



**Aimil Ltd.**

Instrumentation & Technologies



# Asphalt Quality Control

## Testing Equipment



## Carbon Residue

For determining the amount of carbon residue after evaporation, pyrolysis of oil, and to provide some indication of relative coke forming propensity.

Ref. Standards ASTM D 189, IP 13, also suitable for ASTM D 2416.

## Carbon Residue, Conradson

The equipment consist of the following replaceable parts :

- AIM 50101** Porcelain Crucible
- AIM 50102** Skidmore Pattern Iron Crucible, with cover
- AIM 50103** Sheet Iron Crucible with cover
- AIM 50104** Circular Insulator Block
- AIM 50105** Sheet Iron Hood
- AIM 50106** Tripod complete with a wire support having an opening of correct size to support sheet iron crucible at the same level as insulator block.
- AIM 50107** Glass Balls (2 Nos.)



AIM 501

### Ordering Information :

**AIM 501** Carbon Residue, Conradson

## Cloud and Pour Point

### Cloud Point :

Ref. Standards - IS:1448 (Part 10), ASTM D 2500 IP 219, ISO 3015

Low temperature properties of oils are evaluated by cloud point tests.

### Pour Point :

Ref. Standards IS:1448 (Part 10), IP15, BS:4452, ISO 3016

## Cloud and Pour Point Apparatus

The equipment consist of the following replaceable parts :

- AIM 50301** Bath with cover fitted with a Drain Cock.
- AIM 50302** Jacket to receive Test Jar.
- AIM 50303** Graduated Jar fitted with Cork.
- AIM 50304** Insulating Gasket.
- AIM 50305** Insulating Disc.



AIM 503

### Ordering Information :

**AIM 503** Cloud and Pour Point Apparatus

### Optional Accessories :

- AIM 50310** Thermometer IP 1C, Range :-38° C to +50° C.
- AIM 50311** Thermometer IP 2C, Range :-80° C to +20° C.

\*NPL Calibration, if required, will be arranged directly by the customer. Aimil can help the customers to get the equipment calibrated by NPL on behalf of customers, at extra cost, in time frame as required by NPL (which will normally be 14-16 weeks).



## Flash Point

### Flash Point-Cleveland :

Ref. Standards - IS:1448 (Part 69), ASTM D 92, IP 36, BS:4689, ISO 2592

For determining the flash and fire points of petroleum products, except for fuel oil and those products which have open cup flash point below 79° C (175° F).

### \*Flash Point (Open) and Fire Point Cleveland

#### The equipment consist of the following replaceable parts :

- AIM 50401** Cleveland Flash Cup Brass, with an Insulated Handle.
- AIM 50402** Gas Test-Jet Assembly Correctly positioned and pivoted from a cast cup platform which is fixed to a heating bath.
- AIM 50405** Energy Regulator, To regulate the rate of rise in temperature 220 V, 50 Hz, Single Phase, AC Supply.



AIM 505

#### Ordering Information :

**AIM 505** Flash Point (Open) and Fire Point Cleveland, Electrical Heating NPL Certificate

#### Optional Accessories :

**AIM 50410** Thermometer IP 28 C, Range : -6°C to +110°C

## \*Abel Flash Point Apparatus

### Flash Point - Abel :

Ref. Standards IS:1448 - Part 20, IS:101, IP 170, IP 33, BS:3900

Electrical Heating, with gas test jet and electric heater with AIM 50603 Energy regulator.

Suitable for operation on 220V, single phase, 50Hz, AC Supply.

For determining closed cup flash point of petroleum products, their mixtures, other liquid and paints, having flash points between 19° C and 49° C. Each instrument bears a test certificate of the National Physical Laboratory and is supplied complete with an oil cup, cover fitted with gas test jet assembly, water bath and tripod stand, but without thermometer.

#### Replacement Part :

- AIM 50601** Abel Oil Cup with lid, shutter and gas test jet brass.



AIM 507

#### Ordering Information :

**AIM 507** Abel Flash Point Apparatus without NPL Certificate

#### Optional Accessories :

**AIM 50610** Abel oil cup thermometer IP 74, Range : -35°C to +70°C

**AIM 50611** Abel water bath thermometer IP 75, Range : -30°C to +80°C

\*NPL Calibration, if required, will be arranged directly by the customer. Aimil can help the customers to get the equipment calibrated by NPL on behalf of customers, at extra cost, in time frame as required by NPL (which will normally be 14-16 weeks).



### Flash Point - Pensky Martens :

Ref. Standards - IS:1209, IS:1448 (Part 21), ASTM D 93, BS:2839, ISO 2719, DIN 51758, AFNOR M/07-019, IP34

For determining the flash point of fuel oils and lubricating oil, bitumen other than cutback bitumen and suspension of solids in liquids, having a flash point above 49°C.

The oil cup is made of brass, fitted with a thermally insulated lifting handle. The cup lid, with insulated handle, is fitted with two opposite wedge cams, which engage under pillars secured to the cup flange. This feature facilitates easy removal of the lid by rotating the handle a few degrees to disengage the cams

The shutter opening mechanism is designed for smooth operation and is operated by a spring handle with a knurled knob. A exposure device (Gas test jet assembly) is mounted over the lid. The manually operated stirrer has a flexible shaft. The cup assembly is positioned in a cast iron air bath, fitted with a chrome plated brass top. The air bath is mounted on an upright which serves as a gas manifold. Valve controlled supply lines for adjustable flames are provided with pilot and test flames. An additional line with control valve supplies gas for use with open flash clip, in accordance with IS:1448 (P:66), IS:1209, IP35. A ring support is provided for the lid when not in use.

### \*Flash Point (Closed) Pensky-Martens Apparatus

Electrical heating, with gas test jet and electric heater with AIM 50405 energy regulator. Suitable for operation on 220 V, 50 Hz, Single Phase, AC Supply.



AIM 509

#### Ordering Information :

**AIM 509** Flash Point (Closed) Pensky-Martens Apparatus (without NPL Certificate)

\*NPL Calibration, if required, will be arranged directly by the customer. Aimil can help the customers to get the equipment calibrated by NPL on behalf of customers, at extra cost, in time frame as required by NPL (which will normally be 14-16 weeks).

### \*Flash Point (Open) and Fire Point Pensky-Martens Apparatus

Electrical heating with gas test jet and electric heater with AIM 50405 energy regulator.

Suitable for operation on 220 V, 50 Hz, single phase, AC supply.

#### Ordering Information :

**AIM 511** Flash Point (Open) and Fire Point Pensky-Martens Apparatus (without NPL Certificate)

#### Optional Accessories :

**AIM 50810** Thermometer IP 15C Range: 5°C to +110°C

**AIM 50811** Thermometer IP 16C Range: 90°C to +370°C

#### Replacement Parts :

**AIM 50801** Pensky-Martens Oil Cup

**AIM 50802** Pensky-Martens Lid shutter with Gas Test Jet

## Penetration

### Penetration :

Ref. Standards - IS:1448 (Part 60), IS:1203, ASTM D 5, IP 49, ASTM D1321, ASTM D 2884, ASTM D1403, IP 310, BS:1377, BS:2000- (Part 49), BS:4691, BS:4698, ASTM D 937, ISO 2137, IP 50, IP 179, ASTM D 217, AASHTO T49, ENDDENV 1991-2

AIMIL Penetrometers are used for testing a wide variety of materials such as grease, petroleum, bitumen, tar, asphalt, wax polish, food stuffs, rubber, cement, pharmaceutical creams and soils.

