**HARRAN UNIVERSITY**

**STRUCTURAL ENGINEERING LAB EQUIPMENTS**

## SPECIFIC GRAVITY

EN 1097-6, 12390-7

The UTW-1000 Specific Gravity Frame is used in conjunction with a suitable electronic balance for specific gravity determination of fresh and hardened concrete and aggregates.

**AUTOMATIC TENSION & COMPRESSION TESTING MACHINE**

BS 1610, ASTM C-39, E4 AASHTO T22, NF P18-411, DIN 51220

UTM-3000 automatic 500 kN tension and 1000 kN compression testing machine has been designed to meet the need for reliable and consistent tensile testing of steel rebars up to 22 mm diameter and compression testing of concrete cube samples up to 150 mm and cylinders up to 160x320 mm.

**HIGH CAPACITY FOUR COLUMN AUTOMATIC COMPRESSION TESTING MACHINES**

EN 12390-3, 12390-4; BS 1881; ASTM C39

The compression machines consist of a heavy duty four column frame, automatic hydraulic power pack with data acquisition and control system BC 100. Using it we can determine compressive stress of specimens.

## PERMEABILITY

EN 12390-8; ISO 7031

Used for the determination of the depth of penetration of water to hardened concrete specimens under pressure.

## IMPACT TESTING MACHINE

ASTM E 23, EN 10045, ISO 148, GOST 9454; AS 1544;

JIS Z 2242,B 7722

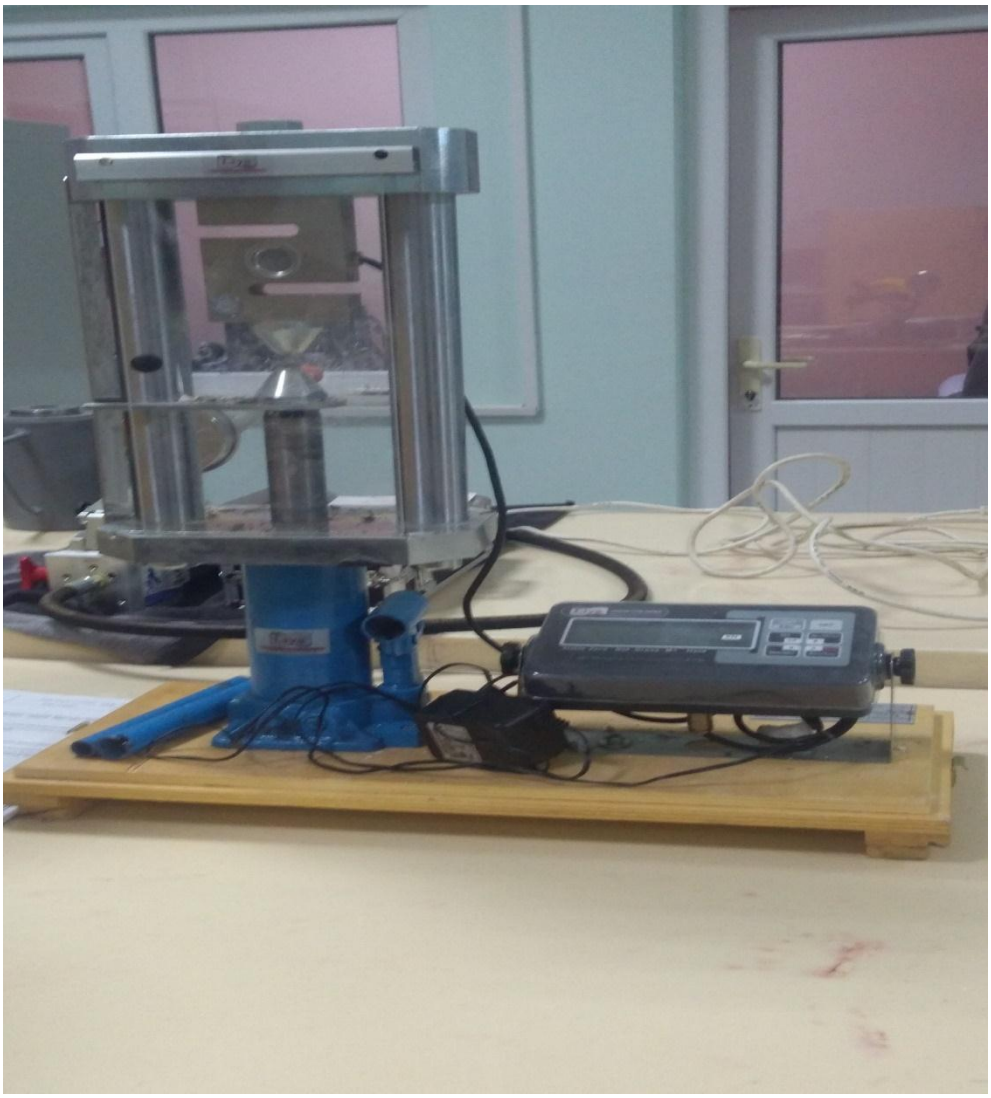
Impact test determines the amount of energy absorbed by a material during fracture. This absorbed energy is a measure of a given material's toughness and acts as a tool to study temperature-dependent brittle-ductile transition. It is to determine whether the material is brittle or ductile in nature.

