16

TESTING EQUIPMENT

ALFA

www.alfatest.com.tr

SECTION CODE

G	General
B	Concrete
UTM	Steel Rebar Testing
C	Cement
AG	Aggregate
T	Soil
A	Asphalt
RM	Rock Mechanics
M	Mining | Coal | Iron & Steel
GL	Lab Tools
ML	Mobile Laboratory


ALFA
LABORATORY OVEN (G-030)
• ASTM C 127 • BS 1377
Capacity
# of Doors
# of Shelves
# of Fans
External Dimensions (± 1 cm)
Internal Dimensions (± 1 cm)
Approximate Weight (kg)
120 Lt.
67
250 Lt.
90
400 Lt.
105
600 Lt.
122.5
1000 Lt.
20
Page Number
Section Color
ALFA Website
Technical Specifications

CERTIFICATES

ISO CERTIFICATE

CE CERTIFICATE

ALFA has a fundamental commitment to ensuring that all customers receive the highest quality products and services. Our company holds a rigorous quality management system of EN ISO 9001:2008 certificate to ensure that the customer's requirement are always met.

The certificate confirms that each single step of the manufacturing process, from purchasing to the final process of assembling, testing and packing is elaborately and rigorously controlled to meet the international standards.

WORLDWIDE

COUNTRIES WE EXPORT TO

Afghanistan
Albania
Algeria
Angola
Argentina
Armenia
Azerbaijan
Bahrain
Belarus
Bolivia
Bosnia and Herzegovina
Botswana
Bulgaria
Cameroon
Chechen Republic
Chile
Colombia
Congo
Croatia
Cyprus
Denmark
Djibouti
Dominican Republic
Egypt
England
Ethiopia
France
Gabon
Georgia
Germany
Ghana
Greece
Guinea
India
Iran
Iraq
Ireland
Italy
Jordan
Kazakhstan
Kenya
Kiribati
Kosovo
Kuwait
Kyrgyzstan
Lebanon
Libya
Macedonia
Malaysia
Mauritania
Mecodonia
Mexico
Moldova
Mongolia
Montenegro
Morocco
Nakhchivan Republic
Niger
Nigeria
Oman
Pakistan
Palestine
Panama
Peru
Poland
Qatar
Romania
Russian Federation
Saudi Arabia
Scotland
Serbia
Seychelles
South Africa
South Sudan
Spain
Sudan
Sweden
Syria
Tajikistan
Tanzania
Tunisia
Turkey
Turkmenistan
Uganda
Ukraine
United Arab Emirates
United States of America
Uzbekistan
Venezuella
Yemen

WHO WE ARE

WHO WE ARE

Since its establishment in 1972, ALFA has been manufacturing testing equipment for concrete, cement, aggregates, soil, asphalt, rock, and steel. ALFA has been the leader in customer support, product quality, production excellence, and capacity, in the region and most of the world's countries. We applied over 43 years of experience in the material testing business and have been putting it in an achievement in every aspect of marketing, Research and Developement, customer services, installations and after sale services.

Today, ALFA logo is known as, quality, assurance, integrity and reliability in the world market with professional attitude, work ethic and trust. It was both ward work and the experience throughout the years that developed our attitutude.

With its guarantied quality, customer support, fast delivery time and after sale support, ALFA has been exporting products to more than 90 countries all over the world.

REAL MANUFACTURER

REAL MANUFACTURER

We have around 60 employees at our state-of-the-art facility and our experienced staff uses only the highest quality parts when they manufacture any of our high quality products. Unlike other companies, ALFA manufactures 97% of its products' lines, in this catalogue. ALFA uses the best parts, have experienced workers, engineers top on their class, and excellent quality control management.

Everyone put the highest effort to manufacture, deliver and support the customers for our quality assurance, at their part. At ALFA, we take 100% responsibility of each and every step that taken to deliver the best and high quality products to our customers all around the World.

RESEARCH AND DEVELOPMENT

RESEARCH AND DEVELOPMENT

The test material equipment market is constantly flourished, by the demand of the market, new technologies and international standards.

Therefore, extreme resources have been invested in our computerized design and development facilities. ALFA has been recognizing the new challenges and offers advanced solutions for testing materials in laboratories and on site.

To maintain the high quality standards with which its products have to comply, ALFA pays great attention to in-house control of key technologies. The products offered by ALFA are designed, manufactured and assembled completely in house at ALFA plant in a CAD environment with extensive use of CNC machining and modern factory equipment.

Special thanks goes to our R&D department for the endless effort they've been putting to keep ALFA an industry leader.

PRODUCTION, DELIVERY, CUSTOMER SERVICE

PRODUCTION AND DELIVERY

One of our primary goals is to ensure and deliver the highest quality products with lowest possible cost to our customers.

With constantly monitoring the market and technology, ALFA expended the production line to more than 600 products.

A very important benefit doing business with ALFA is the fact that we keep stock to dispatch, making sure to assure the shortest delivery time.

CUSTOMER SERVICE AND AFTER-SALE SUPPORT

ALFA is a key player in the industry supporting clients before and after the sale, including:

- Meeting customer requirements to deliver the product and its accessories on time,
- Working with customers on-site to maximize their return on investment,
- Providing technical assistance and fast installation by our professional technicians,
- Quick replacement due to stock capacity,
- Although our products don't require much repair due to its high quality components, However, in need of any repair, our experienced technicians are available for help and travel.
- Laboratory setup consultation if needed,
- Architectural design assistance for the laboratory,

EXHIBITION

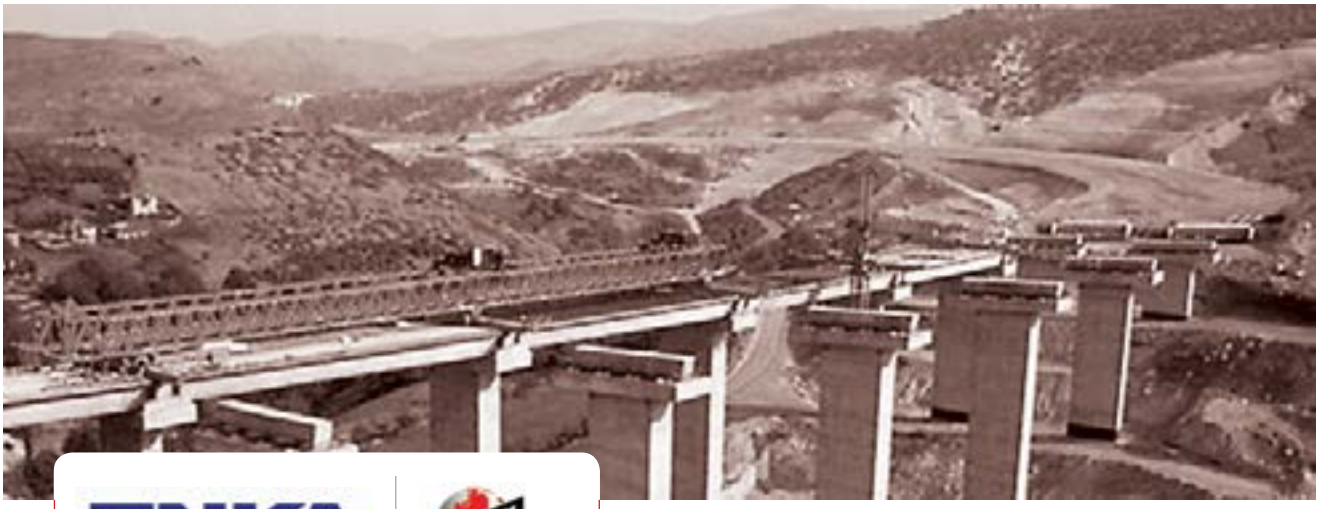
EXHIBITION

Customer contact:
Exhibitions provide excellent venues for initiating contacts with new customers and developing new trade leads. Equally important they enable us to maintain and renew contacts with our existing valued customers.

Product and Service Launch Platforms:
Live presentations and demonstrations of our products and services speak for themselves, accelerating the selling process and generating new leads.

Marketing Communications:
Exhibitions focus media attention to our company and to our products. Public relations efforts can be focused to raise the profile of our company image and brand name.

REFERENCES



ENKA-BECHTEL JV

- Project : Gerede-Ankara and Ankara Peripheral Motorway
- Location : Ankara - TURKEY
- Year : 1992

ODEBRECHT – TAV – CCC JV

- Project : New Tripoli International Airport
- Location : Tripoli - LIBYA
- Year : 2008

MAKYOL - CENGIZ JV

- Project : Erbil International Airport
- Location : Erbil, KRG - IRAQ
- Year : 2004

NUROL

- Project : Baghdad Sadr City Stadium
- Location : Baghdad - IRAQ
- Year : 2012

AYHANLAR HOLDING

- Project : Formula 1 Istanbul Racing Circuit
- Location : Istanbul - TURKEY
- Year : 2005

SAUDI BINLADIN GROUP

- Project : King Abdullah Economic City
- Location : Makka - SAUDI ARABIA
- Year : 2012

YÜKSEL

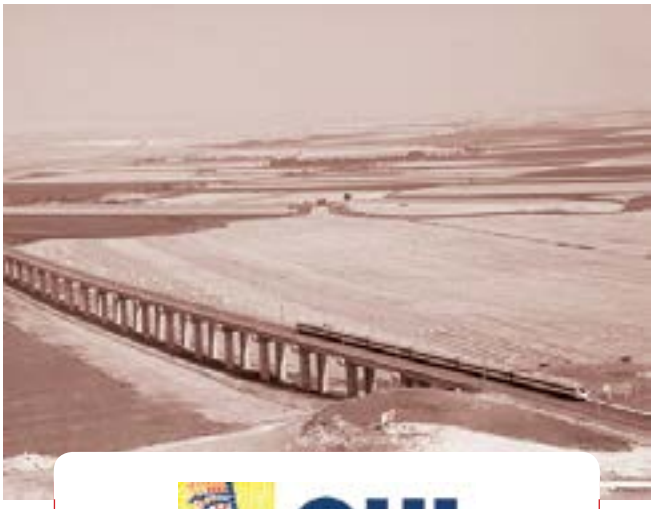
- Project : Kora-Shaqlawa-Qandeel Highway
- Location : KRG - IRAQ
- Year : 2010

IMPREGILO - STFA JV

- Project : FSM Bridge
- Location : FSM Bridge in Istanbul, connecting Europe and Asia
- Year : 1988

KUANTA CONSTRUCTION

- Project : Mafia Airport
- Location : Mafia Island - TANZANIA
- Year : 2012



OHL

- Project : Railway between Annaba and Ramdane Djamel
- Location : ALGERIA
- Year : 2009

DOĞUŞ

- Project : Sofia Metro Project
- Location : Sofia - BULGARIA
- Year : 2009

ENKA

ENKA

- Project : Donbass Arena - FC Shakhtar Donetsk Stadium
- Location : Donetsk - UKRAINE
- Year : 2006

DORCE

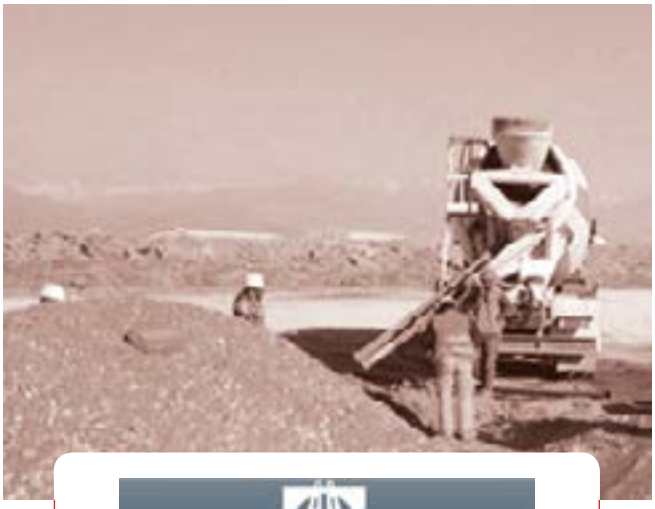
DORCE

- Project : Basra Housing Complex
- Location : Basra - IRAQ
- Year : 2013

CENGİZ HOLDING | mapa inşaat ve ticaret a.ş. | Limak | KOLİN | kalyon

iGA ISTANBUL GRAND AIRPORT : CMLKK JOINT-VENTURE

- Project : Istanbul Grand Airport
- Location : Istanbul - TURKEY
- Year : 2015



77 CONSTRUCTION CONTRACTING & TRADING COMPANY

77 CONSTRUCTION

- Project : Cas Apron Expansion - Bagram Airfield, Afghanistan
- Location : Bagram Airfield - AFGHANISTAN
- Year : 2010

MASS GROUP HOLDING

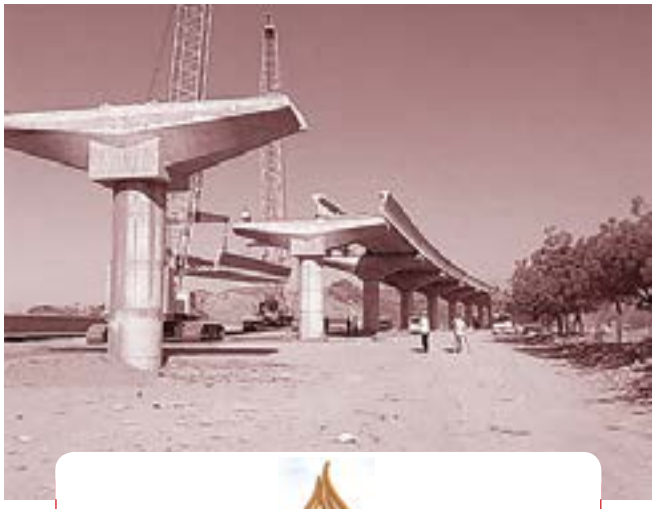
MASS GROUP HOLDING

- Project : Al-Shamal Cement Factory
- Location : Atbara - SUDAN
- Year : 2007

ENKA

ENKA

- Project : Ramstore
- Location : Moscow - RUSSIAN FEDERATION
- Year : 2004



ALARRABI CONSTRUCTION

- Project : Makka - Almadina Railway
- Location : Between Makka and Almadina - SAUDI ARABIA
- Year : 2009

CONTENT

GENERAL

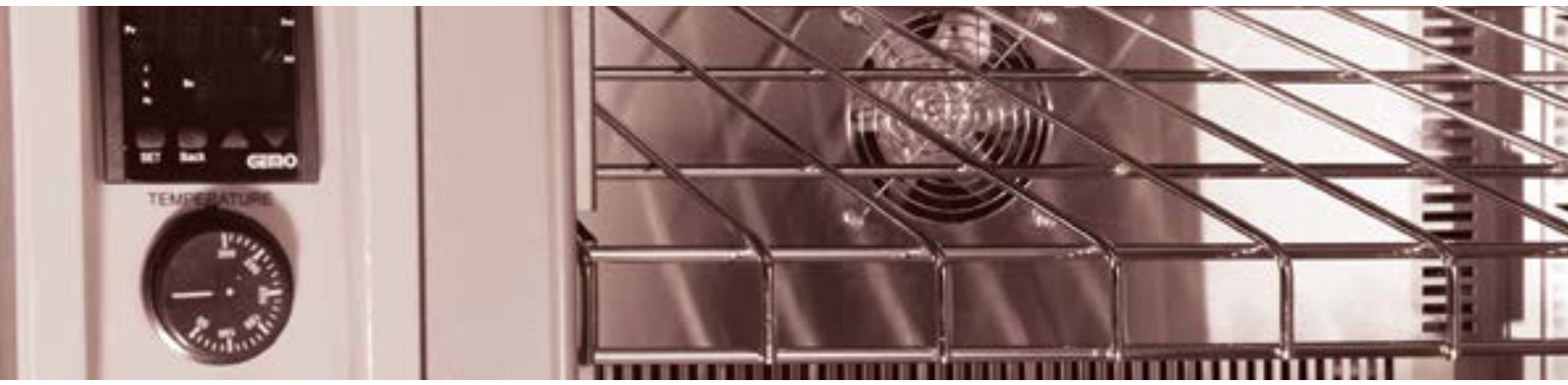
INDEX

GENERAL

LABORATORY OVEN (G-030)

EN 932:5 • ASTM C127 • BS 1377

- Used for drying, conditioning and moisture determination.
- Equipped with a digital thermostat and an indicator with range of ambient to 200°C (392°F) fitted with overheat thermostat to prevent accidental over-temperature and to provide a safe working environment.
- Maximum temperature is regulated with the Proportional Integral Derivative (PID) control and goes to a maximum set value.
- Internal chamber is made of stainless steel and the exterior surface of the oven is powder coated (available in stainless steel). Mineral wool is used in between the internal chamber and the outer cabinet for insulation.
- Exhaust holes for moisture discharge and fast cooling.
- Air circulating fan provides forced convection airflow for uniformity of internal temperature mounted on the back wall.
- Supplied with grid shelves which allows air-flow that can be easily adjusted and/or removed.



LABORATORY OVEN (G-030)

EN 932:5 • ASTM C127 • BS 1377

G-030/400 - Powder Coated Exterior

G-030/250 - Powder Coated Exterior

SUPPLIED WITH

- Two Adjustable shelves (additional shelves can be ordered)
- Digital Thermostat & Indicator
- Overheat Thermostat
- Pilot light heat indicator

TECHNICAL SPECIFICATIONS

- Digital Thermostat & Indicator Fitted With overheat thermostat
- Temp max : 200°C (392°F) (PID control)
- Interior chamber : Stainless Steel
- Exterior : Powder Coated or Stainless Steel
- Insulation : Thick mineral wool
- Airflow : Forced convection
- Power Supply : 220 - 240 V / 50 or 60 Hz (110 V / 60 Hz is also available)

LABORATORY OVEN (G-030)

EN 932:5 • ASTM C127 • BS 1377

G-030/250-2 (2 Doors - Horizontal)

G-030/120 - Stainless Steel Exterior

Code	Capacity	# of Doors	# of Shelves	# of Fans	External Cabinet Dimensions (W x L x H)	Internal Chamber Dimensions (W x D x H)	Approximate Weight	Power
G-030/120	112.5 lt 4 cu. ft.	1	2	1	75 x 64 x 62 (h) cm 29.5” x 25.2” x 24.5”	50 x 45 x 50 (h) cm 19.6” x 17.7” x 19.6”	67 kg 148 lb	800 Watts
G-030/250	225 lt 8 cu. ft.	1	2	1	70 x 70 x 127 (h) cm 27.5” x 27.5” x 50”	50 x 45 x 100 (h) cm 19.6” x 17.7” x 39.2”	90 kg 198 lb	1200 Watts
G-030/250-2	225 lt 8 cu. ft.	2	2	2	119 x 70 x 76 (h) cm 47” x 27.5” x 30”	100 x 45 x 50 (h) cm 39.2” x 17.7” x 39.2”	105 kg 232 lb	1200 Watts
G-030/400	400 lt 14 cu. ft.	1	2	2	98 x 82 x 126 (h) cm 38.5” x 32” x 49.6”	68 x 56 x 107 (h) cm 26.8” x 22” x 42”	130 kg 285 lb	1200 Watts

CLIMATIC CHAMBER (G-035)

- Used to subject the samples to a specific temperature and humidity.
- Inside chamber is made of stainless steel
- Cabinet is supplied with temperature control by a digital thermostat and the humidity inside the chamber can be controlled through the digital control panel.
- Supplied with adjustable shelves
- Equipped with circulating fan to assure homogeneous conditions through the inner chamber

Climatic Chamber (G-035)

TECHNICAL SPECIFICATIONS

- Capacity : 225 lt
- Made of Stainless Steel
- Temperature Range : -10°C to +60°C
- Humidity Range : 20% to 95%
- Equipped with
  - Digital PID Thermo-Controller
  - Air Circulation Fan providing airflow
- Supplied with adjustable shelves (2 ea) *(Additional shelves can be ordered)*
- Power Supply: 220 - 240 V / 50 or 60 Hz (110 V / 60 Hz is also available)

MICROWAVE OVEN (G-030/MW)

- Used to heat/dry the materials by electromagnetic radiation causing the polarized molecules to rotate and build up thermal energy.
- Provides efficient and quick heat.

Microwave Oven (G-030/MW)

TECHNICAL SPECIFICATIONS

- Heat/dry using electromagnetic radiation.
- Quick heating process.

MUFFLE FURNACE (G-050)

- Used for high temperature heating and drying.
- Supplied with Proportion Integral Derivative (PID) temperature control.
- Covers a range of temperature from ambient to a desired temperature. The front loading to the furnace and the double coating provides easy access and cooler exterior surface.
- Heating elements are supported on ceramic tubes. Important advantage of this is that the element change is very easy and economic.
- Low thermal mass insulation leads to a very impressive heat up rate as well as efficient insulation.
- Door is provided with a safety lock that isolates the power once it is opened.

Muffle Furnace (G-050)

TECHNICAL SPECIFICATIONS

- Digital Thermostat and Indicator
- Temperature control by PID
- Power Supply: 220 - 240 V / 50 or 60 Hz (110 V / 60 Hz is also available)

Code	Max Temperature	Capacity
G-050/10	1000°C	3 lt
G-050/11	1100°C	6 lt
G-050/12	1200°C	5 lt

WATER DISTILLATION UNIT (G-045)

- Used to distill water for laboratory purposes with a capacity of 3 liters per hour
- The inner chamber is made of stainless steel
- The exterior casing is made of aluminuim with stoved enamel finish
- Equipped with a built-in manometer for pressure controll on the input water

Water Distillation Unit (G-045)

TECHNICAL SPECIFICATIONS

- 3 lt of distilled water output capacity per hour
- Stainless steel cylinder heater
- Internal structure made of stainless steel
- Outer casing made of aluminium with stoved enamel finish
- Input water pressure controlled by built-in manometer
- Thermostatical safety system

WATER BATH (G-040)

EN 12697:34 • ASTM D1559 • ASTM D5581 • AASHTO T245

- Used to cure specimens at constant temperature.
- Exterior is made of powder coated steel and the interior tank and the cover are corrosion-resistant stainless steel.
- Supplied with perforated stainless steel shelf which stands at the bottom of the tank to ensure uniform temperature.
- Equipped with digital thermoregulator with range of ambient to 82°C (180°F) and pilot light heat indicator.
- The tank is insulated from the outer cabinet with thick mineral wool to reduce thermal loss and to help maintain contstant temperature.
- Available in 2 different capacities and with/without water circulation options.

Water Bath (G-040/30)

Water Bath (G-040/60)

SUPPLIED WITH

- Digital Thermostat & Indicator
- Stainless Steel Cover
- Base Shelf
- Pilot Lamp

TECHNICAL SPECIFICATIONS

- Digital Thermostat & Indicator
- Interior Stainless Steel
- Water circulation is optional (to be specified at the time of order)
- Power Supply: 220 - 240 V / 50 or 60 Hz (110 V / 60 Hz is also available)

Code	External Dimensions (± 1 cm)	Internal Dimensions (± 1 cm)	Volume	Approximate Weight (kg)
G-040/30	12" x 20" x 8" 305 x 508 x 203 mm	13-¾" x 21-½" x 15" 350 x 550 x 380 mm	7.93 gallons 30 liters	15
G-040/60	20" x 24-½" x 8" 508 x 622 x 203 mm	21-½" x 31-½" x 15" 550 x 800 x 380 mm	15.85 gallons 60 liters	30

SIEVE (B-040)

ISO 3310:1 • ASTM E11 • BS 410

- All Sieves are made of stainless steel woven wire and frame that meet international specifications.
- The sieve aperture is clearly marked on the metallic label.
- Our sieves are of the highest quality to ensure consistent fit, accurate, specifications and durable construction.
- The sieves are available in two diameters (200 mm) and (300 mm).
- Cover and pan should be ordered separately.

Sieves (B-040)

TECHNICAL SPECIFICATIONS

- Frame and mesh made of stainless steel
- Aperture marked on a metal label
- Available in (Ø 200 mm) and (Ø 300 mm)

Code	Diameter (mm)	Dimensions (± 1 cm)
B-040/08	ø 200	24 x 24 x 8 (h)
B-040/12	ø 300	34 x 34 x 11 (h)

PARTICLE SIZE CONVERSION TABLE

ISO/BS	ASTM
75.00	3"
63.00	2 1/2"
56.00	-
53.00	2.12"
50.00	2"
45.00	1 3/4"
40.00	-
37.50	1 1/2"
31.50	1 1/4"
28.00	-
26.50	1.06"
25.40	1"
25.00	-
22.40	7/8"
20.00	-
19.00	3/4"
16.00	5/8"
14.00	-
13.20	0.530"
12.50	1/2"
11.20	7/16"
10.00	-
9.50	3/8"
8.00	5/16"
7.10	-
6.70	0.265"
6.30	1/4"
5.60	3.5
5.00	-
4.75	4
4.00	5
3.35	6
3.15	-
2.80	7
2.50	-
2.36	8
2.00	10

ISO/BS	ASTM
1.70	12
1.60	-
1.40	14
1.25	-
1.18	16
1.00	18
0.850	20
0.800	-
0.710	25
0.630	-
0.600	30
0.500	35
0.425	40
0.400	-
0.355	45
0.315	-
0.300	50
0.250	60
0.212	70
0.200	-
0.180	80
0.160	-
0.150	100
0.125	120
0.106	140
0.100	-
0.090	170
0.080	-
0.075	200
0.063	230
0.053	270
0.050	-
0.045	325
0.040	-
0.038	400
0.025	-

SIEVE SHAKER (B-041)

- Operated by electrical motor which provides a more elaborated and standardized sieving to ensure accurate results and eliminate personal errors involved in sieving.
- Accepts up to eight full height sieves.
- The shaker is available in two sizes:
  - (B-041/200) shaker that can be used for (20 cm) sieves
  - (B-041/300) shaker that can be used for (20 cm) and (30 cm) sieves
- Light weight, quiet operation, compact and portable design, fast clamping.
- Built-in timer (60 min) is incorporated to set the duration time.
- Sieves, pan and lid must be ordered separately

Sieve Shaker (B-041)

TECHNICAL SPECIFICATIONS

- Lightweight
- Quiet Operation
- Compact and portable
- Fast Clamping
- Built in Timer (60 min)
- Power Supply: 220 - 240 V / 50 or 60 Hz (110 V / 60 Hz is also available)

Code	Dimensions (cm)	Approximate Weight (kg)
B-041/20	Dia: 32 / h: 73	20
B-041/30	Dia: 42 / h: 73	35

ELECTROMECHANICAL SIEVE SHAKER (B-041/SV)

- Performs perfect sieving by having double-actions:
  - Swinging motion
  - Vibration motion
- The machine is capable of applying both motions at the same time (or one of the two)
- Suitable for both dry and wet sieving
- Automatic timer built-in for sieving time

TECHNICAL SPECIFICATIONS

- Performs perfect sieving by having double-actions:
  - Swinging motion
  - Vibration motion
- Available for:
  - Ø 200 mm B-041/SV-20
  - Ø 300 mm B-041/SV-30
  - Ø 450 mm B-041/SV-45
- Power Supply: 220 - 240 V / 50 or 60 Hz (110 V / 60 Hz is also available)

MULTI-DECK GRADING MACHINE (M-042)

- Used specially in mining labs where large quantities of sieving is required.
- Two sieves with decks, each of 300 x 500 mm size, and the openings are 10 mm and 5 mm unless otherwise specified during the order.
- Plastic boxes, as collectors, are supplied for each deck.

TECHNICAL SPECIFICATIONS

- Equipped with pan at the bottom.
- Adjustable sieving angle.
- Equipped with powerful vibrating motor.
- Power Supply: 380 V (3 phase)

PLATFORM SCALE (EB)

- The equipment frame and design is robust and strong.
- The scale has taring option.
- Available in 2 types depending on their capacity and readability.

Platform Scale (EB)

TECHNICAL SPECIFICATIONS

- Strong and robust
- Push button taring facility
- Power Supply: 220 - 240 V / 50 or 60 Hz (110 V / 60 Hz is also available)

Code	Capacity (kg)
EB-060	60
EB-150	150
EB-300	300

MECHANICAL BALANCE (MT)

- Available in three types depending on their capacity and readability.
- The balance can be used in laboratory and in field.

Mechanical Balance (MT-0310)

Mechanical Balance (MT-2610)

Code	Capacity (g)	Readability (g)
MT-20	20000	1.00
MT-2610	2610	0.10
MT-0310	310	0.01

ELECTRONIC BALANCE

- The balance has capacity ranges from 30 kg to 200 g and with accuracy from 0.5 g to 0.001 g depending on the type and the purpose of it.
- Supplied with rechargeable batteries allowing the balance to be used in laboratory and in field.
- Provided with under weighing mechanism.

Electronic Balance

TECHNICAL SPECIFICATIONS

- Rechargeable battery
- Used both in labs and insitu
- Taring Facility
- Under Weighing mechanism

Code	ET-30K	ET-15K	ET-06K	ET-03K	ET-600	HT-30K	HT-06K	HT-03K	HT-600	HT-200
Capacity	30 kg	15 kg	6 kg	3 kg	600 g	30 kg	6 kg	3 kg	600 g	200 g
Readability	0.5 g	0.2 g	0.1 g	0.05 g	0.01 g	0.1 g	0.01 g	0.01 g	0.001 g	0.1 mg

DENSITY BASKET (TS-105)

- The basket is made from stainless steel.
- The diameter of the basket is 200 mm.
- Supplied as a complete piece with handle.

Density Basket (TS-105)

CRADLE (TS-106)

- Made of stainless steel.
- Can be used instead of the basket to hold the specimen

Cradle (TS-106)

SPECIFIC GRAVITY FRAME (TS-100)
ASTM C127

- The frame can be used to determine the specific gravity of solid materials (concrete, aggregate .. etc)
- The system consists of a highly rigid frame, incorporating moving platform on its lower part, water tank and a density basket.
- The balance should be ordered separately.

Specific Gravity Frame (TS-100)

SUPPLIED WITH

- Moving Platform (TS-100/MP)
- Water Tank (TS-100/WT)
- Cradle (TS-106)

TECHNICAL SPECIFICATIONS

- Can be used for specific gravity determination
- Balance should be ordered separately

Code	Dimensions (± 1 cm)	Weight (kg)
TS-100	57 x 46 x 105 (h)	28
TS-105	Dia: 20 / h: 73	0.8

SAMPLE SPLITTER (G-080)

ASTM C136 • AASHTO T27 • EN 933:3

- Designed to halve/divide aggregates, soils, sands and gravel into two representative halves.
- Made of powder coated enameled steel.

Sample Splitter (G-080)

SUPPLIED WITH:

- Pans (2 ea)

Code	Chute Width (mm)	Number of Chutes
G-080/09	9.0	12
G-080/12	12.5	12
G-080/19	19.0	10
G-080/25	25.0	10
G-080/37	37.5	8
G-080/50	50.0	8
G-080/62	62.5	8
G-080/75	75.0	8

UNIVERSAL SAMPLE SPLITTER (G-081)

ASTM C136 • AASHTO T27 • EN 933:3

- Used to halve/divide large amount of aggregates, soils, sands and gravel into two representative portions.
- The width of each chute bar is 1/2”.
- Equipped with lever and release hoppers.
- Made of heavy-duty steel.
- Supplied with two collecting pans

Universal Sample Splitter (B-081)

SUPPLIED WITH

- Collecting Pans (2 ea)

TECHNICAL SPECIFICATIONS

- Chutes: Adjustable, with: 1/2” each.

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
G-081	72 x 50 x 87 (h)	46

LOAD RING (LR)

- Made from steel.
- Used for load measurements.
- Supplied with dial indicator.

