and versatile testers meticulously designed for laboratories wanting to perform fully automatic displacement and load controlled tests in a small space. Our testers benefit from the environmentally-friendly Electromechanical Servoactuation (EmS) technology that limits on-going maintenance, minimizes noise output — without any compromise on performance.



#### Environmentally Friendly and Quiet

EmS technology does not need any dead weights, large and noisy air compressors or hydraulic pumps, drastically reducing noise levels and general maintenance.



#### Multipurpose and Versatile

The 50kN capacity is sufficient to perform a wide range of common tests on asphalt mix, soil, cement and other materials, with a high load accuracy thanks to the Closed-loop control.



#### Fully Automatic

All our testers automatically perform displacement controlled or stress-controlled tests and record all test data. All without any interventions from the operator.



#### High Performing

The rapid approach and return functions shortens test performance and streamlines the testing process.

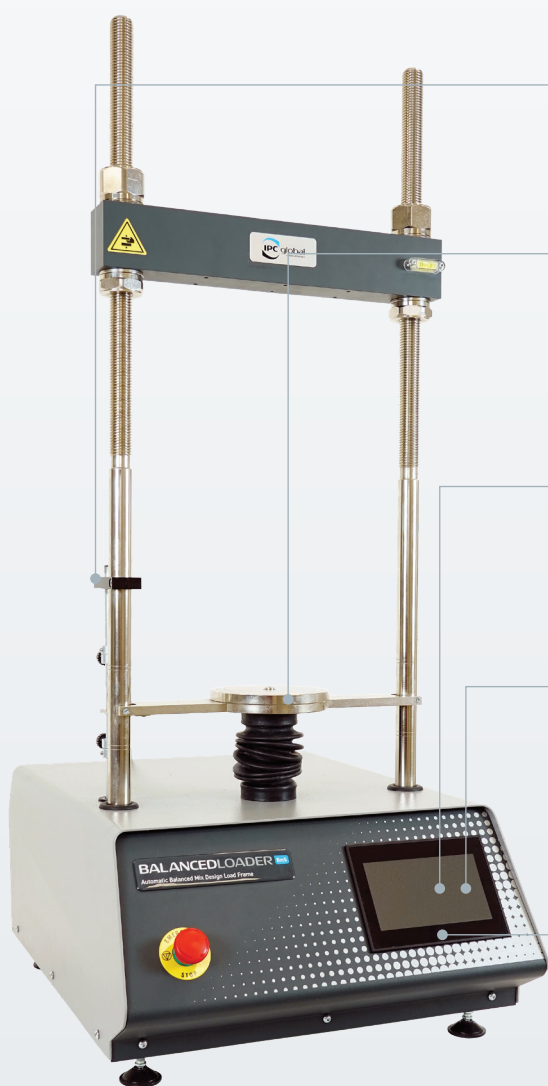
# BALANCEDLOADER EmS

## Automatic Electromechanical Universal 50kN Tester



BalancedLoader is the Advanced Electromechanical Multipurpose Load Frame fully dedicated to **asphalt mix testing**. The large touchscreen controller includes pre-set routines with automatic test result measurement for most of asphalt testing procedures, including the new Balanced Mix Design tests, such as IDEAL-CT, IDEAL-RT and Semi-Circular Bend (SCB).

### Main Features



Adjustable mechanical limit switch for full test safety.

Equipped with high-performance brushless motor, delivering the most accurate test speed control and the widest speed range.

Complete with integrated firmware for fully automatic performance and data elaboration

7" touchscreen capacitive color display for viewing real-time graph and test data.

Large storing capacity thanks to 16GB internal memory. Stored data can be exported to PC by using USB key or downloaded in real time via the RS 232 serial port



BalancedLoader equipped with IDEAL-CT accessory

**Optional Remote Control** - Our newly released PC software now is available for remote control allowing easy and convenient data management and effortless printing/saving of customized test reports in Excel format.

