CFU
INTERNATIONAL TRADE
& SERVICES INC.

Cement
Testing Equipments

Cement is the binder used to create concrete and mortar. The manufacture of cement requires stringent control and a number of tests are performed in cement plant laboratories to ensure that the cement is of the desired quality, that conforms to the requirements of the relevant standards.

The most important use of cement is the production of concrete and mortar, which are the combination of cement and an aggregate to form a strong building material that is durable in the face of normal environmental effects. In the cement section, CFU Testing Equipment is basically grouped in three main headings

- Physical and Chemical Property Tests (except strength tests)
- Building Lime, Grout and Mud Tests
- Strength Tests

CONTENTS

CEMENT SAMPLERS

Product Code

CFCM-0001 Packaged Cement Tube Sampler, Ø38x580 mm
CFCM-0002 Bulk Cement Sampler, Ø35x1500 mm

Standards

EN 196-7; ASTM C183; AASHTO T127

The CFCM-0001 Packaged Cement Tube Sampler is made of chrome and used for collecting cement samples from packages.

The CFCM-0002 Bulk Cement Sampler is used to collect cement samples from bulk storage or bulk shipments.

Sampler consists of 2 chrome concentric tubes and each tube has slots. The inner tube rotates to close the slots and take the sample.

Dimensions	CFCM-0001	Ø38x580 mm
	CFCM-0002	Ø35x1500 mm
Weight (approx.)	CFCM-0001	1.25 kg
	CFCM-0002	2.47 kg

SPECIFIC GRAVITY (Relative Density)

Product Code

CFCM-0003 Le Chatelier Flask

Standards

EN 196-6, 450-1, 15617-1; ASTM C110, C128, C188; C989; AASHTO T133

The CFCM-0003 Le Chatelier Flask is used to determine the density of hydraulic cement, ground granulated blast-furnace slag and fly ash for concrete, filler aggregates and lime.The glass flask has a 250ml capacity. The neck is graduated from 0 to 1 ml and from 18 to 24 mL in 0.1-mL graduations.

Dimensions	100x100x300 mm
Weight (approx.)	0.1 kg

SOUNDNESS OF CEMENT & HYDRATED LIME

Product Code

CFCM-0010 Le Chatelier Mould
CFCM-0014 Le Chatelier Soundness Kit

Standards

EN 196-3, 450-1, 459-2; EN ISO 9597


CFCM-0014


CFCM-0010

The soundness of cement, fly ash for concrete and lime is determined by using the Le Chatelier moulds and Le Chatelier Water Bath (CFCM-0016) according to the relevant standard.

The Le Chatelier Soundness Kit is supplied complete with

- Le Chatelier moulds 3 pcs.
- 50x50 mm glass plates 6 pcs.
- 300 gr Weights 1 pcs.
- 100 gr Weight, 3 pcs.
- Tamping Rod 17 mm dia. x 70 gr
- Steel Ruler
- Plastic Carrying Case

Dimensions	340x290x80 mm
Weight (approx.)	2 kg

SOUNDNESS OF CEMENT & HYDRATED LIME

Product Code

CFCM-0016 Le Chatelier Water Bath

Models for 220-240V 50-60 Hz, 1 ph	CFCM-0016
Models for 110-120V 60 Hz, 1 ph.	CFCM-0016-N

Standards

EN 196-3, 450-1, 459-2; EN ISO 9597

The CFCM-0016 Le Chatelier Water Bath is used with Le Chatelier moulds for the determination of the soundness of cement paste fly ash for concrete and lime. The internal chamber and the insulated exterior case of the bath are manufactured from stainless steel. The Bath is capable of reaching boiling point in 30 minutes by using two heater units. There is a timer on the CFCM-0016 Le Chatelier Water Bath which is used to set the time for reaching the boiling point. After that time the temperature of water is regulated by using one heater unit to conserve energy. Supplied complete with a removable rack to hold up to 12 moulds. A cover is also supplied as standard.

Le Chatelier Moulds are should be ordered separately.

Dimensions	210x470x290 mm
Weight (approx.)	8 kg
Power	1250 W

LENGTH CHANGE (Expansion)

Product Code

CFCM-0020 High Pressure Cement Autoclave, 230 V 50-60 Hz

Standards

ASTM C151, C490; UNE 7207

The CFCM-0020 High Pressure Cement Autoclave is designed to perform expansion tests on cement specimens.10 specimens can simultaneously be tested in the high pressure steam vessel of 154 mm diameter and 430 mm height.

The Autoclave consists of a pressure gauge, pressure regulator, temperature regülatör, control switches and safety valve. Certified conforming to ISPELS procedure.

CFCM-0033 Two Gang Shrinkage mould and Length Comparators (CFCM-0200 or CFCM-0210) should be ordered separately.

The High Pressure Cement Autoclave is supplied complete with

- Specimen Rack, 10 samples capacity

Dimensions	450x475x1080 mm
Weight (approx.)	55 kg
Power	2600 W

LENGTH CHANGE (Shrinkage and Expansion)

Product Code

CFCM-0029E	Three Gang Shrinkage Mould 40.1x40x160 mm, EN, Minimum Hardness HV 200
CFCM-0030E	Spare Steel Insert, EN, for CFCM-0029E, 18 pieces/pack
CFCM-0031E	Reference Rod 160 mm Long with 6mm Tips
CFCM-0031A	Reference Rod 170 mm Long with 6mm Tips
CFCM-0032E	Tamper, Hardwood, 38x15x200mm, 250 g, EN
CFCM-0033A	Two Gang Shrinkage Mould, 25x25x285 mm, ASTM
CFCM-0034	Spare Steel Insert, ASTM C490, 12 pieces/pack
CFCM-0035	Reference Rod, 295 mm Long with 6mm Tips
CFCM-0140E	Two Gang Expansion Mould, 50x50x285 mm
CFCM-0154E	Insert Set for CFCM-0029, polyethylene (6 pcs.-15x40x160mm)
CFCM-0158E	Six Gang Shrinkage Mould, 10x40x160 mm, EN
CFCM-0163	Two Gang Shrinkage Mould, 25x25x285 mm, Plastic
CFCM-0662A	Tamper, Hardwood, 13x25x150mm
CFC-0410	Tamping Rod, Ø:10x300 mm

Standards

ASTM C151, C452, C490, C596, C806, C1293; EN 12617-4, 12808-4

	CFCM-0029E	CFCM-0033A	CFCM-0140E
Dimensions (mm)	300x190x70	300x100x45	390x160x70
Weight (approx.)	12 kg	7 kg	18 kg

The moulds are used for preparpmg the specimens for the purpose of determining the length changes (shrinkage/expansion) in hardened hydraulic cement mortar and concrete.

According to all standardized test methods for determinig the length changes of hardened cement paste, mortar under different conditions, the muolds are used together with the any CFU Length Comparators (CFCM-0200 or CFCM-0210) fit the specimens sizes.

Minimum surface hardness of CFCM-0029E is HV400 which is recommended by the EN standard.

All moulds surfaces are protected with anti-corrosion oil. Also all parts of the moulds are matchmarked.

The moulds are supplied complied with the steel inserts screwed on.

Reference rod and other equipment be should ordered separately.

For the purpose of determining the length changes (shrinkage/expansion) in hardened concrete including aggregate which has larger sized Dmax, CFC-1153, CFC-1155 or CFC-1161 moulds are also used togerher with CFC-1170 Large type digital length comparator.

CFCM-0033A

CFCM-0029E

LENGTH CHANGE (Shrinkage and Expansion)

Product Code

CFCM-0200	Length Comparator with Digital Dial Gauge
CFCM-0210	Length Comparator with Heidenhain Length Measuring Sensor and Digital Readout Unit
CFC-1170	Large Type Length Comparator
CFC-1175	Large Type Length Comparator with Heidenhain Length Measuring Sensor, Digital Readout Unit

Standards

EN 1367–4, 12617–4, 12808-4; ASTM C151, C157, C227, C311, C341, C342, C441,C452, C490, C531, C596, C806, C878; BS 1881:5, 6073

CFCM-0210

Length Comparators are used to determine the length changes on different type of hardened mortar and concrete prisms with different sized.

The sets consist of a length measuring frame with measuring device attached to it. The comparators come with 4 different models, CFCM-0200 and CFC-1170 are with 0.001 mm x 12,7 mm digital dial gauge and CFCM-0210 and CFC-1175 are with special 0.0001 mm x 25 mm transducer and readout unit.

Horizontal clearance of CFCM-0200 is and CFCM-0210 are 145mm, CFC-1170 and CFC-1175 are is 220mm. Adjustable beam height (without digital dial gauge and adapter set) is 365 mm for all type.

All information about shrinkage moulds, steel inserts and reference rods can be seen on pages of CFCM-0029, CFCM-0033, UTA-0850, CFC-1153, CFC-1155 and CFC-1161.

The Length Comparators are supplied complete with 3 pcs. adapter sets (compatible with referance rods and inserts).

Reference rods and moulds should be ordered separately according to test to be performed.

CFCM-0200

Dimensions	
CFCM-0200	180x180x450 mm
CFCM-0210	250x250x450 mm
CFC-1170	250x250x650 mm
CFC-1175	250x230x650 mm

Weight (approx.)	
CFCM-0200	6 kg
CFCM-0210	8 kg
CFC-1170	8 kg
CFC-1175	9 kg

FINENESS (Specific Surface)

Product Code

CFCM-0280	Automatic Blaine Air Permeability Apparatus 110-230V, 50-60 Hz, 1ph
CFCM-0242	Manometer Liquid 250 ml
CFCM-0243	Cell with Perforated Disc and Plunger
CFCM-0244	Filter Paper 100 pcs.
CFCM-0245	Filter Paper 1000 pcs.
CFCM-0246	Reference Cement 5 g, ASTM
CFCM-0282	Reference Calibration Sand-Fine, Approx.100g
CFCM-0284	Reference Calibration Sand-Coarse, Approx.100g

Standards

EN 196-6; ASTM C204; BS 4550; AASHTO T153

The CFCM- 0280 Blaine Air Permeability Apparatus is used to determine the fineness of Portland cement, limes and similar powders expressed in terms of their specific surface. The fineness of cement is measured as specific surface by observing the time taken for a fixed quantity of air to flow through a compacted cement bed of specified dimensions and porosity.The method is comparative rather than absolute and therefore a reference sample of known specific surface is required for calibration of the apparatus.