Load Ring (LR)

With Mechanical Dial				
Code	LR/01	LR/03	LR/05	LR/10
Capacity	10 kN	30 kN	50 kN	100 kN
With Digital Dial				
Code	LR/01 D	LR/03 D	LR/05 D	LR/10 D
Capacity	10 kN	30 kN	50 kN	100 kN

DIAL INDICATOR (DI)

Code	DI/D-12/0.001	DI/D-25/0.01	DI/M-10/0.01	DI/M-30/0.01	DI/M-50/0.01
Travel	12.70 mm	25.00 mm	10.00 mm	30.00 mm	50.00 mm
Graduation	0.001	0.01	0.01	0.01	0.01
Type	Digital	Digital	Mechanical	Mechanical	Mechanical

Digital Indicator (DI)

Mechanical Dial Indicator (DI)

LOAD CELL (LC)

- Supplied with rechargeable batteries allowing the load cell to be used in the laboratory and insitu.

Load Cell (LC)

Load Cell (LC)

Code	LC/0005	LC/0010	LC/0030	LC/0050	LC/0100	LC/0300	LC/0600	LC/1000	LC/2000	LC/3000
Capacity	5 kN	10 kN	30 kN	50 kN	100 kN	300 kN	600 kN	1000 kN	2000 kN	3000 kN

CONCRETE

INDEX

CONCRETE


ALFA
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OIL LEVEL

COMPRESSION TESTER (B-001/LCD)

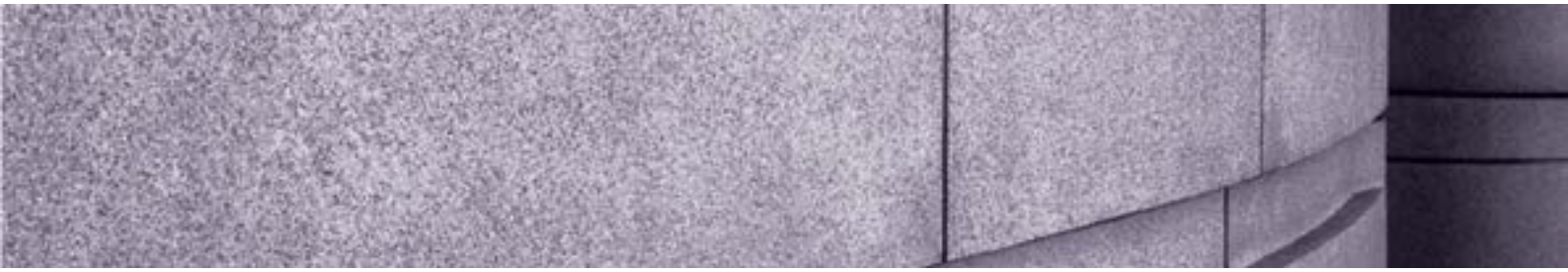
ASTM C39 • EN 12390:4

- Used to test the compression strength of concrete cubes/cylinders of different sizes.
- The rigid design provides stability and strength for a better using experience.
- Equipped with an LCD unit that displays the data graphically of each test with the ability to save and recall the results of the tested specimens.
- The Data Acquisition Control provides real-time graphical indication.
- Automatically determines the load rate in accordance with the international standards upon sample type.
- With the AUTO-STOP function, the test will automatically stop.
- Fully automatic mode or manual mode in which the user gets the ability to adjust the load rate and period manually are available.
- The upper seating adjusts itself to apply homogeneous loading on the sample.
- Supplied complete with spacer discs.

Code	B-001/LCD/1	B-001/LCD/2	B-001/LCD/3
Capacity	1,125 kN 250,000 lb	2,000 kN 450,000 lb	3000 kN 650,000 lb

COMPONENTS

Rexroth Bosch Group · OMRON · HAWE HYDRAULIK · YASKAWA



COMPRESSION TESTER (B-001/LCD)

ASTM C39 • EN 12390:4

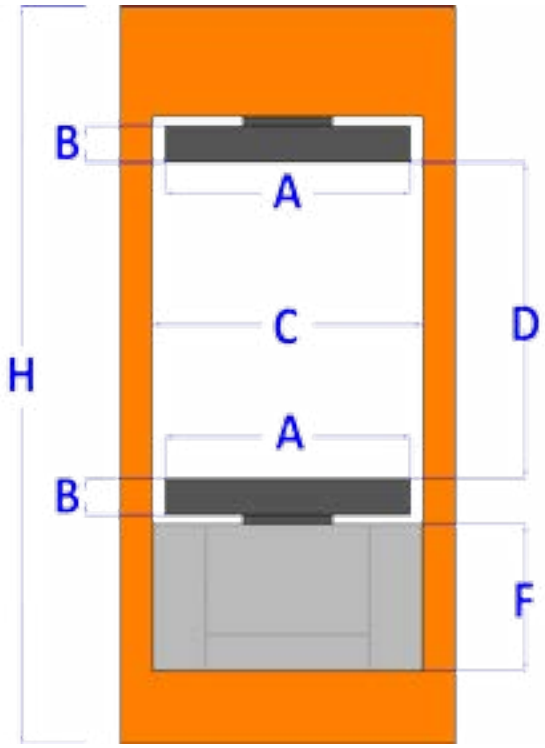
TECHNICAL SPECIFICATIONS

- Fully Automatic.
- Graphical - LCD Data Acquisition Control System.
- Automatic Load Rate upon Sample Type.
- Stops Automatically, when Test is completed.
- Real time graph indication.
- Total Load and also Per Area are given.
- Test results can be transferred to computer to be printed or from the thermal printer.
- Different units are available (kN / kgf / lbf).
- Calibration done easily on 5 pts.
- Manual Control is available.
- If weight of sample entered, Unit Weight is determined.
- Rigid Frame.
- Upper and Lower Platens in accordance with international Specifications.
- Upper Seating for Homogeneous Loading.
- Distance Pieces included.
- Power Supply: 220 - 240 V / 50 - 60 Hz (110 V / 60 Hz is also available)
- Computer and printer are not included in the price

COMPRESSION TESTER (B-001/LCD)

ASTM C39 • EN 12390:4

	B-001/LCD/2	B-001/LCD/3
Capacity	2000 kN	3000 kN
Frame	Welded, Rigid mono-block frame	Welded, Rigid mono-block frame
Upper Platen Dimension (A)	Ø 300 mm	Ø 300 mm
Lower Platen Dimension (A)	Ø 300 mm	Ø 300 mm
Piston Stroke	50 mm	50 mm
(B)	50 mm	50 mm
Horizontal Clearance (C)	330 mm	440 mm
Maximum Vertical Clearance (D)	345 mm	345 mm
(F)	185 mm	185 mm
Height (H)	890 mm	940 mm



SAMPLE SIZES

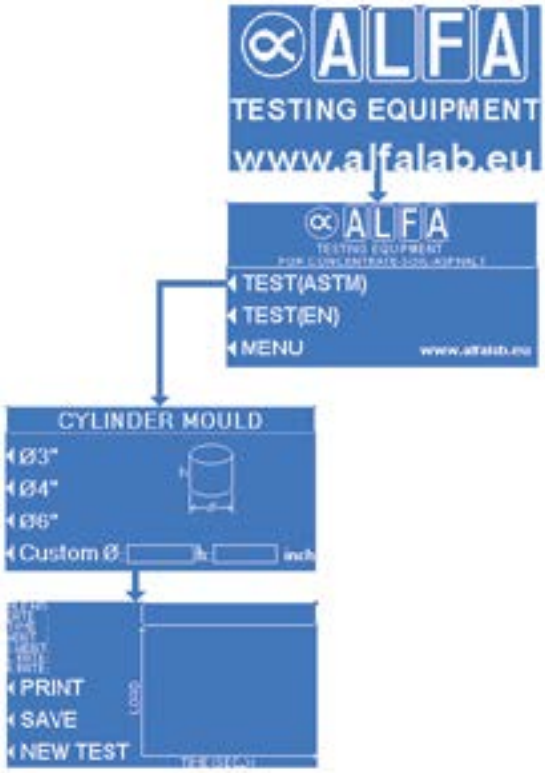
- Cubes with side length of 100 mm, 150 mm, 200 mm or any other custom cube/prism size can be tested with the machine.
- Cylinders with diameter of 150 mm, 160 mm and height of 300 mm, 320 mm relatively or any other custom diameter and height can be tested with the machine.

NAVIGATING THROUGH THE LCD CONTROL UNIT

- Using the LCD control unit, to perform tests, to calibrate and to adjust the settings of the machine provides an easy and user-friendly experience.

COMPRESSION TESTER (B-001/LCD)

ASTM C39 • EN 12390:4

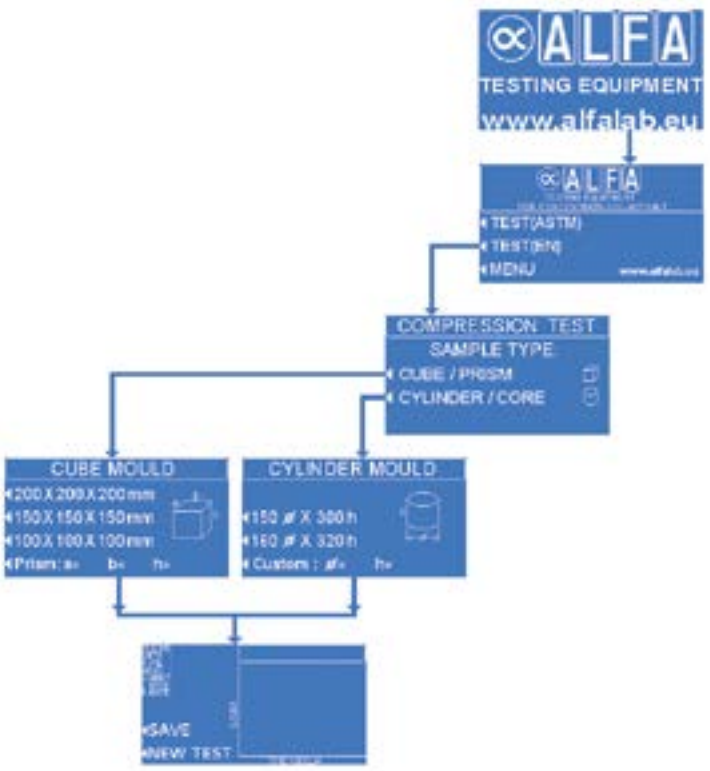


PERFORMING THE TEST ACCORDING TO ASTM STANDARDS

- Simply navigate through the LCD control panel by selecting “TEST (ASTM)” from the main screen.
- Choose the diameter of the cylinder (in inches) or specify the custom dimensions of your sample.
- Choose the mode from the main screen by selecting either AUTOMATIC or MANUAL.
- Press “Start” to begin the test.

COMPRESSION TESTER (B-001/LCD)

ASTM C39 • EN 12390:4



PERFORMING THE TEST ACCORDING TO EN STANDARDS

- Simply navigate through the LCD control panel by selecting “TEST (EN)” from the main screen.
- Choose the sample size (in millimeters) or specify the custom dimensions of your sample.
- Choose the mode from the main screen by selecting either AUTOMATIC or MANUAL.
- Press “Start” to begin the test.

COMPRESSION TESTER (B-001/LCD)

ASTM C39 • EN 12390:4

THE DESIGN

- The rigid frame provides stability and firmness to the machine. Choosing the best components to build-up the machine gives the machine more strength and longer working-age.

CALIBRATING THE MACHINE

- Calibration can be easily done in 1 or 2 or ... 5 points
- To view the Calibration Procedure, kindly navigate through the menu [MENU > CALIBRATION MANUAL]

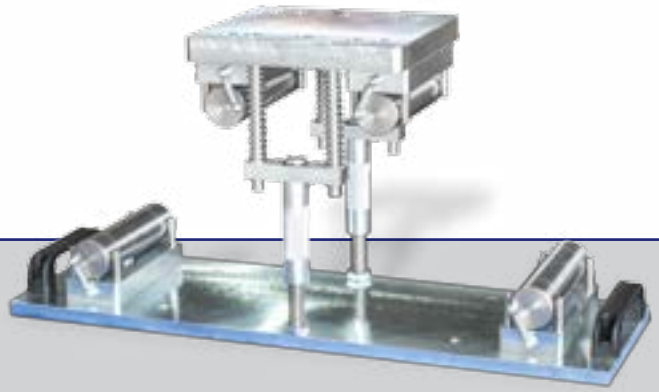
COMPRESSION TESTER (B-001/LCD)

ASTM C39 • EN 12390:4

- The tests and calibration can be done and monitored with a computer by connecting it to the machine. Using the state-of-the-art software provided by ALFA with the machine will help performing and managing the tests in a very easy and fast way.
- By performing the tests via computer, the results can be saved and recalled when required. Reports can be generated automatically by the software and sent to printer.

FLEXURE APPARATUS for CONCRETE BEAMS (B-003/BFA)

- Used to perform flexural tests on concrete beams.

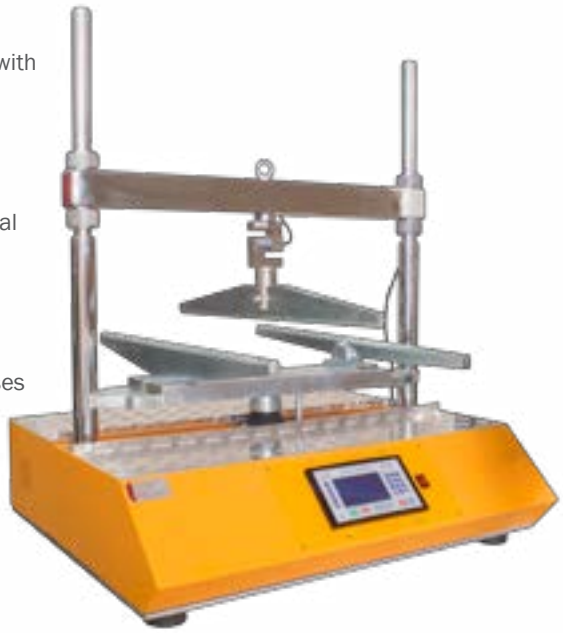


TECHNICAL SPECIFICATIONS

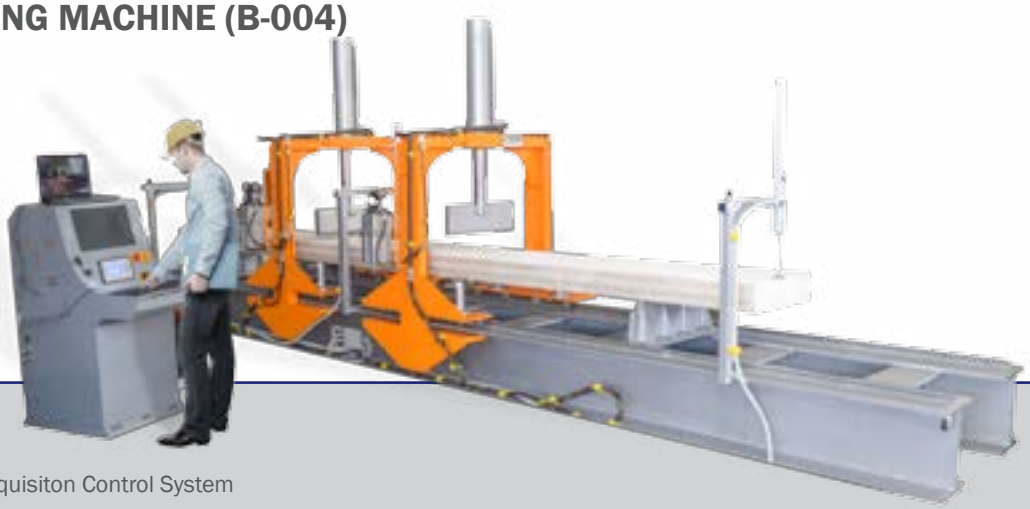
- Made of galvanized steel
- Can perform 3-points or 4-points flexural tests on the following concrete beam samples:
  - 100 x 100 x 400 mm
  - 100 x 100 x 500 mm
  - 150 x 150 x 600 mm
  - 150 x 150 x 750 mm

FLEXURAL TESTING MACHINE (B-003/LCD)

- Used to test the flexural strength of the samples.
- The rigid design provides stability and strength to the machine for a better using experience.
- Equipped with an LCD unit that displays the data graphically of each test with the ability to save and recallthe results of the tested materials.
- The Data Acquisition Control provides a real-time graphical view for the sample.
- Automatically determines the load rate in accordance with the international standards upon sample type.
- With the AUTO-STOP function, the machine will automatically stop upon finishing the test.
- Can be made with different capacities and designs to serve varied purposes and to cover wider range of test samples such as:
  - Curbstone (B-001/CS)
  - Tiles (with sizes up to 80 x 80 cm) (B-001/T)
  - Concrete Beams (B-001/CB)
- The capacity for the equipment is to be specified at the time of inquiry.
- The maximum size of sample is to be specified at the time of inquiry.



SLAB TESTING MACHINE (B-004)



- Fully Automatic
- Graphical Data Acquisiton Control System
- Two Pistons with Capacity of 100 kN each
- Flexure span is adjustable
- Flexure test for 3 or 4 points
- Hydraulic System
- Supplied with 2 deformation measurement systems

CONCRETE PIPE TESTING MACHINE (B-001/PT)

- Supplied with a graphical LCD Data Acquisition Control System and an ability to store and report the results.
- The calibration for the equipment can be easily done on 5 pts.
- Pipe length and diameter should be specified at the time of inquiry.

Concrete Pipe Tester (B-001/PT)

Code	B-001/PT/0400	B-001/PT/1000
Capacity	400 kN 40 ton	1000 kN 100 ton
Pipe Diameter	Min. 300 mm Max. 1600 mm	Min. 300 mm Max. 2400 mm
Pipe Length	Min. 1000 mm Max. 2000 mm	Min. 1500 mm Max. 3000 mm

CYLINDER MOULD (B-010)

- Designed to be easily mounted and demounted.
- Available in two types; Metal and Plastic.
- Different sizes are available:
  - Ø 10 x 20 cm (Ø 4” x 8”)
  - Ø 15 x 30 cm (Ø 6” x 12”)
  - Ø 16 x 32 cm

Cylinder Mould (B-010/M)

Cylinder Mould (B-010/P)

Code	Diameter / Height
B-010/M/10	Ø 10 x 20 cm
B-010/M/15	Ø 15 x 30 cm
B-010/M/16	Ø 16 x 32 cm
B-010/P/10	Ø 10 x 20 cm
B-010/P/15	Ø 15 x 30 cm

CYLINDRICAL CAPPING SET (B-015)

- Consists of a melting pot and a Capping Apparatus.
- The melting pot is used to melt the capping compounds. The temperature of the pot is adjustable with the thermoregulator. Pilot lamp built-in the pot is used to indicate the heating status.
- The melting pot is made of double-walled frame.

Cylindrical Capping Set (B-015)

TECHNICAL SPECIFICATIONS

- Capping pot:
  - Thermally Controlled
  - Double wall / isolated.
- Capping apparatus

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
B-015	33 x 29 x 29 (h)	22

MOULDS (B-01x)

Code	Shape	Material	Type	Internal Dimensions (mm)
B-011/M/10	Cube	Steel	Single Gang	100 x 100 x 100
B-011/P/10-2	Cube	Plastic	Double Gang	100 x 100 x 100
B-011/M/15	Cube	Cast Iron	Single Gang	150 x 150 x 150
B-001/P/15	Cube	Plastic	Single Gang	150 x 150 x 150
B-011/M/20	Cube	Cast Iron	Single Gang	200 x 200 x 200
B-017/40	Prism / Beam	Steel	Single Gang	100 x 100 x 400
B-017/50	Prism / Beam	Steel	Single Gang	100 x 100 x 500
B-017/60	Prism / Beam	Steel	Single Gang	150 x 150 x 600
B-017/75	Prism / Beam	Steel	Single Gang	150 x 150 x 750

CONCRETE FLOW TABLE (B-024)

- Used for determining the concrete workability
- Consists of flow table, cone and wooden tamper

SUPPLIED WITH

- Cone (Ø 130/200 mm - Height 200 mm)
- Wooden Tamper

VEBE CONSISTOMETER (B-130)

BS 12350 • BS 1881-104

- Consists of a vibrating table, a cylindrical pan, a slump cone, and a disc attached to a free-moving rod that serves as a reference end point.
- The cone is placed in the pan, filled with concrete, and removed. The disc is brought into position on top of the concrete cone, and the vibrating table is set in motion.
- The time required to remould the concrete, from the conical to the cylindrical shape, is a measure of the consistency and is reported as Vebe Seconds.

Vebe Consistometer (B-130)

TECHNICAL SPECIFICATIONS

- EN 12350, BS 1881-104
- Fixed amplitude and frequency
- Supplied with:
  - Acrylic Disc
  - Slump Cone
  - Tamping Rod
- Power Supply: 220 - 240 V / 50 or 60 Hz (110 V / 60 Hz is also available)

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
B-130	56 x 30 x 87 (h)	105

SLUMP SET (B-020)

BS 12350 • BS 1881 • ASTM C143

- The consistency is a measure of the wetness of the concrete mixture, which is commonly evaluated in terms of slump. The test gives indication of the ease with which the concrete flows.
- Available in galvanized or stainless steel.

Slump Set (B-020/G)

Item	Galvanized (B-020/G)	Stainless Steel (B-020/SS) *
Slump Cone	B-020/G/C	B-020/SS/C
Base Plate	B-020/G/BP	B-020/SS/BP
Slump Cone Funnel	B-020/G/F	-
Tamping Rod (Ø16 mm x 600 mm)	B-020/G/TR	-

* With stainless steel slump set, the supplied slump cone funnel and tamping rod are made of galvanized steel.

L-BOX APPARATUS (B-026)

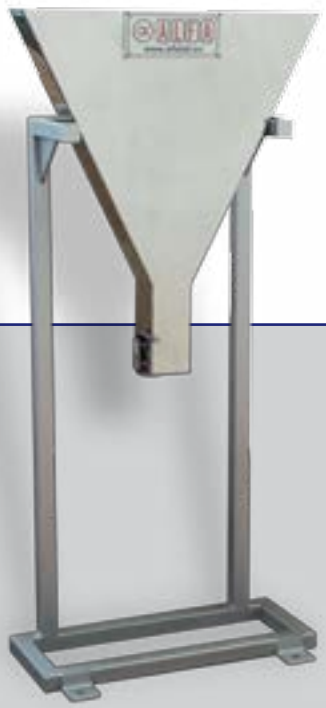
- Used to determine the confined flowability of fresh Self-Consolidating Concrete (SCC) and to evaluate the filling and passing ability
- Made of stainless steel
- Supplied with 2 different obstacles:
  - 2 x Ø12 mm smooth bars having 59 mm gaps
  - 3 x Ø12 mm smooth bars having 41 mm gaps

TECHNICAL SPECIFICATIONS

- Made of stainless steel
- Guillotine form gate

V-FUNNEL APPARATUS (B-025)

- Used in Flow-time determination for Self-Consolidating Concrete (SCC)
- Out flow orifice is equipped with a valve that can be openned momentarely
- Supplied with bucket



TECHNICAL SPECIFICATIONS

- Made of stainless steel
- Stand-mounted

U-SHAPE BOX APPARATUS (B-029)

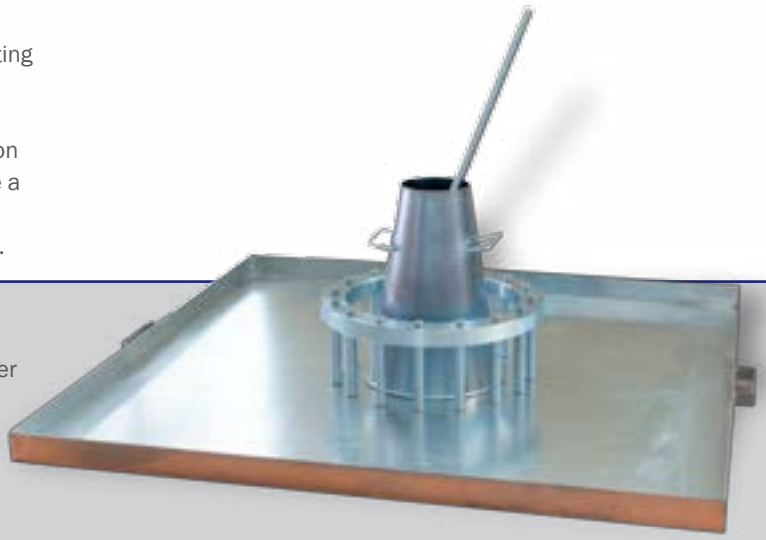
- Used to determine the confined flowability of Self-Consolidating Concrete (SCC)

TECHNICAL SPECIFICATIONS

- Made of stainless steel
- Guillotine form gate

J-RING APPARATUS (B-027)
ASTM C1621

- Used to determine the passing ability of self-consolidating concrete (SCC).
- The apparatus consists of a rigid ring supported on sixteen 16 mm (5/8 in) diameter rods equally spaced on a 300 mm (12 in) diameter circle 100 mm (4 in) above a flat surface.
- Supplied with slump cone, tamping rod and base plate.



TECHNICAL SPECIFICATIONS

- Evenly distributed 16 rods, each with Ø 16 mm diameter

COMPACTING FACTOR APPARATUS (B-185)

- Consists of two conical hoppers attached on a cylinder, and everything is fixed on a robust steel frame.
- Each hopper is equipped with a hinge for a Quick Release mechanism.
- The apparatus is designed to perform the test in a more precise and accurate way.
- The compacting factor is the ratio between the weight of the concrete which is partially compacted in the cone to the weight of the fully-compacted concrete in the cylinder.
- Supplied with a tamping rod.

Compacting factor apparatus (B-185)

TECHNICAL SPECIFICATIONS

- Two conical hoppers
- A cylindrical mould fitted beneath the hoppers
- Supplied with:
  - Tamping Rod

Code	Dimensions (± 1 cm)
B-185	55 x 35 x 130 (h)

CONCRETE PENETROMETER (B-135)

- Used to determine the setting time of mortar fraction in concrete mixes for samples with slump more than zero.
- Consists of a spring penetrometer and interchangeable stainless steel needles.
- Equipped with a sliding ring that indicates the load reached upon testing.

Concrete Penetrometer (B-135)

SUPPLIED WITH

- Carrying Case

VIBRATING TABLE (B-125)

- Designed from robust steel sheets and has a very steady frame.
- Used to compact the concrete specimens in the laboratory.
- The Vibrating Table size is 400 x 600 mm.
- Equipped with a vibrating motor.
- Supplied with a clamp Assembly for moulds.

Vibrating Table (B-125)

TECHNICAL SPECIFICATIONS

- Vibrating Table :400x600 mm
- Clamp Assembly for moulds
- Power Supply: 220 - 240 V / 50 or 60 Hz (110 V / 60 Hz is also available)

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
B-125	41 x 61 x 87 (h)	53

POKER VIBRATOR (B-128)

- The lab-type poker vibrator is used for internal compaction for the concrete specimens.
- The flexible shaft is 1 meter long.

Poker Vibrator (B-128)

TECHNICAL SPECIFICATIONS

- Lab Type
- 1 m. flexible shaft
- Direct Connection to the Motor
- Power Supply: 220 - 240 V / 50 or 60 Hz

AIRMETER (B-320/B)

ASTM C213 • BS 1881-106

- Used to determine the the volume change in a sample due to the application of pressure.
- The pressure gauge shows the direct percentage (to the nearest 0.1%) for the amount of air entrained.
- The capacity for the airmeter is 7 liters.
- The maximum aggregate size that can be used in this airmeter is 50 mm.
- The pump is built-in with the equipment.
- Supplied with a straight edge and a syringe.

Airmeter (B-320/B)

SUPPLIED WITH

- Straight edge
- Syringe
- Plastic carrying case

TECHNICAL SPECIFICATIONS

- B Type Air Meter
- Capacity : 7 lt
- Air Content range : 0% - 100%
- Max Aggragate Size : 50 mm
- Built-in pump

CURING TANK - PLASTIC (B-140/P)

ASTM C31 • BS 1881-11

- Used to cure cylinders, cubes, beams and other samples that requres total immersion in water at a speficied constant temperature.
- Equipped with a digital thermostat and indicator.
- Supplied with a base rack and a water circulation pump.

Curing Tank - Plastic (B-140/P)

SUPPLIED WITH

- Digital Thermostat and indicator
- Base Rack
- Water Circulation Pump

Code	Dimensions (± 1 cm)	Capacity (lt)
B-140/P	150 x 100 x 80 (h)	1200
B-140/P-L	200 x 100 x 80 (h)	1600

TECHNICAL SPECIFICATIONS

- Made of plastic
- Power Supply: 220 - 240 V / 50 or 60 Hz (110 V / 60 Hz is also available)

CURING TANK - METAL (B-140/M)

ASTM C31 • BS 1881-11

- Used to cure cylinders, cubes, beams and other samples that requres total immersion in water at a speficied constant temperature.
- Equipped with a digital thermostat and indicator.
- Supplied with a base rack and a water circulation pump.

Curing Tank (B-140/M)

SUPPLIED WITH

- Digital Thermostat and indicator
- Base Rack
- Water Circulation Pump

TECHNICAL SPECIFICATIONS

- Made of powder-coated metal
- Power Supply: 220 - 240 V / 50 or 60 Hz (110 V / 60 Hz is also available)

Controling Unit (B-140/M/CU)

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
B-140/M	220 x 75 x 85	106

DRUM - TYPE MIXER (B-121)

- Used to create concrete mixes and specimens. The drum-type mixers provides efficient and homogeneous mixtures.
- Equipped with a manual discharge placed at the side of the mixer for direct emptying for the drum.

Drum-Type Mixer (B-121)

TECHNICAL SPECIFICATIONS

- Capacity : 120 Lt
- Lightweight but sturdy
- Mixing blade built in
- Power Supply: 220 - 240 V / 50 or 60 Hz

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
B-121	75 x 125 x 66 (h)	70

PAN - TYPE MIXER (B-120)

- Used to create concrete mixes and specimens. The pan-type mixers provides efficient and homogeneous mixtures.
- Equipped with a manual discharge placed at the side of the mixer for direct emptying for the pan.
- The capacity of the pan is 100 lt, and the efficient mixing capacity is 56 lt.

Pan - Type Mixer (B-120)

TECHNICAL SPECIFICATIONS

- Pan Capacity: 100 lt.
- Efficient Capacity: 56 lt.
- Easy lifting mechanism
- Portable
- Rotated by a motor reducer
- Complete with blades

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
B-120	97 x 98 x 117 (h)	236

CONCRETE WATER IMPERMEABILITY TESTER (B-245)
EN 12390:8

- Used for determining the depth of penetration of water under pressure.
- Cubic, prismatic or cylindrical specimens having maximum dimensions of 200 x 200 x 200 mm can be tested.
- Once the concrete specimens clamped, the water under known pressure is applied.
- The water penetrated to the specimen is measured either by taking the reading through the graduated burette or by breaking the specimen.
- Monometer fixed on the front panel is supplied to check water pressure.
- Supplied less with air compressor. Air compressor should be ordered separately at the time of inquiry.

Concrete Water Impermeability Tester (B-245)

TECHNICAL SPECIFICATIONS

- Cubic, prismatic or cylindrical specimens (max. 200 x 200 x 200 mm) can be tested.
- Monometer fixed on the front panel is supplied to check water pressure.

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
B-245	167 x 83 x 202 (h)	215

FERRODETECTOR (B-050/H)

- The ferrodetector is a very simple, easy-to-use bar detector. Used to determine the position of the steel rebar in a wall, column, beam or any other construction section.
- The detection range for ferrous metals is 5-120 mm for rebar larger than Ø8 mm and 5-100 mm for rebar with Ø6 - Ø8 mm.
- The detection range for the non-ferrous metals is 5-80 mm for rebar larger than Ø10 mm.
- The detection accuracy for the rebar is ±10 mm.
- Works on batteries and lasts for around 10 hours. Hence it can be used in the laboratory or insitu.

