

MECHANICAL PROPERTIES OF AGGREGATES

WS 6000 and WS 6006 Aggregate Crushing Value, Los Angeles Abrasion Machine & Friction Tester

Aggregate Crushing Value (ACV) and Ten Percent Fines Value (TFV)

These tests measure the crushing properties of bulk aggregate and use the same basic equipment. The **ACV** test requires a standard load of 400 kN applied over a period of 10 minutes while **TFV** test measures the force required to produce a specified depth of plunger penetration. The **ACV** test is rather insensitive to the variation in strength of weaker aggregates and the ten percent fines test is more applicable in this case.
Standards : BS 812

WS 6000 DIMENSI Standard Aggregate Crushing Value Apparatus

Comes with 150 mm nominal diameter steel cylinder, plunger and base plate. All the surfaces in contact with the aggregate are case hardened. The apparatus meet to BS 812.

WS 6000/1 DIMENSI Metal Measure, 115 mm dia. x 180 mm deep.
Tamping Rod, see **WS 1509**.

WS 6001 DIMENSI Aggregate Crushing Value Apparatus for aggregates smaller than 10 mm, comprising 75 mm nominal dia. steel cylinder, plunger and base plate. All surface in contact with the aggregate are case hardened. The apparatus complies to BS 812. Weight 3.6 kg.

WS 6001/1 DIMENSI Metal Measure, 57 mm dia. x 90 mm deep.
WS 6001/2 Tamping Rod, 8 mm dia. x 300 mm long with rounded end. Weight 351 kg.

WS 6001/3 DIMENSI Los Angeles Abrasion Machine

is designed for testing the crushed rock, gravel and slag for their resistance to abrasion. The machine incorporates the rolled steel drum with internal diameter of 711 mm and length of 508 mm. The drum is then rotated to a speed from 30 - 33 rpm with a 1 pH motor. The motor is run through a gear reduction unit. The control panel consists of a start, stop and reset buttons. The direct-reading counter is for setting the required number of revolutions of the drum. The machine is supplied complete with a set of 12 abrasive charges/steel balls. Dimension approx. : 980 x 786 x 938 mm
Weight approx. : 353 kg Standard meets : ASTM C131, C535

Spares

WS 6001/2 DIMENSI Abrasive charges/steel balls. Diameter of cylinder : 75 mm
Weight approx. 3.5 kg

PORTABLE SKID RESISTANCE TESTER Developed by the Road Research Laboratory

The instrument, which is direct reading, gives a measure of the friction between a skidding tyre and wet road surface. It provides the Highway Engineer with a practical means of obtaining reliable scientific evidence on which to take appropriate measures to reduce skidding. To ensure consistency and maintenance of standard all instruments are submitted to the British Standards Institute for calibration and approval before supply to customers, for which a separate fee is charged.

WS 6002 Portable SkidResistance Tester Comprising Tester, 6 rubber sliders, thermometer, perspex setting gauge, 2 spanners, water bottle, collapsible stool with tool tray, tools and translucent plastic cover, complete in transportable case with instruction manual. Cat No. : 89100

Roadstone Polishing

Studies of accident sites have revealed that the polishing of roadstone is a major factor in skidding. An important application of the Skid Tester is in laboratory determination of the resistance of roadstone to polishing.

WS 6003 Detachable Scale for Stone Polishing Tests, complete in case with 6 mounted rubber sliders. Cat. No. : 89101

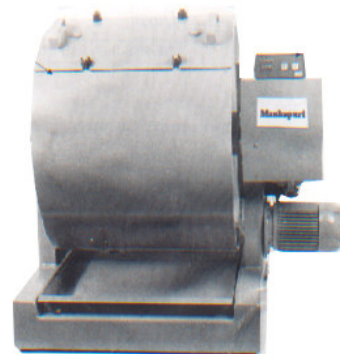
WS 6004 Base Plate for laboratory use of Skid Tester with specimen mounting block. Cat. No. : 89105

Rubber Sliders

As the nature of the rubber used for sliders has a critical bearing on the performance for the Tester, and as no rubber properties can be guaranteed for longer than two years, the date of issue is marked on each slider.

