

Gamlen® D series

Complete powder compaction analysis quickly and easily

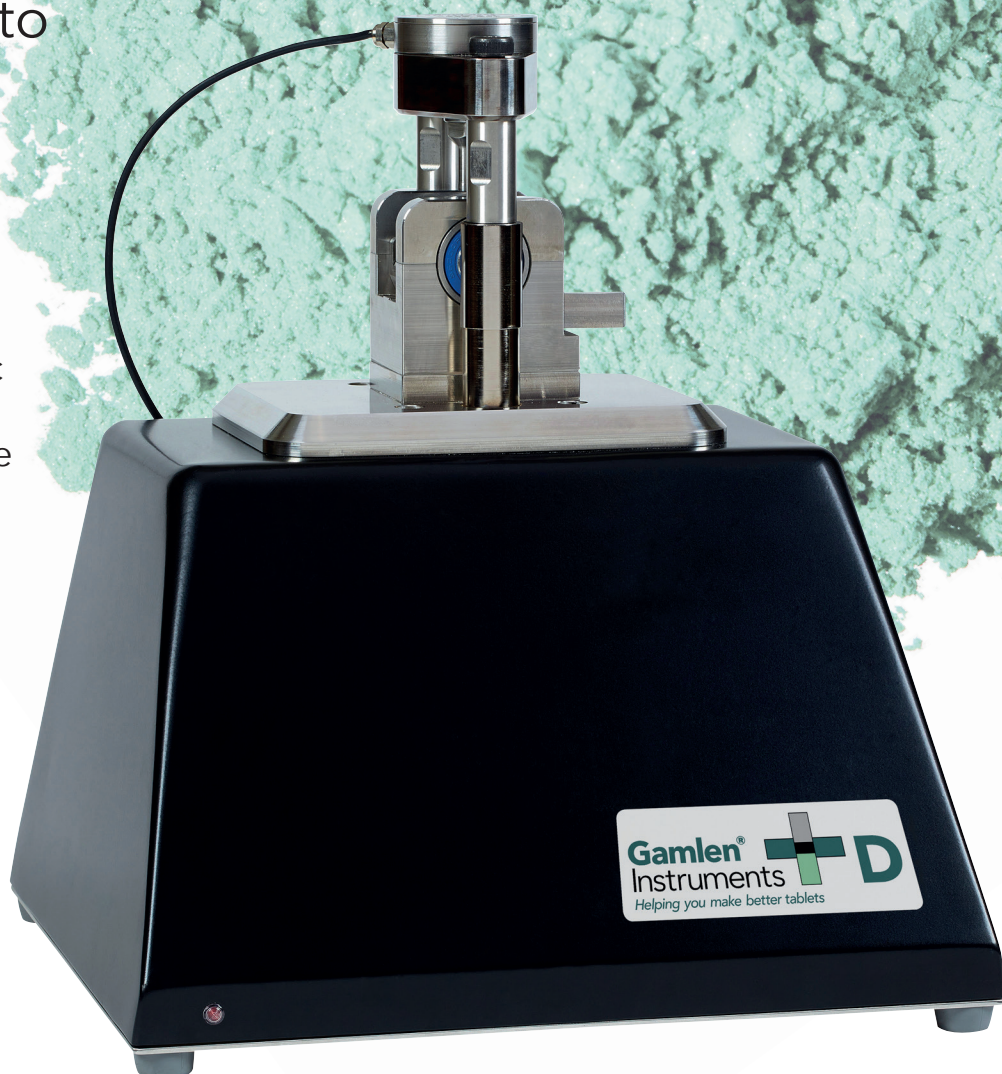
See the effect of tablet formulation and process variations prior to manufacturing

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

Suitable for routine use in Production QC for improved in-process control

Tablet detachment and ejection with full profiles

USP <1062> plus detachment, elastic recovery, and density measurement



TABLET MEASUREMENTS

Weight
Thickness
Diameter
Breaking strength

CALCULATED VALUES

Tablet density
Tablet tensile fracture stress
Solid fraction
G-ratio

Gamlen®
Instruments
Helping you make better tablets

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 tableability 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.

