IPC Global®

Servopac
Advanced Research Gyratory Compactor

The science of testing made easy®

#1 Research Gyratory Compactor Worldwide
ADVANCED RESEARCH GYRATORY COMPACTOR

The research specification Servopac is a fully automated, servo-controlled gyratory compactor designed to compact asphalt mixes. IPC Global’s Servopac surpasses the requirements of AASHTO, ASTM, AS and EN Standards.

CONTROL
- Closed loop control of variable gyratory angle from 0° to 3°
- Closed loop control of variable vertical force from 0 to 20kN
- Closed loop control of variable rate of gyration from 3 to 60 gyrations per minute

RELIABILITY
- Designed for superior stability during compaction
- Renowned for its robust design and long service life
- Load and displacement feedback control ensures accurate force, angle and rate of gyration

VALUE
- Produces 100mm or 150mm cylindrical specimens
- Designed and engineered for minimal maintenance
- Includes specimen extruder as standard
GREAT BENEFITS

Complete Control
- Set the required axial stress, gyratory angle and speed of rotation
- Users can set the required parameters by using the hand-held control pendant or a Windows PC.

Superior Design
- Four column loading frame design provides superior stability
- Designed for easy specimen insertion, extraction, and user safety with the integrated specimen extruder

Value for Money
- Robust and reliable to withstand any laboratory environment
- Produces 100mm or 150mm large cylindrical specimens
- Only requires air and power to operate

The Servopac has been designed to produce homogenous specimens as well as produce specimens having characteristics that closely resemble those obtained from asphalt as laid in the field.

IPC Global’s Servopac is the world’s most renowned research grade gyratory compactor. Highly regarded for its robust design and reliability, the Servopac is the ultimate gyratory compactor system.

SURPASSES THE REQUIREMENTS FOR THE FOLLOWING STANDARDS
The Servopac is designed to comply with AASHTO, AS, ASTM and EN Standards on gyratory compaction.

AASHTO TP4/T312 - Preparing and Determining the Density of Hot Mix Asphalt (HMA) Specimens by Means of the Superpave Gyratory Compactor.

AS 2891.2.2 - Sample Preparation - Compaction of Asphalt Test Specimens Using a Gyratory Compactor

ASTM D6925 - Preparation and Determination of the Relative Density of Hot Mix Asphalt (HMA) Specimens by Means of the Superpave Gyratory Compactor

EN 12697-31 - Specimen Preparation by Gyratory Compactor

EN 12697-10 - Compactibility

ALL PNEUMATIC GYRATION ACTION
Three vertical closed loop servo controlled pneumatic actuators operate together in a sequential motion to apply a longitudinal gyration action to the specimen and mould. A simultaneous axial stress is gradually applied from above via a servo-controlled pneumatic actuator to compact the asphalt mix.

After compaction the mould is slid into the extruder bay where a pneumatic ram slowly extracts the specimen from the mould.

Schematic showing working principles of the Servopac
INTELLIGENT DESIGN

Servopac has been designed and engineered for ease of use and operator safety with minimal manual exertion whilst handling hot and heavy asphalt-filled moulds. The mould may be slid from a bench directly into the compaction chamber. Then following compaction, slide to the pneumatically operated specimen extractor, eliminating heavy lifting. The compaction chamber is completely enclosed and fitted with safety glass to allow the operator to view the compaction process. The door opens and closes automatically and a safety interlock prevents the machine from operating unless it is closed. An emergency stop button is also fitted.

INTELLIGENT CONTROL

Servopac comes standard with a handheld control pendant featuring an integrated key-pad and liquid crystal display. Servopac’s intelligent controller can store data from several compaction runs, is independently calibrated, and provides a coded data interface via a dedicated serial communications port for monitoring and control purposes. Servopac also allows for PC operation. The Windows PC interface allows for user input of test parameters and will display and plot either height, density or angle against gyratory cycles in real time. Test data may be stored and retrieved or transferred to other software analysis packages. The servo-controlled operation of the machine allows vertical stress, gyratory angle and rate of gyration to be quickly modified from the hand-held control pendant or PC.