In this test, a chosen force is applied over a given area for a known period of time and the depth of penetration or the depression made in the sample is measured in tenths of a millimetre which is expressed as a penetration number. An accurately fabricated steel base has been designed to facilitate penetration tests to be made over a wide surface area of sample. Adjustable feet are provided in the base for levelling. Upright may be rotated to permit the testing of samples immersed in a thermostat bath.

Each penetrometer is supplied with a plunger weighing 47.5 g for testing bituminous product, and one each of 50g and 100 g weights, including cone and Penetration Unit.



## Universal Penetrometer

The unit is compact with in-built timer to control duration of penetration preset in factory to 5 seconds. The instrument is provided levelling screws.



AIM 512-1

### Ordering Information :

**AIM 512-1** Universal Penetrometer

## Penetration Cone

Ref. Standards IS:1448 (Part 60), ASTM D 937, IP 179, BS:4698, ASTM D217, IP 50, ISO 2137.

For empirical estimation of the consistency of lubricating grease and petroleum. Made of brass with a hardened steel tip. The stem of the cone is interchangeable with all types of Aimil Penetrometers manufactured to close tolerances, providing a unified cone and ensuring that there is no shoulder between the tip and the body.

Weight : 102.5 ± 0.05g



AIM 515

## Bitumen Penetration Kit

Ref. EN 1426, 13179-2

The equipment consist of the following replaceable parts :

- AIM 51801** Penetration Needle
- AIM 51802** Transfer Dish made of copper.
- AIM 51803** Aluminium Sample Containers, Set of two.



AIM 518

### Ordering Information :

- AIM 515** Penetration Cone
- AIM 518** Bitumen Penetration Kit
- AIM 04201** Penetration Test Cone Soil
- AIM 04202** Penetration Test Cup

## Redwood Viscometer

Ref. Standard - IP 70

These instruments are for determining the viscosity of all oils, expressed in Redwood seconds at the temperatures of test as called for by IP 70. Both types of viscometers, Redwood No.1 and Redwood No. 2 electrical heating models are available. The viscometer consists of a heavily silver plated brass oil cup with a precision stainless steel jet assembled in a chromium plated bath fitted with a heating tube or heating element and drain cock. The bath and cup assembly is mounted on a stand with levelling feet. Each unit is supplied complete with silver plated ball valve, spirit level with cover, thermometer clip and receiver of capacity 50ml.

Suitable for operation on 220 V, 50 Hz, Single Phase, AC supply.

Models available are :

### \*Redwood No. 1 Viscometer

Electrical Heating, complete with dimmerstat. Used for all oils having viscosity not more than 2,000 sec at the test temperature. Complete with AIM-52601 Redwood No.1 Viscometer cup without NPL Certificate.

\*NPL Calibration, if required, will be arranged directly by the customer. Aimil can help the customers to get the equipment calibrated by NPL on behalf of customers, at extra cost, in time frame as required by NPL (which will normally be 14-16 weeks).



## \*Redwood No. 2 Viscometer

Electrical Heating, complete with dimmerstat. Used for those oils, the viscosity of which exceeds 2,000 sec.

Complete with AIM-52801 Redwood No.2 Viscometer cup without NPL Certificate.



AIM 528

### Ordering Information :

- AIM 526** Redwood No. 1 Viscometer
- AIM 528** Redwood No. 2 Viscometer

### Optional Accessories :

- AIM 52610** Thermometer IP8C, Range : 0° C to 45° C
- AIM 52611** Thermometer IP9C, Range : 40° C to 85° C
- AIM 52612** Thermometer IP 10C, Range : 76° C to 122° C

### Replacement Parts :

- AIM 52601** Redwood No. 1 Viscometer cup
- AIM 52801** Redwood No. 2 Viscometer cup
- AIM 52602** Receiving flask.

## Saybolt Viscometer

Ref. Standards - ASTM D88, D 244, AASHTO T 72

For the empirical measurement of Saybolt Viscosity of petroleum products at specified temperatures between 70°F and 210°F. This is also used for determining the Saybolt Furol viscosity of bituminous materials at temperatures of 250, 275, 300, 350, 400 and 450°F. It comprises one each of Cylindrical Oil Cup, Universal Tip, Furol Tip, Bath fitted with immersion heater mounted on a stand, Dimmerstat for temperature control, Stirrer with shield. Apparatus is supplied complete with insulated handle and thermometer support, receiving flask, withdrawal tube, filter funnel, thermometer support for cup and circular spirit level.

Suitable for operation on 220 V, 50 Hz, Single Phase,



AIM 529-1

### Ordering Information :

- AIM 529-1** Saybolt Viscometer with two cups - digital

### Optional Accessories :

- AIM 52910** ASTM Thermometer Type 17F, Range : 66° F to 80° F
- AIM 52911** ASTM Thermometer Type 18F, Range : 94° F to 108° F
- AIM 52912** ASTM Thermometer Type 19F, Range : 120° F to 134° F
- AIM 52913** ASTM Thermometer Type 20F, Range : 134° F to 148° F
- AIM 52914** ASTM Thermometer Type 21F, Range : 174° F to 188° F
- AIM 52915** ASTM Thermometer Type 22F, Range : 204° F to 218° F
- AIM 52916** ASTM Thermometer Type 77F, Range : 245° F to 265° F
- AIM 52917** ASTM Thermometer Type 78F, Range : 295° F to 315° F
- AIM 52918** ASTM Thermometer Type 79F, Range : 345° F to 365° F
- AIM 52919** ASTM Thermometer Type 80F, Range : 395° F to 415° F
- AIM 52920** ASTM Thermometer Type 81F, Range : 445° F to 465° F

### Replacement Parts :

- AIM 52901** Brass Oil Tube
- AIM 52902** Receiving Flask 60 ml
- AIM 52903** Universal and Furol Tip (set of 2) with Sri Ram Test House Certificate
- AIM 52904** Filter Funnel
- AIM 52905** Thermometer Support
- AIM 52906** Heating Coil



## Standard Tar Viscometer

Ref. Standards - IS:1206, IP 72, STPTC.  
RT 2, RT 3, BS:2000, (Part 72)

For determining the viscosity of cut back bitumen and road oil. The viscometer consists of a chrome plated copper bath, with a drain valve and a central tube to receive the test cup and to position the stirrer, and is mounted on a stand with levelling feet. Stirrer has a curved shield and is provided with an insulated handle, thermometer socket and swivel support for the valve. Supplied complete with 10 mm cup and ball valve as per the model required.

**AIM 531** Standard Tar Viscometer, 10 mm cup and ball valve Electrical Heating with Immersion Heating Elements and Dimmerstat for controlling the temperature. Complete with 10 mm Cup and Valve.

Suitable for operation on 220V, 50 Hz, single phase, AC supply.