Main Features

- The apparatus has a touch screen control unit on board
- The test is controlled on the touch screen.
- Automatic control of the movement of fluid until the upper mark
- Automatic measurement of the air flow time
- Automatic measurement of temperature during the test
- U Manometer mounted on metal body
- Complete set with glass fittings, test stand, pump motor, software cell (with perforated disk and piston), plastic funnel and 100 pieces of filter paper.
- The piston is able to enter freely into the cell, and the distance between the bottom face and the top face of the perforated disk (15 ± 1) mm when the cap sits on the upper surface of the cell cylinder
- Including stainless perforated disk with 30-40 holes with a diameter of 1 mm.

Reference Cement and Reference Calibration Sands should be ordered separately.

CFCM-0280 is supplied complete with;

- Manometer Liquid, 250 ml
- Cell with Perforated Disc and Plunger (with CFU Certificate of Cell And Plunger Dimensions for Calculation of Cell Specimen Volume)
- Plastic Funnel
- Filter Paper, 100 pcs

Dimensions	250x410x440 mm
Weight (approx.)	10 kg

Physical and Chemical Properties

FINENESS (Specific Surface)

Product Code

CFCM-0240	Blaine Air Permeability Apparatus
CFCM-0241	U Manometer Tube
CFCM-0242	Manometer Liquid 250 ml
CFCM-0243	Cell with Perforated Disc and Plunger
CFCM-0244	Filter Paper 100 pcs.
CFCM-0245	Filter Paper 1000 pcs.
CFCM-0246	Reference Cement 5 g, ASTM

Standards

EN 196-6; ASTM C204; AASHTO T153

The CFCM-0240 Blaine Air Permeability Apparatus is used to determine the fineness of Portland cement, limes and similar powders expressed in terms of their specific surface.

CFCM-0246 Reference Cement should be ordered separately.

The Blaine Air Permeability Apparatus is supplied complete with

- U Manometer Tube
- Manometer Liquid, 250 ml
- Test Stand
- Rubber Aspirator
- Cell with Perforated Disc and Plunger (with CFU Certificate of Cell And Plunger Dimensions for Calculation of Cell Specimen Volume)
- Plastic Funnel
- Filter Paper, 100 pcs.

Dimensions	300x540x210 mm (packed)
Weight (approx.)	7 kg (packed)

HEAT of HYDRATION

Product Code

CFCM-0347	Heat of Hydration Calorimeter with High Resolution Digital Thermometer 230 V, 50-60 Hz, 1 ph

Standards

EN 196-8; ASTM C186

When Portland or hydraulic cement is mixed with water, heat is generated as a result of the exothermic reaction. The heat generated by cement's hydration raises the temperature of concrete and this temperature rise causes expansion while concrete is hardening, especially under conditions when heat can not be readily released.

The CFCM-0347 Heat of Hydration Calorimeter is used for determining the heat of hydration of low heat Portland and hydraulic cement. The apparatus consists of a Dewar flask housed in an insulated box, an electric stirrer, a filler funnel and a high resolution battery operated electronic thermometer.

Features

- Displays, saves and prints ΔT, Min., Max. and Mean Values
- Resolution 0.001°C
- Accuracy 0.05°C
- PT100 Probe Measuring Range -40 to +300°C
- Protection class IP65
- Audible alarm if limit values are exceeded
- Memory 10.000
- Complete with resolution test certificate
- Supplied complete with MS EXCEL template for data processing

Dimensions	300x200x650 mm
Weight (approx.)	13 kg

LOSS on IGNITION

Product Code

CFD-1462 Muffle Furnace 6 L 1200°C Max. Temperature with Programmable Timer, 220-240 V 50-60 Hz

Standards

EN 196-2; ASTM C25, C115

CFD-1462 Muffle Furnace is used for determining the loss on ignition and insoluble residue of cement and building lime.

Working temperature and time can be programmed with PID digital control system.

Features

Temperature Controller	PC 442/2
Max. Temperature	1200 °C
Max. Continuous Temperature	1150 °C
Temperature Deviation at Set Point	± 2°C
Heat Up Time to Max. Temperature	50 min.
Internal Volume	6 L
Phase	1

Internal Dimension	140x180x200 mm
External Dimension	650x550x580 mm
Weight (approx.)	56 kg
Power	2000 W

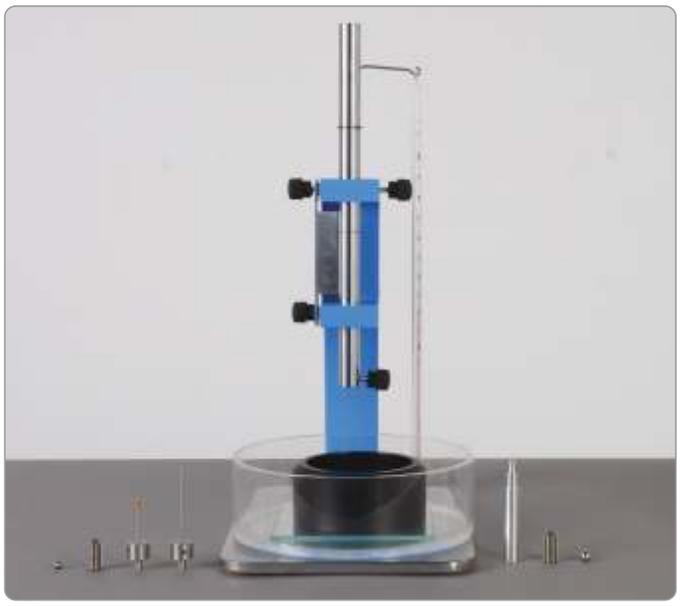
SETTING TIME & CONSISTENCY

Product Code

CFCM-0450E Vicat Test Set EN
CFCM-0450A Vicat Test Set ASTM
CFCM-0451 Vicat Apparatus (Frame)
CFCM-0452E Vicat Mould EN Base ID 80 mm, Top ID 70 mm, Height 40 mm
CFCM-0450A Vicat Mould ASTM Base ID 70 mm, Top ID 60 mm, Height 40 mm
CFCM-0453E Initial Vicat Needle EN 1.13 mm dia.
CFCM-0453A Vicat Needle ASTM 1 mm dia.
CFCM-0454E Final Vicat Needle EN 1.13 mm dia.
CFCM-0455 Consistency Plunger 10 mm dia.
CFCM-0456E Supporting Glass Plate
CFCM-0456A Supporting Glass Plate
CFCM-0458 Transfer Dish for CFCM-0450E
CFGT-1305 Glass Thermometer Max. 110°C
CFCM-0457 Additiniol Weight, 700 gr, EN 480-2

Standards

EN 196-3, 480-2; ASTM C187, C191; AASHTO T129, T131



CFCM-0450E

The Vicat Test Set is used for the determination of the setting time and consistency of cement by Vicat Method.

CFCM-0458 Transfer dish which is used as a water wessel EN, for layering the vicat mould under water.

The Vicat Test Set is supplied complete with;
- Vicat Mould
- Initial and final Needles (EN)
- Vicat Needle (ASTM)
- Consistency Plunger
- Supporting Plate
- Glass Thermometer
- Transfer Dish (for EN)

CFCM-0453A

CFCM-0455

CFCM-0453E

CFCM-0454E

Dimensions	150x190x318 mm
Weight (approx.)	3 kg

SETTING TIME & CONSISTENCY

Product Code

CFCM-0550E Automatic Vicat Apparatus (VICAMATIC-2) EN, 110-240 V 50-60 Hz, 1ph

CFCM-0550A Automatic Vicat Apparatus (VICAMATIC-2) ASTM , 110-240 V 50-60 Hz, 1ph

Standards

EN 196-3, 13279-2, 480-2; ASTM C191, C187; AASHTO T131

The setting time determination of cement/mortar/gypsum is one of the most important parameter for the quality inspection and verification.

The machine is based on the innovative CVI-TECH philosophy. On the machine, a needle (or a probe) drops freely into a cement sample at regular intervals and in fixed positions. Penetration depth is measured by a sensor with 0,1 mm resolution. Along with hardening process development the penetration depth decreases, when it matches some thresholds pre-defined by Standards initial and final setting times are measured and recorded.

Main Features

- Functional and ergonomic design based on the innovative CVi-TECH philosophy.
- Advanced electronics technologies providing superior performances and total flexibility combined with simplicity in use
- Easy-to-use double interface: local mode, with large size 4,3" touch screen color display and remote mode with PC
- Supplied complete with PC software for data processing VICASOFT-BASIC
- With PC software VICASOFT-PREMIUM (optional) up to 32 indipendent units can be connected to a single PC via LAN port and hub. All units are remotely controlled. Adopting the multi-test network concept laboratory productivity is maximized
- Integrated graphic printer is available as optional accessory showing both results in numerical format and setting time plot
- Easy setting and storage of user-defined test profiles allowing quick test start
- Large accessibility to the test space
- Practical in-water testing accessory (optional)
- Automatic determination of initial and final setting time

CFCM-0550E is supplied complete with EN 196-3 accessories: initial setting time needle 1.13 mm dia., mould and PC software VICASOFT-BASIC.

CFCM-0550A is supplied complete with ASTM C191 accessories: setting time needle 1.00 mm dia., mould and PC software VICASOFT-BASIC.