Ferrodetector (B-050/H)

SUPPLIED WITH

- Carrying Case
- Marker

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
B-050/H	24 x 11 x 47 (h)	0.4 g

TECHNICAL SPECIFICATION:

- Detetion Range:
  - Ferrous Metals: > Ø8 mm (5-120 mm) / Ø6 - 8 mm (5-100 mm)
  - Non-Ferrous Metals: > Ø10 mm (5-80 mm)
- Localization Accuracy: ±10 mm
- Battery Life: 10 hrs
- Operating Temperature: -15 to +50
- Relative Air Humidity: 95%
- Automatic Cut-out: 5 minutes

PROFOSCOPE - PROCEQ (B-050/P)

- A rebar detector with real-time visualization of the rebars beneath the instrument
- Visual indication of rebars in close proximity
- Rebar detector with the ability to identify the mid-point between rebars as well as the orientation of rebars
- Optical and acoustical indication of rebar location and minimum cover alert
- This rebar detector offers neighboring bar correction

Profoscope - PROCEQ (B-050/P)

SUPPLIED WITH

- Carrying Case
- Marker

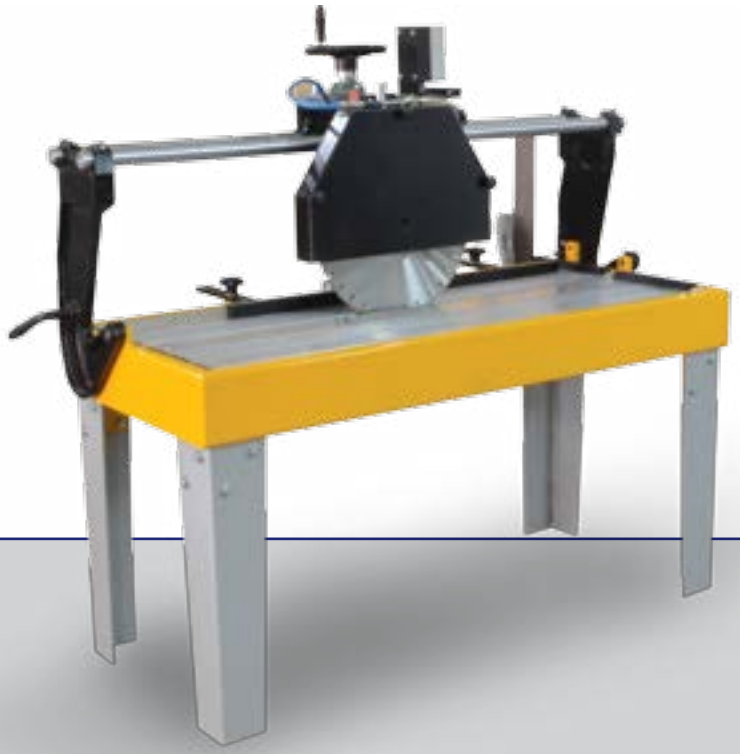
TECHNICAL SPECIFICATION:

- Rebar detector
- Measurement of concrete cover
- Measurement of rebar diameter
- Checking for minimum cover

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
B-050/P	21 x 9 x 4 (h)	0.3 g

UNIVERSAL CUTTING MACHINE (B-062)

- Used to cut construction materials.
  It is equipped with a disc holder for a maximum diameter of 450 mm.
- Ideal for wet cutting.
- Supplied with precision linear guide bar system with dust proof aluminum cover and Automatic thermal overload protection.



SUPPLIED WITH

- Circulation pump for cooling purposes

TECHNICAL SPECIFICATIONS

- Disc diameter: Maximum 450mm.
- Power Supply: 220 - 240 V / 50 or 60 Hz

CUTTING MACHINE (B-063)

- Used to cut rocks, ores, consturction materials ... etc.
- Supplied with a disc holder and a disc having diameter of 350 mm
- Equipped with:
  - Water inlet for wet cutting.
  - Thermal overload protection.

TECHNICAL SPECIFICATIONS

- Disc Diameter: 350 mm
- Water Inlet for Wet Cutting
- Thermal Overload Protection
- Power Supply: 220 - 240 V / 50 or 60 Hz

CORING MACHINE (B-061)

- Used to take core samples from irregular rocks or to extrude the core from specimens for test purposes.
- Equipped with a 2-speed electrical motor and a water inlet (hose).
- Standard 1 ¼" thread
- Core Bits should be ordered separately

Coring Machine (B-061)

Coring Machine (B-061/R)

TECHNICAL SPECIFICATION:

- Electric Motor
- 2-Speed
- Water inlet (Hose)
- Standard 1 ¼" thread
- Power Supply: 220 - 240 V / 50 or 60 Hz

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
B-061	55 x 30 x 121 (h)	35

Code	B-061/4	B-061/6
Core Bit Diameter	4" (≈ 100 mm)	6" (≈ 150 mm)

Core Bits

DIGITAL CONCRETE TEST HAMMER (B-110/D)

ASTM C805 • BS 1881-202

- Used to perform a non-destructive test on concrete structure.
- The hammer gives an immediate indication about the compressive strength of the structural element.
- The compressive strength range that can be read by the equipment is from 10 to 70 N/mm^2.

Digital Concrete Test Hammer (B-110/D)

SUPPLIED WITH

- Carborundum Stone
- Carrying Case

TECHNICAL SPECIFICATIONS

- Compressive strength: 10 - 70 N/mm^2

TESTING ANVIL (B-117)

- Used to verify the calibration for the rebound test hammers for concrete.
- It's made of a very robust stainless steel.
- The rebound value is 80 ± 2.
- Standards recommend the use of the Anvil before any sequence of test using the test hammers. Before and after every sequence of tests, anvil value should be recorded and

Testing Anvil (B-117)

TECHNICAL SPECIFICATIONS

- Used for Test Hammers
- Rebound Value :80 ± 2
- Made of Stainless Steel

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
B-117	Dia: 15 / h: 32	17

CONCRETE TEST HAMMER (B-110)

ASTM C805 • BS 1881-202

- Used to perform a non-destructive test on concrete structure.
- The hammer gives an immediate indication about the compressive strength of the structural element.
- The compressive strength range that can be read by the equipment is from 10 to 70 N/mm^2.

Concrete Test Hammer (B-110)

SUPPLIED WITH

- Carborundum Stone
- Carrying Case

TECHNICAL SPECIFICATIONS

- Compressive Strength :10-70 N /mm^2

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
B-110	35 x 18 x 16 (h)	2

CRACK DETECTION MICROSCOPE (B-250)

- Used to measure the crack width in the concrete elements.
- Supplied with an adjustable light source and adjustable focus to have a better and clearer view for the crack.
- The measuring range for the microscope is 0 to 4 mm. with divisions of 0.2 mm and subdivisions of 0.02 mm.
- The magnification ability of the microscope is x50.
- The microscope is supplied with a wooden case and batteries.

Crack Detection Microscope (B-250)

SUPPLIED WITH

- Wooden case
- Battery

TECHNICAL SPECIFICATIONS

- Integral illumination
- Rotating eyepiece
- Focus adjustment
- Range 0 to 4 mm
- Sub –divisions: 0.02 mm
- Magnification: x50
- Supplied with:
  - Wooden case
  - Battery

ULTRASONIC TESTER (B-048)

ASTM C597 • BS 1881

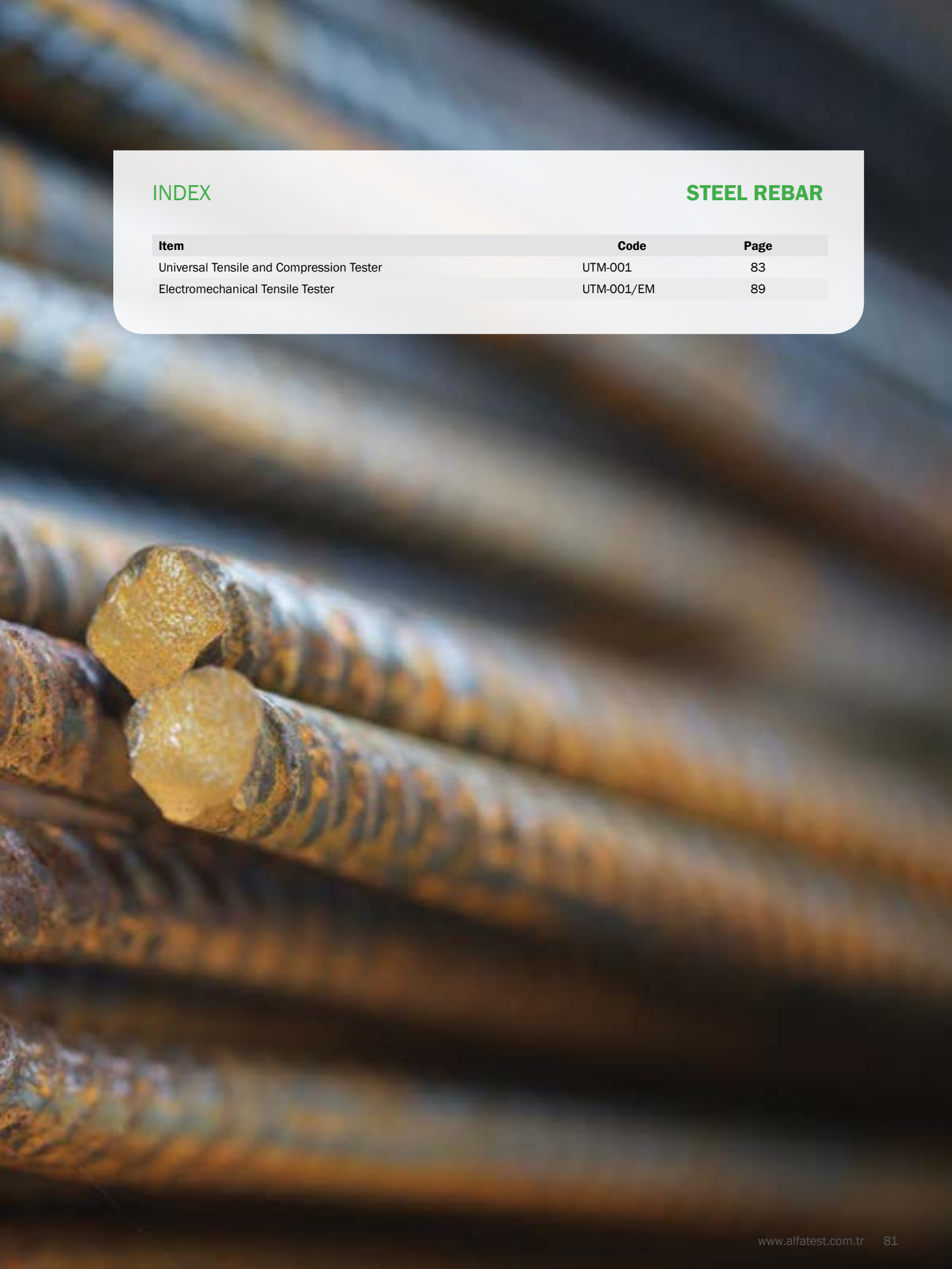
- Used to determine the place for the cracks, voids or defects in the in-situ or precast concrete elements and for long-term observation for the structure which is subjected to all the environmental conditions.
- The data obtained from the machine gives an indication regarding the homogeneity of the structural element using the sound pulse and by measuring the time needed for the sound to travel within the element.
- Calibration tools are also provided to zero the reading.
- Supplied with:
  - Two piezoelectric probes (55 KHz each) with connection cables
  - Calibrating cylinder
  - Contact paste
  - Carrying case

Ultrasonic Tester (B-048)

TECHNICAL SPECIFICATIONS

- Measuring range : 0 - 3000 µs
- Accuracy : ± 0.1 µs
- 2 outlets for connection to the oscilloscope
- 2 piezoelectric probes 55 KHz
- Calibration facility

STEEL REBAR TESTING



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STEEL REBAR

UNIVERSAL TENSILE AND COMPRESSION TESTER (UTM-001)

TENSILE TESTING

- Used to test the tensile strength of steel rebar.
- The grippers of the machine is hydraulically operated by 2 independent auxiliary cylinders controlled by separated hydraulic valves. Those grippers are designed to firmly hold the steel rebar and avoid any slipping that might happen during the test on the rebar.
- The upper mobile crosshead part of the machine is driven up/down by hydraulic piston. It is used to adjust the distance between upper and lower grippers to suite the length of the steel rebar.
- Designed with different capacities (upon user's request) such as: 300 kN (30 tons) / 600 kN (60 tons) / 1000 kN (100 tons) / 2000 kN (200 tons)
- Capable of testing specimen with diameters ranging from 8 mm to 42 mm depending on the capacity.
- Provides easier and faster reporting with the printing facility for the results and graphs.
- The height is only **195** cm.

COMPRESSION TESTING

- Used to test the compression strength of concrete cubes/cylinders of different sizes.
- Equipped with an LCD unit that displays the data graphically of each test with the ability to save and recall the results of the tested materials.
- The Data Acquisition Control provides a real-time graphical view for the sample.
- Automatically determines the load rate upon sample type and in accordance with the international standards.
- With the AUTO-STOP functionality, the machine will automatically stop upon finishing the test.
- Upon user requirements, the machine can be either work in fully automatic mode or manual mode at which the user gets the ability to adjust the load rate and period manually.
- The upper seating adjusts itself to apply homogeneous loading on the sample.
- For faster experience while testing, the daylight distance between the upper and lower platens can be adjusted using the hydraulic piston in accordance with the sample height; this will give the machine the ability to test all varieties of samples with a very wide range of sizes.

UNIVERSAL TENSILE AND COMPRESSION TESTER (UTM-001)

TENSILE TESTING

- Fully Automatic - PC Controlled
- Hydraulically operated grippers by 2 independent auxiliary cylinders controlled by separated hydraulic valves
- Upper mobile crosshead driven up/down by a separated motor adjusting the distance between upper and lower grips with electronic distance meter
- Available models:
  - 300 kN (30 tons)
  - 600 kN (60 tons)
  - 1000 kN (100 tons)
  - 2000 kN (200 tons)
- Height: 210 cm only.
- Print of Stress/Strain Diagram and Test Results.

Universal Tensile and Compression Tester (UTM-001)

COMPRESSION TESTING

- Fully Automatic.
- Graphical - LCD Data Acquisition Control System.
- Automatic Load Rate upon Sample Type.
- Stops Automatically, when Test is completed.
- Real time graph indication.
- Total Load and also Per Area are given.
- Test results can be transferred to computer to be printed or from the thermal printer.
- Different units are available.
- Calibration done easily on 5 pts.
- Manual Control is available.
- If weight of sample entered, Unit Weight is determined.
- Rigid Frame.
- Upper and Lower Platens in accordance with international Specifications.
- Upper Seating for Homogeneous Loading.
- Power Supply: 220 - 240 V / 50 - 60 Hz (110 V / 60 Hz is also available)

UNIVERSAL TENSILE AND COMPRESSION TESTER (UTM-001)

USING THE MACHINE

- The LCD control unit provides an easy, user-friendly experience with the machine. With the LCD unit, the user can control and monitor the tests/adjust the settings/calibrate the machine.

- Performing the tests are now the easiest ever. With the computer connected to the machine, all the tests/ monitoring/calibrating can be done via computer using the state-of-the-art ALFA software provided with the machine.

CAPACITY vs SAMPLE

Code	UTM-001/LCD/030	UTM-001/LCD/060	UTM-001/LCD/100	UTM-001/LCD/200
Capacity	300 kN	600 kN	1000 kN	2000 kN
Sample Diameter Range	Ø 8 - 28 mm	Ø 8 - 32 mm	Ø 10 - 36 mm	Ø 12 - 42 mm

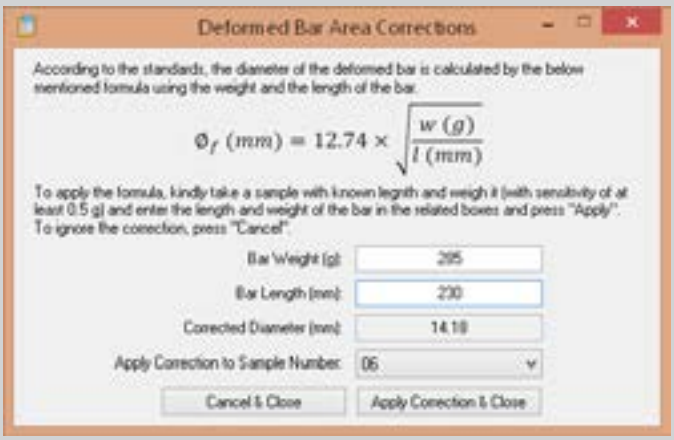
UNIVERSAL TENSILE AND COMPRESSION TESTER (UTM-001)

PERFORMING THE TEST

- The test is performed through the computer using ALFA's state-of-the-art software designed specially to ease the test and perform all the required calculations automatically.

APPLYING DIAMETER CORRECTION FACTOR

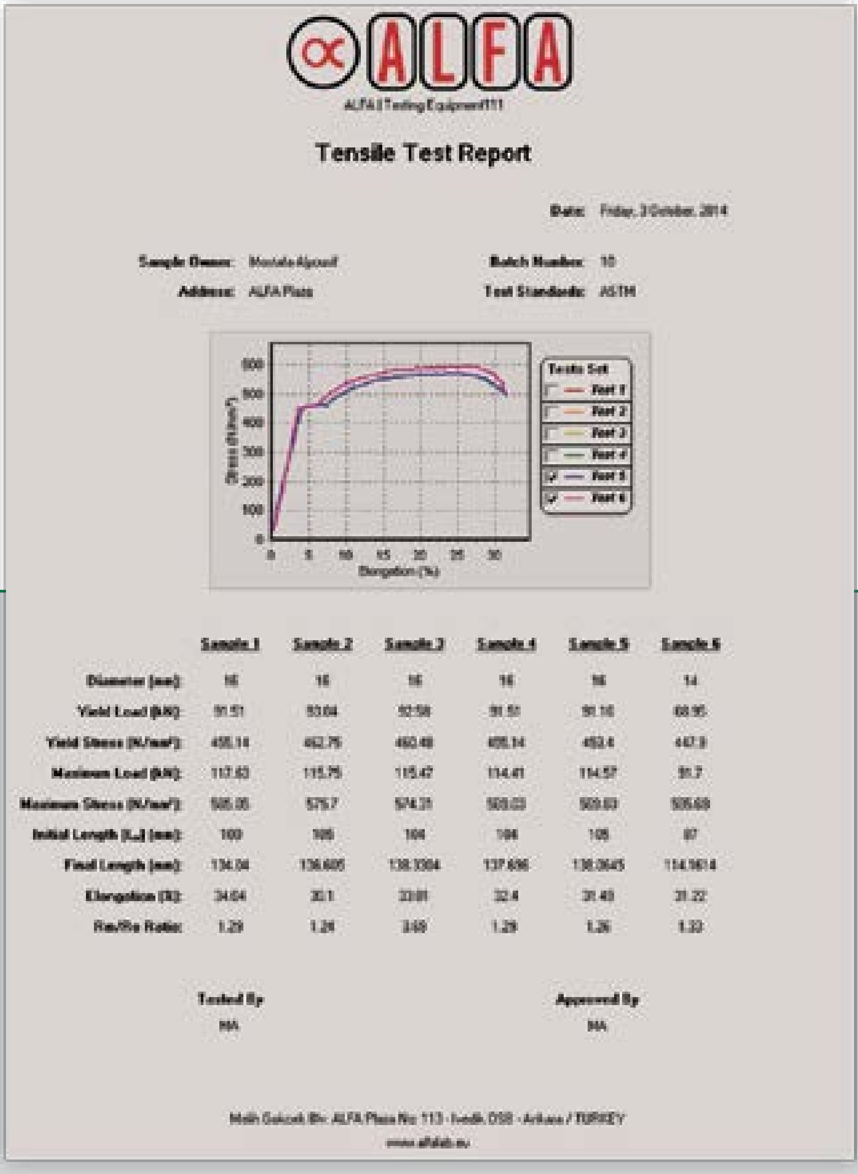
- When testing deformed reinforcement bars, it is usually difficult to measure the correct and effective diameter of the bar. To overcome this problem, ALFA is providing the diameter correction factor option within its software to automatically calculate the effective diameter by using the weight and the length of the tested bar.



UNIVERSAL TENSILE AND COMPRESSION TESTER (UTM-001)

STEEL REBAR

TEST REPORT



ALFA

ALFA Testing Equipment

Tensile Test Report

Date: Friday, 3 October, 2014

Sample Owner: Mostafa Alyousif

Batch Number: 10

Address: ALFA Plaza

Test Standards: ASTM

	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6
Diameter (mm):	16	16	16	16	16	14
Yield Load (kN):	91.51	93.04	92.58	91.51	91.16	68.95
Yield Stress (N/mm²):	455.14	462.75	460.48	455.14	453.4	447.9
Maximum Load (kN):	117.63	115.75	115.47	114.41	114.57	91.7
Maximum Stress (N/mm²):	585.05	575.7	574.31	569.03	569.83	595.69
Initial Length (L₀) (mm):	100	105	104	104	105	87
Final Length (mm):	134.04	136.605	138.3304	137.696	138.0645	114.1614
Elongation (%):	34.04	30.1	33.01	32.4	31.49	31.22
Rm/Re Ratio:	1.29	1.24	3.69	1.29	1.26	1.33

Tested By
MA

Approved By
MA

Melih Gokcek Blv. ALFA Plaza No: 113 - Ivedik OSB - Ankara / TURKEY
www.alfalab.eu

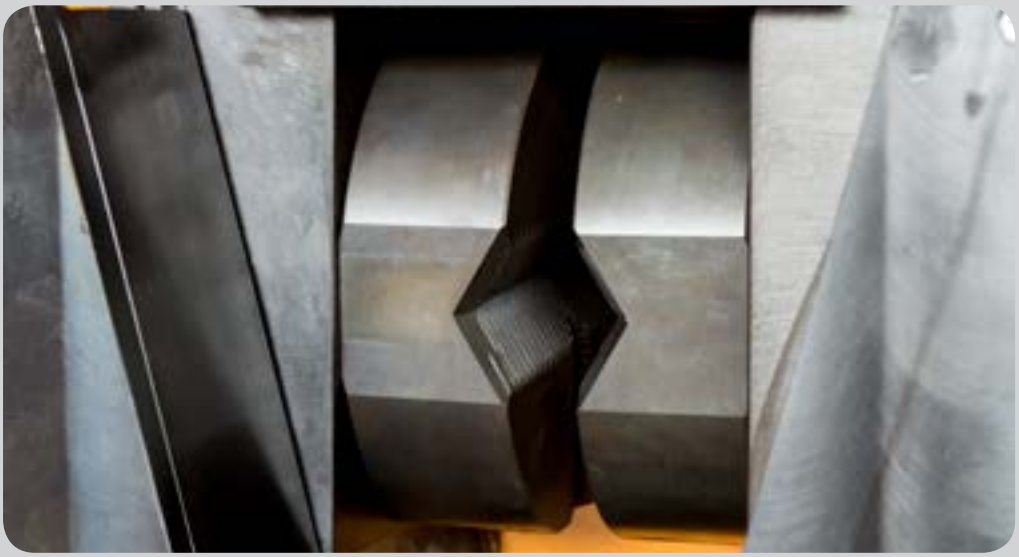
UNIVERSAL TENSILE AND COMPRESSION TESTER (UTM-001)

HAND-HELD POSITIONING UNIT

- This hand-held unit is used for positioning the upper cross-head, to suite the sample height, and to tighten the grippers on the sample before testing.

SAMPLE GRIPPERS

- The specially designed grippers are used to hold the sample hydraulically while testing. The grippers have 2 different groves to suite wide range of samples.

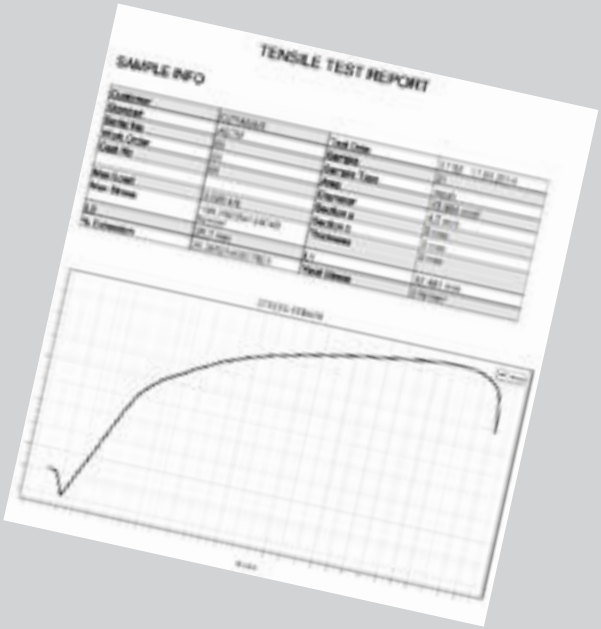


ELECTROMECHANICAL TENSILE TESTER (UTM-001/EM)

- Specially designed for testing components and for routine materials such as sheets, wires, strips, ropes, belts, screws, composites, nylon ribbon, rubber, geosynthetics, geotextiles ... etc
- Features precision guidance for mobing crosshead and a low wearball screw trouble-free tensile tests.

TECHNICAL SPECIFICATIONS

- Loading Capacity: 100 kN / 150 kN / 200 kN
- Sensitivity: >1%
- Speed Control by Servo-Motor
- Supplied with:
  - Grip Sets for Bars and Metal Sheets
  - Laptop & Software
- Power Supply: 220 - 240 V / 50 or 60 Hz (110 V / 60 Hz is also available)



CEMENT

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CEMENT

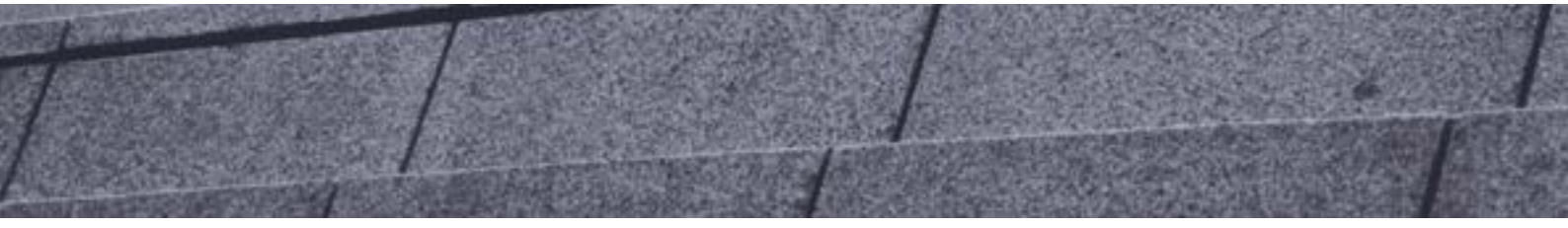
CEMENT COMPRESSION & FLEXURAL TESTER (C-001/LCD)

- Designed to be fully automatic.
- Equipped with an LCD Data Acquisition Control System.
- The load rate is automatically controlled upon the samples.
- Provided with a double testing chamber. It performs flexure test for the size (40 x 40 x 160 mm) and compression test on cubes of size (40 x 40 x 40 mm) and/or (50 x 50 x 50 mm).
- The test results can be transferred to a computer (should be ordered separately) or a thermal printer (should be ordered separately).
- User-friendly 5-Points calibration

TECHNICAL SPECIFICATIONS

- Capacity : 15 kN / 200 kN (Flexure / Compression)
- Rigid 2-Column frame
- Used for flexure and compression tests on cement samples
- Full Automatic
- LCD Graphical Data Acquisiton Control System
- Stops Automatically upon test completion
- Real time graph indication
- Maximum load and stress are shown
- Unit selection available (kN, kgf, lbf)
- User-friendly 5-Points calibration (password protected)
- Supplied with Jigs to perform:
  - Compression Tests on either 40 mm or 50 mm cube samples
  - Flexure Tests on 40 x 40 x 160 mm prism samples
- Power Supply: 220 - 240 V / 50 - 60 Hz (110 V / 60 Hz is also available)

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
C-001/LCD	95 x 60 x 140 (h)	323



COMPRESSION JIG (C-011/CJ)

- Used for cement compression for the cubes of sizes 40 or 50 mm (to be specified at the time of order).
- The platens have hardness of 60 HRC and the upper one is seat-ball assembled.
- Rust-protected by cadmium.

Compression Device (C-011/CJ)

Code	Samples to be tested	Dimensions (± 1 cm)	Approximate Weight (kg)
C-011/CJ/40	40 x 40 x 40 mm cubes	Dia: 15 / h: 19	12
C-011/CJ/50	40 x 40 x 40 mm and 50 x 50 x 50 mm cubes	Dia: 15 / h: 19	12

FLEXURAL JIG (C-011/FJ)

- The distance between the lower bearers is 100 mm and one of them has a spherical seat.
- Provided with rust protection with the cadmium plating.
- Used for flexure tests of 40 x 40 x 160 mm specimen.

Flexure Device (C-011/FJ)

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
C-011/FJ	Dia: 15 / h: 19	11

CEMENT COMPRESSION TEST MOULD (C-011)

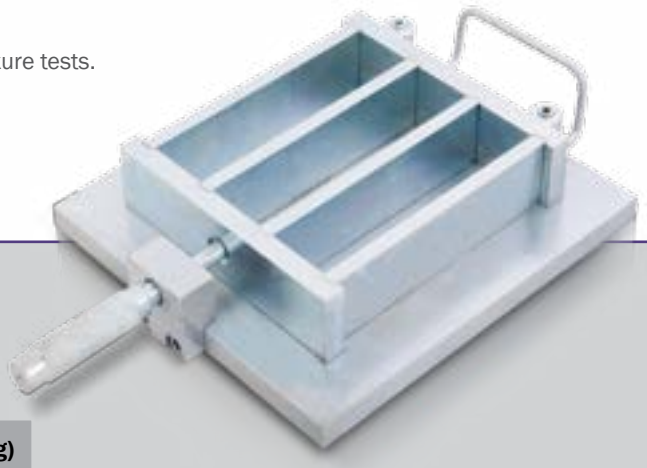
- Used to prepare samples for cement compression tests.
- The mould is available in two sizes:
  - 50.0 x 50.0 x 50.0 mm (3-gang) (C-011/05)
  - 70.7 x 70.7 x 70.7 mm (C-011/07)

Cement Compression Test Mould (C-011/05)

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
C-011/05	20 x 8 x 6 (h)	4.0
C-011/07	28 x 13 x 8.5 (h)	10

CEMENT FLEXURAL TEST MOULD (C-011/04)

- The 3-gang mould is used to prepare samples for cement flexure tests.
- The internal size for the mould is (40 x 40 x 160 mm).



Cement Flexure Test Mould (C-011/04)

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
C-011/04	23 x 37 x 6 (h)	11.2

BLAINE APPARATUS (C-035)

ASTM C204 • BS 4359:2

- Used to determine the fineness of the cement.
- Supplied with:
  U-shaped tube, filter papers, plunger, stainless-steel cell and perforated disc.

Blaine Apparatus (C-035)

TECHNICAL SPECIFICATIONS

- Comprising:
  - SS Cell
  - Perforated disc
  - Plunger
  - U-Tube Glass Manometer
  - Filter Paper

MUD BALANCE (C-014)

- Used to determine the density of the mud.
- Consists of a graduated arm with a cup, lid, knife edge, counter weight and carrying case.

Mud Balance (C-014)

TECHNICAL SPECIFICATIONS

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
C-014	58 x 14 x 12 (h)	2.0

MARSH FUNNEL (C-015)

- Used to determine the viscosity of the drilling mud and other fluid materials.
- Consists of a funnel and graduated cup. Both made from a very strong and break-resistant plastic.