**Note:** Load cell(s), displacement transducer(s) and specific accessories are not included.


# SPEEDLOADER EmS



## Automatic Electromechanical Variable Speed 50kN Tester

SpeedLoader is the entry level automatic and compact Electromechanical Multipurpose Load Frame ideal for laboratories who need to perform fully automatic displacement-controlled tests. The 50 kN compression capacity and the variable test speed coupled with a Closed-loop displacement control make it easier to perform a wide range of test such as CBR, Marshall, Indirect Tensile and Uniaxial Compression tests.

### Main Features



- Updated compact design (435 mm width) built with premium materials.
- Easy set-up of variable testing speed from 0.2 to 51 mm/min.
- Intuitive Graphical User Interface (128 x 80 pixel) with waterproof and fast responsive membrane keyboard
- Dedicated internal memory able to store up to 300 tests.
- Three 16-bit analog channels respectively for crosshead displacement, load cell and displacement transducer.
- RS 232 serial port for fast runtime data download to PC.

**Focus on display:**

<p>Speed Loader V01.02 CONTROLS Group controls-group.com</p>	<p>TEST PROFILES Marshall CBR Indirect Tensile Uniaxial CUSTOM</p>
<p>TEST NO 00000 mm/min 50.00</p> <p>00,443 -00.0 0000.2</p> <p>STOP BUS</p>	<p>UNIT OF MEASURE kN - Mpa - mm Ton - kg/cm2 - mm Lbf - psi - inch</p>

Intuitive Graphical User Interface (128 x 80 pixel) for a clear and fast selection of a wide range of test both with preset parameters according to standards or with custom parameters.

The user can easily follow the test while it is being performed and view all the main output data that comes in various units of measure.

**Note:** Load cell, displacement transducer and specific accessories are not included.

# MULTILOADER EmS



## Automatic Electromechanical Variable Speed 50kN Tester

MultiLoader is a versatile Electromechanical Multipurpose Load Frame for laboratories needing fully automatic performance and elaboration of displacement-controlled tests. Coupled to the compact dimensions, the seven channels for data acquisition, stand-alone automatic digital load frame and fully variable testing speed enable the operator to carry out a wide range of tests including the most common CBR, Marshall and Indirect tensile. This variable speed tester includes 18 standard-compliant pre-set testing profiles and a 7" display for real time graph and test data viewing improving its usability.

### Main Features



Updated compact design (435 mm width) built with premium materials.

Infinitely accurate variable speed from 0.05 to 51 mm/min

Flexible data acquisition thanks to up to four channels for external displacement transducers, two channels for load cells plus one channel for crosshead travel.

The 19-bit effective resolution channel ensures an optimum load measurement accuracy.

User friendly 7" touchscreen capacitive color display for viewing real-time graph and test data



Compact design with 7" display coupled with a large storing capacity thanks to 16 GB internal memory. Stored data can be exported to your PC by using USB key or downloaded in real time via the RS 232 serial port

**Optional Remote Control** - Our newly released PC software now is available for remote control allowing easy and convenient data management and effortless printing/saving of customized test reports in Excel format.

**Note:** Load cell(s), displacement transducer(s) and specific accessories are not included.


# UNIFRAME50 **EmS** UNIFRAME50-T **EmS**

## Automatic Electromechanical Universal 50kN Tester




Uniframe50 is the most flexible version in our range of Electromechanical Multipurpose Load Frames. Not only it can perform displacement and load-controlled tests, the addition of a large frame makes the Uniframe50 suitable for general-purpose testing such as CBR, Marshall, Triaxial, Flexural tests on concrete beams and tiles, Unconfined Compression, Punching tests, and many more thanks to the wide variety of accessories and software at your disposal. Uniframe50-T version also adds the possibility to perform tensile tests up to 25kN capacity.

