

Electromechanical Multipurpose Testers

Complete product range, covering all tests
with load and/or displacement control



Compact, versatile and high performing

Fully electromechanical
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 high precision – or automatic, depending on the model – displacement and/or load controlled tests in a small space. Our testers benefit from the environmentally-friendly Electromechanical 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 and 100kN capacity are sufficient to perform a wide range of common tests on asphalt mix, soil, cement and other materials, with a high load accuracy.



Fully Automatic (variable speed models only)

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.

MARSHALL TESTER

50 kN Marshall Compression Tester

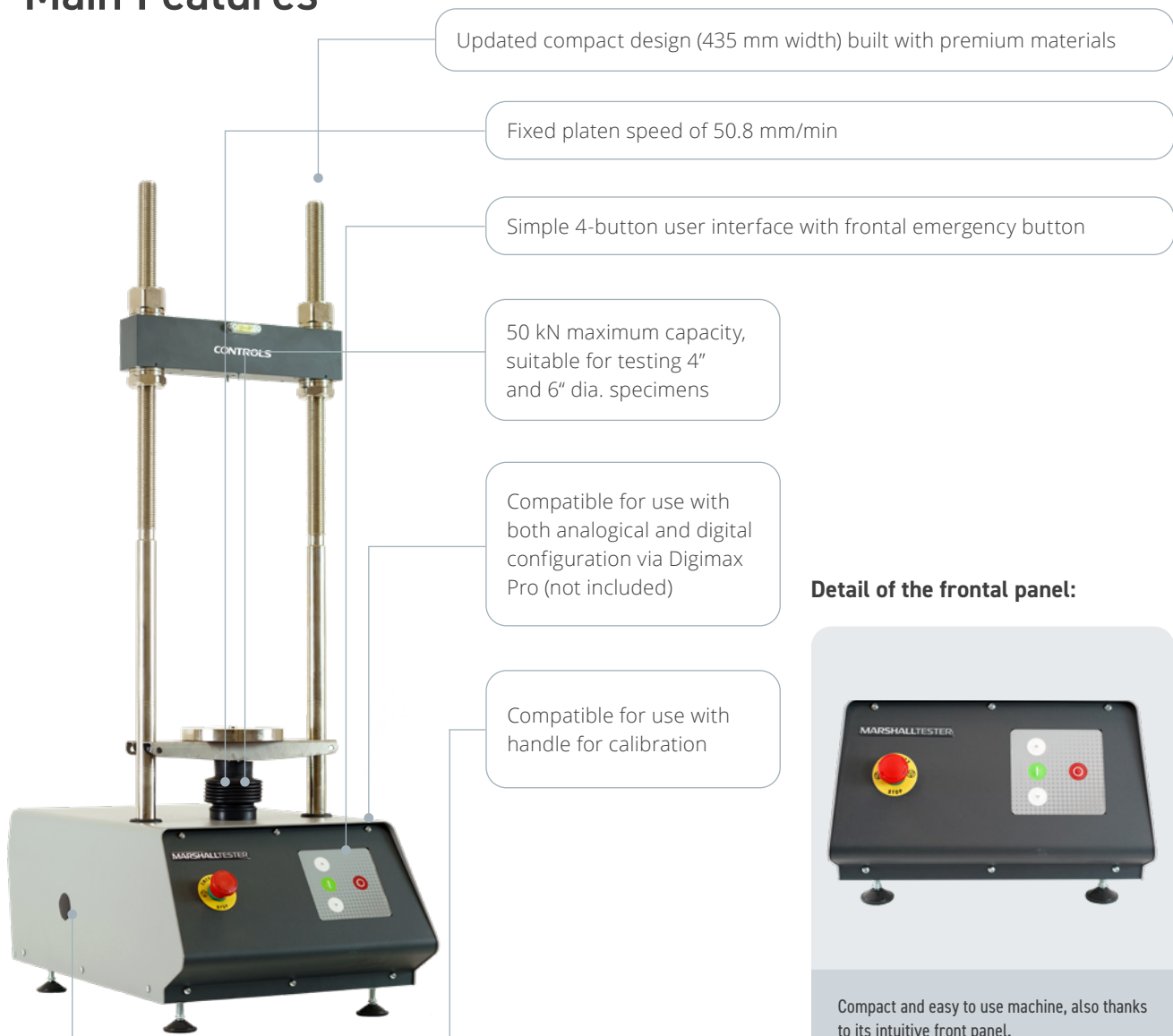
76-B3002, 76-B3003, 76-B3004



Marshall tester is a bench mounted compression frame with motor and worm gear housed within the base unit. The machine is designed to perform Marshall tests and all other compressive tests requiring a fixed compression speed of 50.8 mm/min, with a capacity up to 50 kN. The machine is compatible for use with handle for calibration purposes, and a limit switch is provided for the bottom limit of travel.