Marsh Funnel (C-015)

TECHNICAL SPECIFICATIONS

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
C-015	16 x 16 x 37 (h)	0.3

JOLTING TABLE (C-125)

- Used to compact cement mortar prisms in the moulds.
- The 3-gang mould is placed on a table which is mounted above a cam. The rotating cam is driven by a gearbox at 60 rpm.
- Equipped with digital programmable counter for cycle counting.
- Designed to have a very rigid structure for stability purposes.
- The table drop height for Designed to be 15.0 mm.
- The motor and gearbox assembly is enclosed in a protective housing; therefore, there are no moving parts in the body outside the housing.

TECHNICAL SPECIFICATIONS

- Used to compact 40 x 40 x 160 mm cement specimens.
- Digital programmable Counter for cycle.
- Rigid structure for stability.
- Table drop height is 15.0 mm.
- Easily mounted and demounted.
- Power Supply: 220 - 240 V / 50 or 60 Hz (110 V / 60 Hz is also available)

Jolting Table (C-125)

Code	Dimensions (± 1 cm)
C-125	120 x 38 x 46 (h)

CEMENT VIBRATING MACHINE (C-126)

- Used to vibrate cement mortar cube sample in the 70.7 mm cube moulds.
- Mould to be ordered separately

TECHNICAL SPECIFICATIONS

- Vibration Frequency: 12000
- Power Supply: 220 - 240 V / 50 or 60 Hz (110 V / 60 Hz is also available)

VICAT APPARATUS (C-090)

ASTM C187 • ASTM C191 • BS 4550

- The reaction between cement and water are the primary causes of the setting of concrete. The setting time for cement and concrete is determined using the Vicat Apparatus.
- By measuring the setting time for concrete/cement via the penetration resistance method (Vicat Apparatus), the time the concrete/cement can stay fresh can be determined. This time indicates the period the mix can stay in the mixer before pouring it into the moulds/ frameworks.
- Complete with the frame, mould, initial setting time needle, consistency plunger, glass thermometer and the base glass plate.

Vicat Apparatus (C-090)

TECHNICAL SPECIFICATIONS

- Set comprises:
  - Vicat Frame (C-090/F)
  - Vicat Mould (C-090/M)
  - Initial Needle (C-090/IN)
  - Consistency Plunger (C-090/CP)
  - Glass Thermometer (GTC)
  - Glass Plate (C-090/GP)

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
C-090	13 x 18 x 33 (h)	3.5

AUTOMATIC VICAT APPARATUS (C-090/A)

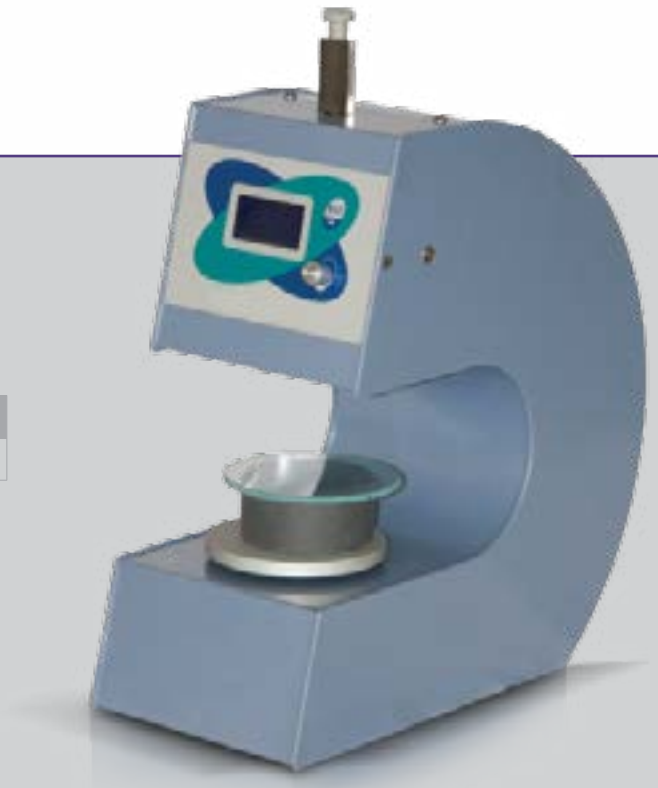
ASTM C187 • ASTM C191 • EN 196-3

- The reaction between cement and water are the primary causes of the setting of concrete. The setting time for cement and concrete is determined using the Vicat Apparatus.
- By measuring the setting time for concrete/cement via the penetration resistance method (Vicat Apparatus), the time the concrete/cement can stay fresh can be determined. This time indicates the period the mix can stay in the mixer before pouring it into the moulds/frameworks.
- Designed to be fully automatic with very precise and reputable result.
- Test results can be easily printed on any incorporated printer.
- Guiding menu is available in multi-languages (English, French, German and Italian).
- Equipped with a large LCD display to show the test results data. The test will automatically print a report with all data.

TECHNICAL SPECIFICATIONS

- Fully automatic, equipped with LCD display

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
C-090/A	40 x 20 x 47 (h)	13



Automatic Vicat Apparatus (C-090/A)

MOTORIZED CEMENT FLOW TABLE (C-021/M)

- The test gives indications about the consistency of the cement mortars which is one of the most important characteristics for the mortars in the engineering aspects.
- The test is done by placing the specimen in the mould. After specifying the number of drops and running the machine, the plate will raise and drop along with the mould in a specific range for a specified number of times (entered by the user using the digital counter) depending onthe test needs.
- Supplied with the testing mould.

Motorized Cement Flow Table (C-021/M)

TECHNICAL SPECIFICATIONS

- Used for determining the consistency of cement mortars.
- Supplied with mould.

CEMENT FLOW TABLE (C-021)

- The test gives indications about the consistency of the cement mortars which is one of the most important characteristics for the mortars in the engineering aspects.
- The test is done by placing the specimen in the mould. By turning the handle, the mould will raise and drop in a specific range for a specified number of times depending on the test needs.
- Supplied with the testing mould.

Cement Flow Table (C-021)

TECHNICAL SPECIFICATIONS

- Used for determining the consistency of cement mortars.
- Supplied with mould.

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
C-021	34 x 26 x 32 (h)	13.8

CEMENT/MORTAR MIXER (C-050)

- Used to assure an efficient mixing for the cement and the mortars.
- Can take a capacity up to 5 liters.
- Equipped with a planetary mixing mechanism for better performance.
- The beater speed is adjustable between 140 rpm and 285 rpm.

Cement/Mortar Mixer (C-050)

TECHNICAL SPECIFICATIONS

- Bowl Capacity: 5 Lt.
- Planetary mixing action.
- Beater Speeds: 140 rpm / 285 rpm.
- Power Supply: 380 V (3 phase)

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
C-050	45 x 56 x 58 (h)	78

AUTOMATIC CEMENT/MORTAR MIXER (C-050/A)

- Used to assure an efficient mixing for the cement and the mortars.
- Can take a capacity up to 5 liters.
- The mixer is equipped with a planetary mixing mechanism for better performance.
- The beater speed is adjustable between 140 rpm and 285 rpm.
- The mixer automatically add the sand at the correct time depending on the selected standard.

Automatic Cement/Mortar Mixer (C-050/A)

TECHNICAL SPECIFICATIONS

- Automatic mixing
- Bowl Capacity: 5 Lt.
- Planetary mixing action.
- Beater Speeds: 140 rpm / 285 rpm.
- Power Supply: 380 V (3 phase)

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
C-050/A	56 x 56 x 70 (h)	95

MIXING TIME

EN 196-1				
Mixing Water & Cement	Adding Sand	Mixing	Waiting	Mixing
At low speed for 30 sec.	For 30 sec.	At high Speed for 30 sec.	for 90 sec	At high speed for 60 sec.

EN 196-3		
Mixing Water & Cement	Waiting	Mixing
At low speed for 90 sec.	For 30 sec.	At high speed for 90 sec.

EN 196-9			
Mixing Sand & Cement	Adding Water Manually	Mixing	Mixing
At low speed for 30 sec.	User should press “OK” after finishing	At low speed for 60 sec.	At high speed for 60 sec.

LE CHATELIER FLASK (C-022)

- Used to determine the relative density (the specific gravity) for the hydraulic cement and the lime.
- The measurement is done by taking an empty flask, filling it with cement then adding polar liquid and measure the weight of the flask at each step and using it in the related formula.
- The flask neck comes graduated from 0 to 1 ml. and from 18 to 24 ml.
- The accuracy for the graduation on the neck is 0.05 ml.

Le Chatelier Flask (C-022)

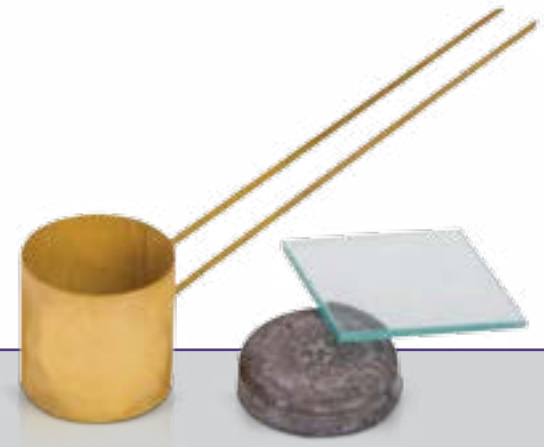
TECHNICAL SPECIFICATIONS

- Graduation (0-1) & (18-24) ml. with 0.05 ml. accuracy.

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
C-022	9 x 9 x 29 (h)	0.1

LE CHATELIER MOULD (C-023)

- Designed to have an internal diameter of 30 mm for the split cylinder and a height of 30 mm.
- The mould is equipped with two stems.
- Used to determine the soundness for cement in either hot or cold water.



Le Chatelier Mould (C-023)

TECHNICAL SPECIFICATIONS

- Split cylinder 30 mm internal diameter x 30 mm high with two indicator stems.

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
C-023	18 x 3 x 3 (h)	0.02

LE CHATELIER BATH (G-040/06)

- Used with the Le Chatelier Moulds (to be ordered separately) to determine the soundness of the cement.
- Made from stainless steel interior, and equipped with a stainless steel cover and base shelf.
- Equipped with a digital thermostat and indicator.

Le Chatelier Bath (C-040/06)

SUPPLIED WITH

- Stainless Steel Cover
- Base Shelf

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
C-040/06	35 x 20 x 31 (h)	6.5

TECHNICAL SPECIFICATIONS

- Digital Thermostat & Indicator.
- Interior stainless steel.
- Power Supply: 220 - 240 V / 50 or 60 Hz (110 V / 60 Hz is also available)

AGGREGATE

SAMPLE SPLITTER (G-080)

ASTM C136 • AASHTO T27 • EN 933-3 • EN 933-3

- The sample splitter equipment is designed to halve/divide aggregates, soils, sands and gravel into two representative halves.
- Made of powder coated enameled steel.

Sample Splitter (G-080)

SUPPLIED WITH:

- Pans (2 ea)

Code	Chute Width (mm)	Number of Chutes
G-080/09	9.0	12
G-080/12	12.5	12
G-080/19	19.0	10
G-080/25	25.0	10
G-080/37	37.5	8
G-080/50	50.0	8
G-080/62	62.5	8
G-080/75	75.0	8

UNIVERSAL SAMPLE SPLITTER (G-081)

- Used to halve/divide large amount of aggregates, soils, sands and gravel into two representative portions.
- The width of each chute bar is 1/2”.
- Equipped with lever and release hoppers.
- Made of heavy-duty steel.
- Supplied with two collecting pans

SUPPLIED WITH:

- Collecting Pans (2 ea)

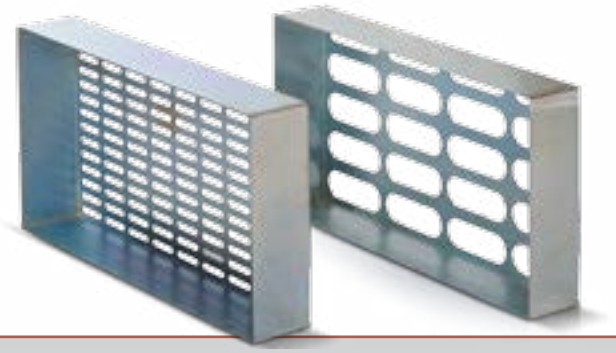
TECHNICAL SPECIFICATIONS

- Chutes: Adjustable, Width: 1/2” each.

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
G-081	72 x 50 x 87 (h)	46

FLAKINESS SIEVE SET (AG-030)

- Used to determine whether the aggregate particle is flaky or not, that is to determine whether the thickness of the particle is less than 60% of its nominal size or not. The sieve is made from robust stainless steel.



TECHNICAL SPECIFICATIONS

- Model of Steel

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
AG-030	26 x 45 x 7.5 (h)	2.4

- The sieve sizes for the set are:
  - 4.90 mm x 30.00 mm
  - 7.20 mm x 40.00 mm
  - 10.20 mm x 50.00 mm
  - 14.40 mm x 60.00 mm
  - 19.70 mm x 80.00 mm
  - 26.30 mm x 90.00 mm
  - 33.90 mm x 100.00 mm

THICKNESS / FLAKINESS GAUGE (AG-032)

- Used to determine whether the aggregate if flaky or not, that is to state whether its thickness is less than 60% of its nominal size.
- Made of a heavy-duty stainless steel.

Thickness / Flakiness Gauge (AG-032)

TECHNICAL SPECIFICATIONS

- Used for determining the thickness
- Made of stainless steel

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
AG-032	38 x 16	0.8

LENGTH GAUGE (AG-034)

- Used to determine the amount of elongation occurred on the aggregate sample.
- Supplied with a wooden base.

Length Gauge (AG-034)

TECHNICAL SPECIFICATIONS

- Used for determining the length
- Supplied with:
  - Wooden Base

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
AG-034	40 x 8 x 2 (h)	0.3

GRID SIEVE SET (AG-038)
EN 993-3

- Used to determine the flakiness index for the aggregate particles and determine the particle shape.
- The sieve is made from robust frame with stainless steel bars.
- Consists of 14 sieves with openings as the following (mm):
  - 50.00 - 40.00 - 31.50 - 25.00 - 20.00 - 16.00 - 12.50 - 10.00 - 8.00 - 6.30 - 5.00 - 4.00 - 3.15 - 2.50

Grid Sieve Set (AG-038)

TECHNICAL SPECIFICATIONS

- Metal frame
- Stainless steel parallel bars
- Set of 14 sieves (mm):
  - 50.00 - 40.00 - 31.50 - 25.00 - 20.00 - 16.00 - 12.50 - 10.00 - 8.00 - 6.30 - 5.00 - 4.00 - 3.15 - 2.50

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
AG-038	39 x 35 x 8 (h)	3.5

AGGREGATE SHAPE GAUGE (AG-036)
EN 993-4 • DIN 4226

- Used to measure the ratio between the length to the thickness of any individual particle.

Aggregate Shape Gauge (AG-036)

TECHNICAL SPECIFICATIONS

- Made of steel

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
AG-036	40 x 15	0.5

SAND EQUIVALENT SHAKER (AG-040/SS)

- Provides a constant, uniform and precise shaking for the sand sample.
- The stroke of the shaker is 200 mm ± 10 mm. and the rate of shaking is 175 stroke per minute.
- Equipped with a digital stroke indicator.

Sand Equivalent Shaker (AG-040/SS)

TECHNICAL SPECIFICATIONS

- Stroke : 200 mm ± 10 mm
- Rate : 175 str/min
- Digital Stroke Indicator
- Power Supply: 220 - 240 V / 50 or 60 Hz (110 V / 60 Hz is also available)

Code	Dimensions (± 1 cm)
AG-040/SS	45 x 35 x 45 (h)

SAND EQUIVALENT TEST SET (AG-040)

EN 933-8 • ASTM D2419 • AASHTO T-176

- The test is used to determine the relative portion of undesirable clay-like or plastic fines and dusts that occur in granular soils and fine aggregates passing the No. 4 sieve.

Sand Equivalent Test Set (AG-040)

TECHNICAL SPECIFICATIONS

- Measuring Cylinder (4 ea)
- Rubber Stopper (2 ea)
- Measuring Can
- Plastic Bottle
- Irrigator Tube
- Syphon assembly jar
- Weighted Foot
- Funnel
- Ruler
- Stock Solution
- Case

- Sand Equivalent Shaker to be ordered separately

ORGANIC IMPURITIES SET (AG-240)

- Used to determine the impurities and their amount in the soil and the fine particles of aggregates.
- Equipped with organic color scale and organic impurities bottle.

Organic Impurities Set (AG-240)

TECHNICAL SPECIFICATIONS

- Set comprises:
  - Organic Color Scale (AG-240/CS)
  - Organic Impurities Bottle (AG-240/TB)

METHYLENE BLUE SET (AG-041)
EN 933-9

- Used to determine the amount of clay in the fine proportions of aggregates.

Methylene Blue Set (AG-041)

TECHNICAL SPECIFICATIONS

- 50 cc burette x stopcock
- Support base x clamp
- Glass Rod and filter discs
- 3000 ml plastic beaker
- Methylene blue 250 gr
- Kaolinite 1000 gr
- Mixer 400 - 700 rpm
- Impeller: 75 mm dia
- Power Supply: 220-240 v/50 Hz.

LOS ANGELES ABRASION TESTER (AG-191)

EN 1097-2 • ASTM C131 • ASTM C535

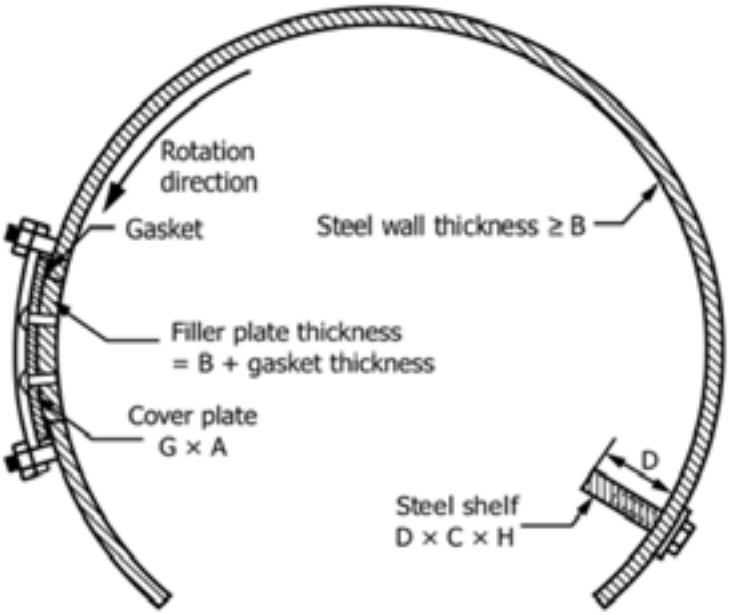
- Used to measure the degradation of mineral aggregates of standard gradings resulting from a combination of actions including abrasion or attrition, impact, and grinding in a rotating steel drum containing a specified number of steel spheres.
- Consists of a hollow steel cylinder, with a wall thickness of 12 mm (1/2”) closed at both ends having an inside diameter of 711 mm (28”), and an inside length of 508 mm (20”).
- The drum rotates at 31 – 33 rpm.
- Supplied with an automatic digital counter that shows the number of revolutions for the drum.

LOS ANGELES ABRASION TESTER (AG-191)

EN 1097 - 2 • ASTM C131.

DRUM DIMENSIONS

A	1/4” 6 mm
B	1/2” 12 mm
C	1” 25 mm
D	3 1/2” 90 mm
G	7 1/2” 190 mm
H (Drum Width)	20” 510 mm
Ø (Drum Diameter)	28” 711 mm



SUPPLIED WITH

- Material catch pan

TECHNICAL SPECIFICATIONS

- Automatic digital counter
- The drum rotates at 31 - 33 rpm
- Power Supply: 220 - 240 V / 50 or 60 Hz (110 V / 60 Hz is also available)

Code	Dimensions	Approximate Weight
AG-191	44” x 35” x 40” 110 x 88 x 100 (h) cm	830 lb 376 kg
AG-191/SPC	51” x 45” x 44” 128 x 113 x 110 (h) cm	305 lb 138 kg

NOISE REDUCTION CABINET (AG-191/SPC)

- The cabinet is to decrease the noise.
- AG-191/SPC should be ordered separately.

Noise Reduction Cabinet (AG-191/SPC)

ABRASIVE CHARGES (AG-191/AC)

- Abrasive charges are used with the Los Angeles Abrasion Tester to measure the abrasive-resistance for the aggregate particles.

- Standards (ASTM or EN) should be specified at the time of order.

Abrasive Charges (AG-191/SS)

ABRASION TESTER for NATURAL STONES and CONCRETE TILES (AG-197)

- Used to determine the abrasion-resistance of the natural stones and tiles.
- Equipped with abrasion disc of 70 mm thickness.
- Designed with “Automatic Revolution” selection feature for accurate and better results.
- Supplied with pack of white corundum.

Abrasion Tester for Natural Stones and Concrete Tiles (AG-197)

TECHNICAL SPECIFICATIONS

Code	Dimensions (± 1 cm)
AG-197	90 x 60 x 130 (h)

- Testing machine for Natural Stones and Tiles
- Abrasion Disc is 70 mm thick
- Automatic Revolution Selection
- Power Supply: 220 - 240 V / 50 or 60 Hz (110 V / 60 Hz is also available)

DORRY ABRASION TESTER - BÖHME (AG-199)

- Used to determine the abrasion-resistance of the aggregate particles.
- Supplied with a horizontal abrasion disc with a diameter of 750 mm.
- Automatic revolution selection for better and accurate results.
- Equipped with sample holder, beam-loading device, and a pack of white corundum.

Dorry Abrasion Tester - Böhme (AG-199)

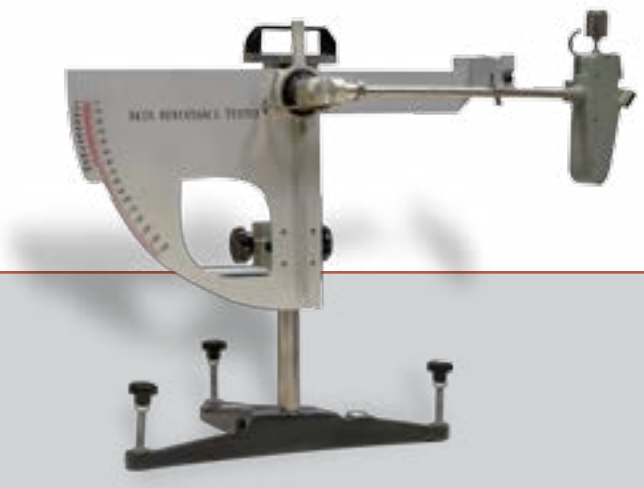
TECHNICAL SPECIFICATIONS

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
AG-199	174 x 102 x 114 (h)	374

- Horizontal Abrasion Disc Ø 750 mm
- Automatic Revolution Selection
- Sample holder - beam loading device & weight
- Power Supply: 220 - 240 V / 50 or 60 Hz (110 V / 60 Hz is also available)

SKID RESISTANCE TESTER (AG-190)
ASTM E-103 • BS 812-144 • EN 1097

- Used to determine the surface friction of the curved aggregates, polished surfaces, concrete pavements and natural rocks.
- Suitable to measure the skid resistance for asphalt pavement.
- The mechanism is based on the energy loss from the rubber piece while sliding over the specimen. The amount of resistance is measured and transferred to a nearly-friction-less pointer. This helps providing precise and accurate results.
- Supplied with 6 pieces of rubber sliders and a specimen holder.



Skid Resistance Tester (AG-190)

SUPPLIED WITH

- 6 rubber sliders
- Specimen Holder

TECHNICAL SPECIFICATIONS

- Measuring Surface Friction
- Free fall of pendulum arm
- Rubber Sliders

SAND ABSORPTION CONE & TAMPER (AG-200)
BS 812

- Made of a very rigid and strong steel.
- Used to determine the specific gravity for the required specimens.

Sand Absorption Cone And Tamper (AG-200)

TECHNICAL SPECIFICATIONS

- Made of Steel

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
AG-200	9 x 9 x 16 (h)	0.4

MICRO-DEVAL ABRASION TESTER (AG-195)
EN 1097-1

- Used to determine the abrasion-resistance of the aggregate particles.
- The machine is made of a rigid steel frame on which one of the following combinations can be mounted:
  - 4 cylinders (Ø 200 mm x 154 mm)
  - 2 cylinders (Ø 400 mm x 154 mm)
  - 2 cylinders (Ø 200 mm x 154 mm) and 1 cylinder (Ø 400 mm x 154 mm)
- Transparent safe guard is fixed on the machine to increase the safely level and insure fault-less environment.
- Equipped with automatic digital counter.
- Supplied with:
  - 2 cylinders (Ø 200 mm x 154 mm)
  - Abrasive Charges - Ø 10 mm (20 kg)

Micro-Deval Testing Abrasion Tester (AG-195)

TECHNICAL SPECIFICATIONS

- Rigid Steel Frame
- Stainless Steel Drums Ø 200 mm x 154 mm (2 ea)
- Safety Guard, Transparent
- Automatic Digital Counter
- Abrasive Charges - Ø 10 mm (20 kg)
- Power Supply: 220 - 240 V / 50 or 60 Hz (110 V / 60 Hz is also available)

Code	Dimensions (± 1 cm)
AG-195	142 x 47 x 46 (h)

AGGREGATE CRUSHING VALUE (AG-210)
BS 812-110

- Used to determine the crushing value for the aggregate particles.
- Contains the standard Aggregate Crushing Value pieces.
- The cylinder supplied with the set is made of a heavy-duty steel to resist the impacts during the test.
- Includes a plunger, tamping rod and a base plate.

Aggregate Crushing Value (AG-210)

TECHNICAL SPECIFICATIONS

AG-210/075	AG-210/150
Used for aggregate passing 9.5 mm sieve	Used for aggregate passing 12.7 mm and retaining on 9.5 mm sieve **(Ten Percent Fines Value Test)**
Steel Cylinder (Ø 75 mm)	Steel Cylinder (Ø 150 mm)
Plunger	Plunger
Tamping Rod (Ø 8 mm x 300 mm)	Tamping Rod (Ø 16 mm x 600 mm)
Measure (Ø 57 mm x 90 mm)	Measure (Ø 115 mm x 180 mm)
Base Plate	Base Plate

AGGREGATE IMPACT VALUE (AG-220)
BS 812

- Used to determine the aggregate particle resistance to impact.
- Contains the standard Aggregate Impact Value pieces.
- Supplied with automatic blow counter.
- Supplied with a sample cylinder, measuring cylinder and a tamping rod.

Aggregate Impact Value (AG-220)

TECHNICAL SPECIFICATIONS

- Standard AIV set
- Measure of resistance to impact
- Automatic counter of Blows
- Sample cylinder
- Cylindrical measure
- Tamping Rod

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
AG-220	22 x 44 x 82 (h)	42

SOIL

INDEX

MOTORIZED LIQUID LIMIT DEVICE - CASAGRANDE APPARATUS (T-030/M)

ASTM D4318 • BS 1377 • AASHTO T89

- Equipped with a motor that perform the drop cycles automatically in a constant speed.
- Used to determine the moisture content at which soil pass from plastic to liquid state. This feature is very important in specifying the type of the soil, moreover, in determining the other parameters that relay on the soil type.
- Includes a cup that drops on a hard rubber base. It is also equipped with a drop counter.
- The grooving tool is supplied with the equipment (Testing standard is to be specified at the time of order).

Motorized Liquid Limit Device (T-030/M)

SUPPLIED WITH

- Blow Counter
- Grooving Tool (T-030/GT)

TECHNICAL SPECIFICATIONS

- Motorized
- Comprising of:
  - Hard rubber base
  - Brass cup
  - Cam mechanism
  - Blow counter
- Power Supply: 220 - 240 V / 50 or 60 Hz (110 V / 60 Hz is also available)

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
T-030/M	26 x 16 x 13 (h)	3.1

LIQUID LIMIT DEVICE - CASAGRANDE APPARATUS (T-030)

ASTM D4318 • BS 1377 • AASHTO T89

- Used to determine the moisture content at which soil pass from plastic to liquid state. This feature is very important in specifying the type of the soil, moreover, in determining the other parameters that relay on the soil type.
- Includes a cup that drops on a hard rubber base. It is also equipped with a drop counter.
- The grooving tool is supplied with the equipment (Testing standard is to be specified at the time of order).

Liquid Limit Device (T-030)

SUPPLIED WITH

- Blow Counter
- Grooving Tool (T-030/GT)

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
T-030	22 x 15 x 13 (h)	2.5

TECHNICAL SPECIFICATIONS

- Comprising of:
  - Hard rubber base
  - Brass cup
  - Cam mechanism
  - Blow counter

ASTM Grooving Tool (T-030/GT/ASTM)

AASHTO Grooving Tool (T-030/GT/AASHTO)

CONE PENETROMETER (T-090)

- Used to determine the moisture content while soil passing from plastic to liquid state by measuring the penetration of standard cone free falling into the soil under controlled conditions.
- Designed with auto-zeroing mechanism and a release button is equipped to the machine for easier using experience.

Digital Cone Penetrometer (T-090)

Semi-Automatic Digital Cone Penetrometer (T-090/SA)

T-090 Hand-operated model with a digital indicator to be used with a stopwatch.

T-090/SA Semi-Automated model with a digital indicator. It releases and stops the plunger automatically and shows the penetration measurements on a digital indicator.

SUPPLIED WITH

- Penetration Cone (T-090/PC)
  - Length: 35 mm
  - Angle: 30°
- Sample Cup (T-090/SC)

PLASTIC LIMIT SET (T-035)
ASTM D4318 • BS 1377-2 • AASHTO T-90

- Used to determine the plastic limit (lowest moisture content) at which a sample can be rolled into threads 3 mm diameter without breaking and/or cracking.
- Consists of a 300 x 300 mm glass plate, stainless steel rod, 6 pieces of moisture tins, mixing dish and a spatula.

Plastic Limit Set (T-035)

SUPPLIED WITH

- Stainless steel rod (Ø 3 mm)
- Glass plate (30x30 cm) (GL-38)
- Moisture tin (6 ea) (GL-20)
- Mixing dish (GPP)
- Spatula (GL-17)

SHRINKAGE LIMIT SET (T-037)
ASTM D427 • AASHTO T-92

- Used to determine the maximum amount of moisture in the sample at which the soil will not shrink while drying.
- Consists of crystallizing dish, shrinkage prong plate, evaporating dish, spatula and a graduated cylinder.

Shrinkage Limit Set (T-037)

SUPPLIED WITH

- Crystallizing Dish
- Shrinkage Prong Plate (w/ 3 Prongs)
- Evaporating Dish (GPP)
- Spatula (GL-17)
- Graduated Cylinder - 25 ml (GCM/0025)

POCKET PENETROMETER (T-304)

- Used to determine the classification of cohesive soil based on its consistency, shear strength and the approximate unconfined compressive strength.
- The range is (0 – 5) kgf/cm^2
- Equipped with a peak value indicator and supplied with a carrying case.

Pocket Penetrometer (T-304)

SUPPLIED WITH

- Case

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
T-304	Dia: 2 / h: 17	0.2

TECHNICAL SPECIFICATIONS

- Range: 0-5 kgf / cm^2
- Peak Value Indicator

DIAL PENETROMETER (T-308)

- Used to determine the angle of friction, the cohesion index and the approximate unconfined compressive strength.
- Can be used on the foundation soil from clayey soil to sandy soil.
- The diameter of the dial is 60 mm, and equipped with a peak value holder.
- The Zero Setting for the equipment can be done by pushing the reset button.
- Consists of 5 different plungers to meet the required need, with diameters as follows:
  - 6.35 - 10 - 15 - 20 - 25 mm diameter

Dial Penetrometer (T-308)

TECHNICAL SPECIFICATIONS

- Dial Diameter : 60 mm
- Peak Value Holder
- Zero Setting by Push Button
- 5 Different Plungers:
  - 6.35-10-15-20-25 mm diameter

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
T-308	7.0 x 14.5 x 3.5 (h)	0.2

SOIL PENETROMETER (T-310)

- Used to determine the relationship between the moisture content and penetration resistance of fine-grained soils.
- Consists of a special spring dynamometer with pressure indicating scale on the stem of the handle.
- The maximum pressure obtained by the test is indicated by the sliding ring on the steam.