Other accessories should be ordered separately for the tests.

Dimensions	200x400x410 mm
Weight (approx.)	10 kg
Power	50 W

Technical Specifications

- Conforming to EN 196-3, 13279-2, 480-2, ASTM C191, C187
- Large size 4,3" touch screen color display
- LAN port for direct connection to PC of a single unit or connection to a LAN hub for creating a network with up to 32 independent units all controlled by a single PC. 1 LAN cable is included
- USB port for data storage on pen-drive (included)
- Test procedures can be customized and stored to match user-defined requirements
- Can incorporate an integrated graphic printer showing test result and setting time plot
- Large test space with easy accessibility
- Automatic calculation of initial and final setting time at programmable penetration depth limits
- Wide range of accessories including EN and ASTM/AASHTO parts, in-water testing kit, needle cleaning device, integrated printer, probes for testing consistency and gypsum
- Minimum penetrations rate: 10 seconds
- Penetration measurement by encoder

Firmware Specifications

- Easy programming of customized test profiles, recallable for future tests, including:
  - adjustable test start delay
  - penetration points positions
  - manual or automatic penetration rate
  - free or driven dropping mode
  - holding intervals inside the sample
  - automatic end- test detection
  - automatic measurement of initial and final setting time
- Test data: test number, operator, client, date, hour, cement type, water percentage, delay
- Easy calibration menu
- Clock calendar
- Multi-language

Accessories

CFCM-0551 Accessory for Needle Continuous Cleaning and In-Water Testing

CFCM-0552 LAN hub for PC connection of up to 7 VICAMATIC- 2 units or up to 6 units in case of multi-hub network. LAN cable from hub to PC is included. Each VICAMATIC-2 unit is supplied complete with LAN cable.

CFCM-0553 Upgrading of a VICAMATIC-2 unit for incorporating a graphic printer into the head. Test settings and results are plotted both as numerical and graphical format including penetration depth/time diagram. The upgrading shall be factory installed.

CFCM-0554 Needle for Final Setting Test EN
CFCM-0555 Cylindrical Probe for Consistency Test
CFCM-0556 Additional Weight 700 g,
CFCM-0557 Water thermostatic unit for VICAMATIC -2. Up to 2 units may be connected. 230 V, 50-60 Hz, 1 ph.
CFCM-0558 Conical penetration probe 8 mm dia x 50 mm complete with 100g calibrated weight for gypsum testing to EN 13279
CFCM-0566 Cylindrical probe and addition weight for consistency test to ASTM C807.
CFCM-0567 2 mm dia. needle to ASTM C807
CFCM-0568 Brass cylindrical mould to ASTM C807
CFCM-0559 VICASOFT-PREMIUM Software for PC connection of up to 32 VICAMATIC-2 units including remote control of each unit, data acquisition - processing - filing, printout of test reports.

Communication via LAN port (each VICAMATIC-2 unit is supplied complete with LAN cable). The connection of one VICAMATIC-2 unit is direct via the PC LAN-port, for more VICAMATIC-2 units (up to 32) one or more LAN hubs are required with total number of ports equal (or bigger) to the number of VICAMATIC-2 units included in the network. LAN hubs are not included.

Spare Parts

CFCM-0560	1,13 mm dia. needle for initial setting time test to EN
CFCM-0561	1 mm dia. needle for setting time test to ASTM/AASHTO
CFCM-0562	Plastic mould to EN
CFCM-0563	Plastic mould to ASTM/AASHTO
CFCM-0564	Glass base plate
CFCM-0565	Spare base plate for in-water testing kit
CFCM-0571E	Centering ring for EN vicat mould
CFCM-0571A	Cenitering ring for ASTM vicat mould

SETTING TIME

Product Code

CFCM-0578 Gillmore Apparatus

Standards

ASTM C91, C141, C150, C266; AASHTO T154

The CFCM-0578 Gillmore Apparatus is used to determine the setting time of cement hydraulic hydrometer lime and mortar. Apparatus consists of two horizontally positioned arms, carrying weighted needles, initial needle has a 2.12 mm diameter and 113.4 g in weight and the final needle has a 1.06 mm diameter and 453.6 g in weight. Supplied complete with two glass plates.

Dimensions	300x100x300 mm
Weight (approx.)	2,5 kg

WORKABLE LIFE & STIFFENING & SETTING TIME

Product Code

CFCM-0664	**Workable Life, Stiffening Time and Concrete Setting Time Apparatus**
UTW-0637	**Digital Balance, 30 kg / 5 g.**
UTW-0654	**Digital Balance, 60 kg x10 gr**
CFC-0705	**Needle Set (645, 323, 161, 65, 32, 16 mm²)**

Standards

EN 1015-9, 13294; ASTM C403

The apparatus is used for determining the setting time of concrete, stiffening time of repair products and systems comprising hydraulic based mortar, including those modified by the addition of polymers (PCC) and workable life of fresh mortar after the mixing procedures.

The Apparatus consist of a vertical loading pillar with a base. Supplied complete with a brass penetration rod with washer (EN) and a sample container (Ø80x80mm aluminum).

CFC-0705 Needle Set for concrete setting time test acc.to ASTM should be ordered separately

UTW-0637 Digital Balance for the initial setting time, workable life and stiffening time should be ordered separately, as well. Also, for determining concrete final setting time, instead of UTW-0637, UTW-0654 should be ordered separately.

Dimensions	400x400x600 mm
Weight (approx.)	10 kg

FLOW & CONSISTENCY OF CEMENT LIME / MORTAR

Product Code

CFCM-0660A Cement Flow Table, ASTM, Metric
CFCM-0661A Cement Flow Mould, ASTM, Metric
CFCM-0662A Tamper, Hardwood, ASTM 13x25x150 mm
CFCM-0663A Motorized Cement Flow Table, ASTM
CFCM-0660E Cement Flow Table, EN
CFCM-0661E Cement Flow Mould, EN
CFCM-0662E Tamper, EN, Ø 40x200 mm 250 gr
CFCM-0663E Motorized Cement Flow Table, EN

Models for 220-240V 50 60 Hz, 1 ph.	CFC-0663A	CFC-0663E
Models for 110-120V 60 Hz, 1 ph.	CFC-0663A-N	-

Standards

ASTM C230; EN 459-2, 1015-3

There are two models of the Cement Flow Table according to ASTM and EN standards. Both are used for determining the consistency of mortar, lime and cement specimens. Also manual and motorized models are available.

The hand operated model is fitted with a hand wheel. The motor operated model is driven by a motor speed reducer through a mechanical coupling at the rate of 1 revolution per second. The number of drops is preset on a counter and the machine stops automatically at the end of the cycle.

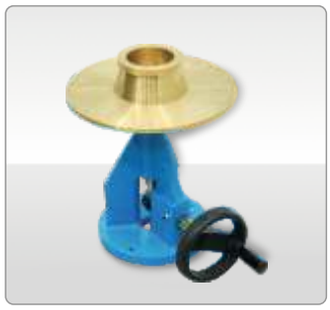
EN model, the table is manufactured from stainless steel and has a 300 mm diameter table. The conical mould is made of brass and has dimensions of 100 mm base dia. x 70 mm top dia. x 60 mm height.

ASTM model; the table is manufactured from brass and has 254 mm diameter. The conical mould is made of brass has dimensions of 100 mm base dia. X 70 mm top dia. X 50 mm height. Both models are supplied complete with brass flow mould and tamper.

CFCM-0663E

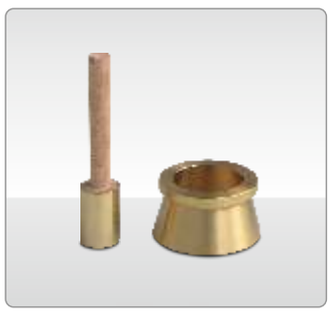
CFCM-0663A

CFCM-0660E



CFCM-0660A

CFCM-0662A
CFCM-0661A



CFCM-0662E
CFCM-0661E

	CFCM-0660A CFCM-0663A ASTM	CFCM-0660E CFCM-0663E EN
Table Diameter	254 mm	300 mm
Cone Base/Top Diameter	100.0 mm /70.0 mm	100.0mm /70.0 mm
Cone Height	50.0 mm	60.0 mm
Drop Height	12.7 mm	10.0 mm

Dimensions	Manual	260x260x270 mm
	Motorized	470x360x350 mm
Weight (approx.)	Manual	13 kg
	Motorized	36 kg
Power	180 W (Motorized)	

PREPARATION of MORTAR PRISMS for COMPRESSION TESTS

Product Code

CFCM-0875E	Manuel Mortar Mixer, EN
CFCM-0875A	Manuel Mortar Mixer, ASTM
CFCM-0876	Spare Bowl, 5 L
CFCM-0878E	Spare Beater, EN
CFCM-0878A	Spare Beater, ASTM

Models for 220-240V 50-60 Hz, 1 ph.	CFCM-0875E	CFCM-0875E
Models for 110-120V 60 Hz, 1 ph.	CFCM-0875E-N	CFCM-0875E-N

Standards

EN 196-1, 196-3, 413-2, 459-2, 480-1, 1015-2, 12617-4;
ASTM C187, C305, AASHTO T129, T131, T162

The CFCM-0875 Manual Mortar Mixer has a 5 liter (approx.) capacity, they have been designed to mix mortars and cement pastes primarily to the requirements of standards.

The mixing paddles revolve at a rate of 140 rpm. with a planetary motion of 62 rpm. in low speed. In high speed, the paddles revolve at the rate of 285 rpm. with a planetary motion of 125 rpm.

The user can choose the speeds easily by using the switch fitted to the machine. There is a sand filling apparatus on the mixers to pour sand easily. The bowl and beater are easily fitted and removed from mixer.