WS 6005 Spare mounted rubber sliders for use with Main Tester. Cat. No. : 881032

WS 6006 Spare mounted rubber sliders for Stone Polishing Tests. Cat. No. : 881035



MECHANICAL PROPERTIES OF AGGREGATES

WS 6008 to WS 6012/13 Siphon Can Apparatus, Volumeter For Aggregates, Laboratory Crusher, Aggregate Impact Value (AIV) & Set of Sand Equivalent Determination

WS 6008 DIMENSI Siphon Can Apparatus to BS 812. The purpose of this apparatus is to determine the moisture content of known conditions. Consists Of measuring cylinder 500 ml capacity, rubber pipes fitted with clip, stirring rod. Weight 1 kg.

WS 6008/1 DIMENSI Volumeter for the aggregates to BS 812. The purpose is to measure the coarse aggregate density by water displacement method. Manufactured by a cylindric metallic container dia. 150 x 350 height foreseen of a siphon tube at 250 mm height from the bottom. Weight 3 kg.

WS 6008/2 DIMENSI Laboratory Crusher. Designed for crushing any type of material. Manufactured from cast iron, the shaft is made from rectified steel, the jaws is made from manganese. Grease lubrication. The jaws opening is regulated by means of a wedge.

Specifications :

Jaw opening : 100 x 60 mm.

Grinded material : from 15 to 2 mm

Production : 100 to 400 Kg/hour

Shaft revolutions : 250 rpm

The equipment is supplied complete with accessories and is suitable to prepare the material to be reduced to powder by means. Voltage : 380V, 3-pH, 50 Hz.

Dimensions : 650 mm x 555 mm x 505 mm. Weight : 105 kg

WS 6008/3 DIMENSI Barton Comb, utilized for the evaluation of the surface roughness. This apparatus comes with 300 mm long, allowing to a myriad of very thin steel wires to perfectly lay to the outline of the sample under test, and to allow its analysis. Dimensions : 300 x 120 mm. Weight : 1 kg.

WS 6009 DIMENSI Aggregate Impact Value.

Required for determining the Impact Value of coarse aggregate.

It consists of the following :

- i) A heavy circular base with two vertical guides fitted with a cross bar at the top.
- ii) A hammer of 13.75 kg mass which can be raised and allow to fall freely through 380 ± 5 mm with locking arrangement.

Provided with automatic blow counter for checking the number blows during operation of the aggregate sample. The complete unit is supplied with cylinder measure of dimension 75 mm diameter by 50 mm deep and steel tamping rod of length 600 mm by 16 mm diameter. Standard : BS 812

WS 6010 DIMENSI Blow counter

WS 6011 DIMENSI Cylinder measure of dimension 75 mm diameter by 50 mm deep

WS 6012 DIMENSI Set of the Sand Equivalent determination, BS 1924, ASTM 2419, AASHTO T176. This method is used for testing in situ to determine proportions among caly, slime and dust in ganular soils and fine aggregates.

It consists of :

WS 6012/1 Plastic bowl (1) Capacity : 5 litres

WS 6012/2 Continuous gradation cylinder (4)

WS 6012/3 Rubber plug (2)

WS 6012/4 Driving bar piston (1)

WS 6012/5 Washing hose (1)

WS 6012/6 Wooden box (1) Dimensions : 360 x 300 x 600 mm

WS 6012/7 Siphon (1) with rubber plug

WS 6012/8 Rubber hose (1). Length : 1.5 m

WS 6012/9 Concentrated solution (2). 500cc. bottle

WS 6012/10 Calibrated measurer (1). Capacity : 88 ml

WS 6012/11 Wide mouth funnel (1). Max. diameter : 120 mm. Min. diameter : 30 mm

WS 6012/12 Timer (1)

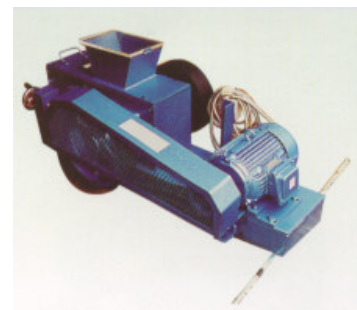
WS 6012/13 SIEVE with aperture size of 4.75 mm (1 no), 200 mm dia brass frame.