Soil Penetrometer (T-310)

SUPPLIED WITH

- Carrying Case

HAND VANE TESTER (T-175)
ASTM D2573

- Used to determine the shear strength of the soil either in the laboratory or in the field (in-situ). It is very easy to use and gives the result directly in kPa.

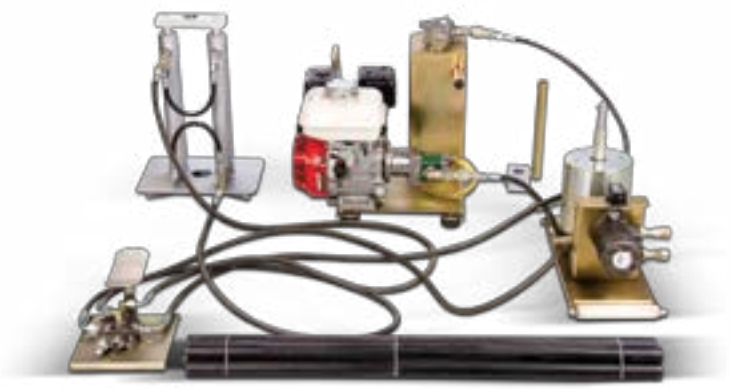
Hand Vane Tester (T-175)

TECHNICAL SPECIFICATIONS

- Can be used in the laboratory or in the field

LIGHTWEIGHT DYNAMIC PENETROMETER (T-300/LW)

- Used to determine the structural properties of the pavement, roads or any other existing construction areas with boundless materials.



Dynamic Penetrometer (T-300/LW)

SUPPLIED WITH

- Sounding rods - Ø 20 mm x 1 m (11 ea)
- Lifting device
- Grooved rod for sample extraction (1 ea)
- Hammer (10 kg) falling from 500 mm height
- Anvil
- Coupling
- Drive point 90° x 500 mm² (1 ea)
- Drive point 90° x 1000 mm² (1 ea)

TRL DYNAMIC PENETROMETER (T-300/TRL)

- Used to determine the structural strength of pavement layers in the field.

SUPPLIED WITH

- Hammer (8 kg) falling from 575 mm fixed height
- Driving rod (16 mm)
- Disposable cone tip (Ø 20 mm / 60°)
- Coupler assembly
- Carrying case

BALLOON DENSITY APPARATUS (T-067)

- Used to determine the inplace density and unit weight of compacted or firmly bonded soil.
- Suitable for use as a means of acceptance for compacted fill or embankments constructed of fine-grained soils or granular soils without appreciable amounts of rock or coarse material.
- Also may be used for the determination of the inplace density and unit weight of undisturbed or in situ soils, provided the soil will not deform under the pressures imposed during the test.

SUPPLIED WITH

- Rubber balloons
- Base plate

COMPACTION DETERMINATION APPARATUS (T-065)

- Used to determine the compaction percentage for the soil sample.
- Consists of a 12” diameter ring and supplied with complete accessories needed to perform the test.

Compaction Determination (T-065)

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
T-065	41 x 31 x 25 (h)	8.0

SAND CONE SET (T-061)

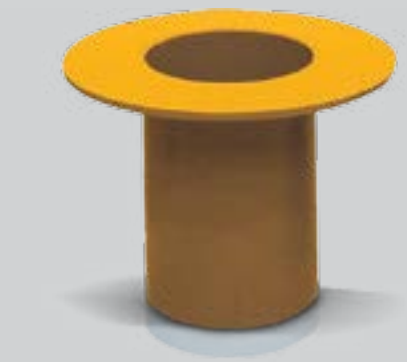
ASTM D1556 • AASHTO T-191

- Used to determine the in-situ density of the fine grain compacted soil. The test consists of making a hole in the compacted soil layer, filling it with known-density soil sample from the container (plastic jar/ sand pouring cylinder), then measuring the soil weight along with the water content.

- Contains a sand cone and a base plate that has an opening designed for the cone to sit into. The set also contains a container (plastic jar/sand pouring cylinder) to be used during the test.

CALIBRATION CONTAINER (T-061/x/CC)

- Used for taking reference measurement for the Sand Replacement test.



SAND CONE SET (T-061)

ASTM D1556 • AASHTO T-191

Sand Density Cone Set - Ø 6.5” (T-061/6)	Sand Replacement Set - Ø 200 mm (T-061/8)	Sand Density Cone Set - Ø 12” (T-061/12)
Sand Cone - Ø 6.5” (T-061/6/C)	Sand Cone - Ø 200 mm (T-061/8/C)	Sand Cone - Ø 12” (T-061/12/C)
Base Plate (T-061/6/BP)	Tray (T-061/8/BP)	Base Plate (T-061/12/BP)
Plastic Jar (T-061/6/PJ)	Sand Pouring Cylinder (T-061/8/SPC)	Sand Pouring Cylinder (T-061/12/SPC)
-	Calibration Container (T-061/8/CC)	-

STANDARD PROCTOR SET (T-050/S)

ASTM • BS • AASHTO

- Used to determine the relationship between the moisture content and the density for the compacted soil sample. Specifying this relationship will help detecting the optimum moisture contact of the compacted soil sample along with its maximum dry density.

Item	Standard Proctor Mould (ASTM)	Standard Proctor Rammer (ASTM)	Standard Proctor Mould (EN)	Standard Proctor Rammer (EN)	Standard Proctor Mould (BS)	Standard Proctor Rammer (BS)
Code	T-050/S-M/ASTM	T-050/S-R/ASTM	T-050/S-M/EN	T-050/S-R/EN	T-050/S-M/BS	T-050/S-R/BS
Diameter	4” (101.6 mm)	2” (50.8 mm)	100 mm	50 mm	105 mm	50 mm
Height (Drop)	4.584” (116.4 mm)	12” (304.8 mm)	120 mm	305 mm	115.5 mm	300 mm
Weight	-	5.5 lb (2.495 kg)	-	2.50 kg	-	2.50 kg

MODIFIED PROCTOR SET (T-050/M)

ASTM • BS • AASHTO

- Used to determine the relationship between the moisture content and the density for the compacted soil sample. Specifying this relationship will help detecting the optimum moisture contact of the compacted soil sample along with its maximum dry density.

Item	Modified Proctor Mould (ASTM)	Modified Proctor Rammer (ASTM)	Modified Proctor Mould (EN)	Modified Proctor Rammer (EN)	Modified Proctor Mould (BS)	Modified Proctor Rammer (BS)
Code	T-050/M-M/ASTM	T-050/M-R/ASTM	T-050/M-M/EN	T-050/M-R/EN	T-050/M-M/BS	T-050/M-R/BS
Diameter	6” (152.4 mm)	2” (50.8 mm)	150 mm	50 mm	N/A	50 mm
Height (Drop)	4.584” (116.4 mm)	18” (457.2 mm)	120 mm	457 mm	N/A	450 mm
Weight	-	10 lb (4.5364 kg)	-	4.50 kg	N/A	4.50 kg

AUTOMATIC SOIL COMPACTOR (T-055)

ASTM • BS • AASHTO

- Used to determine the relationship between molding water content and dry unit weight of soil.
- Specifying this relationship will help detecting the optimum moisture contact of the compacted soil sample along with its maximum dry density.
- Can perform both standard and modified compactions on soil samples assuring uniform and precise practice.
- Safety transparent door eliminates risks and allows observation.
- Equipped with automatic digital counter which stops at the required number of blows.
- The compactor can be used to compact samples in both standard and modified proctor moulds.

Automatic Soil Compactor (T-055)

	Item	Automatic Proctor (ASTM)	Automatic Proctor (EN)
Standard	Diameter	2” (50.8 mm)	50 mm
	Drop Height	12” (304.8 mm)	305 mm
	Weight	5.5 lb (2.495 kg)	2.50 kg
Modified	Diameter	Circular: 2” (50.8 mm) Sector: 2.9” (73.7 mm)	50 mm
	Drop Height	18” (457.2 mm)	457 mm
	Weight	10 lb (4.5364 kg)	4.50 kg

MOISTURE / TEMPERATURE TESTER (T-462)

- Used to determine the moisture percentage and the temperature of the soil samples and the fine aggregates with maximum particle diameter of 10 mm.
- It measures upto 1000 mm depth.
- The range of the moisture content that can be detected by the equipment is between 0% (Dry condition) to 35% with sensitivity of (0.5%).
- The temperature ranges between (-20°C) to (+60°C) with reading sensitivity of 0.5°C.

TECHNICAL SPECIFICATIONS

- Specially for Sand, Aggregate
- Depth: 1 m Depth
- Moisture: 0-35% (0.5 %)
- Temperature : -20 / +60 (0.5°C)

WATER LEVEL INDICATOR (T-470)

- Used for determining the level of water in boreholes, wells or any other ground opening.
- Pilot lamp is activated when the probe touches the surface of the water.
- Custom length can be manufactured upon request.

Water Level Indicator (T-470)

AVAILABLE MODELS

- Length: 50 m (T-470/050)
- Length: 100 m (T-470/100)
- Length: 200 m (T-470/200)

UNIVERSAL CARBIDE TESTER (Speedy Mositure Tester) (T-068)

- Used to determine the moisture in the soil, sand and aggregate particles. The machine gives quick and accurate results. The tester is suitable for both lab and field work.
- The mechanism carried out by the machine is through measuring the gas emission from the reaction between water and calcium carbide.
- The tester is equipped with a portable electronic balance, steel balls and a carrying case.

SUPPLIED WITH

- Calibrated Pressure Bottle
- Moisture Meter
- Precise Digital Scale
- Spherical balls
- Sample Cups (2 ea)
- Hammer
- Chisel
- Sampling Spoon
- Sample Grinding Bowl
- Set of 25 ampoules of Calcium Carbide
- Digital Timer/Stopwatch
- Calibration set
- Cleaning Brush
- Carrying Case


HS-5001EZ

NUCLEAR DENSITY / MOISTURE GAUGE (EZ-121)

- Used to determine density and the moisture content of the sample in a very short period with very accurate results.
- The testing time can be chosen from the control panel as 15 seconds, 1 minute and 4 minutes.
- The depth range that can be measured by this equipment is 12” (30 cm), with 1” measurement increment.
- Supplied with all the necessary accessories to perform the test.

Nuclear Density / Moisture Gauge (EZ-121)

TECHNICAL SPECIFICATIONS

- Used for rapid fiend tests.
- Test time: 15 sec / 1 min / 4 min
- Depth Range up to 12” (30 cm)
- Increment: 1” (2.5 cm)
- With Accessories

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
EZ-121	Gauge : 40 x 22 x 14 (h) Reference Standard : 35 x 20 x 8 (h) Transit Case : 79 x 36 x 50 (h) Accessory Case : 50 x 25 x 13 (h)	41

ELECTRICAL DENSITY GAUGE (EDG)
ASTM D7698

- The Electrical Density Gauge (EDG) is a nuclear-free alternative for determining the moisture and density of compacted soils used in road beds and foundations.
- The EDG is a portable, battery-powered instrument capable of being used anywhere without the concerns and regulations associated with nuclear safety.
- Its user-friendly, step-by-step menu guides the user through each step of the testing procedure and cautions the user when values do not correspond to established curves for the material being tested.
- Easy-to-use, the EDG can be used as a construction aid to monitor day-to-day compaction operations by providing performance and measurement results highly comparable to those achieved with traditional methods, including the nuclear gauge and/or a sand-cone and oven moisture test combination.
- When conducting a test, the EDG measures and displays the results for wet and dry density, gravimetric moisture content and percent compaction.

Electrical Density Gauge (EDG)

TECHNICAL SPECIFICATIONS

- Portable, battery powered.
- Step-by-step menu guide throughout the test.
- Power: Li-ion Battery

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
EDG	53 x 43 x 20 (h)	7

LABORATORY CBR TESTER - LCD (T-001/LCD)

ASTM 1883 • BS 1377:4 • EN 13286:47

- The California Bearing Ratio (CBR) is a penetration test carried out to evaluate the mechanical strength of road subgrades and base-coarse layers.
- Equipped with an LCD Data Acquisition System to view/perform the test and show the CBR index automatically upon finishing the test.
- Has a capacity of 50 kN and automatically performs the test, with an automatic stop after finishing the test and returning to initial position.
- The LCD screen shows the Loading versus Penetration in a real time graph during the test.
- Equipped with output port to RS 232 or normal printer.
- Equipped with a memory that has the ability to save 1000 test results. Old test results can be recalled and observed on the LCD monitor.

SUPPLIED WITH

- Load cell: 50 kN cap
- Penetration Piston

TECHNICAL SPECIFICATIONS

- Capacity: 50 kN
- Graphical LCD Data Acquisition system
- Two loading rate: (1 mm/min) and (1.27 mm/min)
- Automatic stop when test complete
- Loading vs. Penetration is shown graphically
- CBR index is given automatically
- RS 232 or output to printer is available
- 1000 test data can be stored
- Old tests can be recalled
- Power Supply: 220 - 240 V / 50 or 60 Hz (110 V / 60 Hz is also available)

Laboratory CBR Tester (T-001/LCD)

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
T-001/LCD	42 x 75 x 100 (h)	110

FIELD CBR TESTER (T-005)
ASTM 1883 • BS 1377:7 • AASHTO T-193

- The California Bearing Ratio (CBR) is a penetration test carried out to evaluate the mechanical strength of road subgrades and base-coarse layers.
- Designed with a capacity of 50 kN and suitable for field works.
- Equipped with a mechanical jack (2-speed), and a load ring.
- Includes a penetration piston specially designed for CBR Apparatus, penetration dial (2 pieces), dial holder, extension rods and a surcharge weight.

Field CBR Tester (T-005)

TECHNICAL SPECIFICATIONS

- Capacity : 50 kN
- Mechanical Jack - 2 Speed
- Load Ring
- Set Includes:
  - CBR Penetration Piston
  - Penetration Dial (2ea)
  - Dial Holder
  - Extension Rods
  - Surcharge Weight

CONVERSION FRAME FOR FIELD CBR TESTER (T-005/LF)
ASTM 1883 • BS 1377:4 • EN 13286:47

- This frame cannot be used alone, the frame is used to convert the field CBR (T-005) in order to use it in the laboratory.

Field CBR (T-005) with Conversion Frame (T-005/LF)

LABORATORY CBR TESTER - DIGITAL (T-001/D)

ASTM 1883 • BS 1377:4 • EN 13286:47

- The California Bearing Ratio (CBR) is a penetration test for evaluation of the mechanical strength of road subgrades and base-courses.
- Has a capacity of (50 kN) and the machine is suitable to be used in laboratories.
- Equipped with a digital load indicator.
- Supplied with a CBR penetration piston and a penetration dial.

Laboratory CBR Tester - Digital (T-001/D)

TECHNICAL SPECIFICATIONS

- Lab Type - Digital
- Capacity : 50 kN
- Load Indicator : Digital Load Cell
- Power Supply: 220 - 240 V / 50 or 60 Hz (110 V / 60 Hz is also available)

SUPPLIED WITH

- Penetration Piston
- Dial Indicator for Penetration (25 mm / 0.01 mm)

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
T-001/D	42 x 70 x 100 (h)	110

CBR EQUIPMENT (T-01x)

TECHNICAL SPECIFICATIONS

Code	Item	ASTM (T-01x/ASTM)	BS (T-01x/BS)	EN (T-01x/EN)
T-010	CBR Mould	Ø 6" x 7"	Ø 152 mm x 127 mm	Ø 150 mm x 120 mm
T-011	Solid Base Plate	Solid	Solid	Solid
T-012	Perforated Base Plate	Perforated	Perforated	Perforated
T-013	Spacer Disc with T-Handle	Ø 5 15/16" x 2.416"	Ø 150 mm x 50 mm	Ø 149.5 mm x 36 mm
T-014	Slotted Surcharge Weight	5 lb (2270 g)	N/A	N/A
T-014	Split Surcharge Weight	N/A	2000 g	2000 g
T-015	Annular Surcharge Weight	5 lb (2270 g)	2000 g	2000 g
T-016	Swell Plate with Stem	Steel	Steel	Steel
T-017	Tripod	Cast Iron	Cast Iron	Cast Iron
T-018	Dial Indicator	10 / 0.01 mm	25 / 0.01 mm	10 / 0.01 mm
T-019	Soaking Tank	Plastic	Plastic	Plastic

SAMPLE EXTRUDER (T-020)

- Used to extract the sample from its mould. It can be used with proctor test moulds, CBR test moulds, Marshall test moulds and other moulds having the diameter 100 mm/4” to 150 mm / 6”.
- The machine is actuated using a manual hydraulic jack.

Sample Extruder (T-020)

TECHNICAL SPECIFICATIONS

- Manual-Hydraulic Type
- Used for 100 mm /4” to 150 mm / 6” diameter samples
- Can be used with Proctor, CBR, Marshall moulds

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
T-020	Dia: 30 / h: 60	35

UNIVERSAL EXTRUDER (T-025)

- Used to extract the sample out of Shelby moulds, proctor moulds and CBR moulds.
- Controlled by a hydraulic jack having 400 mm stroke.
- Supplied with all the needed adaptors to meet the need of the user, to be specified at the time of inquiry.

Universal Extruder (T-025)

TECHNICAL SPECIFICATIONS

- Used for:
  - Shelby, proctor moulds, CBR mould
  - Piston stroke 400 mm
  - Supplied with adaptors

Universal Extruder (T-025)

CONSTANT HEAD PERMEABILITY SET (T-250/CH)

- Used to determine the permeability of granular-grained soils
- Consists of:
  - Permeameter stand
  - Constant-head permeability cell
  - Manometer tubes/valves
  - Constant-head tank

TECHNICAL SPECIFICATIONS

- Permeameter Stand with 3 tubes
- Constant-head permeability cell - Ø 75 mm (1 ea)

FALLING HEAD PERMEABILITY SET (T-250/FH)

- Used to determine the permeability of fine-grained soils
- Consists of:
  - Permeameter stand
  - Constant-head permeability cell
  - Manometer tubes/valves
  - Constant-head tank

TECHNICAL SPECIFICATIONS

- Permeameter Stand with 3 tubes
- Constant-head permeability cell - Ø 114 mm (1 ea)

DIGITAL PLATE LOAD SET (T-063/D)

ASTM D1194 • ASTM D1195 • BS 1377:9

- Used to determine the bearing capacity of soil layers in road constructions, foundations, highways, airport and subgrades and sub-layers of soil.

- Includes a hydraulic loading device, digital indicator, a manual pump, datum bar, dial holder and two dials each with sensitivity of 0.01 mm.

- Also includes two pieces of circular plates, having diameters of 300 mm and 450 mm.

Digital Plate Load Set (T-063/D)

TECHNICAL SPECIFICATIONS

- Hydraulic loading
- Capacity : 100 kN
- Equipped with digital manometer

SUPPLIED WITH

- Ø 300 mm bearing plate
- Ø 450 mm bearing plate
- Datum bar
- Dial holder (3 ea)
- Dial 50 / 0.01 mm (3 ea)

OEDOMETER - CONSOLIDATION (T-210)

ASTM D2435 • BS 1377-6

- Used to determine the behavior of the soil sample upon certain loading in a specified period of time. It indicates the settlement characteristics of the soil which is known as Consolidation.
- The loading ratio for the device is 10:1 and designed as front loading type. The rear weight is used for balancing the device.
- The device has a support for a screw jack and supplied with a dial and its holder, consolidation cell, two porous discs and weight set.
- Fixed on a frame and can be ordered as 1, 2 or 3 devices on the same frame.

SUPPLIED WITH

- Dial Indicator : 12.7 / 0.002 mm
- Dial Holder
- Consolidation Cell
- Porous Discs (2 ea)
- Weight Set (4 x 10 kg, 1 x 5 kg, 1 x 2 kg, 2 x 1 kg, 1 x 0.5 kg, 2 x 0.25 kg)

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
T-210/1	50 x 80 x 135 (h)	84
T-210/2	90 x 80 x 135 (h)	163
T-210/3	130 x 80 x 135 (h)	242

TECHNICAL SPECIFICATIONS

- Front Loading Type
- Load Ratio = 10:1
- Rear Balancing Weight
- Screw Jack Support
- Oedometers can be ordered as one (T-063/1), two (T-063/2) or three (T-063/3) devices on the same frame.

UNIAXIAL TESTER (T-201/D)

- The test is also known as “Unconfined Compression Strength Test (UCS)”.
- Used to determine the material behavior and characteristics under axial loading up to failure point. It can also determines the local deformation of the soil sample upon loading.
- Has a capacity of 50 kN and equipped with a load cell and digital indicator.
- The digital indicator has a “Peak Hold” function that shows the maximum load.

Uniaxial Tester (T-201/D)

TECHNICAL SPECIFICATIONS

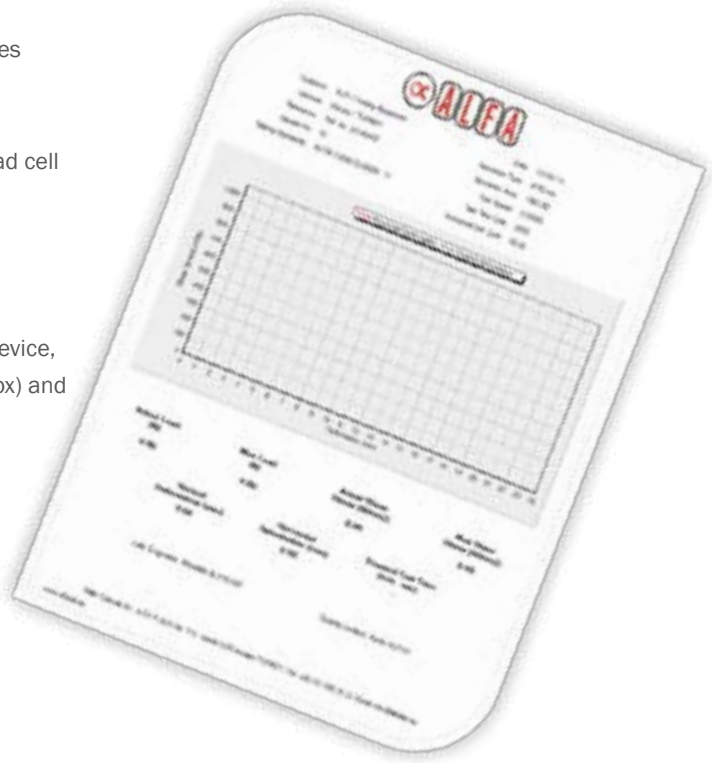
- Capacity : 50 kN
- Load Cell & Digital Indicator
- “Peak Hold” function for max. Load
- Power Supply: 220 - 240 V / 50 or 60 Hz (110 V / 60 Hz is also available)

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
T-201/D	50 x 90 x 115 (h)	120

DIRECT SHEAR TESTER (T-220)

ASTM D3080 • BS 1377-7

- Used to determine the resistance of soil against shear forces applied on it.
- The device is equipped with a KIOSK type touch screen, load cell with a capacity of 5 kN.
- The loading speed varies from 9 – 0.00001 mm/min.
- Supplied with vertical and horizontal dials, beam loading device, shear box (either 60 mm diameter or 60x60 mm square box) and weight set.



DIRECT SHEAR TESTER (T-220)

ASTM D3080 • BS 1377-7

SUPPLIED WITH

- Software
- Electronic Deformation Sensor (Vertical and Horizontal)
- Beam Loading Arm
- Shear Box 60 mm dia. or 60 mm square (To be specified at the time of order)
- Weight Set (4 x 10 kg, 1 x 5 kg, 1 x 2 kg, 2 x 1 kg, 1 x 0.5 kg, 2 x 0.25 kg)

TECHNICAL SPECIFICATIONS

- LCD Graphical System
- Shear force measurement by Load Cell
- Maximum Shear Force: 5000 N
- Maximum Vertical Load: 500 N / 5000 N (using 10:1 loading arm)
- Speed Range: 0.00001 - 5.00000 mm/min
- Power Supply: 220 - 240 V / 50 or 60 Hz (110 V / 60 Hz is also available)


ALFA
www.alfalab.eu

FULLY AUTOMATIC TRIAXIAL TESTER (T-5001/A)

ASTM D2850 • D4767 • D7181

- Used to perform large range of Triaxial tests on soil samples to determine the strength parameters and the mechanical properties.
- Capable of performing:
  - Standard Triaxial Tests:
    - UU Test (Unconsolidated Undrained Test)
    - CU Test (Isotropically Consolidated Undrained Test)
    - CD Test (Isotropically Consolidated Drained Test)
  - Wide range of advanced Triaxial tests (ie, K_0 consolidation, custom stress paths, extension tests ... etc)
- Capacity:
  - Frame : 200 kN (20 tons)
  - Load Cell : 20 kN (2 tons)
  - Cell : 2000 kPa
  - Pressure Transducer : 25 bar
  - Water Tank : > 30 lt
  - Ram travel : 50 mm
- Sample Dimensions
  - Triaxial Tests : 35 – 70 mm
  - Flexible Wall Permeability : 35 – 90 mm
- The load cell is installed inside the cell to eliminate the piston friction calculations from the test and provide very precise measurements, which is directly applied on the sample. The water-proof load cell is made completely of stainless steel.

FULLY AUTOMATIC TRIAXIAL TESTER (T-5001/A)

ASTM D2850 • D4767 • D7181

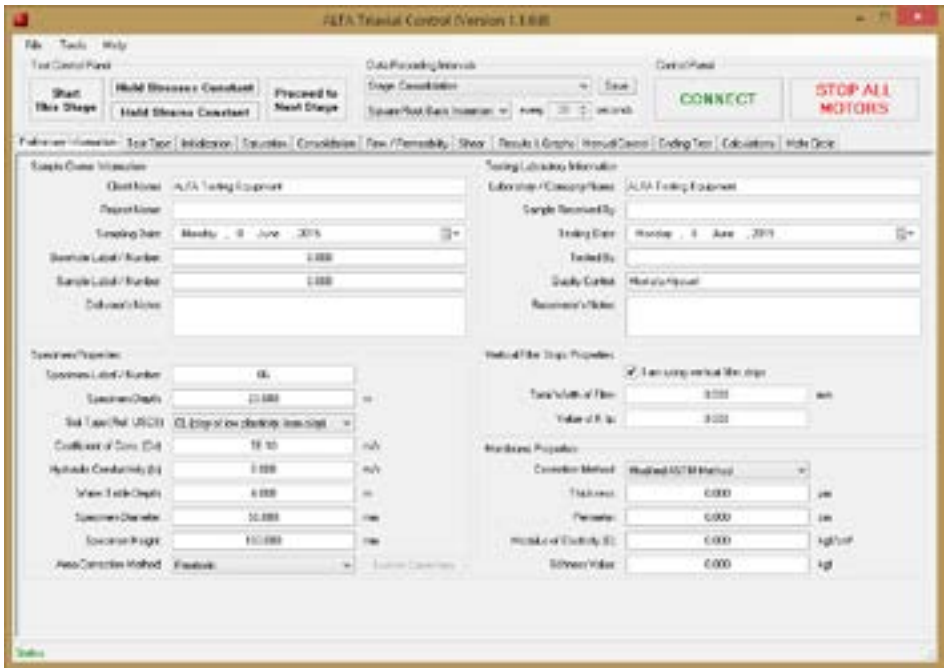
- The load is applied by servo-motor, which allows sensitive control on loading speed ranging from 0.00001 – 9.99999 mm/min.
- The cell is made of high-strength plexiglass specially designed for this particular device with thickness of 10 mm.
- Equipped with 2 PVAs (Pressure-Volume Actuator) which controls and measures both pressure change volume change in the cell and the sample. The PVA is completely controlled from computer with the supplied software.
- The pressure is measured using very precise pressure transducer that sends the data to the equipped acquisition system.
- The acquisition system gathers the data from all the sensors (load cell, pressure transducers, electronic position indicators ... etc), analyses it and sends it to the computer via USB.
- The water tank is fitted with a magnetic stirrer to de-air the water before pumping it into the system. Adding this feature significantly reduces the time required to saturate the sample and provide air-free water during the test to the whole system.
- The LCD indicator at the front of the system shows the readings from all the sensors and the position of the PVA pistons with the amount of water left in each one simultaneously.
- The tests are all performed from computer with the help of ALFA's state-of-the-art Triaxial Control software (refer to appendix A for more details).
- The device is supplied with all the required accessories to perform Triaxial Tests, Uniaxial UCS Tests, Permeability Tests, and all the tools for proper sample preparation.

SUPPLIED WITH

FULLY AUTOMATIC TRIAXIAL TESTER (T-5001/A)

ASTM D2850 • D4767 • D7181

TRIAXIAL SOFTWARE



- The software provides full control on ALFA's Triaxial Tester (T-5001/A). It consists of different tabs with self-explanatory notes and guides taken from the international standards and based on the findings of reliable researchers and universities in the world.
- Each tab guides the user to what should be done in very simple step-by-step progress. The top part of the software is constant that provides quick access to some important control functions on the software and the machine like proceeding to next stage, changing the data recording method for the report, emergency stop for the machine ... etc.

FULLY AUTOMATIC TRIAXIAL TESTER (T-5001/A)

ASTM D2850 • D4767 • D7181

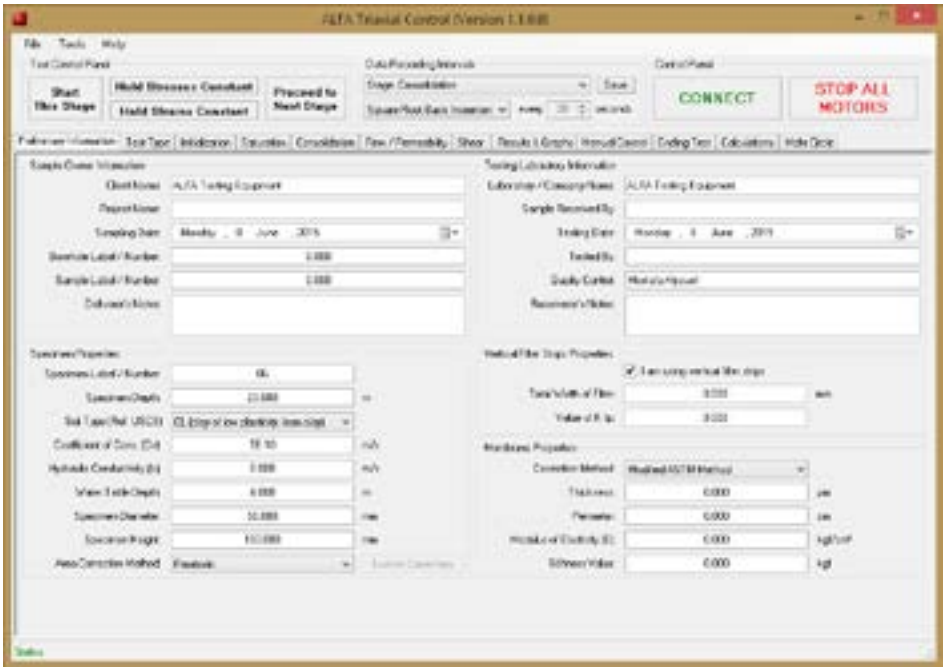
TRIAXIAL SOFTWARE

File Menu		
• Start New Test	Used to start new test from beginning	
• Continue Old Test	Used to continue an old test and merge the data of sets together for comparison	
• Save	Saves the current test	
• Save As	Saves the current test to different file	
• Reporting	Adjust the report settings and what to include in it	
• Data Export	Export the data to third-party applications like Excel	
• Exit	Closes the software	
Tools Menu		
• Preferences	Adjust test preferences like units, connections ... etc	
• Calibration	Perform / check the sensors' calibration	
• LCD Monitor	Turn ON and OFF the LCD monitor	
Help Menu		
• Check for Updates	Check if there is any update available for the software (requires internet connection)	
• User Manual	Views the user manual	
• About	Gives information about the software and its version	

FULLY AUTOMATIC TRIAXIAL TESTER (T-5001/A)

ASTM D2850 • D4767 • D7181

TRIAXIAL SOFTWARE : Preliminary Information Tab



Sample Owner Information:

- To be filled with the sample owner's information. These information are used in the final report.

