Gyratory Compactor

CRT-GYR

A high quality machine with which the user can easily and safely obtain accurate, repeatable results day after day

BRIEF INTRODUCTION

Gyratory compaction is considered to be one of the best methods of laboratory compaction for the assessment of compactibility and the manufacture of test specimens.

Compaction is achieved by the application of a vertical stress (normally 600KPa) via end platens to a known mass of asphaltic mixture within a 100 or 150mm internal Ø mould. The longitudinal axis of the mould is rotated (gyrated) at a fixed angle to the vertical whilst the platens are kept parallel and horizontal. During compaction the height of the sample is automatically measured and both the mixture density and void content calculated. The compaction data is shown on-screen in graphical and tabular format as compaction progresses and it is also saved in Microsoft Excel™ compatible format. The operator can choose whether to compact for a certain number of gyrations or until a target mixture density or void content is achieved.

Problems with existing compactors are mainly related to build quality and ease of use. Unlike most compactors 100 and 150mm Ø moulds can be tested without changing machine parts. A filled gyratory compactor mould is heavy and often very hot. In many cases these moulds have to be lifted in and out of gyratory compactors. With the CRT-GYR no lifting of filled moulds is required. They are automatically lowered into position for compaction and then lifted up again for transfer to the integrated demoulding system.

KEY FEATURES

- Complies with EN 12697-10 and EN 12697-31
- Can be configured to comply with SHRP Superpave specifications
- Automatic mould insertion and retraction
- 150mm and 100mm internal Ø moulds can be tested without changing parts
- Cold mix (emulsion) materials can be compacted and the expelled fluid collected
- USB link with data acquisition and control system so that desktop can be used as host computer
- User friendly LabVIEW™ software displays results in real time
- Compaction data stored in Microsoft Excel™ compatible format
- Machine calibrated with traceable equipment
- Option for mould up to 300mm high

KEY USES

- 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

STANDARDS

- EN 12697-10
- EN 12697-31
- ASTM D6307
- SHRP M-002
- AASHTO T312 (TP4)
- T 0736-2011

SYSTEM ELEMENTS

The CRT-GYR is comprised of:

- A highly rigid enclosed steel frame
- A 95mm bore pneumatic cylinder
- An integrated guard and specimen table
- A Precision pressure regulator for accurate stress control
- An eccentric at the base of the mould for to produce gyratory motion
- Mitsubishi™ inverter for accurate speed control
- 300mm stroke linear potentiometer for specimen height measurement
- Footmaster™ wheels for uncomplicated movement
- The PC is connected to the CRT-GYR through a high speed USB connection
- A highly accurate National Instruments™ 16bit card is used for control and data acquisition

Gyratory Compactor

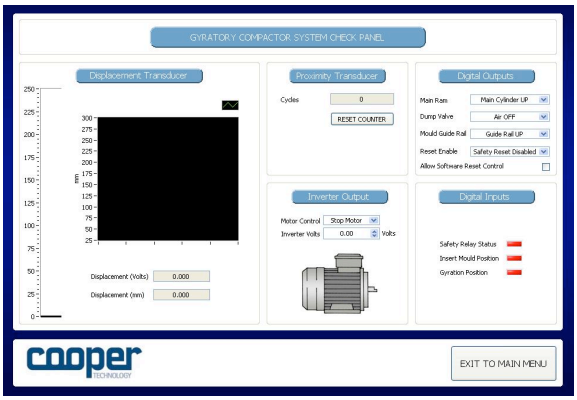
CRT-GYR

SPECIFICATIONS

Speed	Normally 30 rpm
Stress	Normally 600 kPa, Maximum 1000 kPa
Actuator stroke mm	250
Internal Angle of Gyration	0.2 to > 2°
Electrical Supply	220-240 Volts 50Hz @ 16A (others available)
Specimen Ø	100mm and 150 mm
Compressed Air	7-10 bar @ 350 L/min
Mixtures	Wet or dry
Dimension mm (WxDxH)	780 x 1000 x 1920
Working space required mm (WxDxH)	2000 x 2000 x 2200
Estimated Weight Kg	508
PC	Included

SOFTWARE

- User friendly, intuitive and reliable Windows™ software developed using LabVIEW™
- Software allows 2 methods of compaction – no. of gyrations and target density
- The operator is guided through every step of the compaction
- Real-time display of current height, density and void content (percentage)
- Data is recorded to disk at regular intervals for further analysis
- Software communicates with the gyratory compactor via the USB interface
- Utilities are included for transducer check, diagnostic routines and calibration



Calibration & Maintenance

Calibration, Annual Service and Maintenance Contracts are available for this device.
Please enquire for further details.
Note: This device should be checked and calibrated annually.

Accessories

Accessories are not included in the price of the main device and may be purchased separately if required.

CRT-GYR-M300
Option for mould up to 300mm high

CRT-GYR-EXT
Specimen Extruder

CRT-GYR-ANG2
> 2 degree angle plate

CRT-GYR-SHEAR
Shear force display

CRT-GYR-CALANG
Calibration kit for internal angle lead

CRT-GYRM-150
150mm Internal Ø mould & platens

CRT-GYRM-100
100mm Internal Ø mould & platens

CRT-GYRMS-150
150mm Internal Ø mould & platens, slotted for emulsion mix

CRT-GYRMS-100
100mm Internal Ø mould & platens, slotted for emulsion mix

CRT-GYRM-150T
150mm Internal Ø mould & platens which includes feature for specimen temperature measurement

CRT-GYRM-100T
100mm Internal Ø mould & platens which includes feature for specimen temperature measurement

CRT-GYR-TEMP
Specimen Temperature Measurement

CRT-GYR-SP150_63
Spacer 150mm to compact 63mm height on CRT-GYR

CRT-GYR-SP100_63
Spacer 100mm to compact 63mm height on CRT-GYR

CRT-GYRCFP-150
150mm circle filter papers (pack of 100)

CRT-GYRCFP-100
100mm circle filter papers (pack of 100)

CRT-TGR-840
Small air compressor