

DATA SHEET

Gyratory Compactors for Cement and Concrete - GALILEO



Concrete gyratory compactor

General description

This method, very popular in Scandinavia, is used for mix design and quality control mainly in concrete products plants, where low workable and zero slump concrete is used (for such products as hollow-core slabs, tubes and paving blocks).

The method is used for: mix design simulating selected production processes specimen preparation for strength test (fresh and cured) research of mix related phenomena (workability, curing time, admixtures etc.).

Compaction is achieved by the simultaneous application of a low-static compression and a shearing action, which results in the motion of the centre-line of the test piece, which generates a conical surface of revolution while the ends of the test piece remain approximately perpendicular to the axis of the conical surface.

The machine is equipped with 100 mm diameter mould with stripping accessory and processes in real time the evolution of sample density versus the number of cycles and plots the compaction curve.

It's possible to upgrade the machine in order to measure the Shear during compaction in kN/ m². Shear is a measuring parameter useful for a deeper selection/ dosage and tuning of no-slump concrete components. For instance, a very small change in water and plasticizer can shift notably the positioning of max shear value along the compaction curve. Increase of water and plasticizer generally shift the max shear value toward the first gyratory cycles; instead the decrease of water and plasticizer shift the max shear toward the end of compaction.

Main features

- **Ideal for mix design of the various types of No-Slump Concrete mixtures requested for production of: paving blocks, concrete paving slabs, rolled compaction concrete, masonry blocks, curbstones, roofing tiles, sewage pipes, hollow core slabs, structural members, extruded fresh concrete elements, concrete road construction with slip form paving finishers, in general directly stripped products.**
- **Conform to Scandinavian standard NT BUILD 427 - Concrete, fresh: Compactability with IC-tester (intensive compaction tester).**
- **Load cell fitted directly on the vertical actuator for accurate load measurement and feedback control**
- **User defined axial stress and speed of rotation**
Easy control using the integrated 7" colour touch-screen control panel or connected PC.
- **Real-time direct shear and torque resistance measurement. Automatic calculation of the compaction energy, an important parameter for research (optional).**
- **Automatic weight acquisition and density calculation with the integrated balance (optional).**

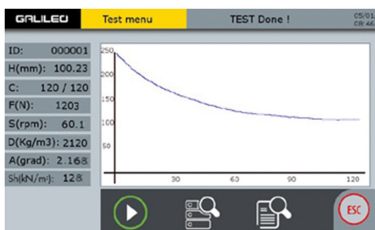
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Standards

- NT Build 427

Specifications

Model	54-C20C0x
Consolidation pressure	10 – 1000 kPa for 150 mm diam. 25 – 2200 kPa for 100 mm diam.
Gyratory motion and Vertical load	Electromechanical
Angle adjustment	Manual (included) / Motorized (optional)
Gyratory angle range	0 - 3° ±0.01
Gyratory angle measurement	Angle measured and displayed during test plus closed loop control
Zero angle at the end of the test	Yes (optional)
Speed of gyration	5 – 120 rpm
Number of gyrations	0 -9999
Integrated Shear measurement	Yes (optional)
Moulds dimensions	100 and 150 mm diam., 250 mm height.
User interface	7" 16:9 Touch screen color display (PC for data analysis)
Connection	LAN - Ethernet
PC Software	Yes (optional)
Extruder	Manual (included) / Motorized (optional)
Balance	Yes (optional)
Minimum specimen height	50 mm
Maximum specimen height	Up to 200 mm depending on mix type
Height accuracy	Better than 0,1 mm
Suitable for water pouring test	Yes
Dimensions (w x d x h)	480 x 900 x 2150 mm
Weight approx..	420 kg

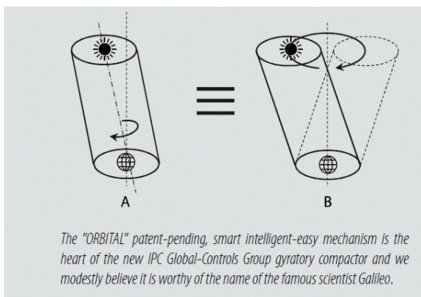


Test menu

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Profile name:	NTB 427
Mould diameter (mm):	100
Load (KPa):	180
Angle (grad):	2.17
Speed (rpm):	60
Cycles number:	128
Extra cycles:	0
Cycles zero degree:	0

Test set up



Schematic view of gyratory compaction

Products

54-C20C02

GALILEO Fully Electromechanical Concrete Gyratory compactor. Conforming to Nordtest Build 427. 230 V / 50-60 Hz / 1 ph.

54-C20C04

GALILEO Fully Electromechanical Concrete Gyratory compactor. Conforming to Nordtest Build 427. 110 V / 60 Hz / 1 ph .

Accessories and consumables

78-PV0250/2

Hardened cylinder mould 150 mm dia complete with top and bottom plates.

78-PV0250/3

Distance piece 150 mm dia x 50 mm for low samples

54-C20C02/SW

PC software, suitable for Galileo Concrete Gyratory compactor

54-C20C02/UP1

Shear measurement system, suitable for Galileo concrete gyratory compactor (to be specified at time of order)

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54-C20C02/UP2

Integrated electromechanical extruder, suitable for Galileo concrete gyratory compactor (To be specified at time of order)

54-C20C02/1

100 mm mould for fresh concrete gyratory compactors

54-C20C02/2

Accessories to compact dia 150 mm specimens. Mould not included.

54-C20C02/UP3

Electronic balance 30 kg cap. x 1 g to weight the sample.

54-C20C02/UP4

Upgrading for the motorized regulation of the gyratory angle