The Manual Mortar Mixers are supplied complete with;

- Bowl, 5 L (approx.)
- Beater

Dimensions	300x555x610 mm
Weight (approx.)	54 kg
Power	200 W

PREPARATION of MORTAR PRISMS for COMPRESSION TESTS

Product Code

CFCM-0880 CEN Standard Sand, 1350 g

Standards

EN 196-1

Dimensions	270x130x30
Weight (approx.)	1350 g

PREPARATION of MORTAR PRISMS for COMPRESSION TESTS

Product Code

CFCM-0885E	Automatic Programmable Mortar Mixer
CFCM-0885A	Automatic Programmable Mortar Mixer
CFCM-0876	Spare Bowl, 5 L
CFCM-0878E	Spare Beater, EN
CFCM-0878A	Spare Beater, ASTM

Models for 220-240V 50-60 Hz, 1 ph.	CFCM-0878E	CFCM-0885E
Models for 110-120V 60 Hz, 1 ph.	CFCM-0885E-N	CFCM-0885E-N

Standards

EN 196-1, 196-3, 413-2, 459-2, 480-1, 1015-2, 12617-4; ASTM C187, C305; AASHTO T129, T131, T162

The mixers have been designed to mix mortars and cement pastes primarily to the requirements of standards. The mixing paddles have a planetary motion and is driven by a motor with a microprocessor based speed and preset programs to meet all listed EN and ASTM standards, custom designed programs or manual mode. The mode button is used for the fast selection of different programs.

The mixing paddles revolve at a rate of 140 rpm. with a planetary motion of 62 rpm. in low speed. In high speed, the paddles revolve at the rate of 285 rpm. with a planetary motion of 125 rpm. An automatic sand dispenser is supplied with the machine and the sand is automatically discharged.

Custom design allows 6 programs to be set by the operator, where the motor speed, sand dispenser position and duration of the mix can be set. For the mix where the motor speed is selected as zero, the bowl can be lowered without interrupting the rest of the program. On the display the user can see the mix time and the machine is equipped with lamp in order to warn the user for critical time periods.

The Automatic Programmable Mortar Mixer is supplied complete with

- Bowl, 5 L (approx.)
- Beater

Dimensions	300x555x610 mm
Weight (approx.)	56 kg
Power	200 W

CFCM-0878E

CFCM-0876

PREPARATION of MORTAR PRISMS for COMPRESSION TESTS

Product Code

CFCM-0890 Jolting Table, EN
CFCM-0891 Jolting Table with Soundproof Safety Cabinet, EN
CFCM-0829.2 Three Gang Mould, 40x40x160 mm, HV 200
CFCM-0829.4 Three Gang Mould, 40x40x160 mm, HV 400
CFCM-0893 Feed Hopper for CFCM-0892
CFCM-0894 Short and Long Spreaders and Straightedge, for CFCM-0892

Models for 220-240V 50 Hz, 1 ph.	CFC-0890-T	CFC-0891-T
Models for 220-240V 60 Hz, 1 ph.	CFC-0890-K	CFC-0891-K

Standards

EN 196-1; ISO 679

Jolting Table is used for compacting of cement specimens in 40x40x160 mm mould and consists of mould table seated on a rotating cam driven at 60 r.p.m. The falling height is 15 mm conforming to EN 196-1. The machine is equipped with a counter which provides automatic shut off at end of preset drop numbers.

Weight and dimensions of the jolting table fully comply with the requirements of EN 196-1 standard. When used with CFCM-0892 Three Gang Mould and CFCM-0893 Feed Hopper, the total weight of the moving part is 20 kg ± 0.5 kg. Without CFCM-0892 and CFCM-0893 the weight of the moving parts is 6.85 kg. Rapid mould lock and release system allows easy and quick operation.

The supporting frame of the machine has been designed to ensure precise dimensions, table flatness, correct centering of the three gang mould on the table.

The motor and gearbox assembly is enclosed in a protective housing, which promotes user safety (the moving parts are inaccessible) and long life for the gearbox.

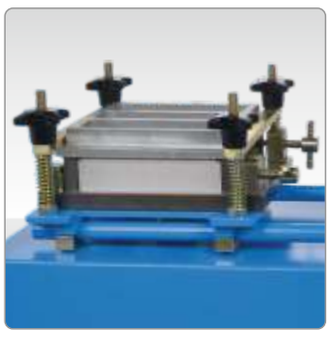
CFCM-0890

The standard model can be supplied with a safety/noise reduction cabinet. The cabinet is lined internally with soundproofing material to reduce sound level conforming to CE directives.

CFCM-0893 Feed Hopper is used for filling CFCM-0892 Three Gang Moulds placed on the Jolting Table.

CFCM-0892 Three Gang Mould, CFCM-0893 Feed Hopper, CFCM-0894 Short and Long Spreaders and Straightedge should be ordered separately.

CFCM-0891 Jolting Table with Soundproof Safety Cabinet



	CFCM-0890	CFCM-0891
Dimensions	1050x350x500 mm	1440×500×575 mm
Weight (approx.)	55 kg	125 kg
Motor Speed	60 rpm.	
Drop Height	15 mm	
Power	250 W	

PREPARATION of MORTAR PRISMS for COMPRESSION TESTS

Product Code

CFCM-0892.2	Three Gang Mould 40.1x40x160 mm, Steel, EN, Minimum Hardness HV200.
CFCM-892.4	Three Gang Mould 40.1x40x160 mm, Steel, EN, Minimum Hardness HV400.
CFCM-0893	Feed Hopper for CFCM-0892
CFCM-0894	Short and Long Spreaders and Straightedge for CFCM-0892
CFCM-0895	Three Gang Cube Mould 50x50x50 mm, Steel, ASTM
CFCM-0896	Three Gang Cube Mould, 2" Steel, ASTM
CFCM-0898	Three Gang Cube Mould, 2" Plastic
CFCM-0899A	Three Gang Mould 40x40x160 mm, Steel, ASTM
CFCM-0926	Cube Mould 70.7 mm, Steel, for CFCM-0930, BS

CFCM-0892.2

Standards

EN 196-1; ASTM C109, C348; BS 4550

All moulds have been manufactured from steel except CFCM-0898 molded using engineered plastic and all internal surfaces are machined.

Minimum surface hardness of CFCM- 0892.4 is HV400 which is recommended by the EN standard. All moulds surfaces are protected with anti-corrosion oil. The webs of CFCM- 0892.4 and CFCM-0899A are matchmarked.

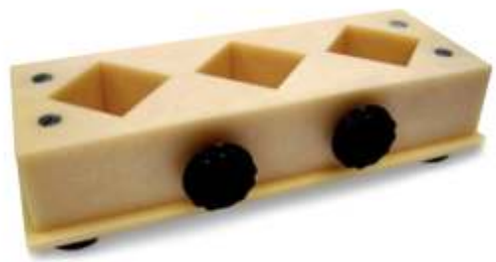
Minimum surface hardness of CFCM-0892.2 is HV200.

CFCM-0895

Dimensions	CFCM-0892	300x190x70 mm
	CFCM-0893	210x200x40 mm
	CFCM-0895	110x230x60 mm
	CFCM-0896	120x250x70 mm
	CFCM-0898	110x250x70 mm
	CFCM-0899A	300x190x70 mm
	CFCM-0926	100x125x90 mm

CFCM-0926

Weight (approx.)	CFCM-0892	12 kg (Packed)
	CFCM-0893	2 kg (Packed)
	CFCM-0895	3 kg
	CFCM-0896	6 kg
	CFCM-0898	1 kg
	CFCM-0899A	12 kg (Packed)
	CFCM-0926	3,5 kg



CFCM-0898

CFCM-0896

PREPARATION of MORTAR PRISMS for COMPRESSION TESTS

Product Code

CFCM-0930 Vibrating Machine for 70.7 mm Cube Moulds, BS
CFCM-0926 Cube Mould 70.7 mm, BS

Models for 220-240V 50 Hz, 1 ph	CFCM-0930-T
Models for 220-240V 60 Hz, 1 ph.	CFCM-0930-K

Standards

BS 4550

The CFCM-0930 Vibrating Machine is used for the preparation and compaction of 70.7 mm mortar cube specimens.

The mould table is mounted on four springs attached to an eccentric shaft which allows each sample to be vibrated at 12000 cycles per minute. There is a timer on it to preset time and it stops automatically in every 120 seconds.

70.7 mm cube mould (CFCM-0926) should be ordered separately.

Dimensions	450x650x850 mm
Weight (approx.)	80 kg
Eccentric Shaft Rotation	12000 r.p.m.
Power	1100 W

CURING of MORTAR SAMPLES TESTS

Product Code

CFCM-1100 Curing Cabinet 1000 L

Models for 220-240V 50-60 Hz, 1 ph	CFCM-1100
Models for 110-120V 60 Hz, 1 ph.	CFCM-1100-N

Standards

EN 196-1; ISO 679

The CFCM-1100 Curing Cabinet is used for curing of cement, concrete or other cement based mortar specimens. The curing cabinet provides (20 ± 1)°C temperature and over 90% RH humidity. Internal chamber is made of stainless steel. The temperature is maintained by a heater and cooler unit which are supplied complete with cabinet.

The humidity and temperature can be controlled and monitored on the digital control unit.

The Cabinet has a LAN port for connection to a PC. Free of charged CFU Software (USOFT-1100) and a LAN cable supplied complete with the cabinet. Temperature and humidity data can be monitored and recorded in real time during the test by connection to a PC. With CFU Software, data can be converted to an excel report.

CFCM-1100 Curing Cabinet is also supplied complete with six displaceable shelves.