**AIM 533** Standard Tar Viscometer, 10 mm cup and ball valve Electrical Heating similar to AIM 531, but with 4 mm Cup and Valve.

### Replacement Parts :

- AIM 53101 Cup 10 mm
- AIM 53102 Ball Valve 10 mm
- AIM 53301 Cup 4 mm
- AIM 53302 Ball valve 4 mm



AIM 531

### Ordering Information :

- AIM 531** Standard Tar Viscometer, 10mm cup and ball valve
- AIM 533** Standard Tar Viscometer, 4mm cup and ball valve

### Optional Accessories :

- AIM 52610** Thermometer IP 8C Range : 0° C to 45° C.
- AIM 52611** Thermometer IP 9C Range : 40° to 85° C.
- AIM 52612** Thermometer IP 10C Range : 76° to 122° C.

\*NPL Calibration, if required, will be arranged directly by the customer. Aimil can help the customers to get the equipment calibrated by NPL on behalf of customers, at extra cost, in time frame as required by NPL (which will normally be 14-16 weeks).

## Engler Viscometer

Ref. Standard - ASTM D 1665, IP 212, BS:434

For determining the viscosity of bitumen road emulsions and fuel oils. The viscometer consists of a plated oil cup, fitted with a stainless steel jet, fitted in a highly polished and plated brass bath, which is mounted on a stand with levelling feet.

The oil cup has a double walled lid with thermometer socket. A thermometer clip is fitted to the water bath. Supplied with plug valve to fit jet.

### Engler Viscometer Electrical Heating

with Immersion Heater, Dimmerstat for temperature control. Suitable for operation on 220 V, 50 Hz, single phase, AC supply.

### Ordering Information :

**AIM 535** Engler Viscometer Electrical Heating

### Optional Accessories :

**AIM 52610** Thermometer IP 8C, Range : 0° C to 45° C

## Flow Cup

Simple flow cup of the efflux type is used for approximate measurements of apparent viscosity for control of consistency during manufacture and use of paints, lacquers and viscous products. Flow cups with protective skirt are made from gun metal with stainless steel orifice and are equivalent to Type B cups. Each cup is supplied complete with a stand having levelling screws.



AIM 539

### Ordering Information :

**\*AIM 539** Flow Cup No. 4



## Paving Mix Tests, Marshall Stability and Compaction

### Paving Mix Tests, Marshall Stability and Compaction

Ref. Standards -ASTMD1559 BS:598-197, EN-12697-34  
 Most frequently used test by highway departments, contractors, engineers, testing laboratories and governmental agencies is the stability test using Marshall Apparatus. The test is intended for the measurement of the resistance to plastic flow of cylindrical specimens of bituminous paving mixture loaded on the lateral surface. For use with hot mixture containing asphalt or tar and aggregate upto 25.4 mm maximum size.  
 Suitable for operation on 220V, 50 Hz, single phase, AC supply.

### Marshall Apparatus

#### Salient Features :

- Single Speed, Bench top load frame
- Max. loading capacity, 50 kN
- Geared Screw jack and Motor Drive,
- Precise speed
- Limit Switch Protection for both upward and downward travel

User friendly and easy to use controls A thermal overload type Power Switch at the rear of the machine provides electrical protection.

Platen movement is controlled from the front panel, by 3 push button switches, Up, Down and Stop.

A Ball seated screw fitting located on the crosshead accepts load cells and load transducers upto and including 50kN.

The equipment is a table top loading frame, with adjustable crosshead mounted on columns attached to sturdy base.

The forces applied are generated by a screw jack via a reduction unit with worm gears housed in the base casting. Motive Power is from an electric motor via a multi-vee drive belt and provides a platen speed of 50.8mm / min.

The worm reduction unit is a grease packed on assembly and should not normally require lubrication.

#### Specifications :

Maximum Vertical Clearance (Platen Down, Cross-head up)	=	470mm
Minimum Vertical Clearance (Platen up, Cross-head down)	=	250mm
Horizontal Clearance	=	265mm
Platen Diameter	=	133mm
Platen Travel	=	25mm
Platen Speed	=	50.8mm/min
Rated Power	=	375W
Dimension (l x w x h)	=	550×400×870mm
Weight	=	60kg

### The equipment consist of the following replaceable parts :

AIM 552	Marshall Load Frame Cap 50kN speed-50.8mm/min	1 No.
AIM 55001	Breaking Head Stability Mould	1 No.
AIM 55002	Compaction Mould Steel, cylindrical	3 Nos.
AIM 55003	Base Plate	3 Nos.
AIM 55004	Extension Collar	3 Nos.
AIM 55005	Compaction Pedestal, Manual Operation, comprising a Steel Plate capped on a wooden post. A Mould Clamp is fitted to the top of the plate	1 No.
AIM 55006	Compaction Hammer for use with Compaction Pedestal and Mould, weight 4.5 kg with a free fall of 457 mm	2 Nos.
AIM 55007	Load Transfer Bar	1 No.
AIM 55018-1	Sample Eject for 4" dia Sample	1 No.
AIM 072	Dial Gauge 25mm travel, 0.01mm least count	1 No.
AIM 271	Proving Ring capacity 25 kN.	1 No.



AIM 550-1

### Modified Marshall Apparatus, 50 kN Single Speed

Ref. Standard ASTM D5581:1996.

The Load Frame construction of the equipment is same as per AIM-552 but its capacity is 50kN and its mould size is 152.4mm dia. It is supplied with a Rammer of 10.21kg, Breaking Head, and sample eject for 6" dia sample, as per the standard.





**The equipment consist of the following replaceable parts :**

- AIM 552** Marshall load frame 50kN
- AIM 55001-152** Breaking Head Stability Mould
- AIM 55002-152** Marshall Mould 152.4mm ID x 114.3 on high.
- AIM 55003-152** Base Plate for 152.4mm dia sample
- AIM 55004-152** Extension collar for 152.4 mm dia sample
- AIM 55005-152** Compaction Pedestal for 152.4 mm dia sample
- AIM 55006-152** Compaction Hammer 10.21 kg x 45 mm drop
- AIM 55007** Load Transfer Bar
- AIM 55018-152** Sample Ejector for 152.4 mm dia Sample
- AIM 072** Dial Gauge 25 mm travel, 0.01mm least count
- AIM 274** Proving Ring capacity 50 kN



AIM 550-4

**Digi Marshall Apparatus**

Ref. Standards - ASTM D1559, ASTM D6927-06, BS 598-107, EN 12697-34

The AIMIL Digi Marshall Apparatus is used to test the Stability of bituminous samples, by highway departments, contractors, engineers, testing laboratories and other governmental agencies. Digi-Marshall Apparatus is used for measurement of the resistance to plastic flow of cylindrical specimens of Bituminous paving mixture loaded on the lateral surface. The machine can provide measurement data for use with hot mixture containing asphalt or tar and aggregate upto 25.4mm maximum size.