### Main Features



- Adjustable mechanical limit switch for full test safety.
- Special version (Uniframe 50-T) to perform tensile tests up to 25 kN capacity.
- Large storing capacity thanks to 16 GB internal memory. Stored data can be exported to your PC by using USB key or downloaded in real time via the RS 232 serial port
- Performs displacement-controlled tests up to 51 mm/min and load-controlled tests up to 10000 N/s.
- 18 pre-set testing profiles according to Standards
- 7 channels for onboard data acquisition
- Manual load jack granting precise loading for calibration purposes



Uniframe 50 equipped with indirect tensile accessory

**Optional Remote Control -** Our newly released PC software now is available for remote control allowing easy and convenient data management and effortless printing/saving of customized test reports in Excel format.

**Note:** Load cell(s), displacement transducer(s) and specific accessories are not included.

# Technical Specifications



CONTROLS

SPEEDLOADER EmS

V1082 - V1084



CONTROLS

MULTILOADER EmS

V1182-V1184



CONTROLS

UNIFRAME50 EmS

T1282 - T1284

IPC global  
A member of controls

CONTROLS

UNIFRAME50-T EmS

T1282/T - T1284/T

BALANCEDLOADER EmS

PV1282 - PV1284

	V1082 - V1084	V1182-V1184	T1282 - T1284	T1282/T - T1284/T	PV1282 - PV1284
<b>Max. Load cap [kN]</b>	50	50	50	50	50
<b>Max tensile load cap [kN]</b>	no	no	no	25	no
<b>Sampling frequency [Hz]</b>	from 1 to 20	Up to 100	Up to 100	Up to 100	Up to 100
<b>Power [W]</b>	800	750	800	800	800
<b>Horizontal span [mm]</b>	270	270	380	380	380
<b>Vertical span [mm]</b>	765	765	765	765	800
<b>Speed range [mm/min]</b>	0.2 to 51	0.05 to 51	0.05 to 51	0.05 to 51	0.01 to 65
<b>Digital speed control</b>	Yes	Yes	Yes	Yes	Yes
<b>Load rate control</b>	No	No	Yes	Yes	Yes
<b>Load rate range (N/sec)</b>	N/A	N/A	1 to 10000	1 to 10000	1 to 10000
<b>Adjustable travel limit</b>	Yes	Yes	Yes	Yes	Yes
<b>Type of control</b>	Displacement	Displacement	Load / Displacement	Load / Displacement	Load / Displacement
<b>Display</b>	128 x 80 pixel with membrane keyboard	High resolution 7" color graphic touchscreen display	High resolution 7" color graphic touchscreen display	High resolution 7" color graphic touchscreen display	High resolution 7" color graphic touchscreen display
<b>Memory</b>	up to 300 tests stored	16 GB	16 GB	16 GB	16 GB
<b>Data download</b>	RS232	RS232 and USB	RS232 and USB	RS232 and USB	RS232 and USB
<b>Single-phase line voltage/Frequency</b>	Mod. V1082: 220-240 V / 50-60 Hz; Mod. V1084: 110V / 60 Hz	Mod. V1182: 220-240 V / 50-60 Hz; Mod. V1184: 110V / 60 Hz	Mod. T1282: 220-240 V / 50-60 Hz; Mod. T1284: 110V / 60 Hz	Mod. T1282/T: 220-240 V / 50-60 Hz; Mod. T1284/T: 110V / 60 Hz	Mod. PV1282: 220-240 V / 50-60 Hz; Mod. V1284: 110V / 60 Hz