Internal Dimension	1140x680x1370 mm
External Dimension	1400x800x2100 mm
Weight (approx.)	200 kg
Power	1200 W

CURING of MORTAR SAMPLES TESTS

Product Code

CFCM-1110 Climatic Cabinet 1000 L

Models for 220-240V 50-60 Hz, 1 ph	CFCM-1110
Models for 110-120V 60 Hz, 1 ph.	CFCM-1110-N

Standards

EN 196-1, 12004

The Climatic Cabinet is used for conditioning cementitious specimens such as adhesives for tile, mortars for repair, masonary and plastering in order to prepare their tests.The cabinet provides humidity range from 50% to over 95% with ±5 % Rh at the temperature range between 150C to 500C (±1.0°C between 200C to 300C, ±1.5°C other temperatures). Internal chamber made of stainless steel. The temperature is maintained by a heater and cooler unit which are supplied complete with cabinet.

The humidity and temperature can be controlled and monitored on the digital control unit.

The Cabinet has a LAN port for connection to a PC. Free of charged CFU Software(USOFT-1110) and a LAN cable supplied complete with the cabinet. Temperature and humidity data can be monitored and recorded in real time during the test by connection to a PC. With CFU Software, data can be converted to an excel report.

CFCM-1110 Climatic Cabinet is is also supplied complete with six displaceable shelves.

Internal Dimension	1140x680x1370 mm
External Dimension	1400x800x2100 mm
Weight (approx.)	200 kg
Power	1200 W

CEMENT COMPRESSION & FLEXURAL FRAMES

Product Code

CFCM-3722 250 kN (56.200 lbf) Cement Compression Frame
CFCM-3742 250/15 kN (56.200/3370 lbf) Cement Compression/Flexure Frame
CFCM-3724 Transparent Front-Rear Safety Doors for CFCM-3722
CFCM-3744 Transparent Front-Rear Safety Doors for CFCM-3742


CFCM-3722

Standards

EN 196-1, 459-2, 1015-11, 13454-2; ASTM C109, C348, C349;BS 4550-3.4

The CFCM-3722 and CFCM-3742, very rigid two column frames have been designed for compression and/or flexure testing of mortar prisms and cubes specimens. Load cells are used on both frames to provide high accuracy in load measuring. Both frames are fitted with round platens with 165 mm diameter and these should be used together with suitable flexure and compression devices.

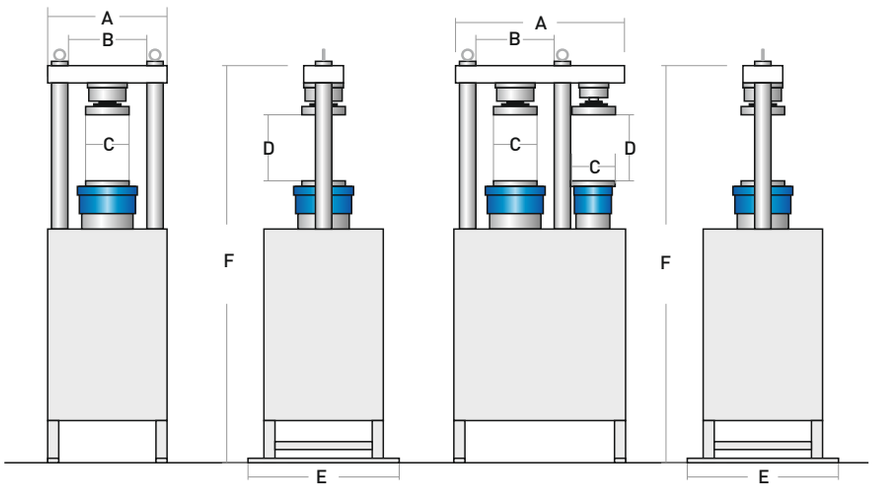
Distance pieces and transparent front-rear safety doors (should be factory insttalled) should be ordered separately.

Loading Cylinder Assembly & Limit Switch

All frames have a single acting up stroking ram. The diameter of piston changes with regard to the capacity.

The maximum ram stroke is 20 mm, a limit switch is fitted to prevent over travel of the ram which cuts the power to the pump. There is a low friction coaxial bronze seal between the cylinder and the piston fitted to the cylinder.

Dimensions



	CFCM-3722	CFCM-3742
A	460 mm (18,1")	650 mm (25,6")
B	300 mm (11,8")	266 mm (10,47")
C	Ø165 mm (6,5")	Ø165 mm (6,5")
D	237 mm (9,3")	237 mm (9,3")
E	500 mm (19,7")	500 mm (19,7")
F	1580 mm (62,2")	1580 mm (62,2")
Weight	185 kg (408 lbs)	280 kg (617 lbs)


CFCM-3742

CEMENT COMPRESSION & FLEXURAL FRAMES

Product Code

CFC-4630	Distance piece Ø165 mm x 15 mm (Ø6,5"x0,59")
CFC-4631	Distance piece Ø165 mm x 30 mm (Ø6,5"x1,18")
CFC-4633	Distance piece Ø165 mm x 50 mm (Ø6,5"x1,97")
CFC-4634	Distance piece Ø165 mm x 100 mm (Ø6,5"x3,93")
CFC-4116	Upper Loading Platen with Ball Seating Assembly

Distance Pieces

Distance Pieces for Frame

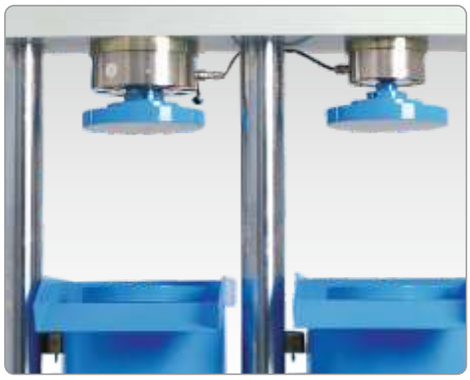
Due to the modular design of the frames any sample with suitable size, load and pace rate can be test on both chambers by decreasing the distance between platens.

Loading Platens

CFCM-4116 Lower and Upper (spherical seated) Loading Platens. Ø:165 mm

Manufactured from high quality steel are hardened (more than HRC 55), smoothed and finished.

The roughness value for the surface texture of machine platens are 3.2 µm.



CFCM-4116 Platens

Accessories

CFCM-4200A Flexure Jig Assembly to test 40x40x160 mm Mortar Prisms, ASTM
CFCM-4200E Flexure Jig Assembly to test 40x40x160 mm Mortar Prisms, EN
CFCM-4210A Compression Jig Assembly to test 50 mm (2") Mortar Cubes, ASTM
CFCM-4210E Compression Jig Assembly to test portions of 40x40x160 mm Prisms, EN
CFCM-4210B Compression Jig Assembly to test 70,7 mm Cube, BS

CFCM-4200A

CFCM-4210A

CFCM-4210E

CFCM-4210B

MANUAL CEMENT COMPRESSION and FLEXURAL MACHINES

Product Code

CFCM-3722.MLP	250 kN (56.200 lbf) Manual Cement Compression Testing Machine
CFCM-3742.MLP	250/15 kN (56.200/3370 lbf) Manual Cement Compression/Flexure Testing Machine
CFCM-4116	Lower and Upper (spherical seated) Loading Platen 165mm
CFCM-4200A	Flexure Jig Assembly to test 40x40x160 mm prisms, ASTM
CFCM-4200E	Flexure Jig Assembly to test 40.1x40x160 mm prisms, EN
CFCM-4210A	Compression Jig Assembly to test 50 mm (2") cubes
CFCM-4210E	Compression Jig Assembly to test portions of 40.1x40x160 mm prisms, EN
CFCM-4210B	Compression Jig Assembly BS, to test 70,7 mm cubes
CFCM-3724	Transparent Front-Rear Safety Doors for CFCM-3722
CFCM-3744	Transparent Front-Rear Safety Doors for CFCM-3742

Standards

EN 196-1, 459-2, 1015-11, 13454-2; ASTM C109, C348, C349; BS 4550-3.4

CFCM-3742.MLP

CFCM-3722.MLP

The CFCM-3722.MLP and CFCM-3742.MLP single and double testing chamber Manual compression and flexure testing machines are designed to perform reliable strength and flexure tests on mortar specimens. The manual machines are especially suitable for on-site applications when electric power supply is not available.

Being a low cost alternative, CFU manual testing series combine precision and simplicity with the unique design of the manual power pack which enables even an inexperienced operator to perform excellent compression and flexure tests on-site.

These manual testing machines conform to the standards EN 196-1, 459-2, 1015-11, 13454-2; ASTM C 109, C348, C349 by using suitable accessories. They also meet with the requirements of CE norms with respect to operator health and safety.

The CFU manuel cement compression and flexure testing machines consist of very rigid two column single or double chamber frame, manuel power pack and data acquisition system LPI.

Compression and flexture jigs, distance pieces, and also removable transparent front-rear safety doors (should be factory installed) should be ordered separately.

Manuel Power Pack

The CFC-4810 Hand Operated (Manual) Hydraulic Power Pack has been designed to be used with range of CFU Compression machines and flexural frames to use on site and/or where electricity is not
available.

The pump is equipped with a radial piston pump so that the loading is continuous as long as user turns the wheel installed on the pump. The loading is uniform as on an automatic machine.

Dimensions	300x400x600 mm
Weight (approx.)	50 kg

CFC-4810 with CFC-4920LP

LPI Battery Operated Digital Readout Unit

The LPI Battery Operated Digital Readout Unit (CFC-4920LP) has been designed to use with load cells or pressure transducers on different material test applications.