AIM 550-2

**Ordering Information :**

- AIM 550-1** Marshall Apparatus, 50kN, Single speed, New model for 4" dia sample
- AIM 550-2** Digi Marshall Apparatus, 50kN, Single speed, New model for 4" dia sample
- AIM 550-3** Digi modified Marshall Apparatus, 50kN, Single speed, New model for 6" dia sample
- AIM 550-4** Modified Marshall Apparatus, 50kN, Single Speed for 6" dia sample

**Optional Accessories :**

- AIM 55020** Electronic Conversion Kit for Marshall Apparatus
- AIM 55021** Electronic Conversion Kit for modified Marshall Apparatus Marshall Apparatus, 50kN

Note : Modified Marshall Apparatus, 100kN, Single Speed can also be provided.

**Core Drilling**

**Pavement Core Drilling Machine**

Ref. EN 12504-1

The Pavement Core drilling machine, petrol engine powered road building drill has been designed specifically for the purpose of drilling test cores from or holes in roads, airport runways, bridges.

The Machine comprises of two vertical support columns which carry the drill head/engine assembly accurately with the help of screwed spindle.



The 6HP petrol engine with pulley mechanism works with minimum vibrations. The double precision bit advances with screwed spindle which provides a constant, accurate drill pressure, minimum core chipping & long bit life. The complete assembly is supplied on a rigid metal base with leveling facility and is suitable for vertically down coring applications only.

- Bit diameter : 150mm
- Maximum depth of core: 400mm
- Drill Speed : Variable speed from 900 to 1200rpm
- Drive : 6HP Petrol Engine
- Guide Shafts : 40mm dia
- Screwed Spindle : 20mm dia
- Water Tap : 12mm
- Drill Wrenches : Included



AIM 551-1

**Ordering Information :**

**AIM 551-1** Pavement Core Drilling Machine

**Optional Accessories :**

- AIM 55101** Diamond Core Bits, 50mm dia x 200mm long
- AIM 55105** Diamond Core Bits, 75mm dia x 200mm long
- AIM 55109** Diamond Core Bits, 100mm dia x 200mm long
- AIM 55114** Diamond Core Bits, 150mm dia x 200mm long
- AIM 55103** Diamond Core Bits, 50mm dia x 400mm long
- AIM 55107** Diamond Core Bits, 75mm dia x 400mm long
- AIM 55108** Diamond Core Bits, 100mm dia x 400mm long
- AIM 55120** Diamond Core Bits, 150mm dia x 400mm long

Standard Diamond core bit is suitable for taking out core from, Cement, Asphalt Surface / Block . Hilti Make core bit recommended for taking out core from Reinforced Concrete Surface / Block.

**Compaction**

**Automatic Compactor for Bituminous Mixes**

Ref. EN 12697-10-30

- Rugged construction to withstand hard work.
- Fully automatic and easy to operate.
- Uniform compaction.
- Automatic Blow Counter.

The Automatic compactor eliminates the laborious process of manual compaction and allows achievement of even degree of compaction is achieved. The drive mechanism lifts the weight of 4.5 kg and drops it through a height of 457 mm.

The rammer foot is removable, which facilitates preheating. A compaction pedestal with specimen holder is fixed to the base. An automatic blow counter enables the number of blows to be preset before each test and automatically stops the machine on completion.

Suitable for operation on 230 V, 50 Hz, single phase, AC supply.

**Bitumen Compactor for Modified Marshall Moulds**

Ref. Standard ASTM – D5581:1996, D 6926-04

The equipment is used for measurement of the resistance to plastic flow of cylindrical specimen of bituminous mixes. The mechanical compactor design is similar to AIM533-1 except

- Weight of rammer - 10.2 Kg
- Provision for accommodating - 6" mould specimen

Other features are same as AIM 553-1



AIM 553-1

**Ordering Information :**

- AIM 553-1** Automatic Compactor for Bituminous Mixes
- AIM 553-2** Automatic Compactor for Bituminous mixes using Modified Marshall Mould.



## Softening Point

### Softening Point :

Ref. Standards - IS:1205, ASTM D 36, E 28, IP 198, IP 58, STPTC PT 3, AASHTO T53, BS:2000, EN 1427

For determining the temperature at which a sample of bituminous material loaded by a 9.5 mm dia steel ball, drops a specified distance when heated under specified conditions.

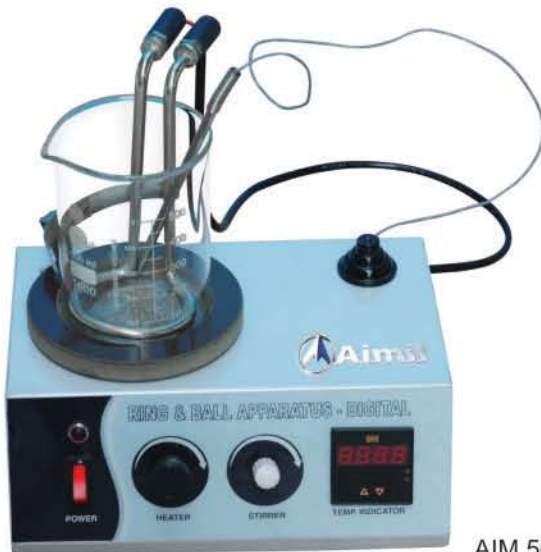
## Ring and Ball Apparatus

The new design of Ring and Ball Apparatus is compact user friendly and has better aesthetics. It has magnetic stirrer with heating facility and digital display of temperature, the heating can be adjusted through knob.

Suitable for operation on 220 V, 50 Hz, single phase, AC supply.

Each unit is supplied with a bath of heat resistant glass and the following :

AIM 56101	Tapered Rings	2 Nos.
AIM 56102	Ball Centering Guide	2 Nos.
AIM 56103	Steel Balls of 9.5 mm dia	2 Nos.
AIM 56104	Ring holder	1 No.
AIM 56105	Electric Heater (Hot Plate)	1 No.



AIM 561-1

### Ordering Information :

**AIM 561-1** Ring and Ball Apparatus

### Optional Accessories :

**AIM 56110** Thermometer IP 60C, Range : -2° C to 80° C

**AIM 56111** Thermometer IP 61C, Range : 30° C to 200° C

## Binder Extraction

Ref. EN 12697-1

### Binder Extraction :

Ref. Standards ASTM D 2172, AASHTO T-58, T-164, EN 12697-1

For determining bitumen percentage in Bituminous paving mixtures.

It has a removeable, precision machined, aluminium rotor bowl, mounted on a vertical shaft. A filter paper disc is pressed in-between the rotor bowl and cover plate by tightening a knurled nut. The bowl assembly is enclosed in a housing mounted on a cast body. In the electrical operating model, the rotor bowl is coupled to a motor. The solvent may be introduced during test through a cup on the housing cover.

## Centrifuge Extractor, Capacity 1500g Electrically Operated

The new design of centrifuge extractor is compact with in-built dimmerstat for speed variation from 0 rpm to 3600 rpm.

Each unit is supplied complete with a set of 25 Filter Paper Discs.

Suitable for operation on 220 V, 50 Hz, Single Phase, AC supply.



AIM 563-1

### Ordering Information :

**AIM 563-1** Centrifuge Extractor, Capacity 1500g Electrically Operated

### Replacement Parts :

**AIM 56301** Filter Paper Discs, Set of 25 numbers



## Ductility

Ref. Standards IS:1208, ASTM D113, AASHTO T 51

Bituminous surfaces exposed to varying temperature conditions undergo a great deal of expansion and contraction. Therefore, an important characteristic of the binder is its ductility and the degree of ductility has an effect on the cracking of bituminous surfaces caused by traffic stress.