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

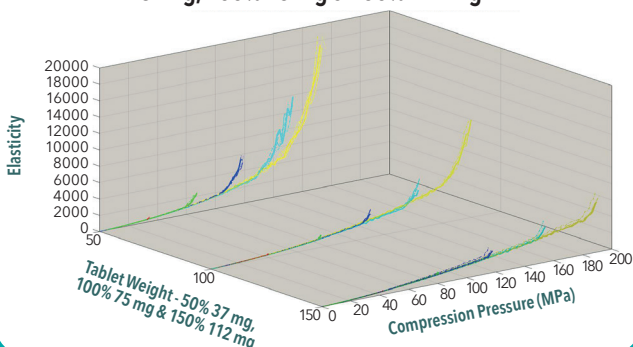
The TTA comes with a 4-figure analytical balance and electronic micrometer. The included software runs on a laptop and displays all data for automatic analysis via a spreadsheet.

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

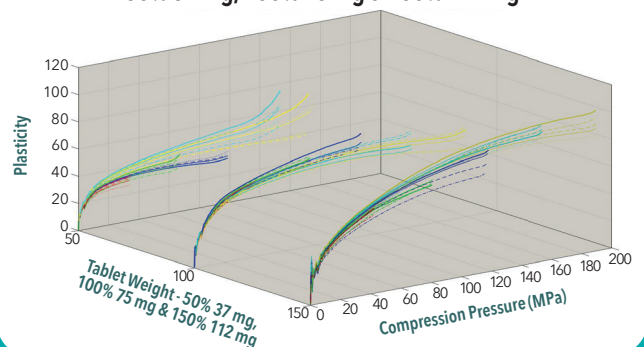
Tablet fracture is performed at slow speed to generate true tensile fracture stress measurements. The computer control system captures all data and transfers it to a spreadsheet for automatic analysis.