The machine is supplied without accessories, and it can be equipped both in analogical mode (with load ring and dial gauge) and in digital mode, by using Digimax Pro readout unit (P60R12 - not included) and relevant accessories.

Main Features



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

CBR TESTER



50 kN California Bearing Ratio (CBR) Tester

34-T1062, 34-T1063, 34-T1064

CBR tester is a bench mounted motorized compression frame with compact base unit. The machine is designed to perform California Bearing Ratio (CBR) test and all other compressive tests compatible with a fixed compression speed of 1.27 mm/min, with a capacity up to 50 kN.

The machine is compatible for use with handle for calibration purposes, and a limit switch is provided for the bottom limit of travel. The machine is supplied without accessories, and it can be equipped both in analogical mode (with load ring and dial gauge) and in digital mode, by using Digimax Pro readout unit (P60R12 - not included) and relevant accessories.

Main Features



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

SPEEDLOADER^{EmS}



Automatic Electromechanical Variable Speed 50kN Tester

34-V1082, 34-V1084

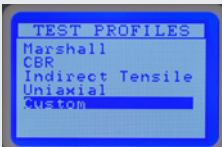
SpeedLoader is the entry level automatic and compact Electromechanical Multipurpose Load Frame ideal for laboratories who need to perform fully automatic displacement controlled tests. The 50 kN compression capacity and the variable test speed coupled with a Closed-loop displacement control make it easier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

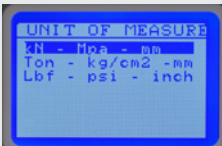
Main Features



- 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 channels for data acquisition (one for crosshead, one for load cell, one for displacement)
- RS 232 serial port for fast runtime data download to PC

Focus on display:



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

34-V1182, 34-V1184

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 teste 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



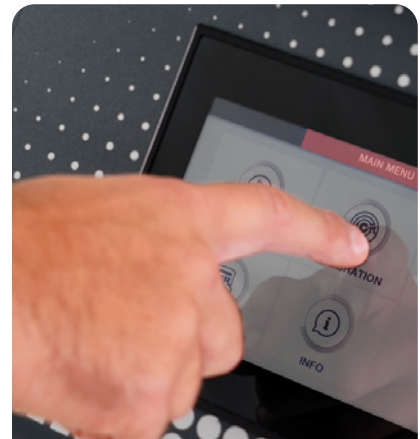
Updated compact design (435 mm width) built with premium materials

Infinitely accurate variable speed from 0.05 to 51 mm/min

Seven channels for data acquisition (four for external displacement, two for load cells, one 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 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.

UNIFRAME 50 **EmS** UNIFRAME 50-T **EmS**

Automatic Electromechanical Universal 50kN Tester

70-T1282, 70-T1284, 70-T1282/T, 70-T1284/T



Uniframe 50 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 Uniframe 50 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
- Seven channels for data acquisition (four for external displacement, two for load cells, one for crosshead travel)



Uniframe 50 equipped with indirect tensile accessory (not included).

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.

UNIFRAME 100 EmS



Automatic Electromechanical Universal 100kN tester

T1292, T1294

The UNIFRAME 100 EmS enhances the Electromechanical Multipurpose Load Frame range with a 100kN capacity and larger dimensions, supporting a wider range of tests such as CBR, Marshall, Triaxial, Flexural, Unconfined Compression, and Punching. It offers precision and reliability for both displacement and load-controlled tests. Featuring the same advanced firmware and software as the UNIFRAME 50, it integrates them seamlessly with accessories for complex testing. Its robust design, high-capacity, and flexibility make it ideal for high-performance laboratory needs.