The ductility of bitumen is expressed as the distance in centimetres to which a standard briquette can be elongated before the thread thus formed breaks under specified conditions.

A molten bitumen sample is poured into a standard mould, allowed to cool to room temperature and then placed in a water bath so that the briquette can be brought to test temperature before mounting in the testing machine.

### Ductility Testing Machine, Electrically Operated, Digital

Designed to test three specimens simultaneously. The machine consists of a carriage moving over a lead screw. An electric motor driven reduction gear unit ensures smooth constant speed and continuous operation. The entire assembly is mounted with water bath completely encased in metal bound hardwood. It is equipped with an electric pump circulator and heater. The temperature is controlled by digital temperature controller. Two rates of travel i.e. 5 cm/min and 1cm/min are provided. Suitable for operation on 220 V, 50 Hz, Single Phase, AC supply.

#### The equipment consists of :

**AIM 56501** Ductility Mould, with Base Plate ...4Nos.



AIM 565-1

#### Ordering Information :

- AIM 565-1** Ductility Testing Machine
- AIM 565-DG** Ductility Testing Machine with digital display
- AIM 565-DG-C** Ductility Testing Machine with digital display & cooling

**Note : Ductility Apparatus with cooling arrangement is available on request**

## Flexure

### Benkelman Beam

- Light weight aluminium construction.
- Ease of Transportation.
- Unique Telescopic Design, simplifying field set up.
- Compact, thereby reducing the amount of storage space needed.

Benkelman Beam utilises the technique of using balanced beam in conjunction with a suitable vehicle to measuring road flexure.

The improved Benkelman Beam is a convenient, accurate device for measuring the deflection of flexible pavements under moving wheel loads.

Operating on a simple lever arm principle, the unit consists of a Reference Beam, Body, two part Probe Beam and Rear Zero adjust.



AIM 566-1

#### Ordering Information :

**AIM 566-1** Benkelman Beam with Analog dial gauge 0.01x25mm Travel

#### Optional Accessories :

**AIM 072** Analog Dial Gauge, 25 mm travel and 0.01 mm least count

**AIM 072-DG** Digital Dial Gauge, 25 mm travel & 0.001 mm least count

### Pavement Dynamic Cone Penetrometer

- A simple and robust instrument for rapid in-situ measurement of the structural properties of road pavements.
- Provides fast and efficient method of obtaining information.
- For continuous measurements up to a depth of 800 mm and 1,200 mm with the extension rod.
- Portable and can be accommodated in a carrying case.

The Pavement Dynamic Cone Penetrometer (DCP) is a very robust instrument, designed for rapid in-situ evaluation of strength of sub-grade and the bases for roads & runway pavements. Continuous measurements can be made down to a depth of 800 mm, or when an extension is fitted, to a depth of 1200 mm. Where pavement layers have different strengths, the boundaries can be identified and the thickness of the layers determined.

A typical test takes only a few minutes and the instrument therefore, provides a very efficient method of obtaining information which would normally require test-pits. Correlations have been established between measurements with DCP and California Bearing Ratio (CBR) so that the results can be interpreted and compared with CBR specifications for pavement design. Agreement is generally good over most of the range but differences are apparent at low values of CBR, especially for fine grained materials.



It incorporates a 8kg weight dropping through a height of 575 mm and a 60° cone having a diameter of 20mm. It is supplied complete with assembly tools and weighs 20kg approx.

The DCP needs three operators, one to hold the instrument, other to raise and drop the weight and a technician to record the results. The instrument is held vertically and the weight carefully raised to the handle limit and then allowed to fall onto the anvil.

**The equipment consist of the following replaceable parts :**

- AIM 56701** Top and Bottom Rod
- AIM 56702** Handle
- AIM 56703** Hammer
- AIM 56704** 1 m Scale
- AIM 56705** 60° Cone
- AIM 56706** Anvil



AIM 567

**Ordering Information :**

- AIM 567** Pavement Dynamic Cone Penetrometer

**Surface Irregularity**

Equipment described below are based on the principle of a travelling straight edge and is for measuring, marking and recording irregularities of roads and runways pavements of both concrete and bituminous material.

**Merlin**

**Features :**

- Easy to use.
- Self calibrating.
- Robust.
- Easily maintained.
- No complex calculations.
- Measures displacement to less than a millimeter.

The unevenness of road surface is an important measure of road condition and a key factor in determining vehicle operating costs. A number of instruments have, therefore, been developed for measuring unevenness, which is usually called roughness and standard roughness scales have been established. However, many of the instruments are expensive and complicated to use or require regular calibration.

Modified Roughness Indicating machine is a simple machine to measure roughness, also called MERLIN - Machine for Evaluating Roughness using low-cost Instrumentation.

The device can be used either for direct measurement or for calibrating other instruments such as the Vehicle Mounted Bump Integrator. The equipment is easy to use, self - calibrating, robust, easily maintained and employs readily available components.

**Ordering Information :**

- AIM 570** Merlin



AIM 570



## Bump Integrator

Ref. C.R.R.I Design

Roads are public utilities built for providing speedy, safe and comfortable ride to the road users. The safety and comfort of the users is adversely affected by poor riding quality of the roads. The riding quality, also termed as unevenness or roughness is an important parameter for evaluation of surface condition of roads. Roughness is the distortion in the road profile, which is of main concern to the road users. It is caused due to the inherent properties of materials and the construction techniques. This further deteriorates through permanent deformation of the layers in the pavement structures.

The roughness of the pavement forms an important input to any Pavement Management System (PMS) in deciding upon the maintenance strategies to be applied on road surface. The riding quality is generally measured by response type instruments, which are either towed or mounted on the vehicle itself.

Bump Integrator also known as Roughometer or Automatic Road Unevenness Recorder gives quantitative integrated evaluation of surface irregularities on an digital counter / LCD screen. It comprises of a single wheeled trailer, with a pneumatic tyre mounted on a chassis, on which an integrating device is fitted. The machine has a panel board fitted with two / four sets of digital counters for accounting the unevenness index value. The operating speed of the machine is  $32 \pm 0.5$  km/hr. The machine is towed by a vehicle, usually a jeep.

The wheel runs on the pavement surface and the vertical reciprocating motion of the axle is converted into unidirectional rotary motion by an integration unit. The accumulation of this unidirectional motion is recorded by operating electronic sensors incorporated in the circuit, once for every 10mm of accumulated unevenness.

Wheel revolutions are also indicated on another digital counter through electronic sensors, actuated by the cam fixed on the wheel hub. The two sets of counter readings give the unevenness index value in cm/km.

Bump Integrator is supplied with a pair of transportation wheels at additional cost, which permit towing, speeds up to 60km/hr, without disturbing the accuracy of the unevenness-measuring wheel.

### Bump Integrator, conventional type

Bump Integrator, conventional type machine as per CRR I design it is supplied with the following specification.

