



- Superpave Gyratory Compactor
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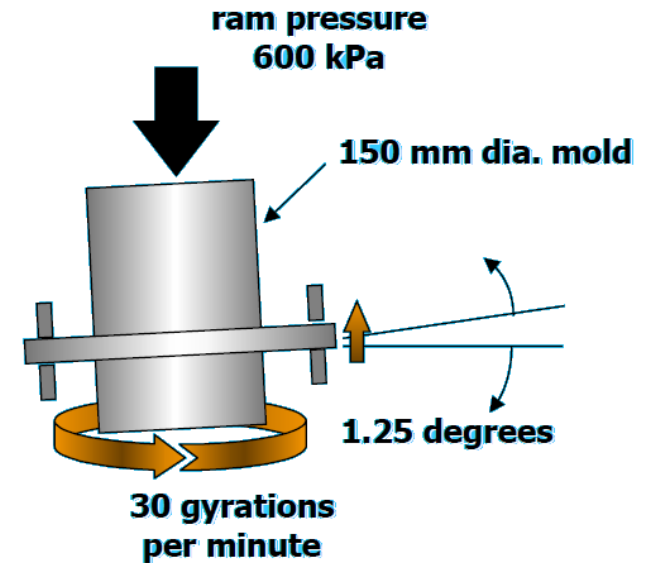
Asphalt Compaction



- Asphalt/Marshall Compaction
- Testing for density and voids
- Preparation for other tests (stability and flow)
- One-dimensional compaction
- Still current in EN 12697 and still the main method of testing in many countries

Gyratory Compaction

SHRP M-002, AASHTO T312 (TP4), ASTM D6925, T 0736-2011, EN 12697-10, EN 12697-31



- Allows for more realistic compaction results
- Kneading action created by the gyratory movement of the specimen

The NEW ELE Superpave Gyratory Compactor

- 45-6750 Gyratory Compactor to EN 12697-31, 10, ASTM D6925, SHRP M-002, AASHTO T312, inc. PC 220-240V 50Hz
- Parts and a number of accessories are on SAP
- /01, /02 and /06 options are available

Applications:

- Compaction of asphaltic paving material to a target mixture density or void content
- Assessment of mixture compactibility
- SHRP Superpave asphalt mixture design
- Preparation of cylindrical test specimens



Part numbers and accessories

Machine	45-6750/01	Gyratory Compactor to EN 12697-31, 10, ASTM D6925, SHRP M-002, AASHTO T312, inc. PC 220-240V 50Hz
Machine	45-6750/02	Gyratory Compactor to EN 12697-31, 10, ASTM D6925, SHRP M-002, AASHTO T312, inc. PC 220-240V 60Hz
Machine	45-6750/06	Gyratory Compactor to EN 12697-31,10, ASTM D6925, SHRP M-002, AASHTO T312, inc. PC 110V 60Hz
Accessory	45-6710	Specimen Extruder
Accessory	45-6750/11	Calibration kit for internal angle lead
Accessory	45-6750/13	Internal Angle measuring device
Accessory	45-6750/14	Internal angle measuring device inc. asphalt Hot Mix Simulator (HMS – Hot Mix Simulator)
Accessory	45-6750/16	Option for 300mm mould height (cannot be retro-fitted)
Accessory	45-6750/17	2 deg. angle plate
Accessory	45-6750/18	Display, Shear Force
Accessory	45-6750/19	Specimen Temperature Measurement
Accessory	45-6750/12	150mm Dia mould & platens
Accessory	45-6750/15	150mm Dia mould & platens, slotted for emulsion mix
Accessory	45-6750/21	150mm Dia mould & platens inc. specimen temperature measurement
Accessory	45-6750/22	150mm filter papers (pack of 100)
Accessory	45-6750/10	100mm Dia mould & platens
Accessory	45-6750/20	100mm Dia mould & platens, slotted for emulsion mix
Accessory	45-6750/23	100mm Dia mould & platens inc. specimen temperature measurement
Accessory	45-6750/24	90mm filter papers (pack of 100)
Accessory	45-6750/25	Spacer 100mm to compact 63mm height on 45-6750
Accessory	45-6750/26	Spacer 150mm to compact 63mm height on 45-6750
Accessory	45-6750/27	100mm Dia split mould
Accessory	45-6750/28	Small air compressor for 45-6750

ANGLE OF GYRATION IS FULLY ADJUSTABLE

- Unlike other machines on the market the angle mechanism is locked in place once set, allowing for consistent compaction, density and void content measurement.
- Machines that have auto adjust (dynamic angle change) make the use of belts and chains, these mechanisms stretch and fade over time, thus effecting the telemetry of the machine and therefore effecting results.
- The angle is easily adjustable so that research applications can be achieved. These machines ensure reliable, consistent repeatable results.

- The build quality is first class, with 20mm thick side plates, heavy-duty tie bars and an extra rigid frame, the machine will have an extremely high design life
- At 500kg the machine demonstrates maximum rigidity, avoiding flex under load, thus eliminating variability in results often seen on cheaper less rigid machines. REPEATABILITY!
- A high quality powder coat is applied to all outer surfaces to provide durability that will last a lifetime.
- The unit, considering its weight, has a small footprint in the lab, lending itself ideal to fit in the tightest of spaces.

