

Gamlen® D500

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

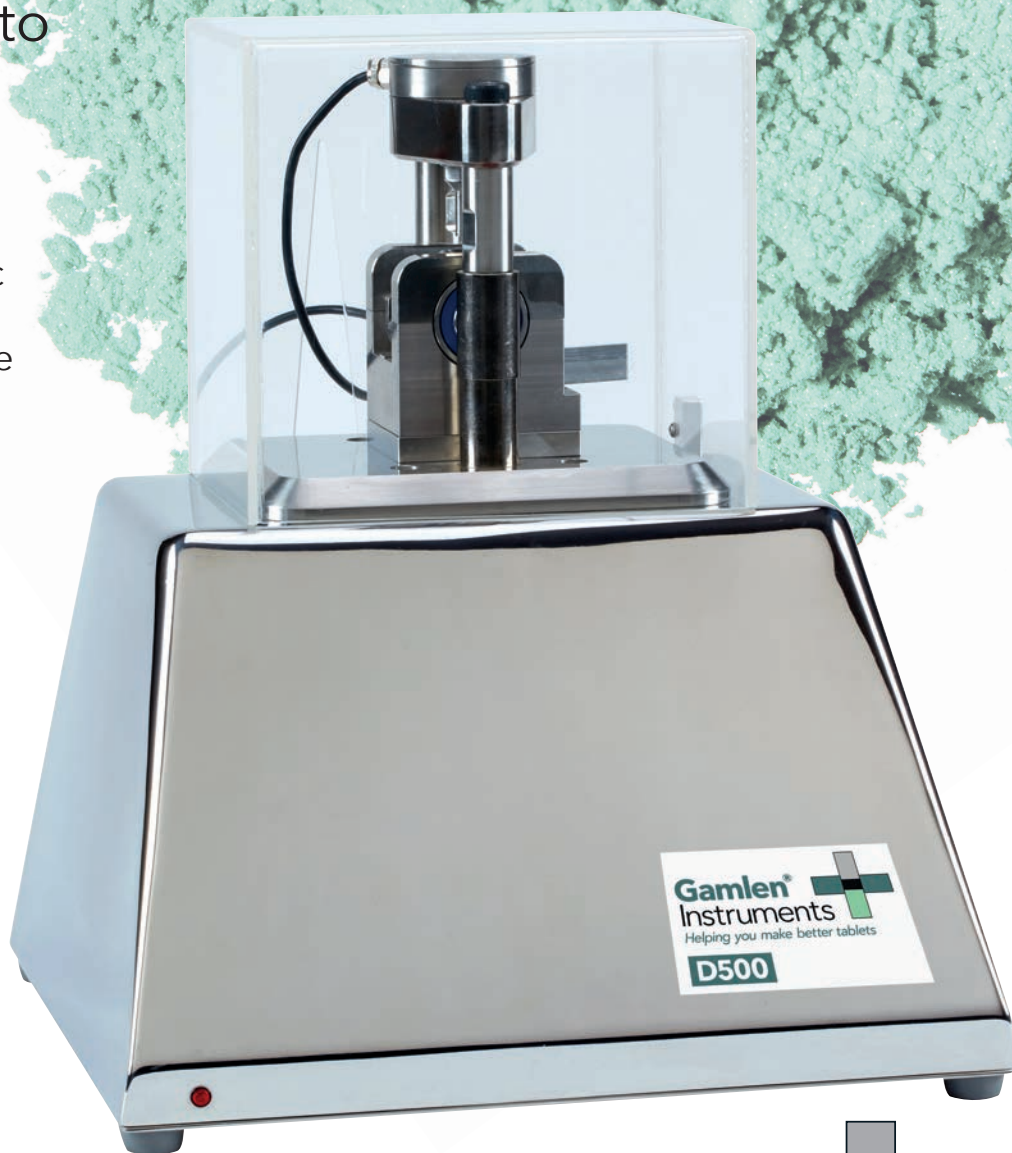
See the effect of tablet formulation and process variations prior to manufacturing

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

Complete data processing package when used in conjunction with Gamlen® Dashboard software



**Gamlen®**   
Instruments  
*Helping you make better tablets*

# SPEED UP FORMULATION DEVELOPMENT AND PROCESS OPTIMISATION WITH GAMLEN® D500

The Gamlen® D500 provides complete analysis of the compaction process using an affordable benchtop system. It measures compaction force, punch position, detachment 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, is also possible.