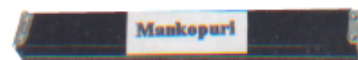
WS 6008



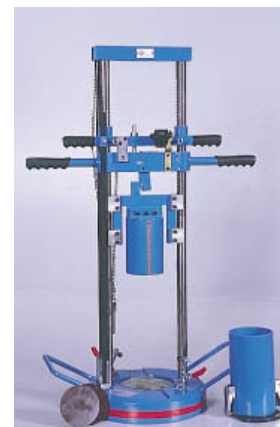
WS6008/1



WS 6008/2 Mankopuri Laboratory Crusher Power for 220-240V, 50Hz, 1pH



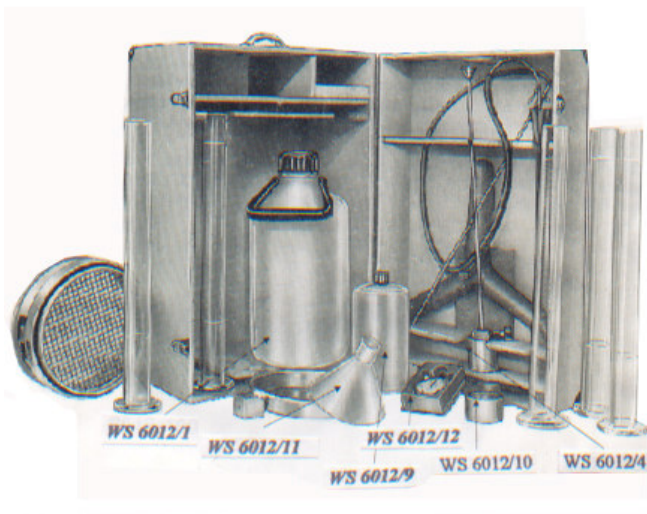
WS 6008/3



WS 6009

MECHANICAL PROPERTIES OF AGGREGATES

WS 6012/13 TO WS 6015 Determination of The Sand Equivalent, Basic set for the determination of Sand Equivalent & Mechanical and Hand Shaker



WS 6013 DIMENSI The basic set for the determination of sand equivalent,

UNI 8520, BS 1924, ASTM 2419, AASHTO T176, NF P18--598.

It consists of :

- WS 6013/1** Plastic bowl (1). Capacity : 51.
- WS 6013/2** Continuous Gradation cylinder (4)
- WS 6013/3** Rubber plug (2)
- WS 6013/4** Driving bar piston (1)
- WS 6013/5** Washing hose (1)
- WS 6013/6** Siphon (1) with rubber plug.
- WS 6013/7** Rubber hose (1). Length : 1.5 m
- WS 6013/8** Concentrated solution (2). 500 cc. Bottle.
- WS 6013/9** Calibrated measurer (1). Capacity : 88 ml.
- WS 6013/10** Wide mouth funnel (1). Max. diameter : 120 mm. Min. diameter : 30 mm. Overall weight : 8 ka.

DIMENSI Infra-red Drying Oven Cabinet, was designed for speedy drying of materials in big bulk for the preparation for the compaction or grade testing.

The unit incorporate heavy duty steel cabinet and is supplied complete with a steel tray of 951 x 601 x 21 mm deep. The six infra-red lamps provided a total of a heat output estimated to 2 000 watts while with very gently positioned ventilation to permit speedy air flow and heat convection over the test sample giving speedy, quick drying action even with a heavy clay-type of soils. A two-heat switch is inbuilt to vary the amount of heat supplied. External dimensions approx. 674x1081x861 mm (lengthxwidthxheight). Weight approx. 125 kg.