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

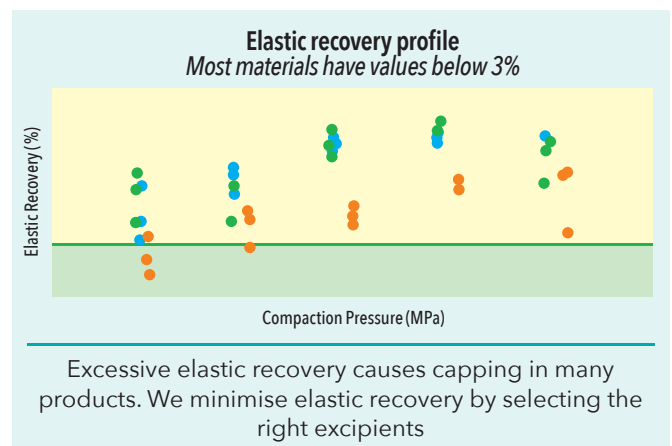
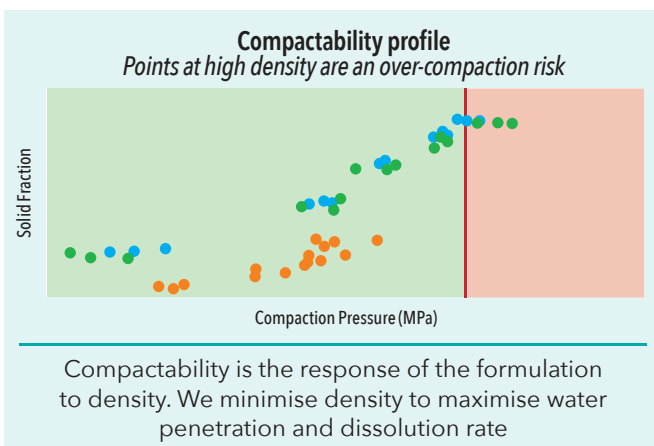
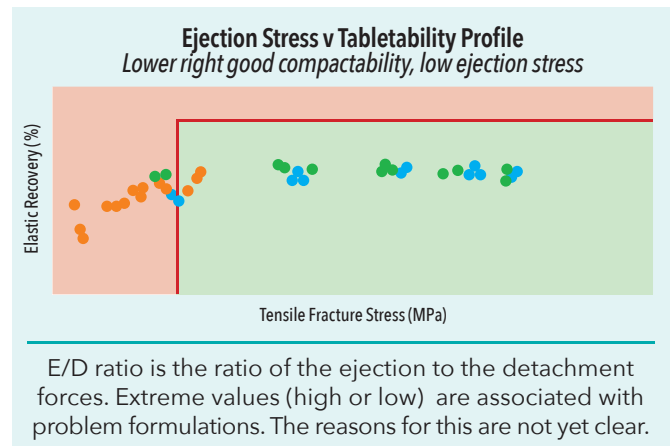
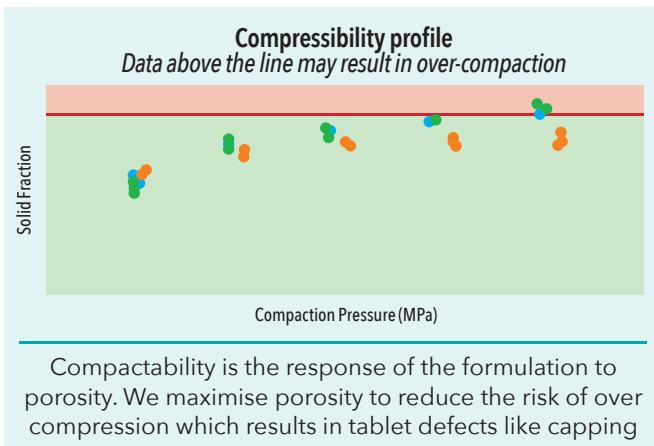
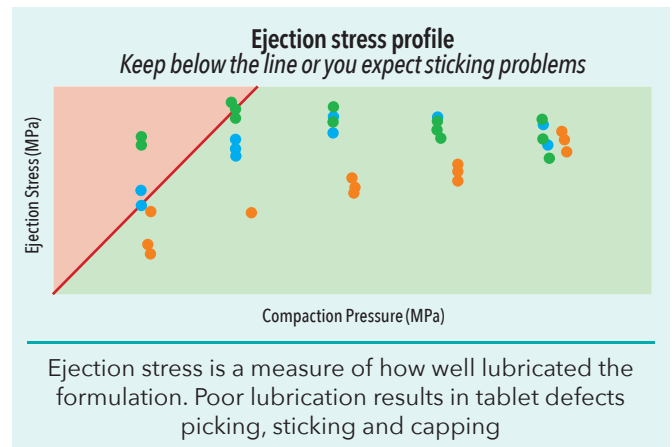
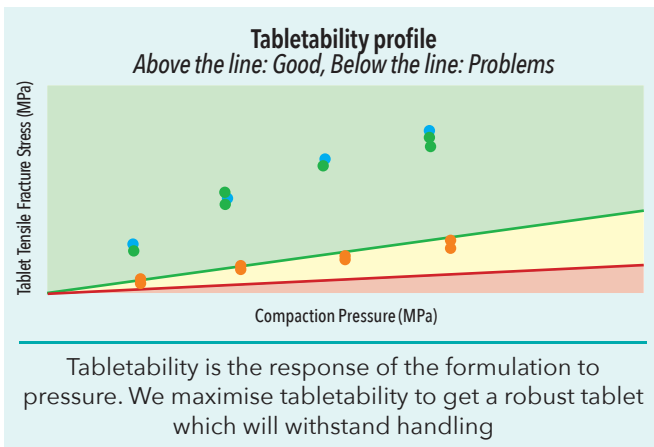
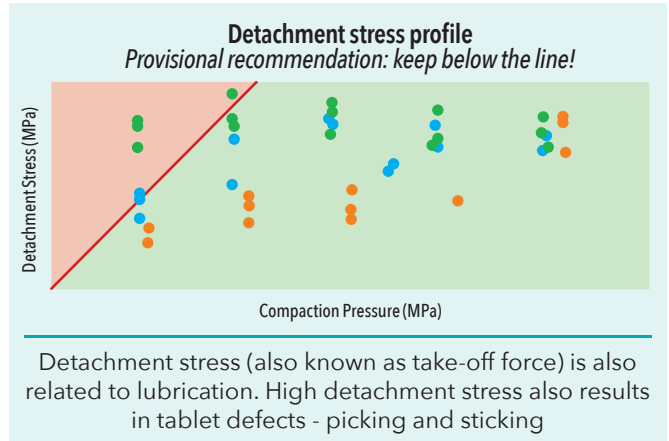