- The test can be ended via a wide range of test parameters:
 - Density
 - Voids
 - Number of gyrations
 - Specimen compacted height
 - Temperature
- Intuitive, user-friendly software guides the user step-by-step through set up and test

- With ever increasing use of ground tyres in various regions of the world, the Gyratory Compactor has in built cooling systems and temperature monitoring facilities to make sure samples are fully cured before they are extruded, avoiding sample swelling, few if any manufacturers are able to provide this feature set.

NO MECHANICAL WORK TO CHANGE SAMPLE SIZE

- There is no requirement to make any changes to the machine when changing between 100 mm diameter and 150 mm diameter samples, saving huge amounts of time in test set up

AUTOMATIC LOADING AND UNLOADING OF SAMPLES

- No heavy lifting is required by the operator to perform tests
- No other offering on the market is as user friendly and simple to use, via the use of the simple slide in slide out feature this machine makes lightweight of manual handling issues attributed to other machines on the market. Ensures the health and safety of the operator.
- With the option of pneumatic or hydraulic extrusion mechanisms, safety can be guaranteed even when 'sticking' is encountered.

DATA ACQUISITION IN REALTIME

- There are a number of preset data acquisition modes that can be selected via the software for:
 - Shear stress
 - Temperature
 - Number of gyrations
 - H min
 - Density
- Temperature measurement is unique to this type of products; no other product on the market provides this critical parameter.
- When using ground rubber the test is often deemed complete upon satisfaction of assured height, this can be monitored effectively via the use of the temperature measurement feature.

- A high specification motor is controlled by an industrial inverter. This ensures unsurpassed accuracy in the speed of operation and maximum adjustability.
- This makes sure tests are consistent. utilization of the inverter ensures accurate results via both 50 and 60hz electricity supply.
- Other manufacturers are known to use household drills to drive the compactor.

- At the push of a button, the number of gyrations per test can be easily adjusted from 1 – 999 gyrations, resulting in greater test flexibility for research type work when working outside of the normal testing standards

- PC control data can be stored, accessed and manipulated via a great number of methods
- The unit gives the ability to connect remotely from anywhere in the world to see real time data capture, never be late in sending or receiving data reports again.

- It is possible to access Gyrotrac Compactors remotely, anywhere in the world to determine any issues when the machine is in use.
- Remote training and guidance can be given to technicians often at no cost to ensure operators are fully training and up-to-speed without the need for a local engineer.

ELE Superpave Gyratory Compactor - 45-6750/01	Quantity	Unit Price	Total Price
Standards:			
SHRP M-002, AASHTO T312 (TP4), ASTM D6925, T 0736-2011, EN 12697-10, EN 12697-31			
Features and Benefits			
20mm thick side plates, heavy-duty tie bars and an extra rigid frame			
There is no requirement to make any changes to the machine when changing between 100 mm diameter and 150 mm diameter samples			
Automatic loading and unloading of samples			
Sample temperature during compaction			
Cooling facility and holding force for ground tyre asphalt mixtures			
50/60HZ compatible no change parts, inverter controlled.			
Built in remote diagnostics			
Air filter regulator and oil separator included as standard			
In built extruder for ease of operation – manual (hydraulic) or auto (pneumatic)			
Internal angle of gyration should be 0.2 to >2°			
Speed variable between 0 – 60rpm			
Stress from 600 to 1000 kPa			
High quality SMC Actuator with 250mm stroke			
Compressed air supply 7-10 bar, 350 Litres per minute			
Should use industrial inverter for accurate speed control			
PLC for control and data acquisition			
Linear potentiometer for specimen height measurement with 300mm stroke			
Supplied with software to display results in real time and allow 2 methods of compaction – number of gyration & target density			
TCP/IP link and USB for control system			
Desktop PC included with the machine			
Machine to be calibrated to UKAS traceable standard			
Remote access for diagnostics			
CE safety gates with interlock			
UK product offering			
Accessories			
45-6710 Specimen extruder	1		
45-6750/18 Shear force display	1		
45-6750/19 Specimen Temperature Measurement	1		
45-6750/12 150mm Dia mould & platens	1		
45-6750/10 100mm Dia mould & platens	1		
45-6750/26 Spacer 150mm to compact 63mm height on 45-6750	1		
45-6750/25 Spacer 100mm to compact 63mm height on 45-6750	1		
45-6750/22 150mm filter papers (pack of 100)	1		
45-6750/24 100 mm filter papers (pack of 100)	1		
Documentation			
Product user manual			
Product brochure			
Certificate of calibration			

NEW ELE Pendulum Skid Resistance Tester

Applications:

- Assessment of surface friction and skid resistance properties
- Testing of aggregates in the PSV (Polished Stone Value) test
- Testing of new road surface materials
- Testing of pedestrian pavements
- RTA (road traffic accidents)
- Litigation investigations



The Pendulum Skid Resistance Tester was originally designed in the 40s in the USA, and further developed in the 1960s at the TRL (Transport Research Laboratory) for the testing of road surfaces.