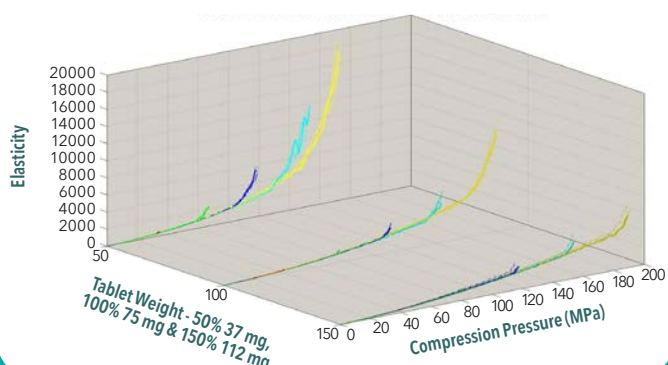
Now you can see the effect of formulation and process variations on tablet compaction prior to manufacturing. The Gamlen® D500 automatically generate tablet tensile fracture stress, compactibility, compressibility and tableability plots with no user input needed when used with the Gamlen® Tablet Tensile Analyzer and the Gamlen® Dashboard.

Plots of G-ratio (the ratio tablet tensile fracture stress/compaction pressure) make it easy to visualise the effect of compaction pressure on tableability.

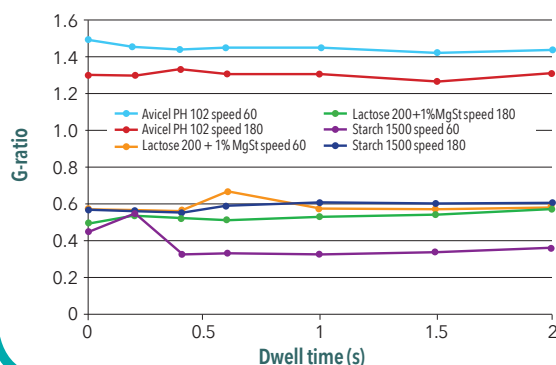
## Dynamic Powder Compaction Analysis

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.

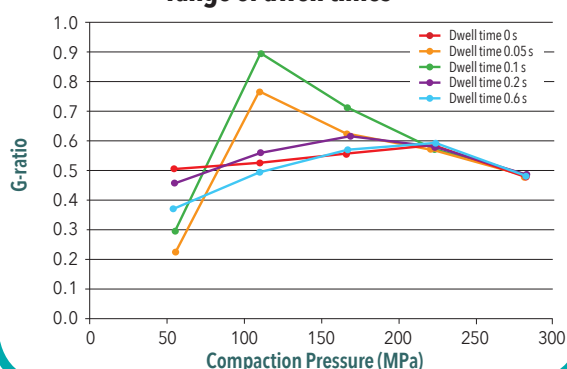
**Elasticity vs Compression Pressure (MPa) - Avicel 101 50% 37mg, 100% 75 mg & 150% 112 mg**



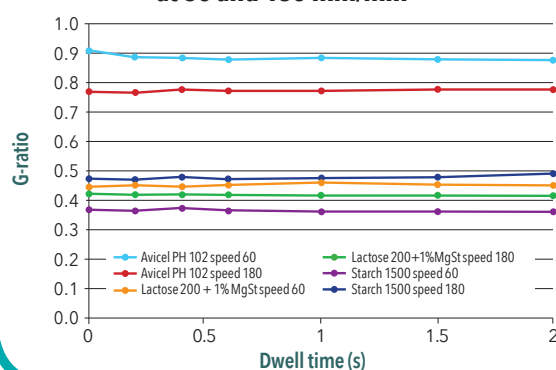
**Effect of dwell time on G-ratio at 138 MPa for Avicel PH102, Lactose and Starch 1500 at 1mm/s and 180mm/min\***



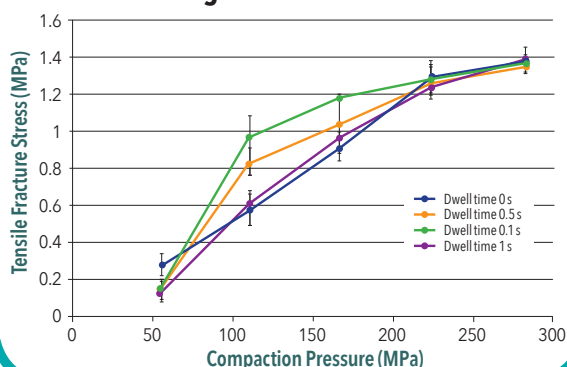
**G-ratio plot for starch granulation at a range of dwell times**



