

Gamlen® D-Series
DEVELOPMENT

Gamlen® D-Series Powder Compaction Analyzers

Fully automated compaction
analysis of powder samples



Can you tell the difference?

Now anyone can - with the Gamlen® Dashboard

Tabletability

Will your product make a strong but porous tablet?

Maximising tabletability is a key objective formulation and process development objective.

Compactibility

Is your product at risk of over-compression.

Products with very high density are much more likely to result in capping.

They are also slower to dissolve.

Lubrication problems

Measurement of take-off (detachment) and ejection force gives a warning of picking, sticking and capping. Products with very high density are much more likely to result in capping and are slower to dissolve.

Elastic recovery

Elastic recovery is an important tablet property which determines the tendency of the product to cap, and must be minimized for a good product.

Representative of production behaviour

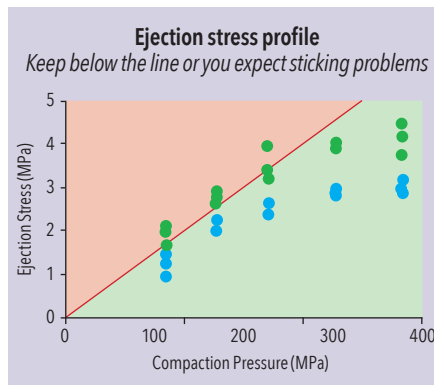
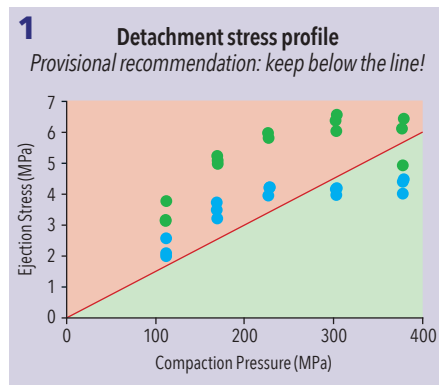
Our system has been validated against numerous manufacturing systems including Fette, Killian and Kikisui.



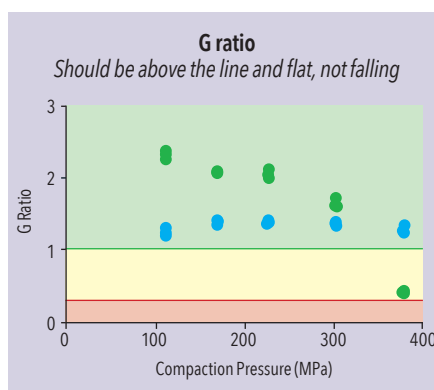
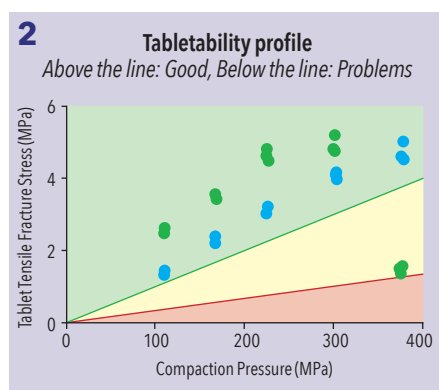
Supplied with the Gamlen® Dashboard Software

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. The system also reports other important parameters for compaction including elastic recovery, and the ejection stress/tablet strength profile.

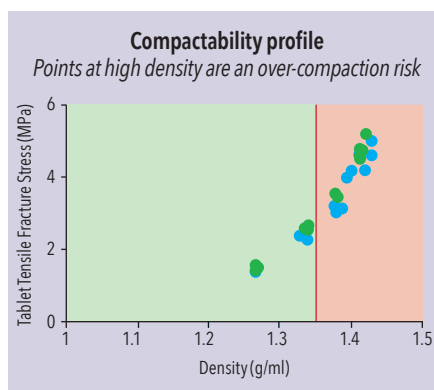
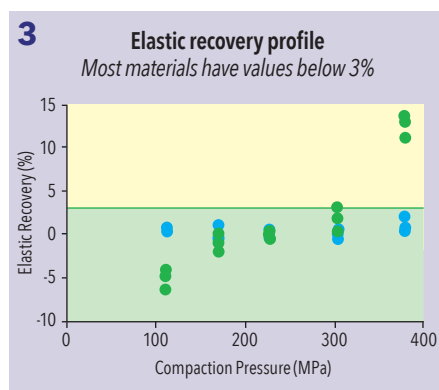
TYPICAL DATA



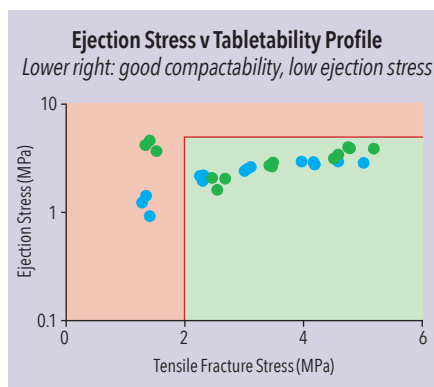
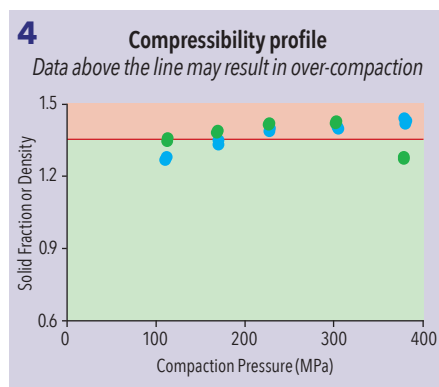
1 Material 1 showed low detachment and ejection stresses at all pressures, with very little effect of compaction pressure. Material 2 was borderline for acceptability of ejection and detachment stresses, and Material 3 showed excessive values of both ejection and detachment.