**STRENGTH INDEX**

Digital Point Load Test Apparatus

ASTM D5731

The UTR-0580 Digital Point Load Test Apparatus consists of a 60 kN capacity load frame with a hydraulic loading ram driven by a hand pump. The frame is adjustable for testing of samples up to 102 mm diameter. A ruler assembled on the frame allows the direct measurement of the distance between the conical platens before and after the test. The compression load is measured by a pressure transducer connected to an advanced digital display unit assuring the best accuracy and resistance to the failure shocks. The apparatus is supplied with an easily transportable wooden case.



## LABORATORY OVENS

EN 932-5, 1097-5; ASTM C127, C136, D558, D559, D560, D698,

D1557, D1559 BS 1377:1, 1924:11; UNE 103300

UTEST UTD Series Laboratory Ovens have been designed for drying asphalt, soil, rock, concrete, aggregate or similar materials. 50, 120, 250, 500 and 750 liter capacity models are available. From ambient to 200°C temperature range with a precision of ±2 ºC. The interior is manufactured from stainless steel and the exterior is robustly constructed from sheet steel finished in powder coated paint.

## SLAKE DURABILITY INDEX

## ASTM D4644

This test method has been developed to assess the deterioration of rocks over a period of time when subjected to water immersion. Slake durability is a simulated weathering test to determine abrasion resistance during wetting and drying cycles of shale and similar soft rocks as used in embankments and other construction-related applications. Samples are alternately tumbled in mesh drums through a water medium and oven-dried for two cycles. The percent loss of mass is referred to as the slake durability index.


## COMPRESSİON AND FLEXURAL TESTİNG MACHİNES

N 1338, 1339, 1340, 12390-5, 12390-6; BS 1881; ASTM C78, C293, C496

Flexure testing machines have been designed for reliable and consistent testing of flexural test on standard concrete beams, concrete or natural stone kerbs, concrete paving flags, and natural stone slabs and tensile splitting test of concrete paving blocks.

Automatic compression testing machines have been designed for reliable and consistent testing of a wide range of specimens. These compression testers are manufactured as a result of continuous research studies to upgrade the machines with the latest technologies. These machines also meet the requirements of CE norms with respect to the health and safety of the operator. Their user-friendly design enables an inexperienced operator to perform the tests.