Testing Laboratory Information:

- To be filled with the testing laboratory or institute's information. These information are used in the final report.

Specimen Properties:

- Specimen number, depth, coefficient of consolidation, water table, soil type, diameter, height, area correction method ... etc are all selected and specified from this section. These information are crucial and to be used in further calculations and to decide the behavior of the equipment based on the sample properties.

Vertical Strips:

- Specifying whether the vertical strips are used or not, with its properties.

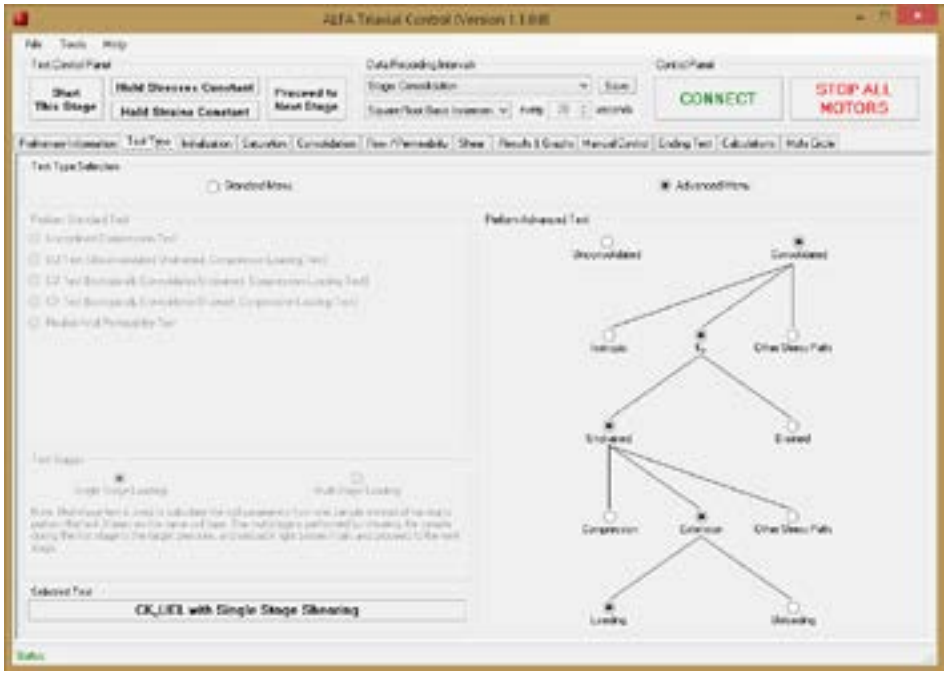
Membrane Properties:

- Specify the correction method for the membrane and specify is properties.

FULLY AUTOMATIC TRIAXIAL TESTER (T-5001/A)

ASTM D2850 • D4767 • D7181

TRIAXIAL SOFTWARE : Test Type Tab



Test Type Selection:

- Select whether to have simplified menu (for standard tests) or advanced menu (for custom tests).

Perform Standard Test:

- Choose the test type from simplified selections.

Perform Advanced Test:

- Choose the test from stage-by-stage selection. This option gives the ability to perform any custom test on the sample from very wide range of functions based on international standards and findings of reliable researchers and institutes.

Test Stages:

- Select between single-stage or multi-stage tests. This option gives the ability to obtain 3 mohr circles and determine the strength parameters from a single Triaxial soil sample.

Selected Test:

- Displays the chosen test type.

FULLY AUTOMATIC TRIAXIAL TESTER (T-5001/A)

ASTM D2850 • D4767 • D7181

TRIAXIAL SOFTWARE : Initialization Tab

Proper Flushing Instructions:

- Some instructions to perform proper flushing for the setup to avoid having air bubbles left over.

Initial Readings / Positions:

- Shows and controls the initial positions of each piston/motor to avoid over-travelling or running out of water during the test.

Vacuum Application:

- Gives the ability to include the vacuum calculations to the software if applied (used for sand samples).

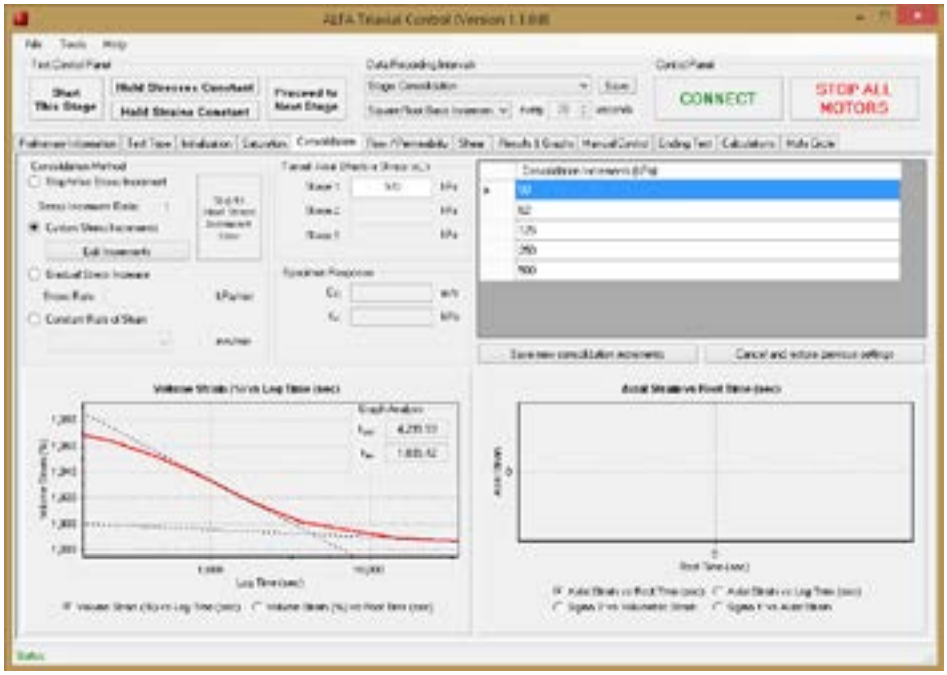
Stage Automation Control:

- Gives the option to select which stage to start automatically.

FULLY AUTOMATIC TRIAXIAL TESTER (T-5001/A)

ASTM D2850 • D4767 • D7181

TRIAXIAL SOFTWARE : Consolidation Tab



Consolidation Method:

- Gives the ability to select which method to follow in order to consolidate the sample.

Target Pressures:

- Gives the option to target 3 consolidation pressures in multi-stage mode to obtain the strength parameters from single sample.

Specimen Response:

- Shows the consolidation value and the K0 value.

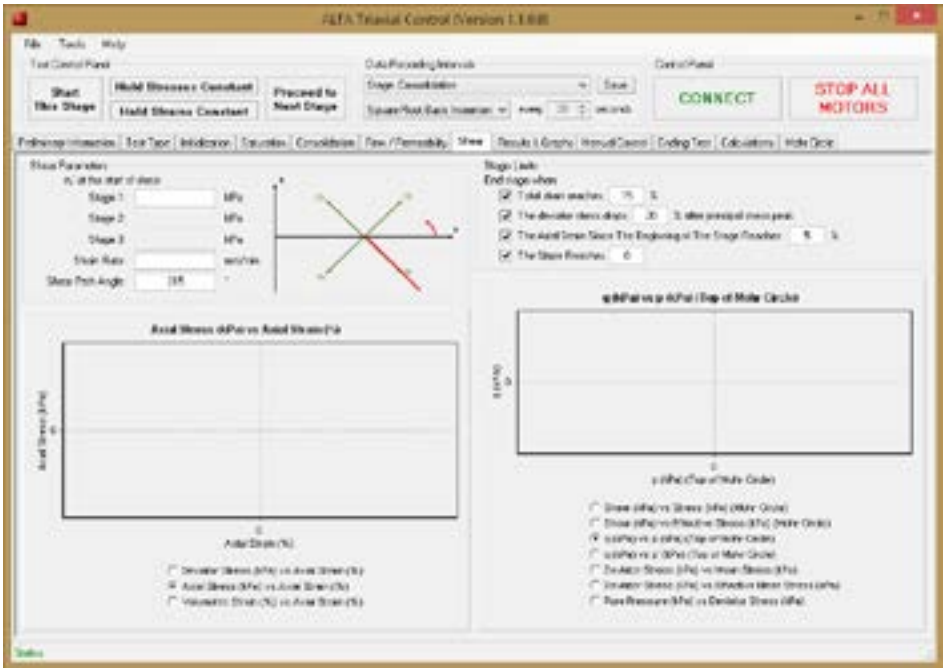
Graphs:

- Axial Strain vs σ1
- σ3 vs σ1
- Volumetric strain vs time (for t50 and t100 calculations)

FULLY AUTOMATIC TRIAXIAL TESTER (T-5001/A)

ASTM D2850 • D4767 • D7181

TRIAXIAL SOFTWARE : Shear Tab



Shear Parameters:

- Displays the target pressure for each stage and gives the ability to draw any custom path for the sample. The strain rate is also specified in this section.

Stage Limits:

- Gives the option to end the test with any desired limitations..

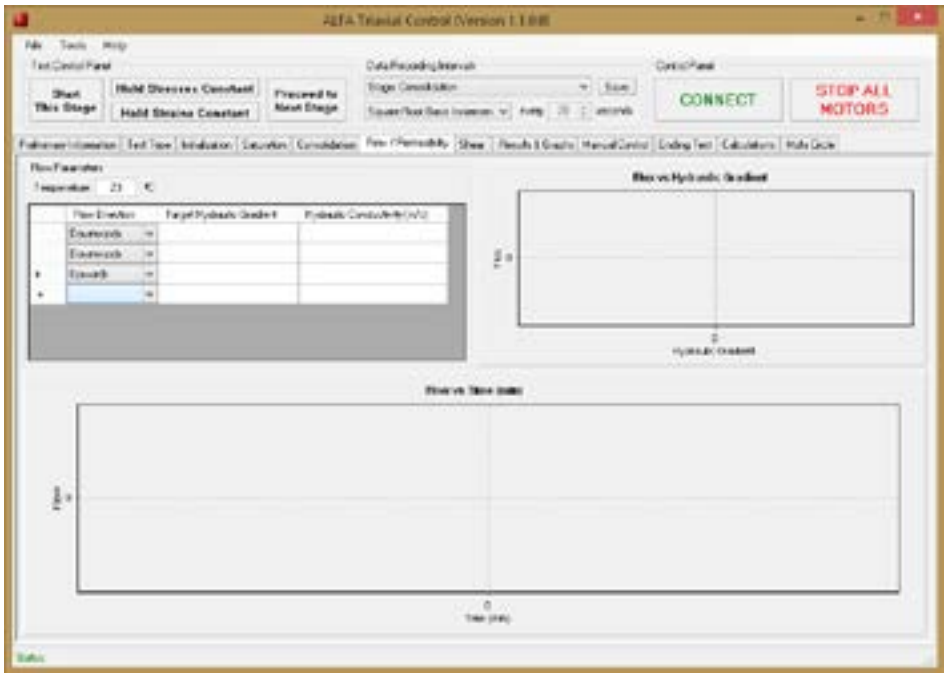
Graphs:

- Mohr Circle graphs and calculations
- q vs p
- q vs p'
- Deviator stress vs mean stress
- Pore pressure vs deviator stress

FULLY AUTOMATIC TRIAXIAL TESTER (T-5001/A)

ASTM D2850 • D4767 • D7181

TRIAXIAL SOFTWARE : Flow/Permeability Tab



Flow Parameters:

- Displays the target pressure for each stage and gives the ability to draw any custom path for the sample. The strain rate is also specified in this section.

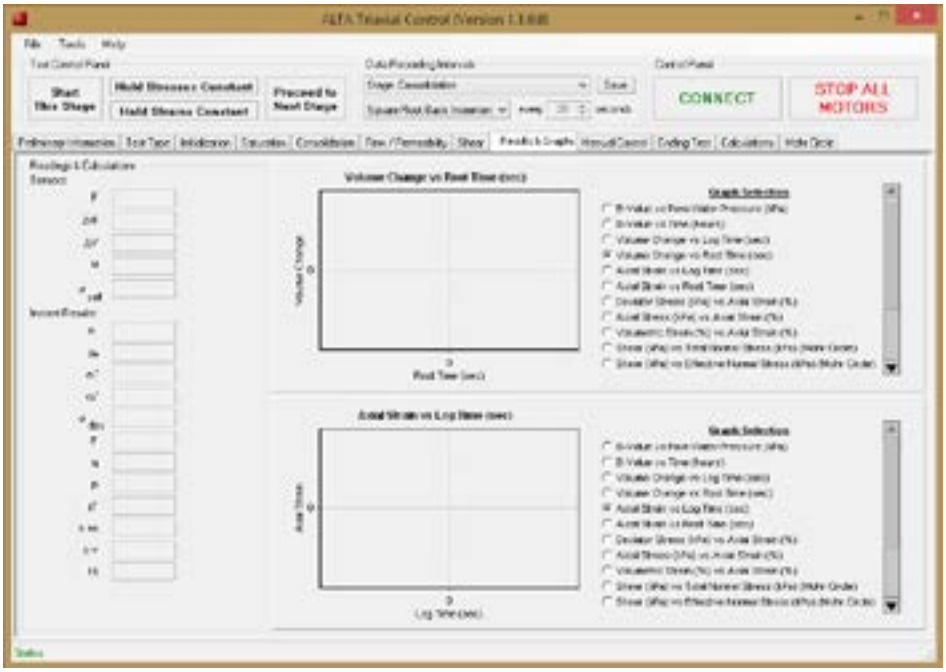
Graphs:

- Flow vs time
- Flux vs hydraulic gradient

FULLY AUTOMATIC TRIAXIAL TESTER (T-5001/A)

ASTM D2850 • D4767 • D7181

TRIAXIAL SOFTWARE : Results & Graphs Tab



Readings and Calculations:

- Shows the readings from all the sensors and the calculated values for each parameter simultaneously.

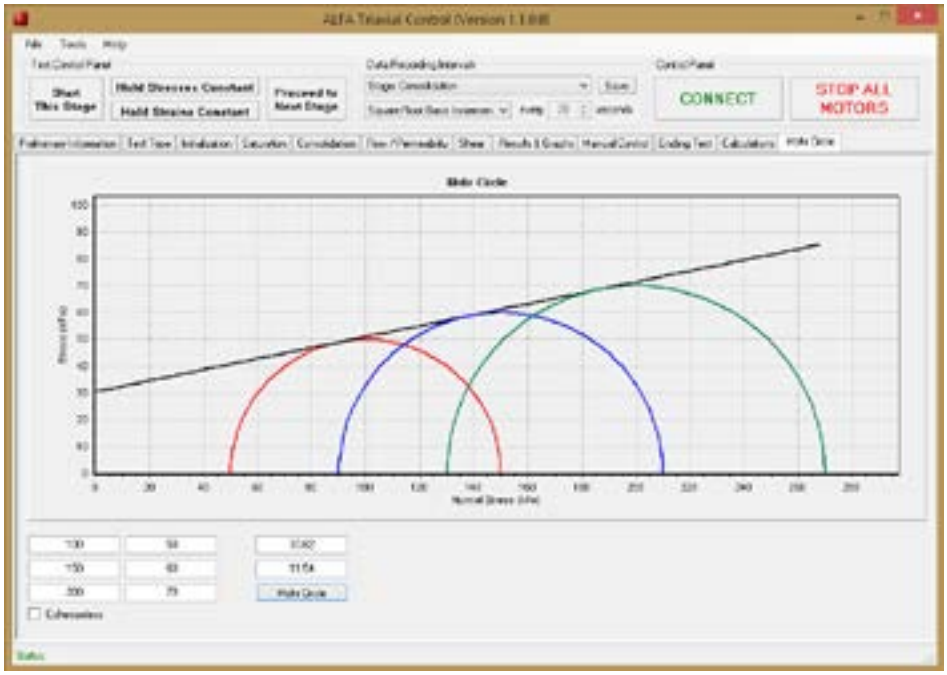
Graphs:

- B-Value vs Pore Water Pressure (kPa)
- a-Value vs Time (hours)
- Volume Change vs Log Time (sec)
- Volume Change vs Root Time (sec)
- Axial Strain vs Log Time (sec)
- Axial Strain vs Root Time (sec)
- Deviator Stress (kPa) vs Axial Strain
- Axial Stress (kPa) vs Axial Strain
- Volumetric Strain vs Axial Strain
- Shear (kPa) vs Total Normal Stress (kPa) (Mohr Circle)
- Shear (kPa) vs Effective Normal Stress (kPa) (Mohr Circle)
- q (kPa) vs p (kPa) (Top of Mohr Circle)
- q (kPa) vs p' (kPa) (Top of Mohr Circle)
- Deviator Stress (kPa) vs Mean Stress (kPa)
- Deviator Stress (kPa) vs Effective Mean Stress (kPa)
- Pore Pressure (kPa) vs Deviator Stress (kPa)

FULLY AUTOMATIC TRIAXIAL TESTER (T-5001/A)

ASTM D2850 • D4767 • D7181

TRIAXIAL SOFTWARE : Mohr Circle Tab



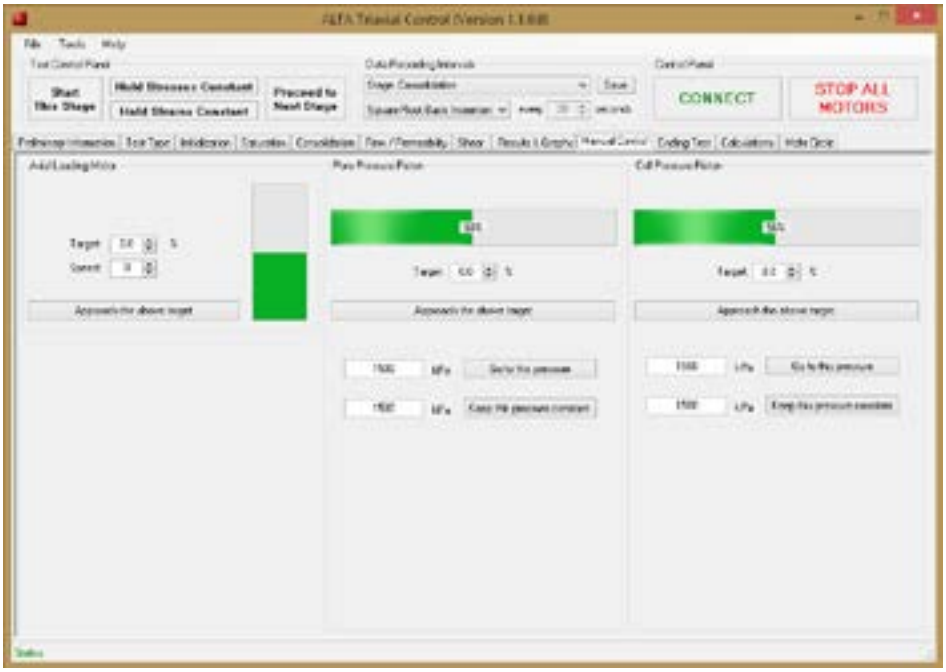
Mohr Circle

- The software allows the user to combine and compare tests from different samples together in one single report, draw the corresponding mohr circles and calculate the related soil characteristics.

FULLY AUTOMATIC TRIAXIAL TESTER (T-5001/A)

ASTM D2850 • D4767 • D7181

TRIAXIAL SOFTWARE : Manual Control Tab

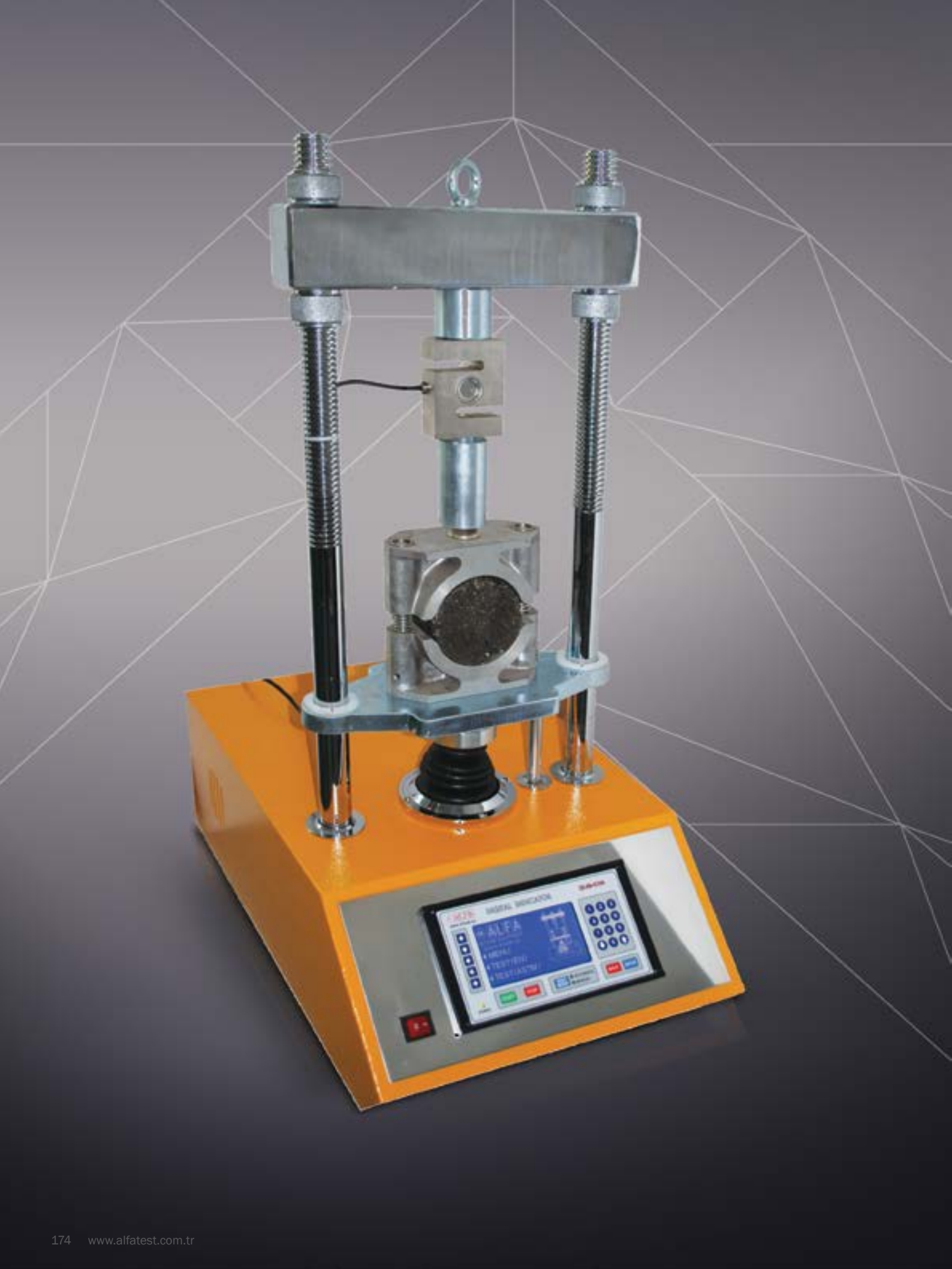


- Provides manual control on each motor/PVA.

Ending Test Tab:

- Gives instructions on how to end the test properly and empty the cell from water ... etc.

ASPHALT/BITUMEN


ALFA

MARSHALL STABILITY TESTER (A-001/LCD)

ASTM D1559 • EN 12697-34 • AASHTO T-245

- Used to determine the stability of the bituminous mix materials and capability of resistance against plastic deformation and flow value of the materials.
- Equipped with an LCD Data Acquisition System control the test and display the results in a very easy and simple way and, a memory to store up to 1000 test results to recall them in the future.
- Has a capacity of 50 kN and a loading rate of 2"/minute (50.8 mm/min).
- Fully automatic and to stop the test by itself when finishes and return to its initial position.
- Equipped with RS 232 port for computer connection and thermal printer (which should be ordered separately) to report the results quickly and directly from the machine.
- Supplied with load cell that has a capacity of 50 kN and flow-meter.

Marshall Stability Tester (A-001/LCD)

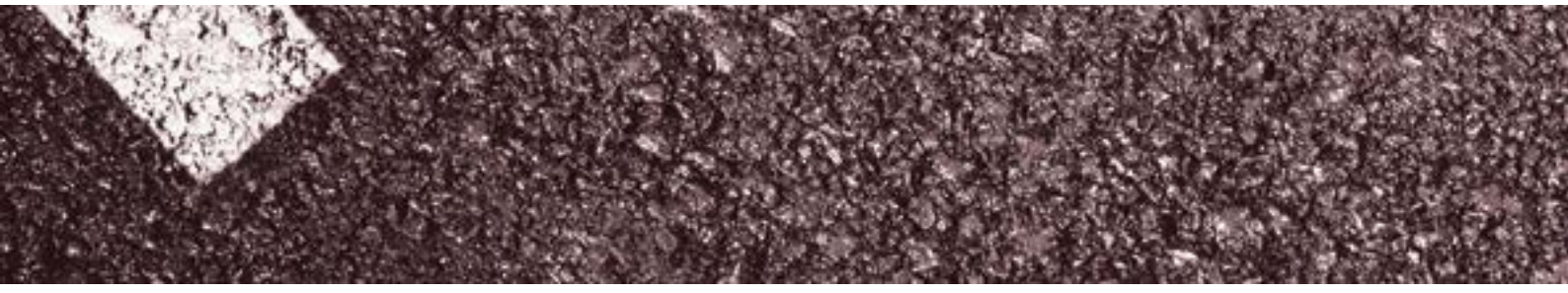
SUPPLIED WITH

- Load cell: 50 kN capacity
- Breaking Head
- Software

TECHNICAL SPECIFICATIONS

- Capacity : 50 kN
- High Precision Load Cell
- Electronic Measure of Flow
- Peak Hold of load and Flow
- Equipped with LCD Indicator
- Load Rate: 50.8 mm/min (2"/ min)
- Power Supply: 220 - 240 V / 50 or 60 Hz (110 V / 60 Hz is also available)

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
A-001/LCD	45 x 60 x 110 (h)	90



MARSHALL STABILITY TESTER - DIGITAL (A-001/D)

ASTM D1559 • EN 12697-34 • AASHTO T-245

- Used to determine the stability of the bituminous mix materials and capability of resistance against plastic deformation and flow value of the materials.
- Has a capacity of 50 kN and equipped with a digital indicator that shows the load. The digital indicator displays the maximum load during the test via Peak Hold function.
- Supplied with a digital indicator and a stability mould.

Marshall Stability Tester - Digital (A-001/D)

TECHNICAL SPECIFICATIONS

- Capacity: 50 kN
- High Precision Load Cell
- Electronic Measure of Flow
- Peak Hold of load and Flow
- Stability Mould
- Complete with Digital Indicator
- Power Supply: 220 - 240 V / 50 or 60 Hz (110 V / 60 Hz is also available)

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
A-001/D	42 x 55 x 90 (h)	88.5

MARSHALL MOULD (A-010)

- The sample, moulded in this equipment, can be used in Marshall Stability Tester.
- The Ø 4” mould is made of a heavy-duty steel and protected against corrosion.
- The mould is supplied with base plate and collar.

Marshall Mould (A-010)

TECHNICAL SPECIFICATIONS

- Mould (Ø 4”)
- Base Plate
- Collar

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
A-010	Dia: 12.5 / h: 15.5	3.8

AUTOMATIC MARSHALL COMPACTOR (A-015)

ASTM D6926 • AASHTO T 245 • EN 12697

- Used to determine the resistance of the asphalt sample to plastic flow. The test is performed in a fully automatic mechanism and programmed to stop automatically at the required number of blows.
- Supplied with the standard height and rammer weight according to ASTM/EN standards.
- Equipped with a blow counter, wooden pedestal and quick action clamping.

ASTM Model (A-015/ASTM)

EN Model (A-015/EN)

TECHNICAL SPECIFICATIONS (EN)

- Equipped with safety guard
- Blow Rate: 60 ± 5 blows per minute
- Rammer Weight: 4535 g ± 10 g
- Drop Height: 457 ± 5 mm
- Power Supply: 220 - 240 V / 50 or 60 Hz (110 V / 60 Hz is also available)

TECHNICAL SPECIFICATIONS (ASTM)

- Blow Rate: 55 ± 5 blows per minute
- Rammer Diameter: 100.33 mm ± 0.25 mm (3.955” ± 0.005”)
- Rammer Weight: 4536 g ± 9 g (10 lb ± 0.02 lb)
- Drop Height: 457.205 mm ± 0.635 mm (18” ± 0.025”)
- Power Supply: 220 - 240 V / 50 or 60 Hz (110 V / 60 Hz is also available)

HI-LOW DETECTOR - TRAVELLING BEAM (A-069)

- Used for checking planeness/irregularities in concrete and bituminous road surfaces.
- The travelling beam is 3 meters long.
- Deviation of the surface is shown on a scale;
  - in increments of 2 mm from 0 - 10 mm
  - in increments of 5 mm from 10 - 25 mm

TECHNICAL SPECIFICATIONS

- Length : 3 m
- Equipped with scale (up to 25 mm)

SAMPLE EXTRUDER (A-020)

- Used to extract the sample from its mould. It can be used with proctor test moulds, CBR test moulds, Marshall test moulds and other moulds having the diameter 100 mm to 6”.
- The machine is actuated using a manual hydraulic mechanism.

Sample Extruder (A-020)

TECHNICAL SPECIFICATIONS

- Manual-Hydraulic Type
- Used for 100 mm to 6” diameter samples
- Can be used with the moulds of Proctor, CBR, Marshall Tests

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
A-020	Dia: 30 / h: 60	35

BITUMEN PENETROMETER (A-090)

- Used to determine the moisture content while soil passing from plastic to liquid state by measuring the penetration of standard cone free falling into the soil under controlled conditions.
- Designed with auto-zeroing mechanism and a release button is equipped to the machine for easier using experience.

Digital Penetrometer (A-090)

Semi-Automatic Digital Penetrometer (A-090/SA)

A-090 Hand-operated model with a digital indicator to be used with a stopwatch.

A-090/SA Semi-Automated model with a digital indicator. It releases and stops the plunger automatically and shows the penetration measurements on a digital indicator.

SUPPLIED WITH

- Penetration Needle (A-090/PN)
- Sample Cup (Ø 55 mm x 35 mm) (A-090/SC)
- Transfer Dish (Ø 127 mm x 23 mm) (A-090/TD)

MARSHALL WATER BATH (G-040)

EN 12697:34 • ASTM D1559 • ASTM D5581 • AASHTO T245

- Used to cure specimens at constant temperature.
- Exterior is made of powder coated steel and the interior tank and the cover are corrosion-resistant stainless steel.
- Supplied with perforated stainless steel shelf which stands at the bottom of the tank to ensure uniform temperature.
- Equipped with digital thermoregulator with range of ambient to 82°C (180°F) and pilot light heat indicator.
- The tank is insulated from the outer cabinet with thick mineral wool to reduce thermal loss and to help maintain contstant temperature.
- Available in 2 different capacities and with/without water circulation options.