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



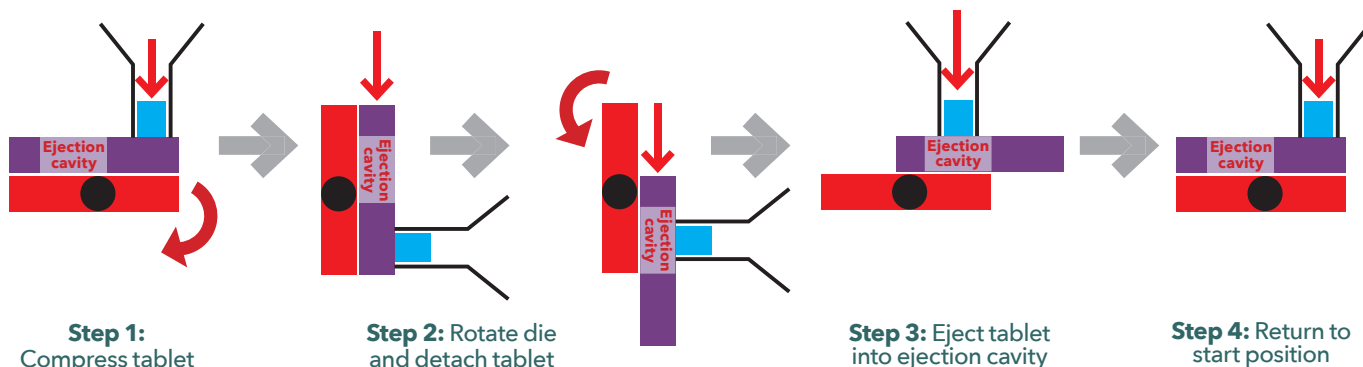
**Tableability of starch granulation at a range of dwell times**



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

## INTEGRATED DETACHMENT FORCE MEASUREMENT

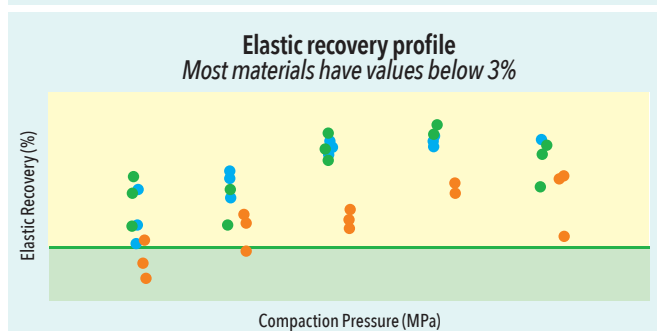
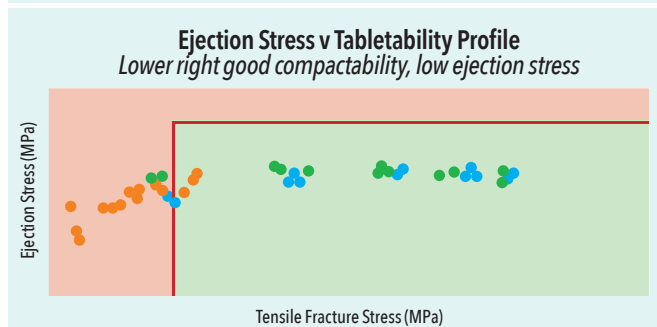
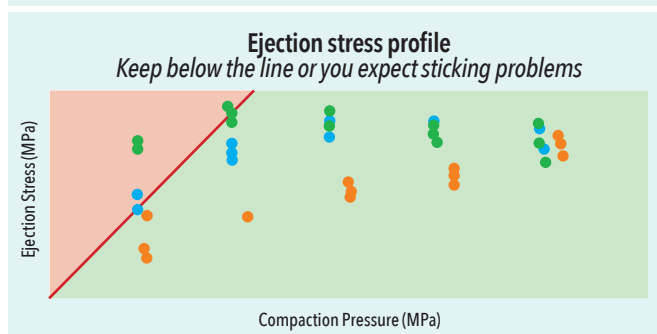
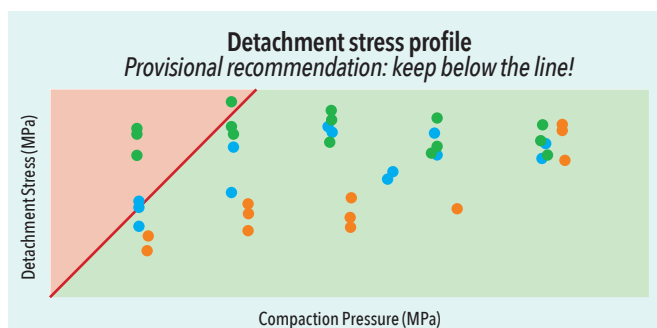
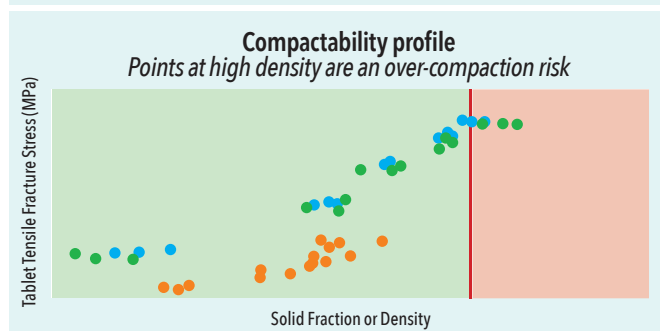
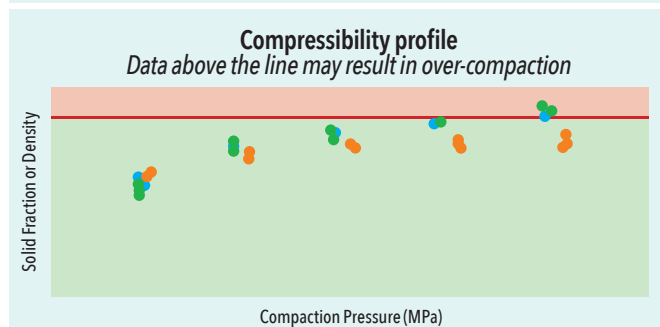
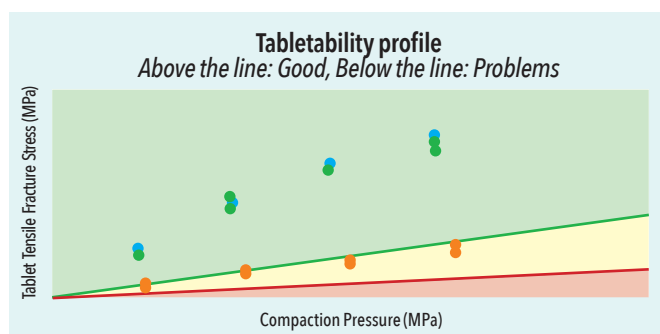
The new rotatable die system simplifies operation and generates important new data at the same time. The operational sequence is completed entirely on the instrument using the load cell to detach the tablet from the lower punch as well as eject it. The result is detailed measurement of tablet compaction,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