2 The tableability of Sample 1 is substantially higher than the tableability of the other samples. In addition, the tensile fracture stress rises disproportionately with the increasing compaction behaviour.



3 The compressibility plots showed that the density of sample 2 was consistently higher than the density of samples 1 and 3 at all pressures. The compactability plots showed that materials 1 and 3 lie on the same tensile fracture stress/density line which indicates great similarities between them. The manufacturer indicated that the main difference between them is the particle size.



4 The elastic recovery of materials 1 and 3 were normal, in the range 0-3%. However material 2 showed negative elastic recovery which means that the tablet contracts after ejection.

KEY ● Ludipress 1% MgSt ● Ludipress 1% SSF
 Good
 Borderline
 Bad

Use compaction curve analysis for high sensitivity differentiation using machine learning system

Generate all USP <1062> compaction analysis data

Use the Dashboard to...

... measure tablet Critical Quality Attributes

... assess how likely the product is to cause problems in manufacture

... study the effect of

... Excipients - product composition, formulation

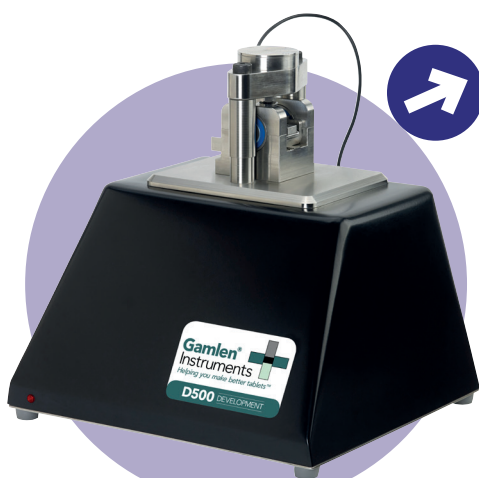
... Process type - direct compression VS dry granulation

... Process parameters - moisture content, mixing time etc.

- Simple setup
- No maintenance
- Minimal training needed
- Generate product profiles in minutes
- Portable and easy to move

The Gamlen® D-Series Automated Compaction Analysis System

LAB NOTEBOOK SYSTEM WITH OPTIONAL AUTOMATED DATA CAPTURE



MAKE THE TABLET
Gamlen® D500
or D1000



MEASURE THE TABLET
Electronic Micrometer
and Balance



BREAK THE TABLET
Gamlen® Tablet Tensile
Analyzer (TTA)



COMPUTER CAPTURES ALL DATA
Gamlen® Dashboard System

Tablet Tensile Analyzer and Micrometer

The Tablet Tensile Analyzer (TTA) has been specially developed to simplify the evaluation of tablets and is supplied with an electronic micrometer.

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

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



Tablet Tensile Analyzer



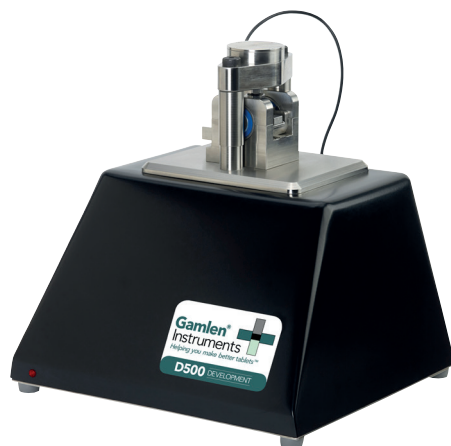
Electronic Micrometer

TABLET MEASUREMENTS

- Weight • Thickness • Diameter
- Breaking strength

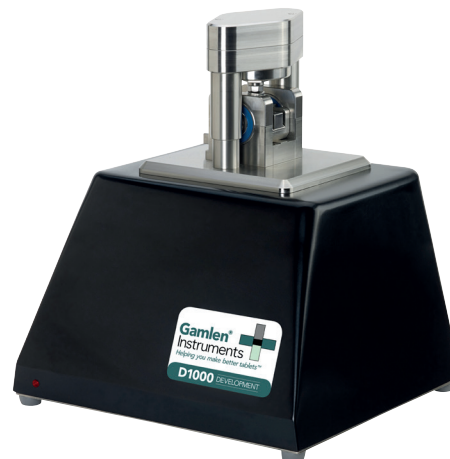
CALCULATED VALUES

- Tablet density • Solid fraction
- Tablet tensile fracture stress • 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: 200 Hz |
| Maximum load: 500 kg |
| Load cell travel: 30 mm |
| Detachment System punch size range: 3-6 mm |
| Load selection: User selected by computer interface |
| Load cell resolution: 1:5000 |
| Calibration: Dead weights 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 |



GAMLEN® D1000 SPECIFICATION

| |
|---|
| Tablet punch size: 2 - 15 mm diameter |
| Material capacity of the die: 10 - 1000 mg |
| Compaction rate: 0.01 - 3 mm/s |
| Data capture rate: 200 Hz |
| Maximum load: 1000 kg |
| Load cell travel: 40 mm |
| Detachment System punch size range: 3 - 10 mm |
| Load selection: User selected by computer interface |
| Load cell resolution: 1:5000 |
| Calibration: Dead weights or proving ring |
| Power requirements: 80-260 VAC 3.15A |
| Instrument dimensions: 320 x 285 x 388 mm |
| Instrument weight: 24kg |
| Shipping size: 390 x 350 x 390 or 460 x 430 x 480 mm |
| Shipping weight approx: 28kg |

Have a question? Like a quotation? Want to see a demonstration?
Then email michael.gamlen@gamlentableting.com or call us now on **+44 115 912 4271**

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