Water Bath (G-040/30)

Water Bath (G-040/60)

SUPPLIED WITH

- Digital Thermostat & Indicator
- Stainless Steel Cover
- Base Shelf
- Pilot Lamp

TECHNICAL SPECIFICATIONS

- Digital Thermostat & Indicator
- Interior Stainless Steel
- Water circulation is optional (to be specified at the time of order)
- Power Supply: 220 - 240 V / 50 or 60 Hz (110 V / 60 Hz is also available)

Code	External Dimensions (± 1 cm)	Internal Dimensions (± 1 cm)	Volume	Approximate Weight (kg)
G-040/30	12” x 20” x 8” 305 x 508 x 203 mm	13-¾” x 21-½” x 15” 350 x 550 x 380 mm	7.93 gallons 30 liters	15
G-040/60	20” x 24-½” x 8” 508 x 622 x 203 mm	21-½” x 31-½” x 15” 550 x 800 x 380 mm	15.85 gallons 60 liters	30

BITUMEN CONTENT OVEN – IGNITION METHOD (A-030/IGN)

- Used to determine the bitumen/binder content in the asphalt and hot-mix samples.
- “After Burner” unit is installed at the top of the oven to reduce the gas emission during the test.
- The maximum temperature for the oven chamber is 600°C.
- The maximum temperature for the After-Burner unit is 950°C.
- The bottom of the innerchamber is made of insulating bricks with high strength against abrasion and impacts. The sides of the inner chamber with the ceiling lid are made of fiber board to provide better thermal insulation.
- The outer case is made of galvanized steel.
- The 7” True-Flat-Touch control panel is very user friendly and programmed to display the results graphically and in real-time during the test.
- Equipped with a sample plate and holder made of Nichrome.
- Weighing system (Capacity: 4 kg / Readability: 0.1 kg) is integrated in the oven.
- The oven is equipped with a thermal printer for faster/easier result reporting.

Bitumen Content Oven – Ignition Method (A-030/IGN)

SUPPLIED WITH

- After-Burner Unit.
- 7” Touch LCD Control Panel.
- Thermal Printer.
- Built-in Weighing System (Capacity: 4 kg / Readability: 0.1 kg).
- Sample Plate & Sample Holder.

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
A-030/IGN	63x60 x 112 (h)	95

TECHNICAL SPECIFICATIONS

- Chamber Maximum Temperature: 600°C.
- After-Burner Maximum Temperature: 950°C.
- Inner made of insulating bricks &fiber board.
- Outer made of galvanized steel.

ROLLING THIN FILM OVEN (A-030/RTFO)

ASTM D2872 • AASHTO T240

- Used to determine the effects of heat and air on a moving film of semi-solid asphaltic materials. The effects of this treatment are determined from measurements of the selected properties of the asphalt before and after the test.
- Internal chamber and external frame are made of stainless steel. Double wall insulation is made of fiberglass and the door is double glazed.
- The door has large glass for inspection during the test.
- Equipped with safety thermostat to prevent accidental over-heating.
- Clear, transparent, heat-resistant glass containers are supplied with the oven.
- Should be connected to a suitable air pressure supply (can be ordered separately).

Rolling Thin Film Oven (A-030/RTFO)

SUPPLIED WITH

- Digital thermostat to maintain 163 °C (325 °F) temperature
- Control thermometer
- Ventilation device
- Glass containers / sample bottles (8 ea)
- Safety thermostat
- Pilot light heat indicator

TECHNICAL SPECIFICATIONS

- Made of Stainless Steel
- Door with Large Window for Inspection
- Power Supply: 220 - 240 V / 50 or 60 Hz (110 V / 60 Hz is also available)

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
A-030/RTFO	62 x 91 x 62 (h)	55

ASPHALT OVEN WITH ROTATING SHELVES (A-030/TFO)

ASTM D1754 • EN 12607:2 • EN 13303 • AASHTO T179

- Used to determine the effects of heat and air on a film of semi-solid asphaltic materials. The effects of this treatment are determined from measurements of selected asphalt properties before and after the test.
- Internal chamber and external frame all made of stainless steel, double wall insulation with fiberglass, double-glazed door.
- Equipped with a digital thermostat and an indicator with operating temperature up to 180°C (356°F) fitted with overheat thermostat to prevent accidental over-temperature and to provide a safe working environment. The maximum temperature is regulated with the Proportional Integral Derivative (PID) control and goes to a maximum set value.
- The plate rotates at 5.5 ± 1.0 rpm.

Asphalt Oven With Rotating Shelves (A-030/TFO)

SUPPLIED WITH

- Digital thermostat to maintain 180°C (356°F) temperature
- Control thermometer
- Ventilation device
- Containers (2 ea + 9 ea)
- Safety thermostat

TECHNICAL SPECIFICATIONS

- Made of Stainless Steel
- Rotates at 5.5 ± 1.0 rpm
- Door with Large Window for Inspection
- Power Supply: 220 - 240 V / 50 or 60 Hz (110 V / 60 Hz is also available)

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
A-030/TFOT	46 x 45 x 70 (h)	40

CORING MACHINE - TRAILER MOUNTED (A-065)

- Used to take core samples from the asphalt.
- Installed on a trailer for easy transportation.
- Equipped with a petrol engine, four stabilizing feet, 100 lt water tank.
- Core Bits for the machine should be ordered separately

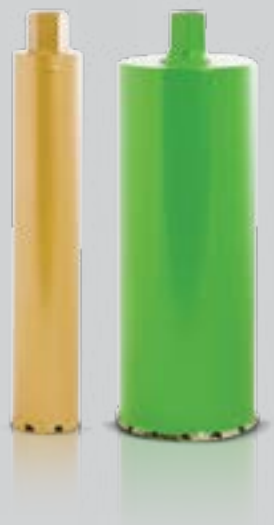
Coring Machine - Trailer Mounted (A-065)

TECHNICAL SPECIFICATIONS

- Trailer Mounted
- Petrol Engine
- Stabilizing Feet (4 ea)
- Water Tank (100 Lt)
- Core Bits should be ordered separately

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
A-065	130 x 141 x 140 (h)	260

Code	A-065/4	A-065/6
Core Bit Diameter	4” (≈ 100 mm)	6” (≈ 150 mm)



Coring Bits

CORING MACHINE - PORTABLE (A-066)

- Used to take core samples from the asphalt and concrete.
- The machine is designed to be portable and easily carried in a pick-up car.
- Equipped with a petrol engine, four stabilizing screw stands and a vertical screw feed.
- Suitable for Easy Single Person Operation.
- Core Bits for the machine should be ordered separately

Portable Coring Machine (A-066)

TECHNICAL SPECIFICATIONS

- Portable unit.
- Petrol engine
- Four stabilizing screws.
- Vertical screw feed.
- Water inlet
- Engine Configuration : Vertical Shaft
- Engine Fuel : Gasoline
- Starter : Rewind
- Bit Capacity : Up to 6” (150 mm) diameter bits

FLASH POINT APPARATUS (A-470)

- Used to determine the maximum temperature the bitumen can be safely heated without the danger of instantaneous flash in the presence of an open flame.
- Equipped with electronic heater, thermoregulator, two thermometers, and a sample cup.

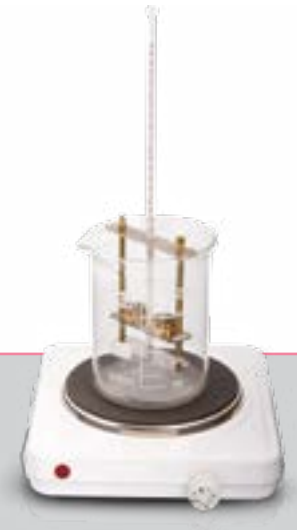
Flash Point Apparatus (A-470)

SUPPLIED WITH

- Electric heater
- Thermoregulator
- Two Thermometers
- Sample Cup

RING AND BALL SOFTENING POINT APPARATUS (A-472)

- Used to determine the temperature at which a phase-change occur in the asphalt cement (bitumen) via “Softening Point Test”, that is to define the temperature at which an asphalt cement (bitumen) cannot support the weight of the steel ball and starts flowing.
- Comprises all the necessary parts to perform the test such as speed-controlled heater, magnetic stirrer, temperature probe, glass beaker, Ring and Ball support and test rings.



Ring and Ball Softening Apparatus (A-472)

SUPPLIED WITH

- Hot plate with magnetic stirrer
- Glass thermometer
- Glass beaker, ring and ball support, test rings

REFLUX EXTRACTOR (A-035)
ASTM D2172 • AASHTO T-164

- Used to determine the percentage of bitumen in the asphalt pavement mixtures.
- Equipped with a glass cylinder, two wire mesh cones and brass condenser.
- Filter Papers should be ordered separately

Reflux Extractor (A-035)

TECHNICAL SPECIFICATIONS

- Capacity: 1000 g / 4000 g
- Glass Jar Cylinder
- Wire mesh Cone (2 ea)
- Thermometer
- Hotplate
- Brass Condenser

Code	Capacity (g)
A-035/1	1000
A-035/4	4000

CENTRIFUGE - EXTRACTOR (A-031)
ASTM D2172 • AASHTO T-164

- Used to determine the bitumen percentage in the asphalt mixtures.
- The extractor is available in two capacities (1500 g and 3000 g), and it is equipped with a speed control knob.
- Filter Papers should be ordered separately

Centrifuge - Extractor (A-031)

TECHNICAL SPECIFICATIONS

- Capacity: 1500 g / 3000 g
- Speed control knob
- Brake for fast stopping
- Filter Papers should be ordered separately
- Power Supply: 220 - 240 V / 50 or 60 Hz (110 V / 60 Hz is also available)

Code	A-031/15	A-031/30
Capacity	1500 g	3000 g

FILTER PAPER (FP)

- A-031/1500/FP Used for Centrifuge: 1500 g
- A-031/3000/FP Used for Centrifuge: 3000 g
- C-035/FP Used for Blaine Apparatus
- A-035/FP Used for Reflux Extruder
- T-010/FP Used for CBR Mould
- A-010/FP Used for Marshall Mould

Filter Paper (FP)

ASPHALT HEATER (A-050/H)

- Used to heat the asphalt and make it within the standard range of temperature for mixing.
- Equipped with a thermostat to control the temperature of the mix.

Asphalt Heater (A-050/H)

MARSHALL MIXER (A-050)

- Used to mix the samples with bituminous materials. The mixer provides uniform and quick mixing process.
- The beaters in the mixer rotates in both planetary and spindle ways to provide the best and the most efficient mixing state.
- Equipped with a stainless steel bowl and beater.

Marshall Mixer (A-050/05) with Heater (A-050/H)

TECHNICAL SPECIFICATIONS

- Capacity: 5 lt (A-050/05)
  10 lt (A-050/10)
- Rotates Planetary & Spindle
- Stainless Steel Bowl
- Beater
- Power Supply: 380 V (3 phase)


HS-5001EZ

NUCLEAR DENSITY / MOISTURE GAUGE (EZ-121)

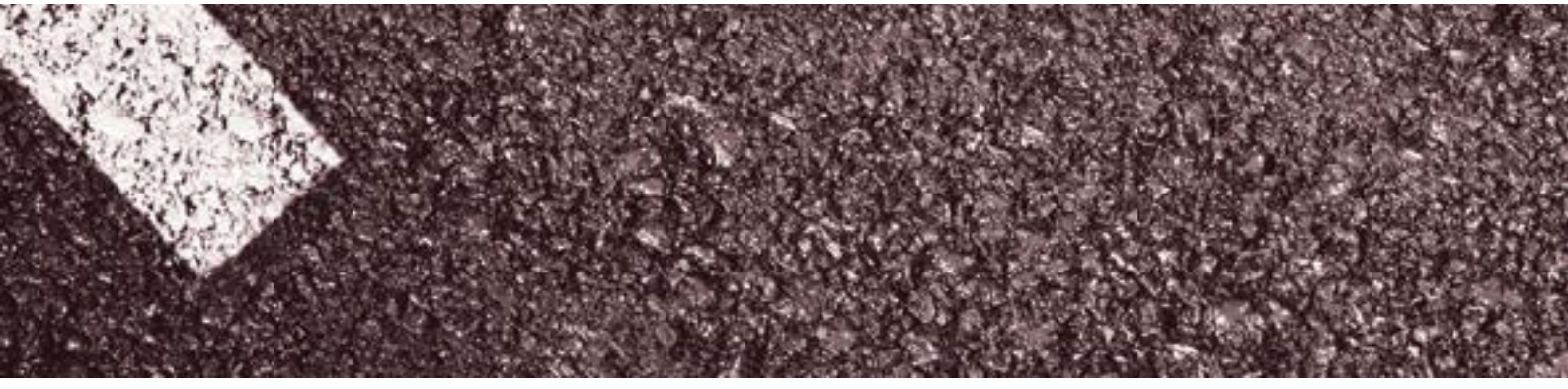
- Used to determine density and the moisture content of the sample in a very short period with very accurate results.
- The testing time can be chosen from the control panel as 15 seconds, 1 minute and 4 minutes.
- The depth range that can be measured by this equipment is 12” (30 cm), with 1” measurement increment.
- Supplied with all the necessary accessories to perform the test.

Nuclear Density / Moisture Gauge (EZ-121)

TECHNICAL SPECIFICATIONS

- Used for rapid fiend tests.
- Test time: 15 sec / 1 min / 4 min
- Depth Range up to 12” (30 cm)
- Increment: 1” (2.5 cm)
- With Accessories

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
EZ-121	Gauge : 40 x 22 x 14 (h) Reference Standard : 35 x 20 x 8 (h) Transit Case : 79 x 36 x 50 (h) Accessory Case : 50 x 25 x 13 (h)	41



SAYBOLT VISCOMETER (A-430)
ASTM D88 • AASHTO T-72

- Used to determine the viscosity of the petroleum products at a specified temperature.
- Equipped with a digital thermostat and indicator to control the temperature.
- The body of the machine is made from a very strong and rigid stainless steel.
- Also equipped with a mixer to ensure the homogeneity while testing, copper coil for quick cooling and sample cup with orifice.

Saybolt Viscometer (A-430)

TECHNICAL SPECIFICATIONS

- Digital Thermostat & Indicator
- Stainless Steel Body
- Mixer for Homogeneity
- Copper coil for cooling
- Sample Cup and Orifice
- Power Supply: 220 - 240 V / 50 or 60 Hz (110 V / 60 Hz is also available)

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
A-030	41 x 45 x 60 (h)	15

KINEMATIC VISCOMETER (A-435)
ASTM D2170

- Used to determine the kinematic viscosity of the bitumen and road oil.
- Equipped with electronic thermostat, thermometer and a heating unit.
- Equipped with water circulating unit to provide homogeneous/constant temperature all over the bath.

Kinematic Viscometer (A-435)

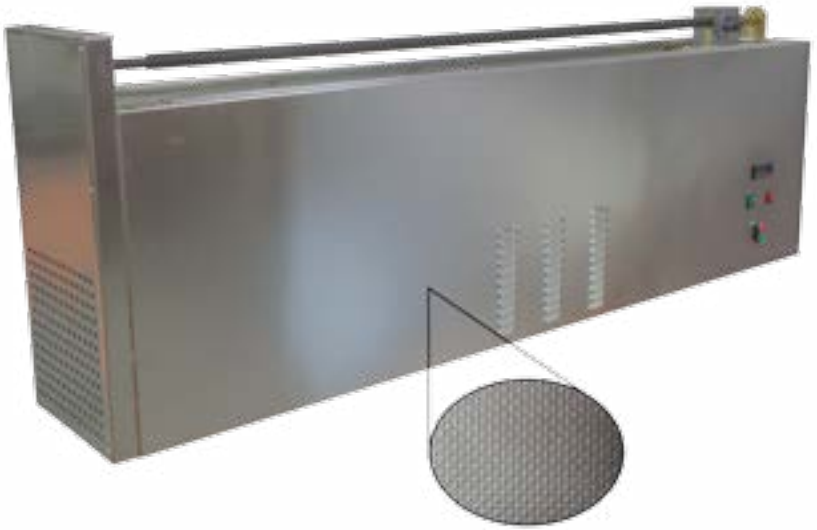
TECHNICAL SPECIFICATIONS

- Viscosity Tube(s) in accordance with ASTM D2170 (To be specified at the time of inquiry).
- Digital Thermostat & Indicator with accuracy of 0.02°C.

DUCTILITY TESTER (A-440)

ASTM D113 • AASHTO T-51

- Used to determine the ductility of a bituminous materials by measuring the distance to which it will elongate before breaking when two ends of a briquet specimen of the material are pulled apart at a specified speed and temperature.
- Unless otherwise specified, the test shall be made at a temperature of 25 °C ± 0.5 °C and with a speed of 50 mm/min ± 5.0 %.
- The internal bath and external body are made of stainless steel, with double wall fiberglass insulation.



- Equipped with thermoregulator to maintain the test temperature during the test.
- In hot areas, upon request, refrigerating unit can be also equipped with the machine (A-440/CU).
- Equipped with circulation motor used to maintain a constant temperature.
- Supplied with ductility mould and plate (set of 2).

SUPPLIED WITH

- Ductility Mould (A-440/M)

TECHNICAL SPECIFICATIONS

- Digital Thermostat & Indicator
- Interior Stainless Steel
- Power Supply: 220 - 240 V / 50 or 60 Hz (110 V / 60 Hz is also available)

Ductility Mould (A-440/M)

EMULSION - DISTILLATION UNIT (A-450)
ASTM D402 • AASHTO T-78

- Used to determine the amount of water in the bitumen and petroleum products. The mechanism of the test is done via distilling the specimen with a water immiscible (volatile solvent).
- Comprises distillation flask, condenser, ring burner and two thermometers.

Emulsion - Distillation Unit (A-450)

TECHNICAL SPECIFICATIONS

- Distillation Flask
- Condenser
- Ring Burner
- Thermometer (2ea)

PARTICLE CHARGE TESTER (A-460)
ASTM D224

- Used to determine the particle charge (cationic) for the asphalt cement (bitumen) emulsion.
- Equipped with milliammeter, variable resistor, rechargeable batteries and two stainless steel electrodes.

Particle Charge Tester (A-460)

TECHNICAL SPECIFICATIONS

- Identify cationic emulsions
- Supplied with:
  - Milliammeter
  - Variable Resistor
  - Rechargeable Battery
  - 2 electrodes (ss)

VACUUM PYCNOMETER (A-490)

ASTM D204 • EN 12697:5 • AASHTO T-209

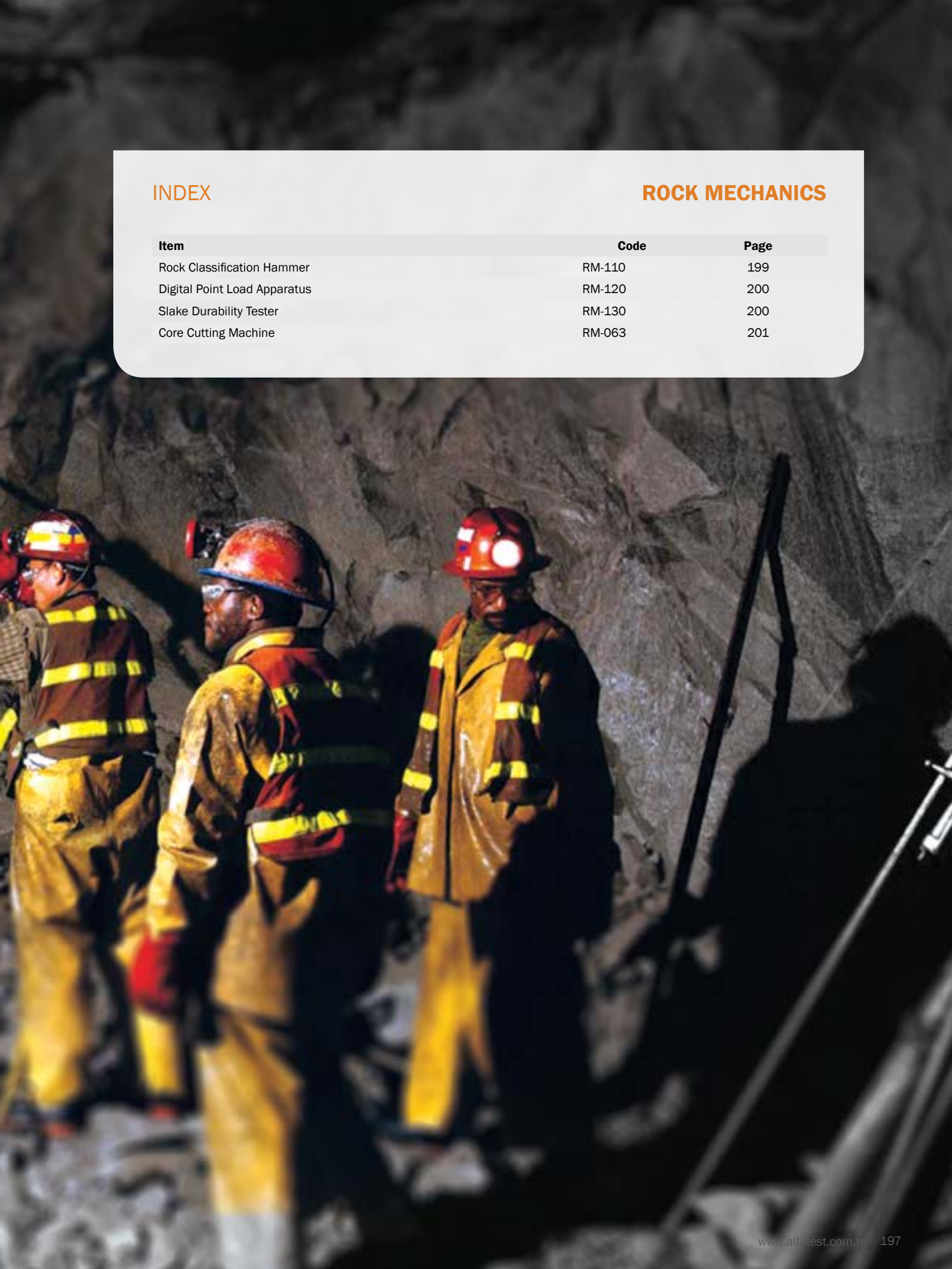
- Used to rapidly determine the asphalt content, bulk specific gravity of aggregates, the specific gravity of bituminous compacted road mixtures and the percent air voids in the sample.
- Vacuum pump must be ordered separately.

Vacuum Pycnometer (A-490)

TECHNICAL SPECIFICATIONS

- Minimum vacuum required: 30 mm/Hg
- Vacuum pump must be ordered separately.

ROCK MECHANICS



ROCK CLASSIFICATION HAMMER (RM-110)

- Used to determine the rock classification.
- The impact energy of the equipment is 0.74 Nm
- The core that is going to be tested is placed horizontally and the impact is applied on it.
- Supplied with a carrying case.
- Rock Cradle should be ordered separately.

Rock Classification Hammer (RM-110)

SUPPLIED WITH

- Carrying Case

TECHNICAL SPECIFICATIONS

- Similar to Concrete Test Hammer
- Impact Energy : 0.74 Nm
- Core is positioned horizontally

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
RM-110	35 x 18 x 16 (h)	2

DIGITAL POINT LOAD APPARATUS (RM-120)

- Used to determine the strength value of the rock specimens either in the field or in the laboratory.
- Designed to be light and easily ported from place to another.
- Consists of two-column crosshead frame and a hand operated hydraulic jack, and the load is measured by a pressure transducer with a digital display unit.
- The samples to be tested do not need to be regular in shape since the equipment can perform the test on irregular specimens too.
- Equipped with a digital indicator to measure the result.
- Provided with manual-hydraulic loading.

Digital Point Load Apparatus (RM-120)

TECHNICAL SPECIFICATIONS

- Light and portable
- Can test irregular shaped samples
- Digital indicator
- Manual - Hydraulic Loading

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
RM-120	27 x 33 x 70 (h)	60

SLAKE DURABILITY TESTER (RM-130)

- Used to determine the durability of the rock specimens to weakening and disintegrating when subjected to the climatic slaking effects.
- Equipped with a motorized drive unit that rotates two drums. Drums rotate at 20 rpm inside acrylic water tank.
- The drums are made of stainless steel mesh.

Slake Durability (RM-130)

TECHNICAL SPECIFICATIONS

- Motorized Drive Unit
- Rotates 2 drums
- Rotates at 20 rpm
- Acrylic Water Tank
- Drums of Stainless Steel Mesh
- Drum Size : Ø 140 mm x 100 mm
- Power Supply: 220 - 240 V / 50 or 60 Hz (110 V / 60 Hz is also available)

CORE CUTTING MACHINE (RM-063)

- Used to cut core samples.
- Equipped with a disc holder for a maximum diameter of 230 mm.
- The distance of the disc is adjustable according to the user's needs.
- Supplied with a water pump for cooling the materials while cutting.

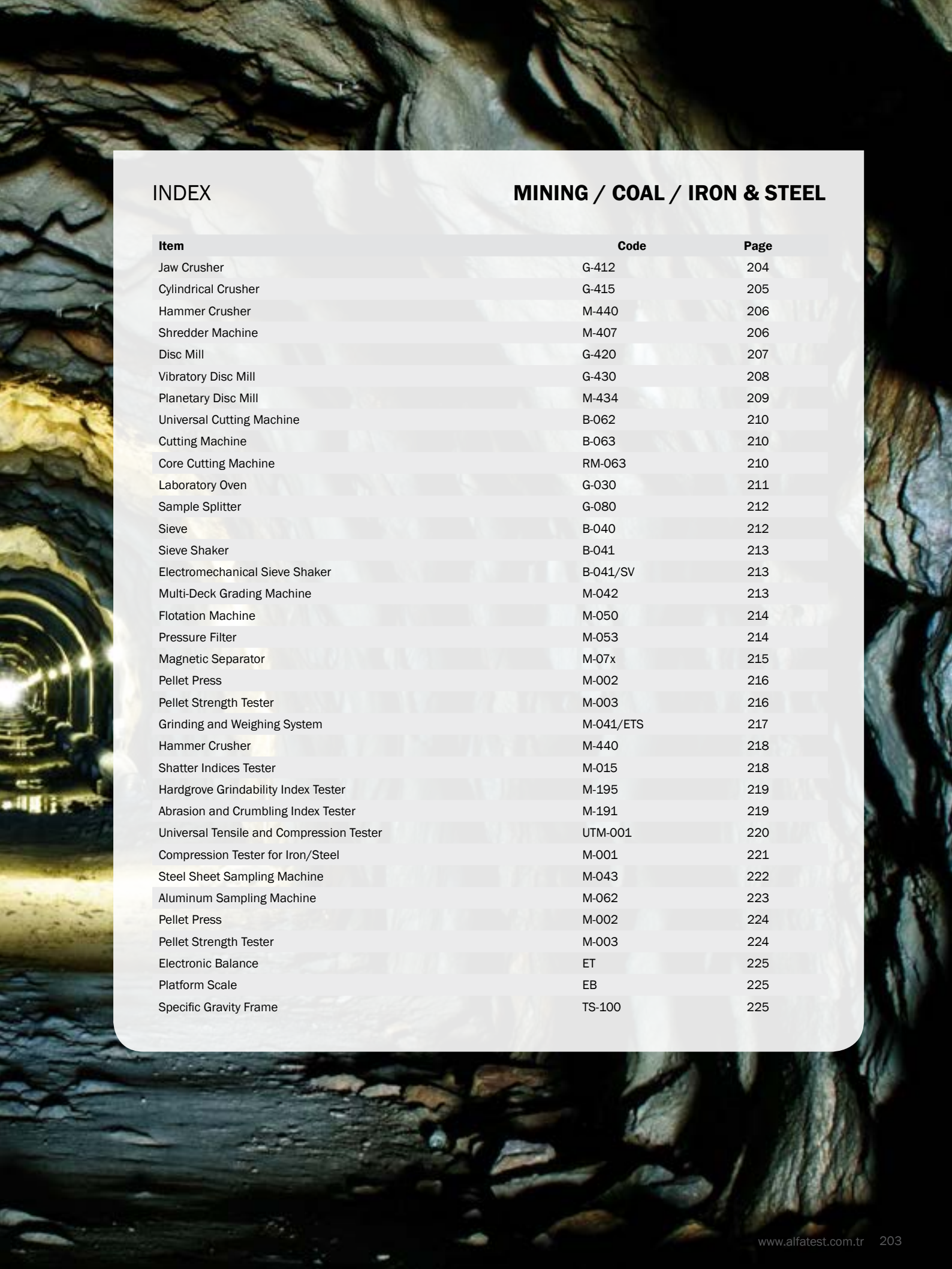
Core Cutting Machine (RM-063)

TECHNICAL SPECIFICATIONS

- Used for cutting core samples.
- Disc diameter: Maximum 230 mm.
- Supplied with water pump for cooling.
- Power Supply: 220 - 240 V / 50 or 60 Hz (110 V / 60 Hz is also available)

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
RM-063	110 x 65 x 125 (h)	57

MINING
COAL
IRON & STEEL



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MINING / COAL / IRON & STEEL

JAW CRUSHER (G-412)

- Used to crush samples with medium-hard, hard, brittle and tough materials. Efficiency and safety makes it ideal for sample preparation in laboratories and industrial plants.
- Application examples are so wide such as construction materials, glass, granite, minerals, quartz, rocks, silicon, slag, coal, oxide ceramics ... etc.
- The materials after crushing have high degree of size reduction and high fineness.
- Jaw Dimensions: 100 x 350 mm, made of (16%-18% Mn + 1.5% Cr).
- Double action of jaws that opens/closes from the bottom and the crushing mechanism is from top to bottom.
- Supplied complete with electrical motor.

Jaw Crusher (G-412)

TECHNICAL SPECIFICATIONS

- Material feed size < 50 mm
- Jaws dimension: 100 x 350 mm
- Jaws are made of (16-18% Mn) + (1.5% Cr)
- Double Action of jaws:
  - Opening /closing at bottom
  - Crushing form up to bottom
- Jaw opening at the bottom is adjustable.
- Power Supply: 380 V / 50 Hz

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
G-412	110 x 65 x 115 (h)	300

CYLINDRICAL CRUSHER (G-415)

- Made of hardened steel cylinders. The distance between the cylinders is adjustable.
- The materials feed size is < 20 mm, and it is supplied with overload protection with 2 springs.
- Supplied with feed hopper and collector.
- Supplied complete with the electrical motor.