- Overall Length : 2400mm
  - Overall Width : 700mm
  - Height : 1100mm
  - Net Weight : 350Kg (Approx.)
  - Tyre Size : 6.00 x 16.4 Ply
  - Inflation Pressure : 2.1 Kg/sq. Cm (30 lbs./sq. inch)
  - Standard operation Speed :  $32 \pm 0.5$  Km/Hour
- Bump Integrator is supplied with three nos. towing wheels, four nos. digital counters, with suitable leads and necessary tools.



AIM 9903



The Machine gives direct reading of the bumps in centimeters, with a least count of one centimeter and its wheel revolution counter gives direct reading of length in kilometer with a least count of one meter. Four numbers digital counters are provided with a digital display to enable testing at night also.

A pair of optional transportation wheels (fitted with shockers) is also provided. It is supplied with an arrangement for towing.

### Bump Integrator with preset facility

Same as model -II but with an additional facility to set length level from 50 meters to 9999 meters.

The user has the option to choose from Direct /Preset mode. Through the Direct mode, the user can direct reading of road unevenness index at any point whereas through the Preset mode, the user can select the length as per his requirement, ranging from 50 meters to 9999 meters.

The machine has the facility to skip any obstruction on road (i.e. speed breakers, pot holes etc.) just by pressing the 'Pass button' to ensure that the reading obtained over a stretch of road is a true reflection of the surface irregularity.

The user can also evaluate the roughness index, in terms of lengths and bumps at preset lengths. The example cited below indicates the cumulative bumps over preset lengths of 100 meters.

Length in meters	Bumps in centimeters
100	000016
100	000015
100	000017
100	000018
100	000018

### Micro Processor based Bump Integrator

As per CRRI design with following new features:

- Accumulates vertical undulations after every one centimeter on LCD counter.
- Allows automatic changing & re-setting of the counter, after completion of every section.
- Displays data of the set distances on the panel board
- Operates on 12V & 220 volts.
- Stores 2000 segment data - memory is provided with a battery backup.
- The Data Output comprises of
  - Date & Time
  - Length in meter
  - Preset Length in meter
  - Section no.
  - Bumps in cm
  - Speed of vehicle
- Allows transfer of data through RS 232 port. Windows compatible
- Print Out Format:-

DD/MM/YY	:	HH/MM/SS	Section No.
Preset Length	:	Bumps in CM	Length in Meters

### Bump Integrator with Unevenness Index

Same as Model IV but with an additional facility to define the category of Road as per the defined bins of good, fair, poor & very poor and corrected Unevenness Index Value (centimeter/kilometer formula)

Print out format:

DD/MM/YY	:	HH/MM/SS	Section No.
Preset Length	:	Bumps in CM	Length in Meters
Corrected UI	:	Speed of UI	Road Category

### UI - Unevenness Index

CRRI Calibration is arranged on extra cost

### Ordering Information :

<b>AIM 9902</b>	Bump Integrator, conventional type
<b>AIM 9903</b>	Bump Integrator with preset facility
<b>AIM 9904</b>	Micro Processor based Bump Integrator
<b>AIM 9905</b>	Bump Integrator with Unevenness Index

## Axle mounted Bump integrator

Roads are public utilities built for providing speedy, safe and comfortable ride to the road users. The safety and comfort of the users is adversely affected by poor riding quality of the roads. The riding quality, also termed as unevenness or roughness is an important parameter for evaluation of surface condition of roads. Roughness is the distortion in the road profile, which is of main concern to the road users. It is caused due to the inherent properties of materials and the construction techniques. This further deteriorates through permanent deformation of the layers in the pavement structures.

The roughness of the pavement forms an important input to any Pavement Management System (PMS) in deciding upon the maintenance strategies to be applied on road surface. The riding quality is generally measured by response type instruments, which are either towed or mounted on the vehicle itself.

**Axle Mounted Bump Integrator is a response type Road Roughness Measurement System.**



This system gives a cumulative displacement of an axle relative to the body of the vehicle induced by the roughness of the road and it also gives distance measurement with a least count of 1 meter with the help of a digital distance meter. The system consists of a vehicle (with a solid, transverse back axle), fitted with a bump integrator and digital / LCD panel which together integrate and record the movement of the back axle, as the vehicle passes along the road.

**The Axle Mounted Bump Integrator** developed by the Central Road Research Institute, New Delhi provides effective means for monitoring road roughness over great distances.

### Axle Mounted Bump Integrator, conventional type

The system gives direct reading of the bumps in centimeters, with a least count of one centimeter and its wheel revolution counter gives direct reading of length in kilometer with a least count of one meter. Four numbers digital counters are provided with a digital display to enable testing at night also.

### Axle Mounted Bump Integrator, with preset facility

Same as model -I but with an additional facility to set length level from 50 meters to 9999 meters.

The user has the option to choose from Direct /Preset mode. Through the Direct mode, the user can direct reading of road unevenness index at any point whereas through the Preset mode, the user can select the length as per his requirement, ranging from 50 meters to 9999 meters.

The machine has the facility to skip any obstruction on road (i.e. speed breakers, pot holes etc.) just by pressing the 'Pass button' to ensure that the reading obtained over a stretch of road is a true reflection of the surface irregularity.

The user can also evaluate the roughness index, in terms of lengths and bumps at preset lengths. The example cited below indicates the cumulative bumps over preset lengths of 100 meters.

Length in meters	Bumps in centimeters
100	000016
100	000015
100	000017
100	000018
100	000018

### Axle Mounted Bump Integrator, Micro Processor based

**Micro Processor Based Axle Mounted Bump Integrator as per CRRI design with following new features :-**

- Accumulates vertical undulations after every one centimeter on LCD counter.
- Allows automatic changing & re-setting of the counter, after completion of every section.
- Displays data of the set distances on the panel board.
- Operates on 12 V & 220 volts.
- Stores 2000 segment data - memory is provided with a battery backup.
- The Data Output comprises of
  - Date & Time
  - Section no.
  - Length in meter
  - Bumps in cm
  - Preset Length in meter
  - Speed of vehicle
- Allows transfer of data through RS 232 port. Windows compatible.
- Print Out Format :-

DD/MM/YY	HH/MM/SS	Section No.
Preset Length	Bumps in CM	Length in Meters

### Axle Mounted Bump Integrator, with unevenness index

**Same as Model III but with an additional facility to define the category of Road as per the defined bins of good, fair & poor and corrected Unevenness Index Value (centimeter/kilometer formula)**

**Print out format:-**

DD/MM/YY	HH/MM/SS	Section No.
Preset Length	Bumps in CM	Length in Meters
Corrected UI	Speed of UI	Road Category

UI - Unevenness Index

The vehicle is to be arranged by the customer, as per their requirement.

The vehicle has to be sent to our works at Delhi for installation the Axle Mounted Bump Intergrator.

The equipment is provided with the works certificate only. Calibration of the equipment. along with the vehicle can be done at extra cost by Central Road Research Institute, Delhi only.

#### Ordering Information :

- AIM 9902-CM** Axle Mounted Bump Integrator, conventional type
- AIM 9903-CM** Axle Mounted Bump Integrator, with preset facility
- AIM 9904-CM** Axle Mounted Bump Integrator, Micro Processor based
- AIM 9905-CM** Axle Mounted Bump Integrator, with unevenness index





## Asphalt Mixing

Ref. Standard EN 12697-35

Aimil provides two model of asphalt mixer.