WS 6012/13 DIMENSI Infra-red Drying Oven, power for 220-240V, 50Hz, 1pH.

Accessories and Spares

- WS 6012/14** Oven Tray
- WS 6012/15** Infra-red bulb

WS 6012/16 DIMENSI Infra-red Table, allows to dry large amounts of material. It is supplied with 12 lamps, adjustable lengthwise. Stainless steel top. Power for 220-240V, 50Hz, 1pH. Dimensions : 2001x921x801/2001mm Weight approx. 165 kg.

WS 6012/17 DIMENSI Infra-red Table, allows to dry large amounts of material. It is supplied with 6 lamps, adjustable lengthwise. Stainless steel top. Power for 220-240V, 50Hz, 1pH. Dimensions : 1501x921x801/2001mm Weight approx. 165 kg.



MECHANICAL PROPERTIES OF AGGREGATES

WS 6014 TO WS 6016 Void Determination of Dry Compacted Filler, Accelerated Polishing Machine, Point Load Tester Slake Durability, Portable Shearbox & Masonry, Rock Cutter

WS 6014 DIMENSI MECHANICAL SHAKER,

ASTM D2419, AASHTO T176, NF P18-598

Provided with timer and device suitable for setting the stroke, which can be set at 200 or 203.2 mm (8"). Running frequency : ab. 175-180 cycles per min..

Power supply : 1 x 220-240 V 50 Hz 110 W

Dimensions : 500 x 340 x 300 mm. Weight : 41 kg

WS 6015 DIMENSI HAND SHAKER

ASTM D2419, AASHTO T176 NF P18-598. The stroke can be set at 200 and 203 mm (8"). Supplied with stroke counter and device for the graded cylinder fixing.

Dimensions : 600 x 400 x 290 mm

Weight : approx. 29 kg.

WS 6015/1 DIMENSI Filler Compaction Apparatus, for the determination of the void content of dry compacted filler, meet to BS 812.

The apparatus comes complete with three component that are, a metal base size of 100mmx150mm, a cylinder of 25 mm internal diameter and a plunger of a diameter allowing it to slide free fall to the cylinder without lateral friction. Weight approx. 3.7 kg.

WS 6015/2 DIMENSI Void Measurement Apparatus, was developed by the Building Research Establishment in UK and is used for the determination of the void content of the aggregates, sands and fillers. The apparatus consists of a 3 ½ litre graduated glass sample container, sealed with an air-tight lid which is then connected to a graduated glass tube mounted on a stand. The lower end of the glass tube is mounted on a stand. The lower end of the glass tube is then connected to an open-top levelling bulb. To perform the test fill the container with the sample, fit the sealing lid and then fill the levelling bulb with water to the upper water level. Lower the bulb to the bottom position causing water to flow out until an equal pressure is obtained. This result is related to the percentage void content which is taken directly from the calibrated tube.

WS 6016 Accelerated Polishing Machine to BS 812.

For the measurement of resistance road aggregates to the polishing action vehicle tyres on a road surface. The specimens which are manufactured from a suitable moulds which is placed on the road wheel accepting 14 specimens. The wheel is then rotated and enters in contact with solid rubber tyre, spring loaded. Abrasive charges are continuously fed by mechanical feeders at the fixed speed.

Flour emery then is located on the tyres wheel, while corn emery is directly fed to the specimen through a suitable opening. The water is supplied at controlled rate through container and the machine provides a method of preparation polished stone specimens for use with the skid resistance tester when used in laboratory.

The unit is supplied complete with four moulds. Power supply 220V, 50Hz, 1pH.

Weight : 180 Kg

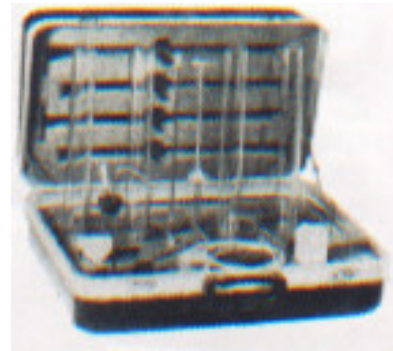
Accessories

WS 6016/1 Set of 4 moulds for preparation specimens for polishing machine.

