

# Advanced tableting research with affordable in-die dynamic compaction analysis for industry and academic professionals

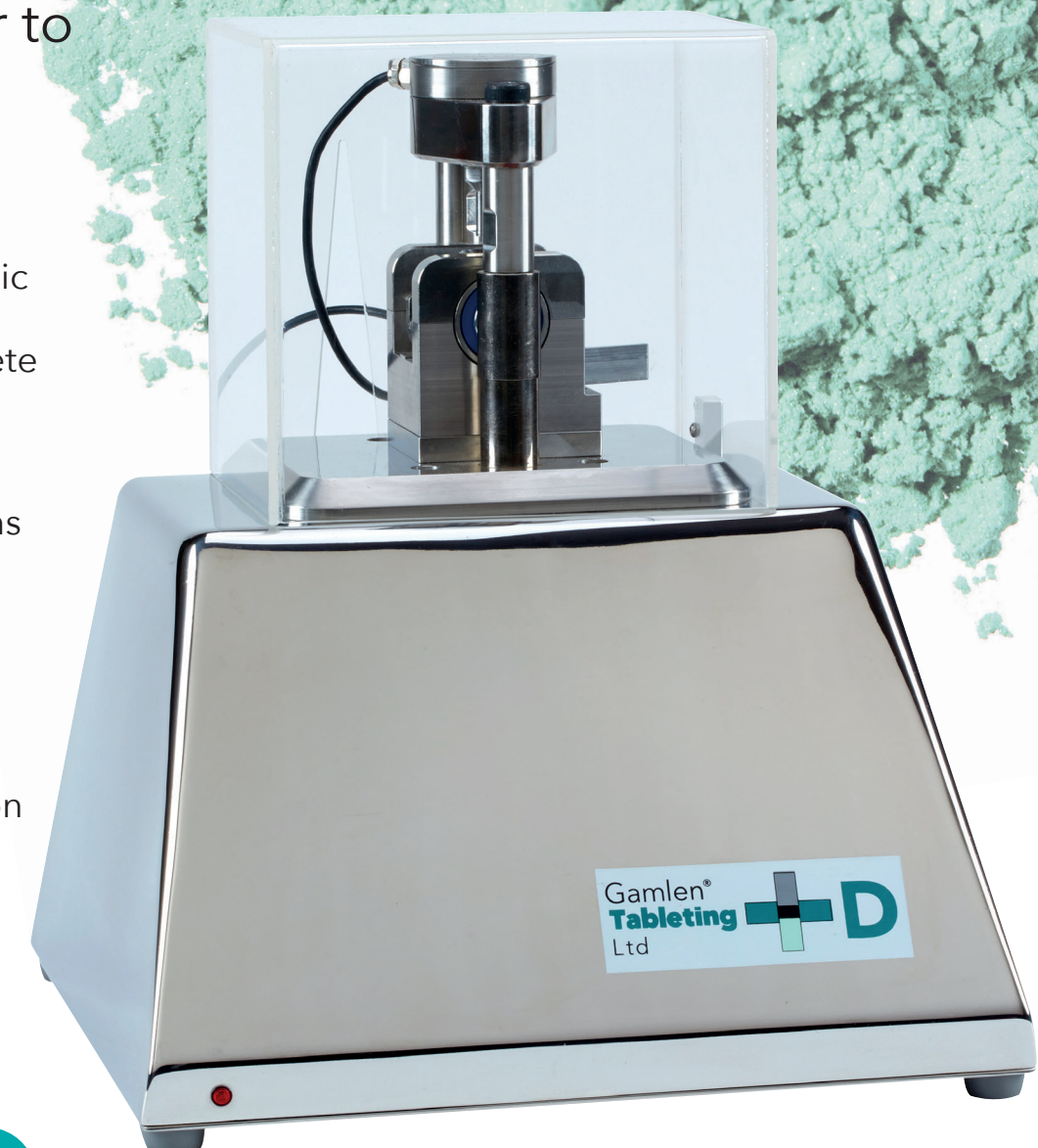
See the effect of tablet formulation and process variations prior to manufacturing

Includes in-die and out-of-die analysis software with Dynamic Powder Compaction capability for complete material testing