# Standards



			V1082 - V1084	V1182-V1184	T1282 - T1284	T1282/T - T1284/T	PV1282 - PV1284
Soil tests	CBR	EN 13286-47, ASTM D1883, AASHTO T193, BS 1377:4, NF P94-078, UNI CNR 10009	Yes	Yes	Yes	Yes	Yes
	Unconfined Compression	ASTM D2166, ASHTO T208, BS 1377:7 EN 17892:7	Yes	Yes	Yes	Yes	Yes
Triaxial Tests	Quick Triaxial (UU)	ASTM D2850, BS 1377:7 EN 17892:8	Yes	Yes	Yes	Yes	Yes
Asphalt Tests	Marshall	EN 12697-34, ASTM D1559, ASTM D5581, ASTM 6927, AASHTO T245, BS 598-107, NF P98-251-2, DIN 1996, CNR 30	Yes	Yes	Yes	Yes	Yes
	Splitting Tensile TSR Indirect Tensile Strength	EN 12697-12, EN 12697-23, ASTM D6931, AASHTO T283	Yes	Yes	Yes	Yes	Yes
	Semi-Circular Bend SCB - IFIT	EN 12697-44, ASTM D8044, AASHTO T393/TP124	No	No	No	No	Yes
	IDEAL-CT	ASTM D8225	No	No	No	No	Yes
	IDEAL RT	ASTM WK71466	No	No	No	No	Yes
	ISS	AASHTO TP114	No	No	No	No	Yes
	Interlayer bonding/Shear Bond Test (Leutner)	EN 12697-48	No	Yes	Yes	Yes	Yes
	Hveem	ASTM D1560, AASHTO T246	No	Yes	No	No	Yes



# Standards



**CONTROLS**   **CONTROLS**   **CONTROLS**   **CONTROLS**   **IPC global**  
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**SPEEDLOADER** INC   **MULTILOADER** INC   **UNIFRAME50** INC   **UNIFRAME50-T** INC   **BALANCEDLOADER** INC

V1082 - V1084   V1182-V1184   T1282 - T1284   T1282/T - T1284/T   PV1282 - PV1284

			SPEEDLOADER <sup>INC</sup>	MULTILOADER <sup>INC</sup>	UNIFRAME50 <sup>INC</sup>	UNIFRAME50-T <sup>INC</sup>	BALANCEDLOADER <sup>INC</sup>
			V1082 - V1084	V1182-V1184	T1282 - T1284	T1282/T - T1284/T	PV1282 - PV1284
Other materials	Soil cement Flexural Strength	ASTM D1635	No	No	Yes	Yes	Yes
	Rock Indirect Tensile	ASTM C880, ASTM C99, ASTM C120, EN 12372	No	No	Yes	Yes	Yes
	Natural Building Stones Modulus of Rupture	ASTM C880, ASTM C99, ASTM C120, EN 12372	No	No	Yes	Yes	Yes
	Concrete Beams and Tiles Flexural Strength	EN 12390-5, EN 491, EN 538, ASTM C78, ASTM C293, BS 1881:118, NF P18-407, UNE 83-305, UNI 6133	No	No	Yes	Yes	Yes
	Clays & Concrete Blocks for Flooring Punching and Bending Test	UNI 9730-3, EN 15037-2, EN 15037-3	No	No	Yes	Yes	Yes
	Mortar Flexural Strength of Prisms	EN 196-1, ASTM C348	No	No	Yes	Yes	Yes
	Mortar Compression low strenght	EN 196-1, ASTM C109	No	No	Yes	Yes	Yes
	Mortar Briquettes Tensile	ASTM C307, AASHTO T132	No	No	No	Yes	No
	Mortar and Cement Elastic Modulus	EN 13412	No	No	Yes	Yes	Yes
	Glass-Fibre Reinforced Cement Bending strength	EN 1170-5	No	No	No	Yes	No
	Fiber Reinforced Concrete Tests	ASTM C1609, EN 14651	No	No	Yes	Yes	Yes
	Fiber Reinforced Polymer Tensile Tests	-	No	No	No	Yes	No
	Soil-Cement Uniaxial Compression Test	ASTM D1633	Yes	Yes	Yes	Yes	Yes
	Custom Procedure	Displacement	Displacement	Displacement	Displacement & Load	Displacement & Load	Displacement & Load
Steel Rebars	Tensile	EN 6892-1	No	No	No	Yes	No

# Accessories

Our automatic multipurpose testers are suitable for a wide range of tests on many kinds of materials. Each test requires different accessories depending on the type of test and the reference Standard. A selection of tests and their relevant accessories are listed below.