- The unit is operates with DC voltage source of -1,5 to 1,5 volts.
- Real time numeric display of load and load rate
- 1 channel with two different calibration table
  (by changing the sensor belong to other frame, the unit can be control for second test frame)
- Peak hold property
- Multi-point calibration
- Can operate with 2 x AA batteries
- Easy preload zeroing
- Serial port for PC or printer
- 8 keys keyboard

CFC-4920LP

Dimensions	150x200x200mm
Weight (approx.)	1 kg

Technical Specifications

Model	CFCM-3722.MLP	CFCM-3742.MLP	
Test Type	Compression	Flexure	Compression
Capacity	250 kN (56.200 lbf)	15 kN (3370 lbf)	250 kN (56.200 lbf)
Class 1 Measuring Range	1 % for 250 kN	1 % for 15 kN	1 % for 50 kN
The Roughness Value for Texture of Loading Platens	≤ 3.2 µm	≤ 3.2 µm	≤ 3.2 µm
Lower Platen Dimensions	165 mm (6,5")	165 mm (6,5")	165 mm (6,5")
Upper Platen Dimensions	165 mm (6,5")	165 mm (6,5")	165 mm (6,5")
Maximum Vertical Clearance Between Platens	237 mm (9,3")	237 mm (9,3")	237 mm (9,3")
Piston Diameter	Ø160 mm (6,3")	Ø160 mm (6,3")	Ø160 mm (6,3")
Maximum Piston Movement	20 mm (1,18")	20 mm (1,18")	20 mm (1,18")
Horizontal Clearance	300 mm (11,8")	274 mm (10,8")	266 mm (10,47")
Oil Capacity	13 L	13 L	
Rapid Approach Rate	50 mm/min 2 inc/min	80 mm/min 3,15 inc/min	50 mm/min 2 inc /min
Dimensions (WxLxH)	760x500x1650 mm (30"x19,7"x62,2")	980x500x1650 mm (37,4"x19,7"x62,2")	
Weight	230 kg (518 lbs)	320 kg (705 lbs)	

The Maximum horizontal clearance for placing the sample is limited by the border of the platens. Sample must be placed such that its ends will not overlap the ends of platens and it must be centered perfectly. The minimum vertical clearance for the specimen can be adjusted using the distance pieces.

SEMI-AUTOMATIC CEMENT COMPRESSION & FLEXURAL MACHINES

Product Code

CFCM-3722.SLP	250 kN Semi-Automatic (Motorized) Cement Compression Testing Machine
CFCM-3742. SLP	15/250 kN Semi-Automatic (Motorized) Cement Flexure Compression Testing Machine
CFCM-4116	Lower and Upper (spherical seated) Loading Platens. Ø:165 mm
CFCM-4200E	Flexure Jig Assembly to test 40,1x40x160 mm prisms, EN
CFCM-4200A	Flexure Jig Assembly to test 40x40x160 mm prisms, ASTM
CFCM-4210E	Compression Jig Assembly to test portions of 40.1x40x160 mm prisms, EN
CFCM-4210A	Compression Jig Assembly to test 50 mm (2") cubes
CFCM-4210B	Compression Jig Assembly BS, to test 70,7 mm cubes
CFCM-3724	Transparent Front-Rear Safety Doors for CFCM-3722
CFCM-3744	Transparent Front-Rear Safety Doors for CFCM-3742

Models for 220-240V 50-60 Hz, 1 ph.	CFCM-3722.SLP	CFCM-3742.SLP
Models for 110-120V 60 Hz, 1 ph.	CFCM-3722.SLP-N	CFCM-3742.SLP-N

Standards

EN 196-1, 459-2, 1015-11, 13454-2; ASTM C109, C348, C349; BS 4550-3.4

The CFU Semi-Automatic (Motorized) range of single testing chamber and double testing chamber compression and flexure testing machines have been designed for reliable and consistent testing of mortar samples.

These compression and flexure testers are the results of continuous applications and research studies to upgrade the machines with the latest technologies and conform with current standards EN 196-1, 459-2, 1015-11, 13454-2; ASTM C 109, C348, C349 and BS 3892-1, 4551-1 in terms of its technical properties taking into account client requirements by using suitable accessories. These testers also meet the requirements of CE norms for safety and health of the operator.

The CFU Semi-Automatic cement compression and flexure testing machines allow operators who have minimal experience to perform the tests.

The CFU Semi-Automatic cement compression and flexure testing machines consist of a very rigid two column single or double chamber frame and CFC-4820SLP hydraulic powerpack with LPI Battery Operated Digital Readout Unit.

The machines are supplied with factory calibration certificate for the load cells measurements.

Compression and flexure jigs, distance pieces, and also removable transparent front-rear safety doors (should be factory installed) should be ordered separately.

Main Features

- Class A (ASTM) starting from with the 1 % of the 250 kN and 15 kN capacity Multi-point calibration
- 2 channels for load-cell or pressure transducer with two different calibration table (LPI Battery Operated Digital Readout Unit (CFC-4920LP)
- Multi-point calibration
- Real time numeric display of load and load pressure
- Peak hold property
- RS232 Serial port for PC or thermal or dot matrix printer
- Free of charge CFU software for compression/flexture testing machines (USOFT-4820.SLP) for compression, flexture, splitting tensile strength tests of construction materials such as concrete, cement, brick/masonary units

CFCM-3742.SLP

CFCM-3722.MLP

Power Pack

The CFC-4820 Motorized (Semi-Automatic) Power Pack, controlled by a pressure rate control valve, is designed to supply the required oil to the load frames for loading. The power pack can load different frames with required pace rates. A rapid approach pump is supplied as standard. The power pack is equipped with a safety valve (maximum pressure valve) to avoid machine overloading.

The dual stage pump is formed by two groups, one is low pressure gear pump and second high pressure radial piston pump.

On the dual stage pump, high delivery low pressure gear pump is used for rapid approach, while low delivery high pressure durable variable output pump is used for test execution. Rapid approach property of the machine shortens the time interval from the piston starts moving until the upper platen touches to the specimen and helps to save a great amount of time in case of numerous specimens are going to be tested.

The motor which drives the dual pump is an AC motor and 0.55 kW

A distribution block is used to control the oil flow direction supplied by the dual stage pump and those are are fitted to solenoid valve, safety valve (maximum pressure valve), low pressure gear pump and high pressure radial piston pump

The tank (20 L capacity) includes enough oil to fill the mechanism which pushes the ram during the test. The level and oil temperature can be seen on the indicator fitted to the tank. Hydraulic motor oil number 46, must be used in the tank.

CFC - 4820

Safety Features

- Maximum pressure valves to avoid machine overloading
- Piston travel limit switch
- Removable transparent front-rear safety doors (Should be factory installed and ordered separately)

CFU Software for Semi-Automatic Cement Compression/Flexure Tests (USOFT-3722.SLP)

USOFT-3722.SLP Test Software is improved for semi-automatic cement compression and flexural testing machineswith LPI Battery Operated Digital Readout Unit durring the test to collect and record data and to prepare the report containing the results obtained. Before the test, a PC which the CFU software is installed is connected to RS232 port of LPI reading unit, the data obtained in the test can be monitored and recorded in real time. The advanced functions for data base management provide an easy navigation of all saved data. Test report including the test results and user defined test information (names and the Company details, test type, specimen type, user info and other knowledge required) can be print out.

Technical Specifications

Model	CFCM-3722.SLP	CFCM-3742.SLP	
Test Type	Compression	Flexure	Compression
Capacity	250 kN (56.200 lbf)	15 kN (3370 lbf)	250 kN (56.200 lbf)
Class 1 Measuring Range	1 % for 250 kN	1 % for 15 kN	1 % for 50 kN
The Roughness Value for Texture of Loading Platens	≤ 3.2 µm	≤ 3.2 µm	≤ 3.2 µm
Lower Platen Dimensions	Ø165 mm (6,5")	Ø165 mm (6,5")	Ø165 mm (6,5")
Upper Platen Dimensions	Ø165 mm (6,5")	Ø165 mm (6,5")	Ø165 mm (6,5")
Maximum Vertical Clearance Between Platens	237 mm (9,3")	237 mm (9,3")	237 mm (9,3")
Piston Diameter	Ø160 mm (6,3")	Ø160 mm (6,3")	Ø160 mm (6,3")
Maximum Piston Movement with Limit Switch	20 mm (1,18")	20 mm (1,18")	20 mm (1,18")
Horizontal Clearance	300 mm (11,8")	274 mm (10,8")	266 mm (10,47")
Power	550 W	550 W	
Oil Capacity	20 L (0,7 ft3)	20 L (0,7 ft3)	
Rapid Approach Rate	50 mm/min 2 inc/min	80 mm/min 3,15 inn/min	50 mm/min 2 inc /min
Dimensions (WxLxH)	760x500x1650 mm (30"x19,7"x62,2")	980x500x1650 mm (37,4"x19,7"x62,2")	
Weight	255 kg (562 lbs)	350 kg (772 lbs)	

The Maximum horizontal clearance for placing the sample is limited by the border of the platens. Sample must be placed such that its ends will not overlap the ends of platens and it must be centered perfectly. The suitable vertical clearance for the specimen can be adjusted using the distance pieces.