## Optional extras

### THE GAMLEN® DASHBOARD

The Gamlen® Dashboard offers a complete analytical system for measuring all tablet Critical Quality Attributes including the tests set out in USP<1062> Tablet Compaction Characterization.



**KEY** • Batch A • Batch B • Batch C

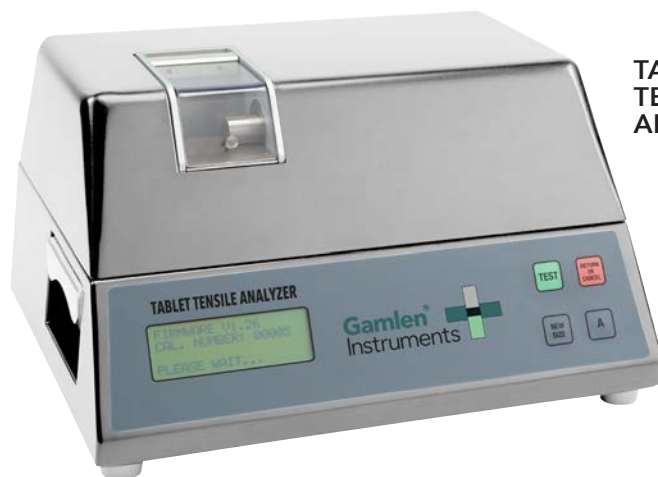
Good Borderline Bad

## TABLET TENSILE ANALYZER AND MICROMETER

The Tablet Tensile Analyzer (TTA) has been specially developed to simplify the evaluation of tablet samples made on the Gamlen® D500. It is supplied with an optional electronic micrometer.

Tablet fracture is performed at slow speed to generate true tensile fracture stress measurements.

The computer captures tablet diameter and fracture load and transfers it to a spreadsheet for automatic analysis.



TABLET TENSILE ANALYZER



ELECTRONIC MICROMETER

### TABLET MEASUREMENTS

Weight  
Thickness  
Diameter  
Breaking strength

### CALCULATED VALUES

Tablet density  
Tablet tensile fracture stress  
Solid fraction  
G-ratio

## GAMLEN® D500 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 [michael.gamlen@gamlentableting.com](mailto:michael.gamlen@gamlentableting.com) or call us now on **+44 115 912 4271**

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