The device measures the frictional resistance between a rubber slider mounted on the end of a pendulum arm and the surface to be tested. This provides road engineers with a method of checking the resistance of wet and dry surfaces to slipping and skidding, both in the lab and insitu.

It operates by a pendulum rotating about a spindle which is attached to a vertical pillar. At the end of the tubular arm a head of known mass is fitted with a rubber slider. The pendulum is released from a horizontal position so that it strikes the sample surface at a constant speed. The distance travelled by the head after hitting the sample is determined by the friction of the sample surface.

Pendulum Skid Resistance Tester

Features:

- Designed for lab and on site road surface testing
- Factory calibrated to EN1097-8
- Low friction arm, and lightweight pointer
- Supplied with 'F' scale for use with small slider set for 76mm slide length. (PSV test)
- Highly repeatable
- Supplied with carrying case



Machine	42-6000	Pendulum Skid Tester (including case and tool kit)
Accessory	42-6200	Base Plate for Skid Resistance Tester for lab testing
		Set of 3 Spreader Feet for Skid Resistance Tester for in-situ testing
Accessory	42-6000/10	
Accessory	42-6000/11	1.25" Rubber Mounted PSV Slider for 42-6000
Accessory	42-6000/12	3.00" Rubber Mounted TRL (55) Slider for 42-6000
Accessory	42-6000/13	3.00" Rubber Mounted Four S (96) Slider for 42-6000
Accessory	42-6000/14	3.00" Rubber Mounted CEN Slider for 42-6000
Calibration	42-6000/15	First traceable calibration for 42-6000

TRL - Tyre on Asphalt

PSV – For polished stones

Four S – For shoes

The NEW ELE Asphalt Binder Analyser

Designed to measure the asphalt binder content of hot mix asphalt (HMA) using loss on ignition, in accordance with AASHTO T 308-10, ASTM D6307-10 & BSEN 12697-39:2012.

AKA Ignition Oven, NCAT Oven, Binder Analyser

46-6100/01 Asphalt Binder Analyser (220-240V 50/60 Hz)



Features and benefits

- Designed to measure asphalt binder content by loss on ignition
- Avoids the health, environmental & waste management issues & expense associated with the older solvent extraction methods
- Reduced emissions due to high temperature afterburner
- Controlled via a multi-lingual touch screen interface
- Supplied as standard with English, Spanish, French, Chinese, Italian & Russian language display. Other languages are available to order
- Automatic calculation of final sample weight & binder % result
- Adjustable aggregate correction factor
- Precise weight measurements displayed to 0.1 g resolution
- Has the capacity for large sample sizes for more accurate results (maximum sample is 4.5 kg)
- Average test times from 20 mins for 6 mm aggregates, to 45 mins for 40 mm aggregates
- Permanent (dot-matrix) printed reports
- USB data output compatible with most spread sheets
- Simplified menu structure with secure 'Supervisor' & 'Operator' settings
- Metal waste gas extraction pipe
- Factory fitted thermocouple access port, if temperature calibration is to be carried out

NEW ELE Loss on Heat/Thin Film Oven

Thin Film Oven is used for determining the loss in mass of oil and asphaltic / bituminous compounds when heated with the loss on heating test method or the effect of heat and air on semisolid asphaltic / bituminous materials with the thin film oven test (TFOT) method.

46-4100/01 (220-240V 50/60Hz)



Features and benefits

- This dual purpose oven is designed to perform the loss on heat test and thin film test for bitumen and asphaltic materials and complies to the requirements of BS 2000 ASTMD6, D1754 & AASHTO T47, T179.
- The exterior is constructed from sheet steel finished in an easy clean powder coated paint and the interior chamber is made from stainless steel.
- The unit is well insulated and has a double glass door for viewing the test chamber.
- The control system comprises of a microprocessor digital controller and overheat thermostat with calibrated scale and tamper proof lock.
- Temperature is controlled and pre-set at $163^{\circ}\text{C} \pm 1^{\circ}\text{C}$.
- Two rotating platforms of 13.5 inches dia are supplied to perform both the tests.



NEW ELE Rolling Thin Film Oven

The Rolling Thin-Film Oven (RTFO) procedure provides simulated short term aged asphalt binder for physical property testing. Asphalt binder is exposed to elevated temperatures to simulate manufacturing and placement aging. The RTFO also provides a quantitative measure of the volatiles lost during the aging process.

The product accurately simulates the short term aging of asphalt binder which occurs during mixing

The exterior is constructed from sheet steel finished in an easy clean powder coated paint and the interior chamber is made from stainless steel.

The control system comprises of a microprocessor digital controller and overheat thermostat with calibrated scale and tamper proof lock.

The standard Rolling Thin-Film Oven test is:
AASHTO T 240 and ASTM D2872.



46-4150/01 (220-240V 50/60Hz)