Dwell time control: 100 ms - 60 s in 10 ms increments

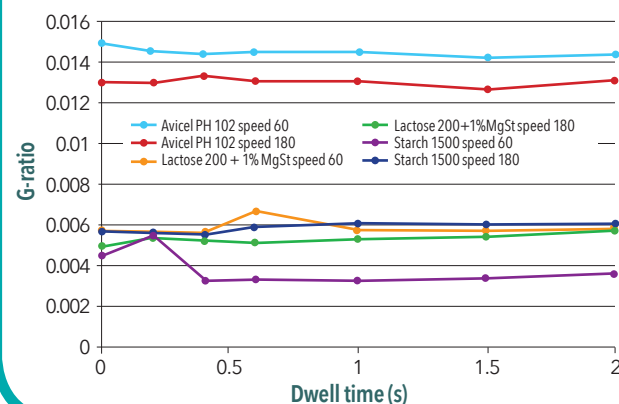
Tablet detachment and ejection with full profiles

Benchtop compaction analysis including in-die and out-of-die measurements with dwell time control

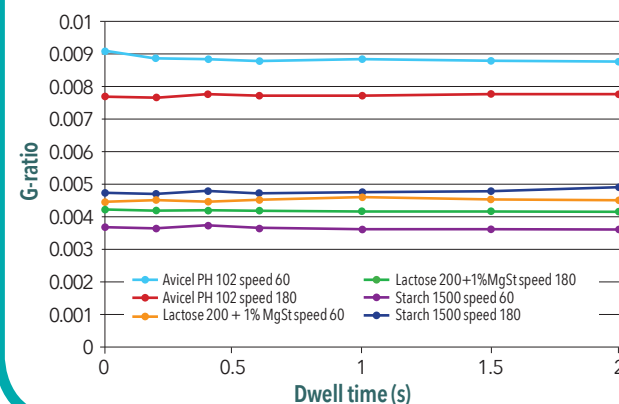


**Gamlen D series**

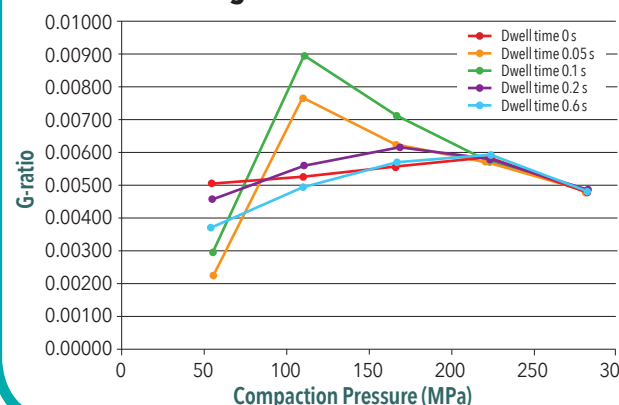
**Effect of dwell time on G-ratio at 138 MPa for Avicel PH102, Lactose and Starch 1500 at 1mm/s and 180mm/min\***



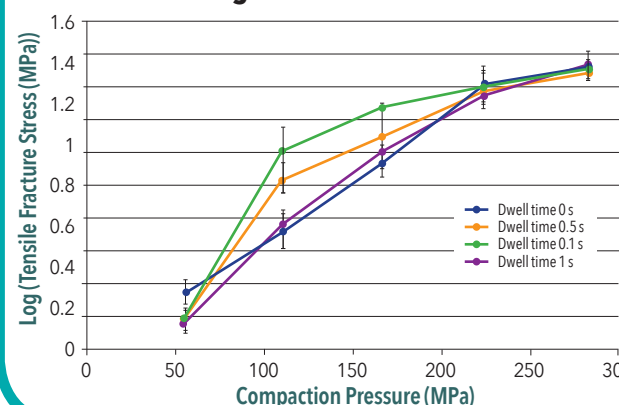
**Effect of dwell time on G-ratio at 250 MPa for Avicel PH102, Lactose and Starch 1500 at 60 and 180mm/min\***



**G-ratio plot for starch granulation at a range of dwell times**



**Tabletability of starch granulation at a range of dwell times**



\*Speed 60 = 1mm/s Speed 180 = 3mm/s

## D SERIES SPECIFICATION

Tablet punch size	2 - 15 mm diameter
Material capacity of the die	2 - 400 mg
Compaction rate	0.01 - 3 mm/s
Data capture rate	10-1000 Hz
Maximum load	500 kg
Load cell travel	30 mm
Test height	Depends on pillar extension length. Maximum extension of 300 mm
Detachment System punch size range	3-6 mm
Load selection	User selected by computer interface
Load cell resolution	1:5000
Calibration	Dead weights in kg or proving ring
Power requirements	90-240 VAC 3.15A
Instrument dimensions	310 x 270 x 375 mm
Instrument weight	16 kg
Shipping size	390 x 350 x 390 or 460 x 430 x 480 mm
Shipping weight approx	20 kg