AUTOMATIC CEMENT COMPRESSION & FLEXURAL MACHINES

Product Code

CFCM-3722.FPR	250 kN Automatic Cement Compression Testing Machine
CFCM-3742.FPR	15/250 kN Automatic Cement Flexure/Compression Testing Machine
CFCM-4116	Lower and Upper (spherical seated) Loading Platen, Ø:165 mm
CFCM-4200A	Flexure Jig Assembly to test 40x40x160 mm prisms, ASTM
CFCM-4200E	Flexure Jig Assembly to test 40.1x40x160 mm prisms, EN
CFCM-4210A	Compression Jig Assembly to test 50 mm (2") cubes
CFCM-4210E	Compression Jig Assembly to test portions of 40.1x40x160 mm prisms, EN
CFCM-4210B	Compression Jig Assembly BS, to test 70,7 mm cubes
CFCM-3724	Transparent Front-Rear Safety Doors for CFCM-3722
CFCM-3744	Transparent Front-Rear Safety Doors for CFCM-3742

Models for 220-240V 50-60 Hz, 1 ph.	CFCM-3722.FPR	CFCM-3742.FPR
Models for 110-120V 60 Hz, 1 ph.	CFCM-3722.FPR-N	CFCM-3742.FPR-N

Standards

EN 196-1, 459-2, 1015-11, 13454-2; ASTM C109, C348, C349; BS 4550-3.4

CFCM-3742.FPR

The CFU Automatic range of single testing chamber and double testing chamber compression and flexure testing machines have been designed for reliable and consistent testing of mortar samples.
These compression and flexure testers are the results of continuous applications and research studies to upgrade the machines with the latest technologies and conform the current standards EN 196-1, 459-2, 1015-11, 13454- 2; ASTM C 109, C348, C349 and BS 3892-1, 4551-1 in terms of its technical properties taking into account client requirements by using suitable accessories. These machines also meet the requirements of CE norms for safety and health of the operator.
Tests can be performed by either on CFC-4930.FPR U-Touch PRO Control Unit or on a computer with using USOFT-4830.FPR Software which is provided free of charge with the machines. The advantages of performing tests on computer with using CFU Software, such as reporting, graphical output, etc. can be seen in detail at the USOFT-4830.FPR pages. (The CFU Software for Automatic Compression / Flexure Testing Machines with CFC-4830FPR Hydrolic Power Pack)Compression and flexture jigs, distance pieces, and also removable transparent front-rear safety doors (should be factory installed) should be ordered separately.
The CFU automatic cement compression and flexure testing machines allow less experienced operators to perform the tests. Once the machine has been switched on and the specimen is positioned and centered by the help of centering apparatus. The only required operations are;

- Setting test parameters, including pace rate (only required when the specimen type is changed.)
- Choosing the compression or flexure frame by using the changeover valve.
- Pressing the START button on the control unit.
- The machine automatically starts the rapid approach; switches the test speed after 1% of the load capacity of the machine and stops once the specimen failure.
- Automatically saves the test parameters and test results.

The CFU automatic cement compression and flexure testing machines consist of very rigid two column single or double chamber frames (see table) and CFC-4830FPR automatic hydraulic power pack with U-Touch PRO Control Unit.

CFCM-3742.FPR with CFCM-3744

Power Pack

CFC-4830.FPR Automatic Hydraulic Power Pack with U-Touch PRO Control Unit is designed to supply the required oil to the load frames for loading. Very silent power pack can load the specimen between 50 N/sec to 2.4 kN/sec with an accuracy of ±5%. A Rapid approach pump is supplied as standard. Safety valve (maximum pressure valve) is used to avoid machine overloading.

The motor which drives the dual pump is an AC motor and 0.75 kW and it is controlled by Omron J7 motor inverter. The variation in the oil flow is executed with the variation of the rotation speed of the motor.

A distribution block is used to control the oil flow direction supplied by the dual stage pump and those are are fitted to solenoid valve, safety valve (maximum pressure valve), low pressure gear pump and high pressure radial piston pump

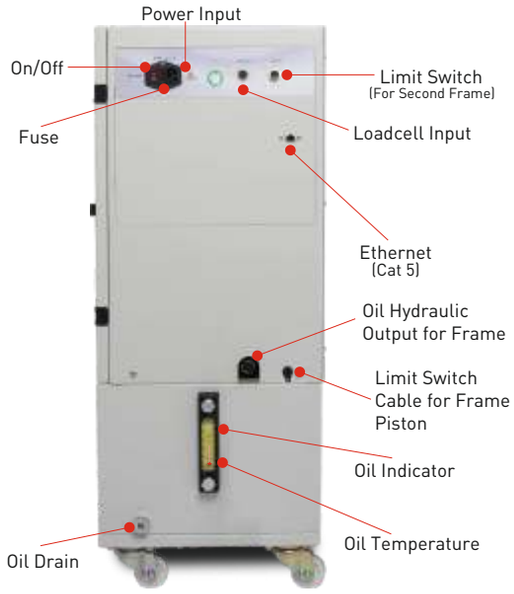
The dual stage pump is formed by two groups, one is low pressure gear pump and second high pressure radial piston pump.

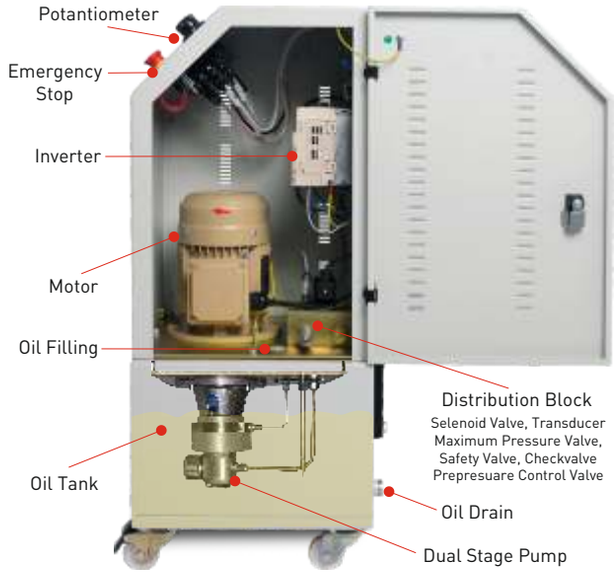
On the dual stage pump, a high delivery, low pressure gear pump is used for rapid approach, while a low delivery, high pressure radial piston pump is used for test execution. The rapid approach facility shortens the time interval from piston start until the upper platen touches to the specimen. This excellent feature helps to save a lot of time when a large number of specimens are going to be tested.

The oil tank includes enough oil to fill the mechanism which pushes the ram during the test. The level and oil temperature can be seen on the indicator fitted to the tank. It has 20 L capacity. Hydraulic motor oil, number 46, must be used.

CFCM-3722.FPR

CFC - 4830FPR





Strength Tests

U-Touch PRO Control Unit for Automatic Compression/Flexure Testing Machines

U-Touch PRO Control Unit CFC-4930.FPR is designed to perform automatically compression, flexure and splitting tensile strength tests of construction materials such as cement mortar, concrete, masonary units/blocks by controlling the CFU automatic compression / flexure testing machines.

All the operations of U-Touch PRO are controlled from the front panel touch screen display.

U-Touch PRO Control Unit has easy to use menu options. It displays all menu option listings simultaneously, allowing the operator to access the required option in a seemless manner to activate the option or enter a numeric value to set the test parameters. Digital graphic display is able to draw real-time "Load vs. Time", or "Stress vs. Time" graphics

PLEASE see the pages of "U-Touch PRO Control Unit for Automatic Compression/Flexure Testing Machines" for details of the properties.

CFU Software for Automatic Compression / Flexure Testing Machines

CFU software USOFT-4830.FPR provides to perform automatically compression, flexure and splitting tensile strength tests of construction materials such as concrete, cement mortar, masonary units/blocks by controlling the CFU automatic compression / flexure testing machines

The advantages of performing tests on computer with using CFU Software, such as reporting, graphical output, etc. can be seen in detail at the pages of CFU Software for Automatic Compression / Flexure Testing Machines.

Main Features

- **Pace rate control from 50 N/sec (flexture) to 2,4 kN/sec (compression)**
- **Class 1 (EN ISO) and Class A (ASTM) starting from with the 1 %. for 250 kN and 15 kN capacity**
- **Supplied with factory calibration certificate for load measurement**
- **Closed loop control with automatic test procedure.**
- **Can make the test with load control**
- **Stand-Alone control or computer control**
- **Free of charge CFU software(USOFT-4830.FPR) for the tests**
- **Load measurment with the load cell.**
- **Hydrolic pump with dual stage for rapid approach**
- **Piston return at the end of test automatically**
- **Adjustable rapid approach rate**

Safety Features

- **Maximum pressure valves to avoid machine overloading**
- **Piston travel limit switch**
- **Emergency stop button**
- **Software controlled maximum load value**
- **Removable transparent front-rear safety doors (Should be factory installed and ordered separately)**

Technical Specifications

Model	CFCM-3722.FPR	CFCM-3742.FPR	
Test Type	Compression	Flexure	Compression
Capacity	250 kN (56.200 lbf)	15 kN (3370 lbf)	250 kN (56.200 lbf)
Class 1 Measuring Range	1 % for 250 kN	1 % for 15 kN	1 % for 50 kN
The Roughness Value for Texture of Loading Platens	≤ 3.2 µm	≤ 3.2 µm	≤ 3.2 µm
Lower Platen Dimensions	Ø165 mm (6,5")	Ø165 mm (6,5")	Ø165 mm (6,5")
Upper Platen Dimensions	Ø165 mm (6,5")	Ø165 mm (6,5")	Ø165 mm (6,5")
Maximum Vertical Clearance Between Platens	237 mm (9,3")	237 mm (9,3")	237 mm (9,3")
Piston Diameter	Ø160 mm (6,3")	Ø160 mm (6,3")	Ø160 mm (6,3")
Maximum Piston Movement with Limit Switch	20 mm (1,18")	20 mm (1,18")	20 mm (1,18")
Horizontal Clearance	300 mm (11,8")	274 mm (10,8")	266 mm (10,47")
Power	750 W	750 W	
Oil Capacity	20 L (0,7 ft3)	20 L (0,7 ft3)	
Maximum Working Pressure	125 Bar	30 - 125 Bar	
Rapid Approach Rate	50 mm/min 2 inc/min	80 mm/min 3,15 inc/min	50 mm/min 2 inc/min
Dimensions (WxLxH)	830x500x1650 mm (32,7"x19,7"x62,2")	1050x500x1650 mm (40,2"x19,7"x62,2")	
Weight	270 kg (595 lbs)	365 kg (805 lb)	

Maximum horizontal clearance for placing sample is limited with the border of the platens. Sample must be placed such that its ends will not overlap the ends of platens and it must be centered perfectly. The suitable vertical clearance for specimen can be adjusted with distance pieces.