Main Features



- Adjustable mechanical limit switch for full test safety
- Increased frame dimensions with a vertical clearance of 1040mm and a horizontal span of 465mm, enabling the testing of larger and more diverse sample sizes
- Offers 16 GB internal memory with data export via USB or real-time transfer through the RS232 serial port
- Performs displacement-controlled tests up to 65 mm/min and load-controlled tests up to 9999 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




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

New Advanced Firmware -
High-end Electromechanical Load Frame, like MultiLoader and Uniframe50, feature a capacitive 7" touchscreen display with advanced firmware, enabling customizable test profiles, parameter selection, and real-time graphs for load, displacement, speed, and time.

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

BALANCEDLOADER^{EmS}



Automatic Electromechanical Universal 50kN Tester

76-PV1282, 76-PV1284

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

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

Seven channels for data acquisition (four for external displacement, two for load cells, one for crosshead travel)

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 (not included).

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	CONTROLS	CONTROLS
	MARSHALL TESTER	CBR TESTER	SPEEDLOADER EmS
	B3002-B3003-B3004	T1062-T1063-T1064	V1082 - V1084
Max. Load cap [kN]	50	50	50
Max tensile load cap [kN]	no	no	no
Sampling frequency [Hz]	N/A	N/A	from 1 to 20
Power [W]	750	750	750
Horizontal span [mm]	270	270	270
Vertical span [mm]	630	630	765
Speed range [mm/min]	50.8	1.27	0.2 to 51
Digital speed control	No	No	Yes
Load rate control	No	No	No
Load rate range (N/sec)	N/A	N/A	N/A
Adjustable travel limit	No	No	Yes
Type of control	Displacement	Displacement	Displacement
Display	N/A	N/A	128 x 80 pixel with membrane keyboard
Memory	N/A	N/A	up to 300 tests stored
Data download	N/A	N/A	RS232
Single-phase line voltage/Frequency	B3002: 230V / 50Hz B3003: 220V / 60Hz B3006: 110V / 60Hz	T1062: 230V / 50Hz T1063: 220V / 60Hz T1064: 110V / 60Hz	V1082: 220-240 V / 50-60 Hz V1084: 110V / 60 Hz

Technical Specifications



CONTROLS



CONTROLS



CONTROLS

IPC global
A DIVISION OF CONTROLS

	MULTILOADER EmS	UNIFRAME 50 EmS UNIFRAME 50-T EmS	UNIFRAME 100 EmS	BALANCEDLOADER EmS
	V1182-V1184	T1282 - T1284 T1282/T - T1284/T	T1292 - T1294	PV1282 - PV1284
Max. Load cap [kN]	50	50	100	50
Max tensile load cap [kN]	no	25*	No	no
Sampling frequency [Hz]	Up to 100	Up to 100	Up to 100	Up to 100
Power [W]	750	800	800	400
Horizontal span [mm]	270	380	456	380
Vertical span [mm]	765	765	1040	800
Speed range [mm/min]	0.05 to 51	0.05 to 51	0.01 to 65	0.01 to 65
Digital speed control	Yes	Yes	Yes	Yes
Load rate control	No	Yes	Yes	Yes
Load rate range (N/sec)	N/A	1 to 10000	1 to 10000	1 to 10000
Adjustable travel limit	Yes	Yes	Yes	Yes
Type of control	Displacement	Load / Displacement	Load / Displacement	Load / Displacement
Display	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
Memory	16 GB	16 GB	16 GB	16 GB
Data download	RS232 and USB	RS232 and USB	RS232 and USB	RS232 and USB
Single-phase line voltage/Frequency	V1182: 220-240 V / 50-60 Hz V1184: 110V / 60 Hz	T1282**: 220-240 V / 50-60 Hz; T1284**: 110V / 60 Hz	T1292: 220-240 V / 50-60 Hz; T1294: 110V / 60 Hz	PV1282: 220-240 V / 50-60 Hz V1284: 110V / 60 Hz