Specimen preparation is paramount regardless of what material you are testing or the sophistication of your testing systems. Precise and accurate materials analysis can only be achieved with high quality specimens. Testing poor quality specimens will produce misleading results and therefore waste valuable time and resources.
Axial load is applied using a digital servo controlled pneumatic actuator. The built-in load cell and displacement transducer provide precise force and displacement feedback control.

Lower and raise the mould at a touch of a button, with the easy access buttons allowing for quick test set up and specimen removal.

Four column frame provides superior stability.

Pneumatic specimen extraction unit extracts the specimen safely from the mould without manual handling.

Emergency stop button immediately stops machine operation for user safety.

Hand-held control pendant with an integrated key-pad and liquid crystal display for easy operation.

Safety glass door with built-in interlocks completely enclose the compaction chamber for complete user safety and easy viewing.

Initiate sample extraction with the easily accessible extraction button.

Included as standard the Servopac stand allows for operation at an optimal height.
SERVOPAC ACCESSORIES

IPC Global offers a wide variety of accessories to compliment the Servopac. All IPC Global accessories are designed to be easy to use and offer the best value for money. Maximise the potential of your IPC Global Servopac with the right selection of accessories, talk to us today and we will match the perfect solution to your advanced testing needs.

150mm and 100mm Mould
Control Pendant
Servopac Stand (included as standard)
Internal Angle Measurement Apparatus*
Angle Verification Kit Including Dial Gauge
30kN Proving Ring
Calibration Spacers Kit
Wearing Plates
Pneumatic Filtration Kit

*(Not available in USA)
### SPECIFICATIONS

#### Servopac
- **Vertical Force**: 0 to 20kN* +/-100N
  - *Vertical force achievable with 1000kPa compressed air supply*
- **Gyratory Angle**: 0 to 3 +/-0.02 (user definable)
- **Gyratory Rate**: 3 to 60 +/-0.1 gyrations per minute (user definable)
- **Number of Gyration**: 0 to 999 (user definable)
- **Vertical Stress**: 10 to 999kPa (user definable)
- **Specimen Height**: 50-170mm (user definable)
- **Specimen Extruder**: Pneumatic ram
- **Specimen Loading**: Easy loading with included accessory kit

#### Platen & Moulds
- **Mould Height**: 270mm
- **Mould Diameter (inside)**: 100mm
  - 150mm
- **Mould Wall Thickness**: 10mm
- **Mould Finish (inside)**: Smoother than 0.4µm RMS
- **Mould Surface Hardness**: Greater than 50 Rockwell C
- **Platen Dimensions**: 99.70 (Dia.) mm
  - 149.70 (Dia.) mm
- **Platen Hardness**: Greater than 50 Rockwell C

#### Dimensions & Weight
- **Dimensions**: 1993* (H) x 450 (W) x 760 (D) mm
  - *Including height of stand*
- **Weight**: 250kg*  
  - *Excluding stand and specimen extraction unit*

#### Services
- **Power**: 230V, 50Hz, 1A
  - 120V, 60Hz, 2A
- **Air Supply**: Clean dry air at 700-1000kPa maximum
- **Air Flow Requirement**: Min. 5 litres

#### Standards
- AASHTO T312/TP4
- AS 2891.2.2
- ASTM D6925
- EN 12697-10
- EN 12697-31

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IPCGlobal Customer Care

At IPC Global we are proud of our products.
We are dedicated to supplying high quality, accurate, affordable, easy-to-use systems for advanced testing of asphalt, soil, unbound granular and other construction materials.

As a valued customer of IPC Global you will receive continuous, expert support and advice for your instrument. Furthermore, we ensure new users are trained in the correct operation of your IPC Global equipment.

For support from our expert customer care team, contact your local IPC Global distributor or IPC Global directly on +61 3 9800 2200 or email techsupport@ipcglobal.com.au.

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