Plasticity vs Compression Pressure MPa - Avicel 101 50% 37 mg, 100% 75 mg & 150% 112 mg



The Gamlen® Dashboard

The Gamlen® Dashboard uses our unique powder assessment system to display how a formulation compares with industry norms for key parameters of compaction, lubrication and elastic recovery. The display shows where your formulation sits in the universe of compacted products. The default configuration shows industry norms; the display can be configured to show your organisation's particular requirements at no extra cost.



KEY • Client Sample, Batch A • Client Sample, Batch B • Client Sample, Batch C ■ Good ■ Borderline ■ Bad

How do we do it?

DURING COMPACTION

Compaction force
Detachment (take-off) force profile
Ejection force profile
E/D Ratio
Compressibility

AFTER COMPACTION

Tabletability
Compactibility
G-ratio
Elastic recovery

Using the Dashboard to...

... measure the eight Critical Quality Attributes in powder compaction

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

These need to be looked together to form an overall impression of the product

... study the effect of

... APIs - effect of source change on product quality

... Excipients - product composition .

... Process type - direct compression vs dry granulation

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

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

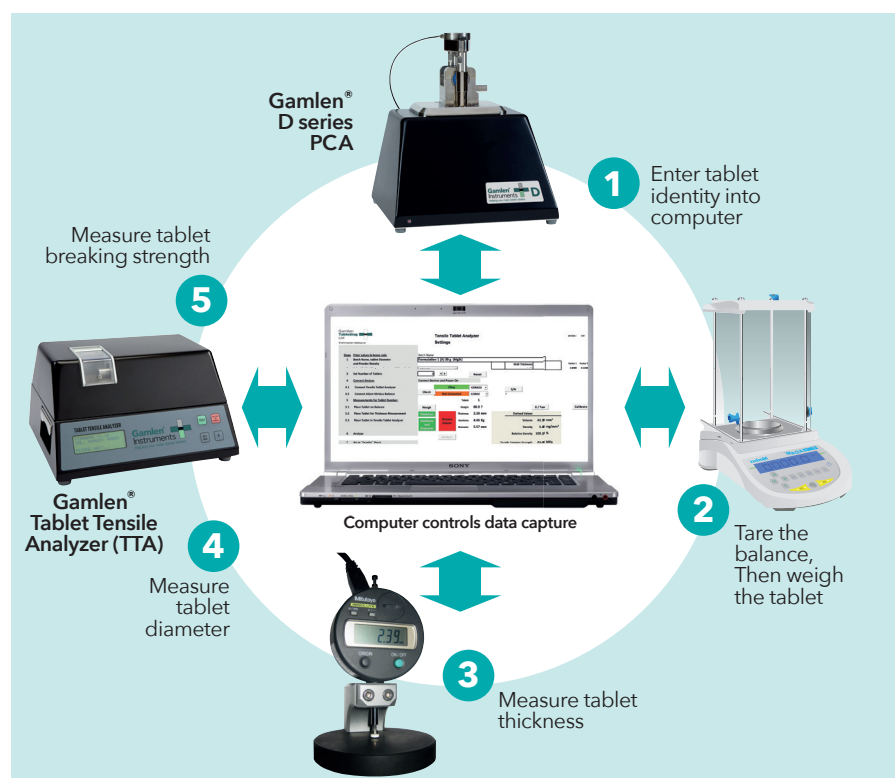
Power requirements
90-240 VAC 3.15A

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 michael.gamlen@gamlentableting.com or call us now on **+44 115 912 4271**

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