This machine is used for laboratory mixing of bituminous materials to prepare the specimens to be used for various asphalt tests. Its is widely used in road construction laboratories, Testing laboratories, Research Institutions.

The machine mainly consists of a main frame, variable speed mixer, elevating system, heating pot, electrical control box. The variable speed mixer consists of electric motor, gear box and vertical curved blade. The elevating system consists of a motor, worm gear, up right column, guide bar and stopper block and the heating pot has a double lever metal pot, conduction coil and electric heater.

In vertical type of mixer the pot can move up and down and in the horizontal type of mixer the elevating system with agitator assembly moves up and down.

Suitable for operation on 415 V, 50 Hz, 3 phase, AC supply.

### Technical specifications

Vertical Capacity	- 20 lt
Horizontal Capacity	- 10 lt
Temperature range	- Room temp to 200 +/- 0.5°C
Timer	- 0-999 sec
Speed of blade	- Revolution 42-48 rpm Rotation 70-75 rpm
Vertical Heating Power	- 3 kW
Horizontal Heating Power	- 1.5 kW
Testing environment	- 10 to 40°C & < 80 % RH



AIM 576



AIM 577

### Ordering Information :

<b>AIM 575</b>	Asphalt Mixer, 5 lt
<b>AIM 576</b>	Asphalt Mixer Horizontal, 10 lt
<b>AIM 577</b>	Asphalt Mixer Vertical, 20 lt

## Wheel Rut Shaper

Ref. Standard EN 12697 - 33

This apparatus is used to prepare the bitumen specimen for wheel rut testing used in research and road construction. It compact asphalt slabs to a target density in a size of 300x300x30-50 mm.

The machine has a bearing car which has a mould for sample preparation loaded by rolling wheel vertically. The bearing car moves 300 mm in and out for homogenous compaction of specimen by rolling wheel. The rolling wheel is compacted thru pneumatic cylinder and has in built heater to heat up the specimen thru top cover of mould. The bearing car moves in and out on crank shaft, gear wheel with eccentric shaft mechanism.

Suitable for operation on 415 V, 50 Hz, 3 phase, AC supply.

### Technical specifications

Rolling wheel radius	: 500 mm
Rolling wheel width	: 300 mm
Temperature	: room temp to 200°C
Pressure	: up to 9 bar
Bearing car speed	: 6 rpm
Distance in & Out	: 300 mm
Timer	: 0-999 rounds (can be set)
Mould Size	: 300x300x50 mm



AIM 578

**Ordering Information :**

**AIM 578** Wheel Rut Shaper

**Wheel Rut Tester**

The wheel rut tester is used to determine the resistance ability to wheel tracking at high temperature of bituminous combined material.

The machine has two main parts i.e. testing machine and constant temperature cabinet, temperature is controlled by PID controller. This consists essentially of a loaded wheel, which bears on a sample held on a moving table. The table reciprocates with simple harmonic motion. The wheel is fitted with a solid rubber tyre and moves at a speed of 42+/- 1 rpm and the sample table is fitted with a locking clamp for 230 +/- 10 mm. The machine is also provided a moving beam and balance weight to adjust the tyre position on and off the specimen at the beginning and at the end of the test. The pressure between table and specimen is ensured at 0.7 Mpa with the leverage effect of moving beam. Furthermore two temperature sensors are provided : one to be placed inside the specimen and the other in the controlled temperature cabinet. The test is automatically controlled by a data acquisition and processing system with large graphic display to monitor in real time number of cycles, rut depth and temperature and time displacement graph.

Suitable for operation on 415 V, 50 Hz, 3 phase, AC supply.

**Salient Features :**

- Automatic test control by Rut tester and processing system
- Large permanent memory to store test data and results
- RS 232 ports for connection to PC and printer

- Large graphic display
- Real time display of number of cycles, rut depth and temperatures
- Tracks for specified number of passes or to specified rut depth
- Adjustable load cycle frequency
- Double temperature measurement: inside the specimen and in the cabinet

**Technical specifications**

Test wheel speed	: 42+/- 1 rpm
Moving distance of sample table	: 230+/-10 mm
Rubber hardness of wheel	: 78+/- 2 at 60°C
Specimen Size	: 300x300x50 mm
Displacement measuring range	: 0-30 +/- 0.1 mm
Max pressure applied on specimen	: 0.7 +/- 0.5 Mpa
Temperature of cabinet	: Room temp to 80 +/- 0.5°C



AIM 579

**Ordering Information :**

**AIM 579** Wheel Rut Tester

**Skid Resistance Tester New**

The apparatus is used to measure antiskid performance of high grade roads and airport pavement both in the lab and in-situ.

**Skid Resistance Tester**

The apparatus consists of a spring loaded rubber slider mounted on a pendulum arm. The arm can be adjusted vertically from a rigid support column. The base has three adjustable feet so that the swing of the pendulum during the test moves through a truly circular path while operated directly on a road surface.



AIM 580

**Ordering Information :**

AIM 580 Skid Resistance Tester

**Film Stripping Device New**

Film stripping device is used to measure the resistance of bituminous mixtures to stripping of asphalt from aggregate particles. It is generally used to evaluate mineral aggregates & to judge the adhesion of the bituminous materials.

The device consists of a disk on which 4 bottles are mounted. The disc rotates at a speed of approx. 100 rpm. The sample, usually the aggregate fraction which passes a 9.525 mm sieve but is retained on a No. 8 sieve, is placed in the bottles & agitated for 15 minutes. The percentage of aggregate stripped can be visually estimated. The device is provided with a pre set counter.

Suitable for operation on 220 V, 50Hz, Single Phase, AC supply.



AIM 581

**Ordering Information :**

AIM 581 Film Stripping Device

**Asphalt Mixer Theoretical Density Meter New**

Ref. Standard:ASTMD2041-03

This machine is used for determination of theoretical density of asphalt mixer by vacuum method for applications such as asphalt mixer design, road condition investigation, calculation of porosity and compactness in the road construction quality management.

The equipment has a main body fitted with vacuum gauge, two vacuum containers, vibratory table and control panel.

The vibratory table operates on manual and automatic mode to release the entrapped air from the asphalt sample.

Suitable for operation on 220V, 50Hz, 1phase, AC supply.

**Technical specifications**

- vacuum range : 0-100 kpa
- Vibration loading : 10kg
- No of sample : Two



AIM 582

**Ordering Information :**

AIM 582 Asphalt Mixer Theoretical Density Meter



## Pavement intensity Test apparatus

It is a multifunctional testing instrument for the material of road base and pavement. This can be used with many kind of testing accessories to test the compressive strength, indirect intensity test and bearing ratio of soil and pavement material. It can also be used to test the thermal stability and Marshall test of bituminous material.