## Road base and Soil Mechanics



CBR



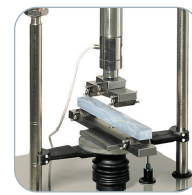
Unconfined compression



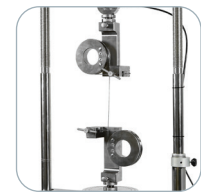
Uniaxial compression



Quick triaxial

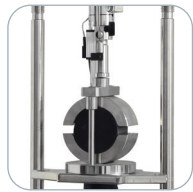


Flexural test on soil - cement specimens



Tensile test on steel wires

## Asphalt Mix



Marshall



Indirect tensile strength/IDEAL-CT



Interlayer bonding / Shear bond Test (Leutner)



SCB - Semi-Circular Bend



Modulus of rupture of natural building stones



Splitting tensile test of intact core specimens

## Rocks

## Cement, Concrete and Masonry Building Units



Flexural test on mortar prisms 40 x 40 x 160 mm



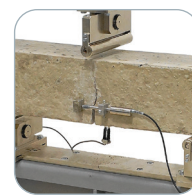
Compression on low strength mortar mixes



Flexural tests on concrete beams, concrete and clay tiles



Punching and bending test on clay and concrete blocks for flooring



CMOD



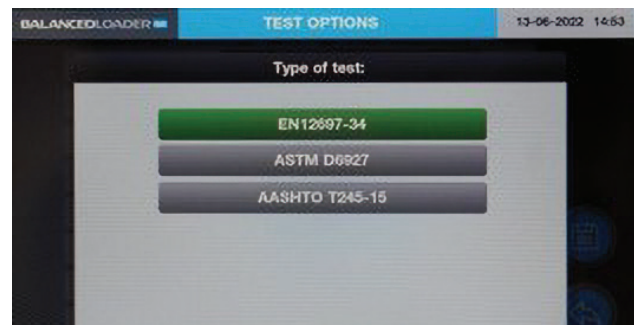
Elastic Modulus on mortar and Cement

**Note:** Load cell(s), displacement transducer(s) and specific accessories are not included

# New Advanced Firmware

The top of the line Electromechanical Multipurpose Load Frames such as MultiLoader, BalancedLoader, Uniframe50 and Uniframe50-T have a capacitive color touchscreen display fitted with an advanced integrated firmware. It allows the user to select a wide range of test parameters and create customizable profiles, as well as display graph with load, displacement, speed and time. The large display makes it easy to view and check all the saved tests.

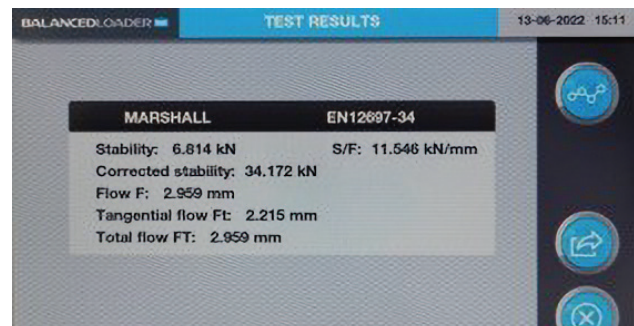
**Note:** The PC software for remote test control and performance, reporting and certificate printout is also available as an accessory.



Clear and intuitive menu offering fully customizable profiles with automatic test procedures



Real-time display of load, displacement, speed and time with a clear graph



Immediate and automatic calculation of all the test parameters required by relative reference standards



Storage and display of saved tests for fast review of results and graph

## CONTROLS Customer Care

As one of the longest established manufacturing companies in the world of Construction Materials Testing solutions, we are dedicated to supplying high quality, accurate, affordable, easy to use systems.

As a valued customer of CONTROLS, you will receive continuous, expert support and advice for your equipment. Furthermore, we can offer full installation and training in the correct operation of your CONTROLS equipment.

For support from our expert Customer Care Team, contact your local CONTROLS office / distributor or email [customercare@controls-group.com](mailto:customercare@controls-group.com).

For more information, please visit [www.controls-group.com](http://www.controls-group.com).

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