**Have a question? Like a quotation? Want to see a demonstration?**

Then email [info@inos.in](mailto:info@inos.in) or call us now on **+91-9099-028296**

Inos Technologies Pvt. Ltd. 452/3/4/5, C Block, Sobo Center, Gala Gymkhana Road,  
Off S.P.Ring Road, South Bopal, Ahmedabad - 380058, Gujarat, India. PH: +91-2717-408296

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# Speed up formulation development and process optimisation with Gamlen® D series

The Gamlen® D series provides complete analysis of the compaction process using an affordable benchtop system. It measures compaction force, punch position, and ejection force. Compaction rate is 0.01-3 mm/s with 100 ms - 60 s dwell time. Also available with optional fully integrated detachment force measurement for punch and die sets from 3-6 mm.

Benchtop compaction analysis including in-die and out-of-die measurements with dwell time control

Now you can see the effect of formulation and process variations on tablet compaction prior to manufacturing. The Gamlen® D series automatically generate tablet tensile fracture stress, compactibility, compressibility and tabletability plots with no user input needed when used with the Gamlen® Tablet Tensile Analyzer. You can also generate Kawakita and Heckel plots with 1 µm displacement accuracy.

## Dynamic Powder Compaction Analysis

Using our unique data capture system you can actually see what is happening during the compaction process. Our software measures material plasticity and elasticity for each compaction event.



TABLET TENSILE ANALYZER



LAPTOP WITH ANALYTICAL SOFTWARE



ANALYTICAL BALANCE



ELECTRONIC MICROMETER

## OVERVIEW

The Gamlen® D series includes the Gamlen® Powder Compaction Analyzer and Tablet Tensile Analyzer (TTA).

## INTEGRATED DETACHMENT FORCE MEASUREMENT

The new rotatable die system simplifies operation and generates important new data at the same time. The operational sequence is completed entirely on the instrument using the load cell to detach the tablet from the lower punch as well as eject it. The result is detailed measurement of tablet compaction, detachment and ejection behaviour.

## TABLET TENSILE ANALYZER

The TTA comes with a 4-figure analytical balance and electronic micrometer. The included software runs on a laptop and displays all data for automatic analysis via a spreadsheet.

The Tablet Tensile Analyzer has been specially developed to simplify the evaluation of tablet samples made on the Gamlen® D series.

Tablet fracture is performed at slow speed to generate true tensile fracture stress measurements. The computer control system captures all data and transfers it to a spreadsheet for automatic analysis.

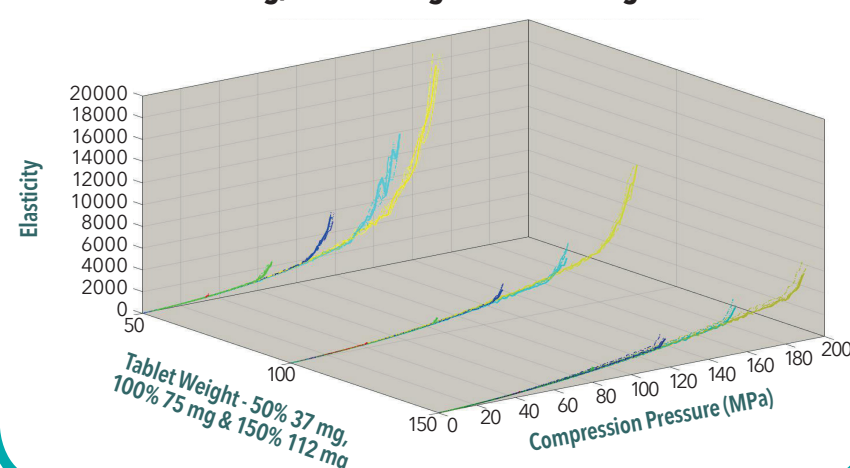
## Tablet measurements

Weight  
Thickness  
Diameter  
Breaking strength

## Calculated values

Tablet density  
Tablet tensile fracture stress  
Solid fraction  
G-ratio

Elasticity vs Compression Pressure (MPa) - Avicel 101 50% 37mg, 100% 75 mg & 150% 112 mg



Plasticity vs Compression Pressure MPa - Avicel 101 50% 37 mg, 100% 75 mg & 150% 112 mg