The machine has sturdy frame having two chrome plated pillars and cross head to work up to 100 kN axial load having two speed of loading to perform various test such as bearing ratio, Marshall test. The speed can be adjusted with the help of mechanical lever fitted on main frame. It can be run on forward and reverse mode also. (Accessories are not the part of apparatus)

### Technical specifications

Capacity	:	100kN
Max. Vertical distance b/w the plates	:	200mm
Allowed overload	:	30%
Speed of piston	:	High 50.8 mm/min Low 1 mm/min



AIM 583



AIM 584

### Ordering Information :

- AIM 583** Pavement Intensity Test Apparatus, Digital type with load cells LVDT with digital indicator.
- AIM 584** Pavement Intensity Test Apparatus, manual type with proving ring & dial gauge.

## Water Proofing Apparatus - Hydraulic

The permeability apparatus is used to determine the water proofing of the petroleum bitumen felt and the roofing sheet.

The apparatus has a main body fitted with hydraulic pressure system, three specimen holder, Pressure gauge and control knobs.

Suitable for operation on 220V, 50Hz, 1phase, AC supply.

### Technical specifications :

Max testing pressure	:	0-30Mpa
Size of specimen	:	150mm dia x 15mm thick
Diameter of the waterproofing plate	:	92mm
Standard testing water temperature	:	20°C
No of the testing specimen	:	3 at a time



AIM 586

**Ordering Information :**

**AIM 586** Water proofing test apparatus for Asphalt - Hydraulic

**Asphalt extraction Apparatus automatic**

The Asphalt Extraction Apparatus Automatic is used to perform reliable analysis on asphalt mixtures using noninflammable solvent as trichloroethylene and dichloromethane.

It works on high speed centrifugal separation, dissolvent recovery and purification technology for extracting the asphalt from bituminous mixtures.

The instrument has several safety features for its easy & trouble free operation such as Phase sequence alarm, overheating protection, high or low level protection, high voltage protection, timer etc. The centrifuge basket is made of aluminium alloy material supported by high performance thrust bearing for its long lasting performance. The dissolvent recovery and storage chamber is made of anti corrosion stainless steel. The extraction operation is completed in three steps i.e. Bitumen extraction, dissolvent recovery chamber cleaning and regenerated combined liquid dissolvent recovery.

Suitable for operation on 415V, 50Hz, 4.5kW, 3phase, AC supply.

**Technical specifications**

Specimen capacity	:	1000g to 1500g
Extraction accuracy	:	0.1%
Centrifugal Separator rotation speed	:	5500rpm, 11000rpm



AIM 588

**Ordering Information :**

**AIM 588** Asphalt Extraction Apparatus Automatic

**Trichloroethylene Recycler **

Ref: Standard ASTM D5616-04

The ever-increasing emphasis on safety, environmental pollution and automatic handling of toxic materials has seen a need for the development and use of asphalt extraction systems. Aimil offers instrument for asphalt extraction to recover the Trichloroethylene or dichloromethane from the bituminous mixtures.

This machine is used for recycling trichloroethylene (C<sub>2</sub>HCl<sub>3</sub>) used in asphalt extraction tests and the recovered solvent can be used 6-7 times and its found very cost effective as the price of trichloroethylene is very high.

The instrument comprises of two chambers for solution evaporator and condensation and control cabinet for temperature control & cooling water cycling. The main unit is made of stainless steel for rust free operation for longer time.

Suitable for operation on 220V, 50Hz, 1phase, AC supply.

**Technical Specifications**

Combined solution	:	1500 ml to 5500ml
Heating tube power	:	800W
temp control range	:	86 to 100°C
Working Temp	:	Amb to 40°C
Relative Humidity	:	<85%



AIM 589

**Ordering Information :**

**AIM 589** Trichloroethylene Recycler

**Asphalt Content Tester New**

Ref. Standard ASTM D6307 & EN 12697 39

This machine is used to determine the asphalt content of hot mix asphalt (HMA) paving mixtures and pavement samples by removing the asphalt in an ignition furnace by means of sample heating not by means of solvents.

Suitable for operation on 415V, 50Hz, 20A, 3phase, AC supply.



AIM 590

**Technical Specifications**

- Max weight of specimen : 4500g
- Suggested weight of specimen : 1000 to 1500g
- Balance : 10kg x 0.01g
- Size of furnace : 350mmx440mmx330mm
- Max. Working temperature of furnace : 800°C
- Standard Working temperature : 538°C
- Testing time : 20 to 30 min

**Ordering Information :**

**AIM 590** Asphalt Content Tester

**Mastic Asphalt Tester New**

Ref. Standard BS 5284 & IS 1195

This machine is used to determine the hardness of asphalt material the design features direct vertical loading with loading weight that rest on thrust bearings therefore load is applied to the specimen without transmitting shock to the loading column. At the end of the loading period the depth of penetration of the pin can be read from the dial gauge to an accuracy of 0.01mm. The thermostatically controlled heater unit has a built in impeller which circulates the water to maintain an even temperature throughout.

**Technical Specifications**

- Water Bath : 440 x 350 x 180mm
- Mould Size : 150 mm dia x 25 mm depth
- Heating power : 1 kW
- Temperature range : room temp to 85 +/- 0.1°C
- Accuracy of penetration : 0.01 mm



AIM 592

**Ordering Information :**

**AIM 592** Mastic Asphalt Tester



## Mobile Laboratories

### Laboratory on Wheel

- A mobile laboratory for performing on site facilities both for physical and chemical test for Soil, Cement, Concrete, Asphalt & other construction material.
- Rugged construction of vehicle for difficult terrain.
- Aesthetically designed interior with shelves and cupboards for housing Laboratory equipments
- Performance of tests, as and when required, with immediate results.
- Getting to destination quickly, fully-equipped for the job.
- Follow up and monitoring of several sites simultaneously
- The unit can fabricated on customer's vehicle like TATA 207/407 or SWARAJ MAZDA etc.
- Depending on area available, the quality and location of benches, desks cabinets, sink, hood etc can be decided
- Lab can be quipped with AC, generator etc. as required.

Suggested list of equipment and Lab Layout Plan are appended below. However, changes can be done as per customer's specific needs.

### Recommended Equipments For Mobile Van

Soil Lab	Cement Lab	Concrete Lab	Highway Lab
Standard Penetration Test	Compression Testing Machine, Hand Operated, 1000 kN	Sand Pouring Cylinder Apparatus	Soil Compactor
Dynamic Cone Penetration Test	Sieves	Electronic Balance	Pavement Core Drilling Machine
Soil Sampler	Pan and Cover for 20cm dia sieves	Sieves	Centrifuge Extractor
Liquid & Plastic Limit	Slump Test Apparatus	Thickness/ Length Gauge	Sieves
Unconfined compression tester	Measuring Cylinder	Mould Cast Iron	Sieve Shakers
Proctor Compaction	Mould Cast Iron	Beam Mould	Balance
Sieves	Concrete Test Hammer	Slump Test Apparatus	Marshall Apparatus
Sieve shaker	Vicat Apparatus	Core Case	Benkelman Beam
Balance	Gauging Trowel	Air Entrainment Meter	Penetrometer
Nuclear Density/Moisture Gauge		Vibrating Table	Bitamers Penetration Kit
Sand Replacement		Measuring Cylinder	
Pressuremeter		Sample Tray	

### Mobile Laboratory Layout Plan