AUTOMATIC CEMENT COMPRESSION & FLEXURAL MACHINES

Product Code

CFCM-4223	**Tensile Adhesion Strength Test Apparatus 5 kN, EN 1348**
CFM-8450	**Pull Headed Plate Set, EN 1348**
CFM-8480	**Pull Headed Plate Set, EN 1015-12**
CFM-8582	**Frusto-Conical Shaped Ring, EN 1015-12**

Standards

EN 1348, 1015-12

CFCM-4223 Tensile Adhesion Strength Test Apparatus can be fitted to the CFU Cement Compression or Compression/ Tension testing machines. This apparatus is supplied complete with 5 kN load cell and should be installed at our factory.

CFM-8450 Pull-Headed Plate Set consists of 6 pcs. metal plates with a fitting for connection to the test machine. The plates are 50x50 mm edged and 10 mm thickness.

CFM-8480 Pull Headed Plate Set consists of 6 pcs. stainless steel plates with a fitting for connection to the test machine. The plates 50 mm dia. and 20 mm thickness.

CFM-8482 Frusto-Conical Shaped Ring is 50 mm dia. and stainless steel.

CFM-8070

CFCM-4223

CFCM-3722.FPR with CFCM-4223

U-Touch PRO Control Unit

U-Touch PRO Control Unit CFC-4930.FPR is designed to perform automatically compression, flexure and splitting tensile strength tests of construction materials such as cement mortar, concrete, masonary units/blocks by controlling the CFU automatic compression / flexure testing machines.

All the operations of U-Touch PRO are controlled from the front panel touch screen display.

U-Touch PRO Control Unit has easy to use menu options. It displays all menu option listings simultaneously, allowing the operator to access the required option in a seemless manner to activate the option or enter a numeric value to set the test parameters.

Digital graphic display is able to draw real-time "Load vs. Time", or "Stress vs. Time" graphics

PLEASE see the pages of "U-Touch PRO Control Unit CFC-4930.FPR" for details of the properties.

CONSISTENCY

Product Code

CFCM-0665 Plunger Penetration Apparatus
CFCM-0662E Tamper EN Ø40x200 mm 250 gr

Standards

EN 413-2, 459-2, 1015-4

The CFU Plunger Penetration Apparatus is used to determine the consistency of fresh mortar, building lime and masonry cement.

The test apparatus consists of a base to place the test cup and a vertical column holding the penetration plunger assembly.

The drop default height is adjusted to 100 mm. The plunger assembly weight is 90 g.

The Plunger Penetration Apparatus is supplied complete with;

- Test cup, Ø 80 mm x 70 mm
- Tamper

Dimensions	200x200x600 mm
Weight (approx.)	6 kg

AIR CONTENT

Product Code

CFCM-0666 Air Entrainment Meter for Mortar 1 L
CFCM-0662E Tamper EN Ø 40x200 mm 250 gr

Standards

EN 413-2, 459-2, 1015-7

The CFCM-0666 Air Entrainment Meter for Mortar is used for determining the air content of cement paste, cement mortar and lime mortar.
The air entrainment meter is manufactured from cast aluminum, the upper part and the lower test pot are held together with an air-tight seal which are easily adjusted by using the two spring clamps. The pressure gauge is installed in the head of the meter and the scale works in the 0-20 volumetric % range. The air is compressed with a hand pump installed in the system and the smart configuration of the test and correction buttons enables fast and simple testing.

Dimensions	Weight (approx.)
200x200x320 mm	3,5 kg

WATER RETENTION

Product Code

CFCM-0670 Solid Mould

Standards

EN 413-2

The CFCM-0670 Solid Mould is used to determine the water retention of masonry cement specimens. Supplied with a glass plate.

Dimensions	Weight (approx.)
150x150x40 mm	0.2 kg

REACTIVITY of LIME

Product Code

CFCM-0678 Apparatus For Reactivity of Quicklime with digital thermometer , EN 459-2 110-240 V 50-60 Hz, 1Ph
CFCM-0679 Apparatus For Reactivity of Quicklime with Advanced Datalog Thermometer EN 459-2, 110-240 V 50-60 Hz 1 Ph

Standards

EN 459-2

The CFCM-0678 and CFCM-0679 Reactivity of Quicklime Apparatus are used to determine the reactivity of ground quicklime on slaking.

These Apparatus consist essentially of a Dewar vessel, 1000 ml cap., stirring motor, calibrated thermometer, stand and accessories.

Two models are available:
- CFCM-0678 is supplied with digital thermometer
- CFCM-0679 is supplied with advanced datalog thermometer, temperature probe, serial cable for PC connection and dedicated software for download data.

Dimensions	350x300x800 mm
Weight (approx.)	9,5 kg

YIELD of LIME

Product Code

CFCM-0681 Slaking Vessel EN

Standards

EN 459-2

CFCM-0491 Slaking Vessel is used to determine the yield of lime by leaving the lime sample to slake into. Stainless steel made and double walled insulated. The cylinder has inside dimensions dia. 113 mm by 140 mm deep. Supplied complete with cover.

Dimensions
120x120x160 mm
Weight (approx.)
4 kg

BULK DENSITY of LIME

Product Code

CFCM-0680 Bulk Density Apparatus

Standards

EN 459-2

The bulk density of lime is of interest for storage and packaging and for determining volume and capacity of mixing equipment necessary for processing the material.

The CFCM-0680 Bulk Density Apparatus is designed to determine bulk density of lime by allowing a sample to fall from a standard height into a volumetric container.

The apparatus consists of a hopper, 1 liter capacity cylindrical container and a spring-loaded yoke.

Dimensions	Weight (approx.)
250x250x750 mm	2.0 kg

FLOW PROPERTY

Product Code

CFCM-0700E Flow Cone Apparatus
CFCM-0701E Flow Cone
CFCM-0702E Ø:8 mm Nozzle
CFCM-0703E Ø:9 mm Nozzle
CFCM-0704E Ø:10 mm Nozzle
CFCM-0705E Ø:11 mm Nozzle
CFCM-0706E Ø:13 mm Nozzle

Standards

EN 445

CFCM-0700E Flow Cone Apparatus is used for determining the flow properties of grouts, mortars, muds and other fluid materials.

The Flow Cone Appratus is supplied complete with

Cone, Sieve 1,5 mm,
Cup 1 L, Nozzle 10 mm,
Fitting Bush, Stand

CFCM-0700E

Ø:8, 9, 10, 11, 13 mm Nozzle

Dimensions
250x250x600 mm
Weight (approx.)
10 kg

Building Lime, Grout and Mud Testing

FLOW PROPERTY

Product Code

CFCM-0720A Grout Flow Cone Test Set, ASTM, 1/2" (12,7 mm)
CFCM-0721A Grout Flow Cone, ASTM, 1/2" (12,7 mm) with point gauge assembly
CFCM-0722A Ø1/2" (12,7 mm) Orifice
CFCM-0724A Flow Cone Stand
CFCM-0725A Stainless Steel Beaker, 6 L
CFCM-0730A Grout Flow Cone Test Set, ASTM, 3/4" (19mm)
CFCM-0731A Grout Flow Cone, ASTM, 3/4" (19mm) with point gauge assembly
CFCM-0732A Ø3/4" (19 mm) Orifice

Standards

ASTM C939

CFCM-0720A and 0730A Flow ConeTest Sets are used for determining the flow properties of grouts, mortars, muds and other fluid materials.

The test set with a 0.75" (19mm) orifice (CFCM-0730A) does NOT comply with ASTM C939, but can be used grout with larger sized aggregate.

The Grout Flow Cone Test Sets are supplied complete with;

- Grout Flow Cone with point gauge assembly
- Flow Cone Stand
- Stainless Steel Beaker, 6 L

Dimensions	250x400x600 mm
Weight (approx.)	14 kg

VISCOSITY PROPERTY

Product Code

CFCM-0750 Marsh Funnel Viscometer

Standards

ASTM D6910, API Recommended Practice 13B-1

The CFCM-0750 Marsh Funnel Viscometer is used for the determination of flow time by the use of flow cups of fluid materials such as paint, varnish etc. Manufactured from break-resistant rugged plastic to avoid deformations on temperature changes so the volumetric accuracy is maintained. Accurate measurements are taken using the metal orifice.

To avoid the operator's hands coming into contact with the test material, a handle is provided. Supplied complete with 1 liter capacity plastic measuring cup.

Top Diameter	150 mm
Nozzle Length	50 mm
Internal Diameter	5 mm
Total Length	355 mm
Weight (approx.)	0.5 kg

DENSITY of MUD

Product Code

CFCM-0755 Mud Balance

Standards

API Recommended Practice Procedure

The CFCM-0755 Mud Balance, an ideal equipment for site applications, provides an accurate and easy method for determining the mud density. The accuracy of the readings is not affected by the temperature of the drilling mud.

The equipment consists of a base and a graduated arm with an integral spirit level, counter weight, cup, lid, rider, knife-edge. Supplied with a special plastic carrying case which can be used to stabilize the equipment at the working position.

Dimensions	550x110x100 mm
Weight (approx.)	1 kg

FINENESS of FLY ASH

Product Code

CFCM-0760E Wet Sieving Apparatus, EN

Standards

EN 451-2; ASTM C430, D1514; AASHTO T192

The CFCM-0760E Wet Sieving Apparatus is used for determining the fineness of fly ash. The apparatus comprises of a special stainless steel sieve, 0.045 mm opening, a spray nozzle Ø 17.5 mm with 17 holes Ø 0.5 mm oriented and spaced to conform to the standards. Supplied complete with a pressure gauge Ø 80 mm and fittings for connection to the water supply.

The CFCM-0560A Wet Sieving Apparatus is used for determining the fineness of hydraulic cement by means of the 45-µm sieve. Water Spray and pressure is controlled.

Dimensions	250x150x150 mm
Weight (approx.)	2 kg