Note: *only for T1282/T and T1284/T models

**for both standard and tensile models (/ T)

Standards

					
			CONTROLS	CONTROLS	CONTROLS
			MARSHALL TESTER	CBR TESTER	SPEEDLOADER TM
			B3002-B3003-B3004	T1062-T1063-T1064	V1082 - V1084
Soil tests	CBR	EN 13286-47, ASTM D1883, AASHTO T193, BS 1377:2, NF P94-078, UNI CNR 10009	No	Yes*	Yes
	Unconfined Compression	ASTM D2166, AASHTO T208, BS 1377:7 EN 17892:7	No	No	Yes
Triaxial Tests	Quick Triaxial (UU)	ASTM D2850, BS 1377:7 EN 17892:8	No	No	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*	No	Yes
	Indirect Tensile with 4 transducers	CNR 134	Yes*	No	No
	Splitting Tensile TSR Indirect Tensile Strength	EN 12697-12, EN 12697-23, ASTM D6931, AASHTO T283	Yes*	No	Yes
	Semi-Circular Bend SCB – IFIT	EN 12697-44, ASTM D8044, AASHTO T393/ TP124	Yes**	No	No
	IDEAL-CT	ASTM D8225	Yes**	No	No
	IDEAL RT	ASTM D8360	Yes*	No	No
	ISS	AASHTO T407/TP114	No	No	No
	Interlayer bonding/ Shear Bond Test (Leutner)	EN 12697-48	Yes*	No	No
	Hveem	ASTM D1560, AASHTO T246	No	No	No

NOTE

*Digital version may be required by standard

**Partial conformity to speed specifications

Standards



CONTROLS

MULTILOADER^{ENS}
V1182-V1184



CONTROLS

UNIFRAME 50^{ENS}
UNIFRAME 50-T^{ENS}
T1282 - T1284
T1282/T - T1284/T



CONTROLS

UNIFRAME 100^{ENS}
T1292 - T1294

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BALANCEDLOADER^{ENS}
PV1282 - PV1284

Soil tests	CBR	EN 13286-47, ASTM D1883, AASHTO T193, BS 1377:2, NF P94-078, UNI CNR 10009	Yes	Yes	Yes	Yes
	Unconfined Compression	ASTM D2166, AASHTO T208, BS 1377:7 EN 17892:7	Yes	Yes	Yes	Yes
Triaxial Tests	Quick Triaxial (UU)	ASTM D2850, BS 1377:7 EN 17892:8	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
	Indirect Tensile with 4 transducers	CNR 134	Yes	Yes	Yes	Yes
	Splitting Tensile TSR Indirect Tensile Strength	EN 12697-12, EN 12697-23, ASTM D6931, AASHTO T283	Yes	Yes	Yes	Yes
	Semi-Circular Bend SCB - IFIT	EN 12697-44, ASTM D8044, AASHTO T393/TP124	No	No	No	Yes
	IDEAL-CT	ASTM D8225	No	No	No	Yes
	IDEAL RT	ASTM D8360	No	No	No	Yes
	ISS	AASHTO T407/TP114	No	No	No	Yes
	Interlayer bonding/Shear Bond Test (Leutner)	EN 12697-48	Yes	Yes	Yes	Yes
	Hveem	ASTM D1560, AASHTO T246	Yes	No	No	Yes

Standards



CONTROLS

CONTROLS

CONTROLS

CONTROLS



SPEEDLOADER

MULTILOADER

UNIFRAME 50
UNIFRAME 50-1

UNIFRAME 100

BALANCEDLOADER

V1082 - V1084

V1182-V1184

T1282 - T1284
T1282/T - T1284/T

T1292 - T1294

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 strength	EN 196-1, ASTM C109	No	No	Yes	Yes	Yes
	Mortar Briquettes Tensile	ASTM C307, AASHTO T132	No	No	Yes*	No	No
	Mortar and Cement Elastic Modulus	EN 13412	No	No	Yes	Yes	Yes
	Glass-Fibre Reinforced Cement Bending strength	EN 1170-5	No	No	Yes*	No	No
	Fiber Reinforced Concrete Tests	ASTM C1609, EN 14651	No	No	Yes	Yes	Yes
	Fiber Reinforced Polymer Tensile Tests	-	No	No	Yes*	No	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	Yes*	No	No

Note: *only for T1282/T and T1284/T models

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



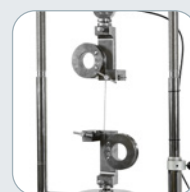
Uniaxial compression



Quick triaxial



Flexural test on soil -
cement specimens



Tensile test on steel
wires

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

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.

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