Cylindrical Crusher (G-415)

TECHNICAL SPECIFICATIONS

- Material feed size < 20 mm
- Cylinders are steel and hardened.
- Distance between cylinders is adjustable
- Overload protection with 2 springs
- Feed hopper and collector
- Power Supply: 220 - 240 V / 50 or 60 Hz (110 V / 60 Hz is also available)

Code	Dimensions (± 1 cm)
G-415	55 x 60 x 50 (h)

HAMMER CRUSHER (M-440)

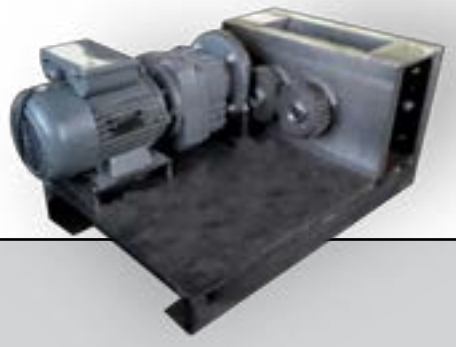
- Used to crush medium-hard materials and specially coal and coke
- Material feed size is < 50 mm
- Final fineness is maximum 3 mm (with 3 mm sieve installed)
- Capacity: 250 – 700 kg/hr
- Supplied with feed hopper and collector
- Automatic cut-off electricity if the
- Sieves (3 ... 9 mm) upon request (to be specified at the time of order)
- Easy to clean
- Complete with motor

TECHNICAL SPECIFICATIONS

- Material feed size is < 50 mm
- Final fineness is maximum 3 mm (with 3 mm sieve installed)
- Capacity: 250 – 700 kg/hr

SHREDDER MACHINE (M-407)

- Used to shred medium-hard minerals, ores, coal, coke, hard plastic, wood, paper, tires and brittle materials
- Shredding Discs: 150 - 200 mm in diameter
- Capacity: Depending on material to be shredded, 50 - 250 kg/hr
- Heavy-Duty constuction
- Low horsepower, energy efficient
- Auto-reversing mechanism to avoid damagin shredding units
- 380 V / 50 Hz



TECHNICAL SPECIFICATIONS

- Shredding Discs: 150 - 200 mm in diameter
- Capacity: Depending on material to be shredded, 50 - 250 kg/hr
- Heavy-Duty constuction
- Auto-reversing mechanism
- 380 V / 50 Hz

DISC MILL (G-420/S)

- Used under rough conditions for grinding of hard, medium-hard, brittle and tough materials
- Required few minutes to achieve the desired grind size, and work continuously
- Application examples: minerals, ores, bauxite, clinkers, chalk, chamotte, concrete, construction materials, soil samples, gypsum ... etc.
- Dust preventing O-Ring on the body
- Discharge opening between discs is adjustable
- Supplied with collector (25 x 20 x 8 cm)

TECHNICAL SPECIFICATIONS

- Capacity : 20 – 100 kg/hr depending on material and final size
- Disc diameter : 170 mm
- Feeding size : < 10 mm
- Final fineness : 50 – 200 microns

DISC MILL (G-420/L)

- Used under rough conditions for grinding of hard, medium-hard, brittle and tough materials
- Required few minutes to achieve the desired grind size, and work continuously
- Application examples: minerals, ores, bauxite, clinkers, chalk, chamotte, concrete, construction materials, soil samples, gypsum ... etc.
- Dust preventing O-Ring on the body
- Discharge opening between discs is adjustable
- Supplied with collector (25 x 20 x 8 cm)

TECHNICAL SPECIFICATIONS

- Capacity : 40 – 200 kg/hr depending on material and final size
- Disc diameter : 205 mm
- Feeding size : < 15 mm
- Final fineness : 50 – 200 microns

VIBRATORY DISC MILL (G-430)

- Used for quick grinding, assuring that no sample loss can be experienced.
- It has a very wide range grinding and finishes the job in an extremely short time.
- The maximum materials feed size is 15 mm and grinds to a final fineness of 50 micron.
- The jar size that is supplied with the equipment is 100 ml.

TECHNICAL SPECIFICATIONS

- Suitable for quick grinding
- No sample loss
- Wide range grinding
- Extremely short grinding time
- Material feed size < 15 mm
- Final Fineness < 50 mic
- Jar Size 100 ml

PLANETARY DISC MILL (M-434)

- Used whenever highest fineness is required
- Robust model with 4 grading stations
- Short grinding time assured b centrifugal force of planetary mixing
- Jars are made of hardened steel (also available in stainless steel upon request)
- Used for grinding minerals, ores, coal, coke, alloys, bentonite, bones, cement clinkers, concrete, glass, gypsum, limestone, polymers, seeds ... etc.
- Feed size is < 10 mm
- Final fineness is < 10 microns
- Speed control for required applications
- Automatic cut-off energy if the cover is opened

TECHNICAL SPECIFICATIONS

- Robust model with 4 grading stations
- Feed size is < 10 mm
- Final fineness is < 10 microns
- Speed control for required applications
- Automatic cut-off energy if the cover is opened

UNIVERSAL CUTTING MACHINE (B-062)

- Used to cut construction materials.
  It is equipped with a disc holder for a maximum diameter of 450 mm.
- Ideal for wet cutting.
- Supplied with precision linear guide bar system with dust proof aluminum cover and Automatic thermal overload protection.

TECHNICAL SPECIFICATIONS

- Disc diameter: 450mm.
- Circulation pump for cooling

CUTTING MACHINE (B-063)

- Used to cut rocks, ores, consturction materials ... etc.
- Supplied with a disc holder and a disc having diameter of 350 mm

TECHNICAL SPECIFICATIONS

- Disc Diameter: 350 mm
- Water Inlet for Wet Cutting
- Thermal Overload Protection

CORE CUTTING MACHINE (RM-063)

- Used to cut core samples.
- The distance of the disc is adjustable according to the user's needs.

TECHNICAL SPECIFICATIONS

- Disc diameter: Maximum 230 mm.
- Supplied with water pump for cooling.

LABORATORY OVEN (G-030)

Laboratory Oven - 8000 lt (G-030/8000)

Laboratory Oven - 250 lt (G-030/250)

TECHNICAL SPECIFICATIONS

- Digital Thermostat & Indicator Fitted With overheat thermostat
- Temp max : 200 °C (392 °F) (PID control)
- Interior chamber : Stainless Steel
- Exterior : Powder Coated or Stainless Steel
- Insulation : Thick mineral wool
- Airflow : Forced convection
- Power Supply : 220 - 240 V / 50 or 60 Hz (110 V / 60 Hz is also available)

Laboratory Oven - 400 lt (G-030/400)

SAMPLE SPLITTER (G-080)

- Eesigned to halve/divide aggregates, soils, sands and gravel into two representative halves.
- Made of powder coated enameled steel.

TECHNICAL SPECIFICATIONS

- Please see pages 42, 108

SIEVE (B-040)

ISO 3310:1 • ASTM E11 • BS 410

- All Sieves are made of stainless steel woven wire and frame that meet international specifications.
- The sieve aperture is clearly marked on the metallic label.
- Our sieves are of the highest quality to ensure consistent fit, accurate, specifications and durable construction.
- The sieves are available in two diameters (200 mm) and (300 mm).
- Cover and pan should be ordered separately.

TECHNICAL SPECIFICATIONS

- Frame and mesh made of stainless steel
- Aperture marked on a metal label
- Available in (ø 200 mm) and (ø 300 mm) diameters

SIEVE SHAKER (B-041)

- Operated by electrical motor which provides a more elaborated and standardized sieving to ensure accurate results and eliminate personal errors involved in sieving.
- Available in two sizes:
  - (B-041/200) shaker that can be used for (20 cm) sieves
  - (B-041/300) shaker that can be used for (20 cm) and (30 cm)

TECHNICAL SPECIFICATIONS

- Lightweight
- Quiet Operation
- Compact and portable
- Built in Timer (60 min)

ELECTROMECHANICAL SIEVE SHAKER (B-041/SV)

- Performs perfect sieving by having double-actions: (Swinging motion & Vibration motion)
- Capable of applying both or one of the motions
- Suitable for both dry and wet sieving
- Automatic timer built-in for sieving time

TECHNICAL SPECIFICATIONS

- Performs perfect sieving by having double-actions: (Swinging motion & Vibration motion)
- Available for Ø 200 mm / Ø 300 mm / Ø 450 mm (to be specified at the time of order)
- Power Supply: 220 - 240 V / 50 or 60 Hz (110 V / 60 Hz is also available)

MULTI-DECK GRADING MACHINE (M-042)

- Used specially in mining labs where large quantities of sieving is required.
- Two sieves with decks, each of 300 x 500 mm size, and the openings are 10 mm and 5 mm unless otherwise specified during the order.
- Plastic boxes, as collectors, are supplied for each deck.

TECHNICAL SPECIFICATIONS

- Equipped with pan at the bottom.
- Adjustable sieving angle.
- Equipped with powerful vibrating motor.
- Power Supply: 380 V (3 phase)

FLOTATION MACHINE (M-050)

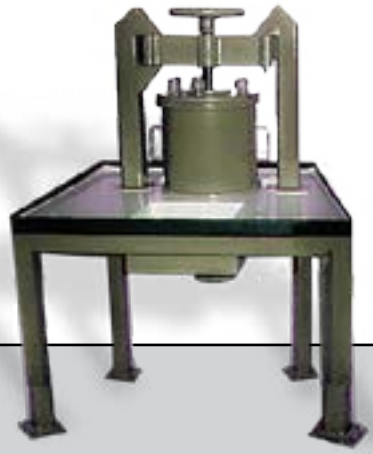
- DENVER design (similar to D-12)
- Stirrer can be infitely variable between 50 – 2600 rpm, supplied with digital indicator for speed
- Mechanism to lower/lift the stirring head
- Two flotation stirrers are supplied with the machine:
  - Stainless steel stirrer
  - Polymer stirrer
- Flotation cells are made of stainless steel with capacities 1, 2, 3 and 4 liters
- The base and support column are made of cast aluminum
- Capable of working with 250 – 2000 g of sample

TECHNICAL SPECIFICATIONS

- Adjustable stirring Frequency (50 - 2600 rpm)
- Capable of working with 250 – 2000 g of sample
- Power Supply: 220 - 240 V / 50 or 60 Hz (110 V / 60 Hz is also available)

PRESSURE FILTER (M-053)

- DENVER type Pressure Filter
- Made of stainless steel with a volume of
- Maximum Pressure: 8 kg/cm^2
- Supplied with air pressure regulator, gauge, valve and filter pack

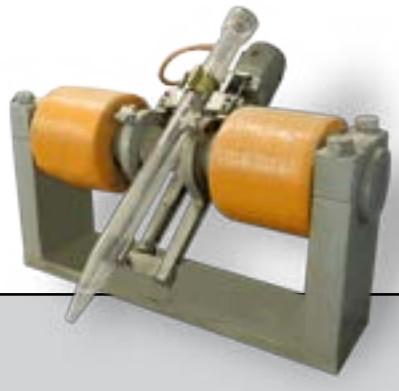


TECHNICAL SPECIFICATIONS

- Made of stainless steel
- Maximum Pressure: 8 kg/cm2

MAGNETIC SEPARATOR : DAVIS TUBE TYPE (M-074)

- Consisting of a powerful electromagnetic field intensity
- The angle of the table is adjutable
- Tube moves forward and backward while rotating
- Supplied with collector



TECHNICAL SPECIFICATIONS

- Wet magnetic separation method
- Adjustable angle

MAGNETIC SEPARATOR : DRUM TYPE TYPE (M-075)

- Used to concentrate the fine material with high magnetism
- Consisting of a frame, magnetic drum, mineral box, watering pipe and feeding box.
- Supplied with collector

TECHNICAL SPECIFICATIONS

- Wet separation method

PELLET PRESS (M-002)

- Used for forming high-quality pellets for XRF analysis
- Fully automatic with LCD indicator
- Controlling the pressure force, it also determines the time of build-up of force during pressing
- Even difficult materials are pressed perfectly performing pellets with smooth surface
- Capacity: 300 kN (30 tons)
- LCD indicator:
  - Calibration function (password-protected)
  - Maximum load and time are set
  - Overload protection
- Application examples:
  - Cement, gypsum, ores, raw materials, slag ... etc.

TECHNICAL SPECIFICATIONS

- Fully automatic with LCD indicator
- Capacity: 300 kN (30 tons)

PELLET STRENGTH TESTER (M-003)

- Fully automatic, LCD indicator
- Used to test the strength of pellets
- Can test 60 pcs in a row
- The height is measured before the test
- The average of 60 tests is determined and the test results detects if failure described in the standards
- The graph of each pellet testing is available if required

TECHNICAL SPECIFICATIONS

- Fully automatic, LCD indicator
- Can test 60 pcs in a row

GRINDING and WEIGHING SYSTEM (M-041/ETS)

- Used wherever accepting the ore to the factory
- There are 4 functions in the system:

Lifting the sample:

- Capacity of the crane winch is 2000 kg
- Travel beam of the winch is limited by switchers
- Manual controlling device of the winch to be used by operator

Feeding:

- The bigbag is filled to the feeding tank by using the crane
- The feeding tank is carried on to the sieving system
- The bottom door is opened hydraulically by the operator

Grading:

- Grading is done by the 3 deck screening
- Each size is collected in the collector

Weighing:

- Different sizes of the materials are weighed by the platform scale

The system is complete with:

- Platform scale with 2000 kg capacity (digital)
- Crane winch and supporting system with control unit
- Three dech grading machine with each deck 1000 x 2000 mm size
- Feeding tank with capacity of 1500 kg with hydraulic bottom door
- Trolleys made of steel construction (4 pcs)

HAMMER CRUSHER (M-440)

- Used to crush medium-hard materials and specially coal and coke
- Material feed size is < 50 mm
- Final fineness is maximum 3 mm (with 3 mm sieve installed)
- Capacity: 250 – 700 kg/hr
- Supplied with feed hopper and collector
- Automatic cut-off electricity if the
- Sieves (3 ... 9 mm) upon request (to be specified at the time of order)
- Easy to clean
- Complete with motor

TECHNICAL SPECIFICATIONS

- Material feed size is < 50 mm
- Final fineness is maximum 3 mm (with 3 mm sieve installed)
- Capacity: 250 – 700 kg/hr

SHATTER INDICES TESTER (M-015)

- Used to determine the resistance to breakage after dropping the sample with specified conditions mentioned in standards
- The box has a lifting mechanism by pulleys and 2 door hinged lengthwise with a latch for rapid opening
- Rigid base plate with 4 sides preventing loss of coke

TECHNICAL SPECIFICATIONS

- Equipped with pulleys and hinged doors
- Rigid base plate with 4 sides preventing loss of coke

HARDGROVE GRINDABILITY INDEX TESTER (M-195)

- Used to determine the HGI (Hardgrove Grindability Index) of coal
- Supplied with abrasive spheres (8 ea)
- Weight set is supplied with the machine
- Digital numerator for setting the revolution of the machine and automatically stopping after desired revolution

TECHNICAL SPECIFICATIONS

- Digital numerator for setting the revolution of the machine and automatically stopping after desired revolution
- Power Supply: 220 - 240 V / 50 or 60 Hz

ABRASION and CRUMBLING INDEX TESTER (M-191)

- Used to determine the resistance to abrasion and crumbing of the iron ores, such as pellet and sinter form
- The drum rotates 200 revolutions with 15 kg of sample
- Supplied with 2 test sieves
- Collector at the bottom to collect shredded materials

TECHNICAL SPECIFICATIONS

- The drum rotates 200 revolutions with 15 kg of sample
- Collector at the bottom to collect shredded materials

UNIVERSAL TENSILE and COMPRESSION TESTER (UTM-001)

TENSILE TESTING

- Fully Automatic - PC Controlled
- Hydraulically operated grippers by 2 independent auxiliary cylinders controlled by separated hydraulic valves
- Upper mobile crosshead driven up/down by a separated motor adjusting the distance between upper and lower grips with electronic distance meter
- Available models:
  - 300 kN (30 tons)
  - 600 kN (60 tons)
  - 1000 kN (100 tons)
  - 2000 kN (200 tons)
- Height: 210 cm only.
- Print of Stress/Strain Diagram and Test Results.

COMPRESSION TESTING

- Fully Automatic.
- Graphical - LCD Data Acquisition Control System.
- Automatic Load Rate upon Sample Type.
- Stops Automatically, when Test is completed.
- Real time graph indication.
- Total Load and also Per Area are given.
- Test results can be transferred to computer to be printed or from the thermal printer.
- Different units are available.
- Calibration done easily on 5 pts.
- Manual Control is available.
- If weight of sample entered, Unit Weight is determined.
- Rigid Frame.
- Upper and Lower Platens in accordance with international Specifications.
- Upper Seating for Homogeneous Loading.
- Power Supply: 220 - 240 V / 50 or 60 Hz (110 V / 60 Hz is also available)

COMPRESSION TESTER for IRON/STEEL (M-001/LCD)

- Used for determining the strength of iron/steel samples by compressing it vertically
- Fully automatic, controlled by computer
- Used to determine the length change by compression
- Built on 4 columns
- Special upper and lower platens
- Automatic cut-off in the door is opened
- The LCD indicator, during the test, shows the following:
  - Load/ shortening graph
  - Special application if shortening: 1/2 or 1/3
  - The length change is readable with 0.01 mm
  - Stopping at desired travel or force
- The data transferred to computer and all sample data is recorded
- Automatic stopping when test is completed

TECHNICAL SPECIFICATIONS

- Fully automatic, controlled by computer
- Built on 4 columns
- Special upper and lower platens
- Automatic stopping when test is completed
- Power Supply: 220 - 240 V / 50 or 60 Hz (110 V / 60 Hz is also available)

STEEL SHEET SAMPLING MACHINE (M-043)

- Used to take samples from metal sheets up to 2 mm thick
- Hydraulic system with capacity of 1000 kN
- Supplied with two moulds that can take samples with diameters of 57.3 mm and 64.5 mm
- The system has a safety valve for overload
- Equipped with safety guard door that stops the machine once opened

TECHNICAL SPECIFICATIONS

- Capacity: 1000 kN
- Equipped with safety guard door
- Power Supply: 380 V (3 phase)

ALUMINUM SAMPLING MACHINE (M-062)

- Used to prepare circular samples from aluminum ingots for XRF analysis
- Fully automatic, with 3 functions:
  - Drilling
  - Polishing
  - Cutting
- Ingot is placed on the support system and all the a/m functions are done automatically in a short time by an operator
- The sample taken has a desired diameter and thickness with smooth surface

TECHNICAL SPECIFICATIONS

- Fully automatic, with 3 functions:
  - Drilling
  - Polishing
  - Cutting
- Ingot is placed on the support system and all the a/m functions are done automatically in a short time by an operator

PELLET PRESS (M-002)

- Used for forming high-quality pellets for XRF analysis
- Fully automatic with LCD indicator
- Controlling the pressure force, it also determines the time of build-up of force during pressing
- Even difficult materials are pressed perfectly performing pellets with smooth surface
- Capacity: 300 kN (30 tons)
- LCD indicator:
  - Calibration function (password-protected)
  - Maximum load and time are set
  - Overload protection
- Application examples:
  - Cement, gypsum, ores, raw materials, slag ... etc.

TECHNICAL SPECIFICATIONS

- Fully automatic with LCD indicator
- Capacity: 300 kN (30 tons)

PELLET STRENGTH TESTER (M-003)

- Fully automatic, LCD indicator
- Used to test the strength of pellets
- Can test 60 pcs in a row
- The height is measured before the test
- The average of 60 tests is determined and the test results detects if failure described in the standards
- The graph of each pellet testing is available if required

TECHNICAL SPECIFICATIONS

- Fully automatic, LCD indicator
- Can test 60 pcs in a row

ELECTRONIC BALANCE (ET / HT)

- The balance has capacity ranges from 30 kg to 200 g and with accuracy from 0.5 g to 0.001 g depending on the type and the purpose of it.
- It is supplied with rechargeable batteries allowing the balance to be used in the laboratory and insitu.
- The balance is provided with under weighing mechanism.

TECHNICAL SPECIFICATIONS

- Rechargeable battery
- Used both in labs and insitu
- Taring Facility
- Under Weighing mechanism

PLATFORM SCALE (EB)

- The equipment frame and design is robust and strong.
- The scale has the taring option.
- Available in 2 types depending on their capacity and readability.

TECHNICAL SPECIFICATIONS

- Strong and robust
- Push button taring facility
- Power Supply: 220 - 240 V / 50 Hz

SPECIFIC GRAVITY FRAME (TS-100)

- The frame can be used to determine the specific gravity of solid materials (concrete, aggregate .. etc)
- The system consists of a highly rigid frame, incorporating moving platform on its lower part, water tank and a density basket.

TECHNICAL SPECIFICATIONS

- Can be used for specific gravity determination
- Balance should be ordered separately

LAB TOOLS

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COMPRESSOR (GL-01)

Compressor (GL-01)

VACUUM PUMP (GL-02)

Vacuum Pump (GL-02)

SCOOP (GL-03)

Scoop (GL-03)

AIR DRIER (GL-04)

Air Drier (GL-04)

PH METER (GL-05)

PH Meter (GL-05)

STOP WATCH (GL-06)

Stop Watch (GL-06)

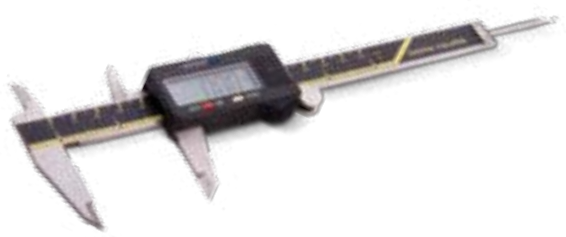
TIMER (GL-07)

Timer (GL-07)

LABORATORY TROLLEY (GL-08)

Laboratory Trolley (GL-08)

CALIPER (GL-09)



Code	GL-09/M/150	GL-09/D/150	GL-09/M/300
Capacity	150 mm	150 mm	300 mm
Readability	0.01 mm	0.01 mm	0.01 mm
Type	Mechanical	Digital	Mechanical

Caliper (GL-09)

STEEL RULER (GL-10)

Steel Ruler (GL-10)

HOTPLATE (GL-11)

Hotplate (GL-11)

TROWEL (GL-12)

Trowel (GL-12)

HAMMER (GL-13)

Hammer (GL-13)

RUBBER MALLET (GL-14)

Rubber Mallet (GL-14)

SPOON (GL-15)

Spoon (GL-15)

TOOL KIT (GL-16)

Tool Kit (GL-16)

SPATULA (GL-17)

Spatula (GL-17)

WIRE BRUSH (GL-18)

Wire Brush (GL-18)

HAIR BRUSH (GL-19)

Hair Brush (GL-19)

MOISTURE TIN (GL-20)

Moisture Tin (GL-20)

SAMPLE TRAY (GL-21)

Sample Tray (GL-21)

MIXING BOWL (GL-22)

Mixing Bowl (GL-22)

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Calculator (GL-23)

WASH BOTTLE (GL-24)

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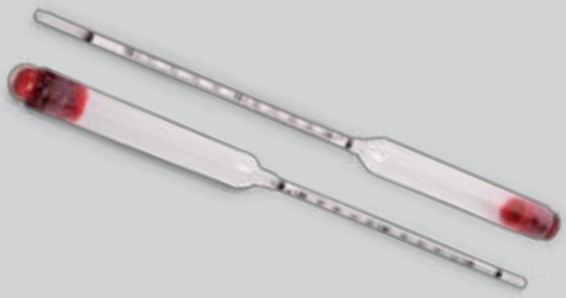

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FUNNEL (GL-29)

Funnel (GL-29)

SHOVEL (GL-30)

Shovel (GL-30)

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Glass Stirring Rod (GL31)

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Chisel (GL-33)

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FEELER STRIP SET (GL-36)

Feeler Strip Set (GL-36)

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Claw Hammer (GL-42)

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Cross-Section Paper (GL-43)

STRAIGHT EDGE (GL-47)

Straight Edge (GL-47)

EVAPORATING DISH (GPP)

Evaporating Dish (GPP)

MORTAR AND PESTLE (GHT)

Mortar and Pestle (GHT)

MIXING TRAY (GNT)

Code	Size
GNT/S	Small
GNT/M	Medium
GNT/L	Large

Mixing Tray (GNT)

UNIT WEIGHT MEASURES (BAK)

Code	Capacity
BAK/01	1 lt
BAK/03	3 lt
BAK/05	5 lt
BAK/07	7 lt
BAK/10	10 lt
BAK/14	14 lt
BAK/15	15 lt
BAK/28	28 lt
BAK/30	30 lt

Unit Weight Measures (BAK)

GLASS BEAKER (GCB)

Code	GCB/0100	GCB/0250	GCB/0600	GCB/1000
Capacity	100 ml	250 ml	600 ml	1000 ml

Glass Beaker (GCB)

PLASTIC BEAKER (GPB)

Code	GPB/0100	GPB/0250	GPB/0500	GPB/1000
Capacity	100 ml	250 ml	500 ml	1000 ml

Plastic Beaker (GPB)

SPECIFIC GRAVITY BOTTLE / PYCNOMETER (GCP)

Code	GCP/0025	GCP/0050	GCP/0100	GCP/0500	GCP/1000	GCP/2000
Capacity	25 ml	50 ml	100 ml	500 ml	1000 ml	2000 ml

VOLUMETRIC FLASK (GCBJ)

Code	GCBJ/0100	GCBJ/0250	GCBJ/0500	GCBJ/1000
Capacity	100 ml	250 ml	500 ml	1000 ml

Volumetric Flask (GCBJ)

DESICCATOR (GCD)

Code	GCD/210	GCD/240	GCD/300	GCD/210-V	GCD/240-V	GCD/300-V
Diameter	210 mm	240 mm	300 mm	210 mm	240 mm	300 mm
Vacuum	-	-	-	Vacuum	Vacuum	Vacuum

TEST BOTTLE (GCS)

Code	Capacity
GCS/0500	500 ml
GCS/1000	1000 ml
GCS/2000	2000 ml

Test Bottle (GCS)

GLASS MEASURING CYLINDER (GCM)

Code	Capacity
GCM/0050	50 ml
GCM/0100	100 ml
GCM/0250	250 ml
GCM/0500	500 ml
GCM/1000	1000 ml
GCM/2000	2000 ml

Glass Measuring Cylinder (GCM)

PLASTIC MEASURING CYLINDER (GPM)

Code	Capacity
GPM/0050	50 ml
GPM/0100	100 ml
GPM/0250	250 ml
GPM/0500	500 ml
GPM/1000	1000 ml
GPM/2000	2000 ml

Plastic Measuring Cylinder (GPM)

DIAL THERMOMETER (GTI)

GTI/300 GTI/070

Code	GTI/070	GTI/300
Range	-40 to +70°C	0 to 300°C

Dial Thermomerter (GTI)

MAX-MIN THERMOMETER (GTMM)

Code	GTMM/50
Capacity	-50 to +50°C

Max-Min Thermometer (GTMM)

NON-CONTACT (LASER) INFRARED THERMOMETER (GTL)

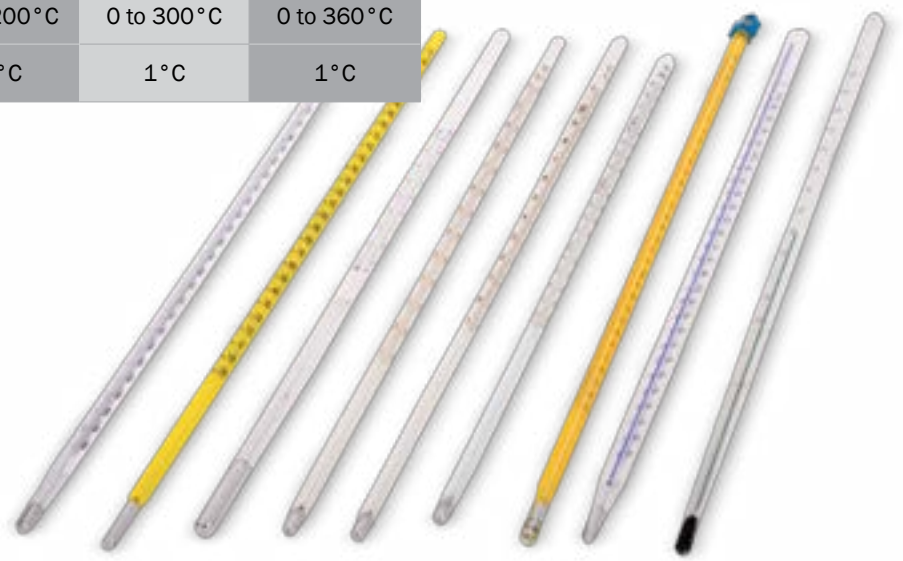
Non-Contact Infrared Thermometer (GTL)

THERMO-HYGROMETER (GTHM)

Thermo-Hygrometer (GTHM)

GLASS THERMOMETER (GTC)

Code	GTC/100	GTC/200	GTC/300	GTC/360
Range	0 to 100°C	0 to 200°C	0 to 300°C	0 to 360°C
Graduation	1°C	1°C	1°C	1°C



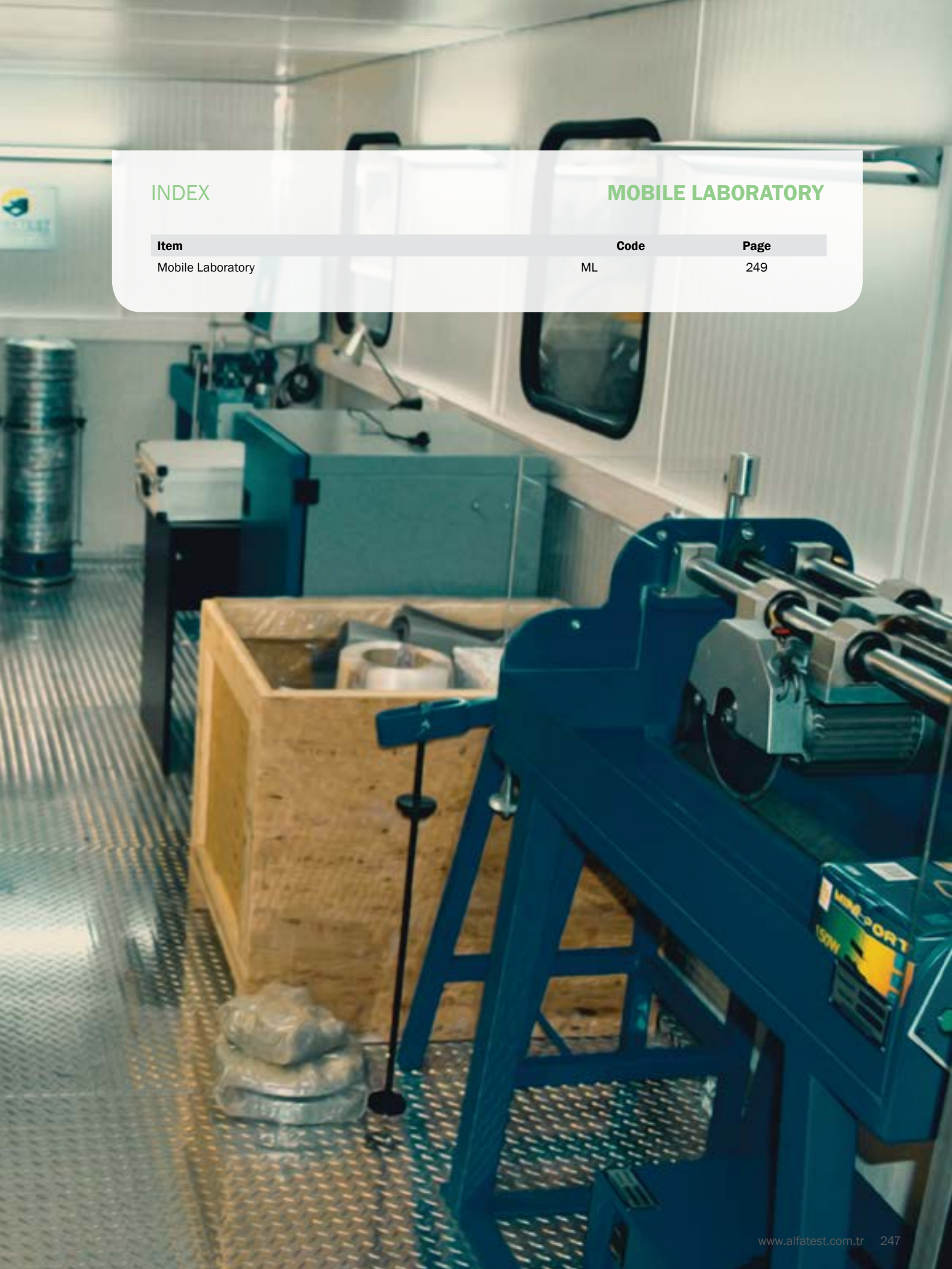
Glass Thermometer (GTC)

DIGITAL THERMOMETER (GTD)

Code	GTD/300
Range	-50°C to +300°C

Digital Thermometer (GTD)

MOBILE LAB



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MOBILE LABORATORY


MOBILE LABORATORY
for
TESTING
• CONCRETE
• SOIL
• ASPHALT

MOBILE LABORATORY (ML-001)

- We can offer a complete line of Mobile Laboratory with special design to meet all possible environments such as cold or tropical climate.

The main tree types are:

- Container
- Trailer Mounted
- Van Mounted

FACILITIES

- Office / Bedroom section
- Lighting & Electric sockets
- Electric generator
- Air Conditioning / Aspirator Fan
- Water Tank, WC & Sink

Mobile Laboratory (ML-001)

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NOTE

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