

Gyratory Compactor

Conforms to AS2891



Australian Designed, Made and Owned

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DESCRIPTION

A gyratory compactor is a specialised laboratory device designed to simulate the compaction of asphalt mixtures under controlled conditions. It combines a static vertical load with a gyratory (rotational) movement to compact a specimen within a cylindrical mould. This process generates a conical shape in the specimen that closely mimics the effect of field compaction, allowing engineers to evaluate parameters like density, void content, and overall mix performance before the material is laid down in pavement construction.

Technical Specifications	
Product	Gyratory Compactor
Manufacturer	Civilab Australia
Specimen height range	65-145 mm
Rotation angle	3° for 150 mm, 2° for 100 mm
Vertical load	0~1000 kPa ± 3% adjustable. The factory setting is 240 kPa
Rotation speed	60 ± 5 gyration
Number of gyratory	0-999
Mould	100 mm, 150 mm
Power	220-240 V, 50/60 HZ, 200 Watts
Outside size (mm)	48 x 420 x 1050 (L x W x H)
Mould weight	7.5 kg
Weight	150 kg

OPERATION

- Immediately prior to the time when the asphalt mixture is ready for placement in the mould, turn on the main power for the compactor, preheating the machine for at least 30 minutes to ensure consistent compaction results.
- Verify the machine settings are correct for angle, pressure, and number of gyrations.
- Lubricate any bearing surfaces as needed.
- Once the mixture sample has reached the proper compaction temperature, the sample should be compacted in the gyratory compactor.
- A funnel or other device may be used to quickly place the mixture into the mould.
- Level the mix in the mould and place a paper disc on top (if applicable).
- Place the mould in the gyratory.
- Apply the load to the mixture in the mould.
- Apply gyratory rotation angle to the specimen.
- Input the desired number of gyrations and start the compaction process.
- The gyratory will stop automatically when the specified number of gyrations has been reached.
- Remove the mould from the compactor, if required, and extrude the specimen from the mould. A cooling period of 5 to 10 minutes may be necessary with some mixtures. Remove the paper disc while the specimen is still warm to avoid excessive sticking.

MAINTENANCE

The gyratory compactor requires regular cleaning and lubrication.

NOTE: Use any degreasing cleaner and a clean rag to clean metal parts.

- Vacuum the mould tray and compaction chamber.
- Ensure that the exterior surface of the mould is free of dirt and asphalt residue.
- Lubricate the ram head with Magnalube-G.
- Wipe or scrape away any asphalt residue that has adhered to the mould tray, lower carriage plate, ram head, upper carriage assembly, or upper puck plate.
- After cleaning, wipe the areas with a clean and dry cloth.
- Check the parts for excessive wear or damage:
 - Check for deep gouges, pitting, or chipping on the lower carriage plate, upper carriage assembly, and Ram head, ensuring that the surface is reasonably flat.
 - Check the mould positioning pins for wear or flattening.
 - Check for wear or flattening on mould positioning pins.
 - Check for pitting or chipping on the mould upper and lower flanges. Replace if required.

SAFETY INFORMATION

To work safely with the Gyratory Compactor and minimise the operator risk, the following safety precautions should be considered:

- Wear safety glasses and safety shoes when preparing an asphalt specimen.
- Wear heat-resistant gloves when handling any hot substance.
- Remove all objects, except the mould and asphalt specimen, from the compaction chamber before pressing the **START** key.
- Do not wear loose clothing or jewellery when operating the compactor.
- Keep hands away from the gyratory compactor when the unit is in motion.
- With the service panels removed, the gyratory compactor poses an electrical hazard. Unplug the gyratory compactor before removing the panels.



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