**Şekil 1. Beton basınç ve eğilme deneyi**

## RESISTANCE to ABRASION

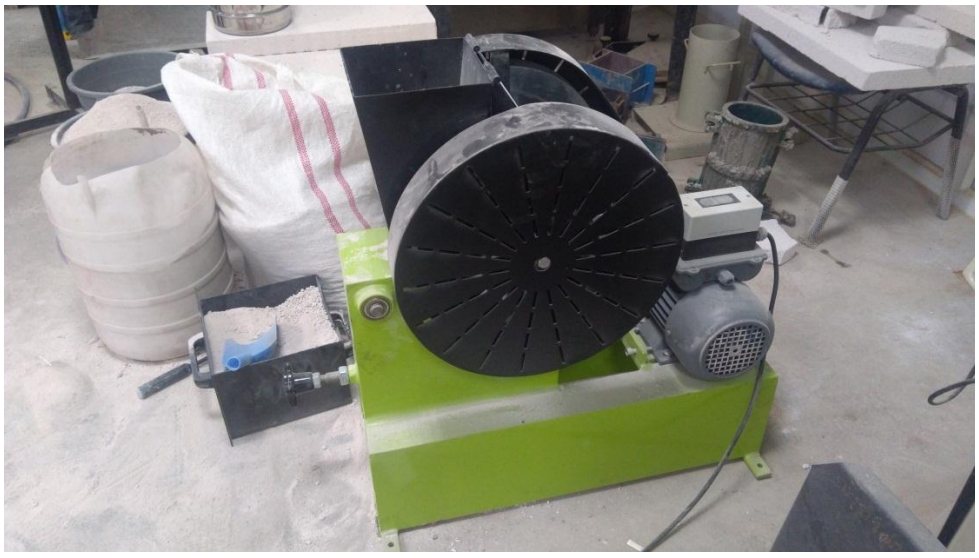
EN 1338, 1339, 1340

Abrasion Testing Machine according to Böhme is used for determining the abrasion resistance of concrete and natural stone products used for internal or external paving.

## LABORATORY TYPE JAW CRUSHER

UTA-0360

UTA-0360 are used for crushing aggregates, core samples or similar materials in the laboratory when smaller sample sizes are required for testing.



## RESISTANCE TO FRAGMENTATION / DEGRADATION

EN 1097-2, 12697-17, 13450; ASTM C131, C535; AASHTO T96

The Los Angeles Abrasion Machine is used for determination of the aggregates resistance to fragmentation. The machine consists of an electronic control unit and a rolled steel drum. The machine is equipped with an automatic counter, when the preset revolution count is reached, the machine will stop automatically. The drum is equipped with an interlock device which allows the operator to lock the drum into position for easy loading/unloading of the sample.


## CUTTING

TS EN 12390-3, 12504-1; ASTM C42, D4543

Cutting Machines are machines designed with the aim of cutting the hardened concrete, rock, natural stone test specimens to dimensions suitable for the experiment to be applied

## CURİNG POOL

EN 12390–2; ASTM C31, C192, C511

Plastic Curing Tanks are designed for curing concrete cubes and cylinders. The temperature can be adjusted and can be kept constant by an electric resistance incorporating a digital thermo regulator which maintains the set temperature between ambient to 40 ºC with ± 2 ºC accuracy


**SIEVE SHAKER**

EN 932-5; ISO 565, 3310-1, 3310-2; ASTM E11, E 323; BS 410-1, 410-2

Sieve Shakers impart a circular motion to the material being sieved so that it makes a slow progression over the surface of the sieve. They are ideal for on site and heavy duty applications when heavy or large bulk samples are to be analyzed.

**COMPACTING FACTOR APPARATUS**

BS 1881-103, 5075

Compacting Factor Apparatus is used to determine the compaction factor of concrete with low, medium and high workability.

**CONCRETE MİXER**

EN 1766

The efficient mixing of concrete is essential if quality specimens are to be manufactured.This Type Concrete Mixers is designed to give efficient mixing of both dry and wet materials. İt has 250 lt. mixing volume.

## STRUCTURAL SYSTEMS

This test systems are controlled by a computer with the free of charge software uDyna. uDyna is flexible and user-friendly Windows based application software for both static and dynamic testing.

## MECHANİCAL LIFTING SYSTEM

The lifting system is controlled by handheld system and carying capacity is 30 kN.


## SCHMIDT HAMMER

EN 12504-2, 13791; ASTM C 805; BS 1881:202; NF P18-417; DIN 1048; UNI 9189

Concrete Test Hammer (Schmidt Hammer) is used to measure the compressive strength characteristics of hardened concrete non-destructively, control uniform concrete quality and detect weak spots in the concrete.

**V FUNNEL**

EN 12350-9

The V-Hunter is used to measure the flow time of the self-compacting concrete. The test is not suitable for concrete mixtures where aggregates with a maximum grain size exceeding 22.4 mm are used