WS 6016/2 Corn Emery, commercial grade BS 812. Pack of 6 kg.

WS 6016/3 Flour Emery, super fine, BS 812. Pack of 6 Kg.

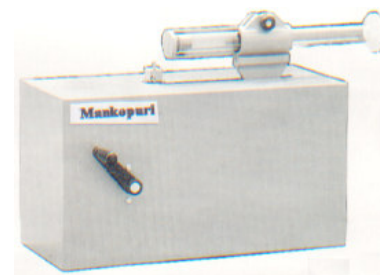
WS 6016/4 Control stones, ungraded, bag of 50 kg.



WS 6013



WS 6014



WS 6015



MECHANICAL PROPERTIES OF AGGREGATES

WS 6017 TO WS 6024 Point Load Tester Slake Durability, Portable Shearbox & Masonry, Rock Cutter

WS 6017 DIMENSI Point Load Tester, determination of rock strength. ie. strength values of a rock specimen both in the field and in the laboratory. It consists of a load frame for applying loads up to 55 kN, on which a manual hydraulic jack is mounted. It accepts core specimens up to 101.4 mm diameter which are loaded by two coneshaped points of Standard dimensions.

Graduated scale indicates the distance between the conical points.

The applied loads are directly recorded on two gauges having diameter of 150 mm and ranges 0-5.5kN div. 0.1 kN and 0-55 kN div. 1 kN.

The formula for strength index P/D^2 where P is the strength and D the space between two conical points.

Supplied complete with carrying case (wood), goggles and instruction manual.

Weight : 48 Kg.

WS 6018 DIMENSI Slake Durability Apparatus.

The apparatus with a motor mounted on a base board and two drum with container assemblies is used for predicting the durability of rock to weakening and disintegration. Simulated by effects of climate slaking. The probably amount of rock deterioration over a period of time. Power for 220-240V, 50Hz, 1pH.

Accessories

WS 6019 DIMENSI pair of drum and container assemblies include coupling.

WS 6020 DIMENSI Drum Assembly only with coupling.

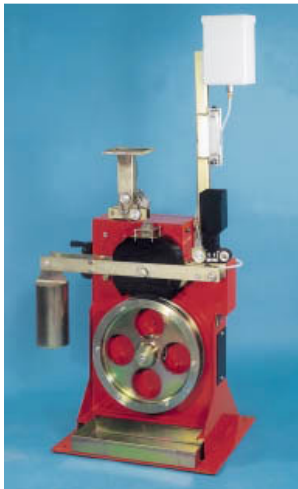
WS 6021 DIMENSI Container Assembly.

WS 6022 DIMENSI Flexible Coupling.

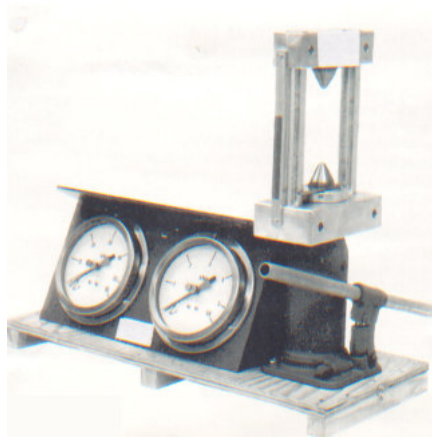
WS 6023 DIMENSI Portable Shearbox

The apparatus having two split shearbox

WS 6024 DIMENSI APPARATUS FOR MEASURING COARSE AGGREGATE DENSITY BY WATER DOSPLACEMENT formed dy a cylindrical metal container with 163 mm dia, and 370 mm height, fitted with a siphon tube at 250 mm from the base. Weight 3 kg



WS 6016



WS 6017

