LORDERAN

TECHNICAL DATASHEET
DS-PJ-2D-EN · REV. B · NOV 2026

TABLET TESTING

2-in-1 Hardness & Friability Tester

Measure how much force a tablet withstands, then how well it resists tumbling — **2–199.9 N** and **two drums at 25 rpm**, one controller.

MODEL **PJ-2D**





DRUMS AND HARDNESS STATION



CONTROL PANEL

2 TESTS IN ONE	**2–199.9 N** HARDNESS RANGE	**499.9 N** 50 KG OPTION	**25 rpm** FRIABILITY, ±1 RPM
10–900 r ROTATION COUNT	**2** DRUMS	**156 mm** TABLET FALL	**15 kg** WEIGHT

01 **Pressure-sensor hardness**
Digital readout on the LCD.

02 **Two friability drums**
Automatic speed and turn count.

03 **USP / EP**
Compliant with USP and EP.

APPLICATIONS

QC release · Press set-up · Formulation R&D · Teaching

Warranty
Major defects: full refund or replacement.

Free DDP shipping
Duties paid, no surprise import charges.

30-day returns
Most new, unopened items.

PRODUCT OVERVIEW

Break force and abrasion, side by side

One bench, two essential tablet tests. The PJ-2D measures **hardness** with a high-precision pressure sensor and runs **friability** in two drums at 25 rpm, with automatic control of speed and count.

Tablets are fed by hand and compressed automatically, with continuous measurement, automatic display, latching and reset. Hardness from 2 to 199.9 N, or 499.9 N with the 50 kg option.

HOW IT WORKS

01 Feed
Place the tablet by hand.

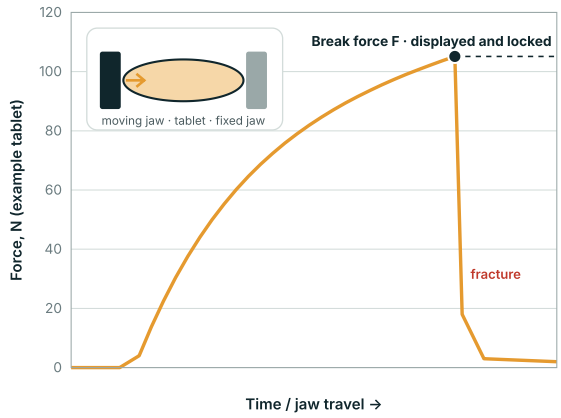
02 Auto press
Compressed automatically; probe travel 3–40 mm.

03 Read
Break force on the LCD, latched and reset.

04 Tumble
Two drums, 25 rpm, 10–900 rotations, 156 mm fall.

05 Weigh
Friability from the weight lost.

Break force. Force rises until the tablet fractures; the peak is recorded. Illustrative curve.



HARDNESS
2–199.9 N
499.9 N option

FRIABILITY
25 rpm
±1 rpm

COUNT
10–900 r
auto-stop

DRUM
Ø 286 × 39 mm
156 mm fall

TENSILE STRENGTH

$$\sigma = 2F / (\pi \cdot D \cdot t)$$

For flat-faced round tablets (USP <1217>): break force F, diameter D and thickness t. It lets you compare tablets of different size.

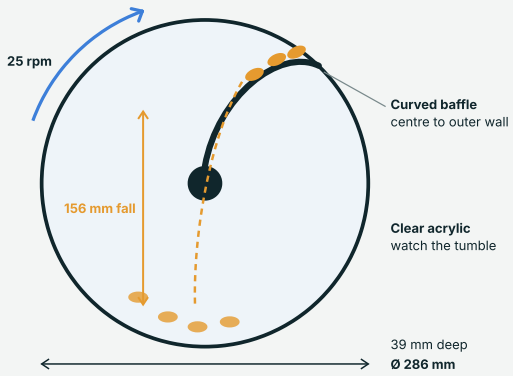
Same orientation
Place each tablet the same way across the jaws; scored tablets break differently.

Test enough units
Report the mean and range of several tablets, not a single value.

Clean the jaws
Fragments left on the jaws shift the next reading.

FEATURES

Two tests, one smart instrument



01 Hardness

- High-precision **pressure sensor**
- Manual feed, **auto press**
- Latching and cyclic testing

02 Friability

- **Two drums**, Ø 286 × 39 mm
- **25 rpm**, ±1 rpm
- 10–900 rotations

03 Control

- Automatic control, detection, diagnosis and alarm
- LCD readout
- **USP / EP** compliant

04 Unit

- 360 × 450 × 350 mm
- 15 kg, 500 W
- 220 V / 50 Hz or 110 V / 60 Hz

TECHNICAL SPECIFICATIONS

Technical specifications

Parameter	PJ-2D
SPECIFICATIONS	
Model	PJ-2D
Testing Parameter	Hardness, Friability
Drum	2
Drum's Radius	Dia. 286 mm
Drum's Depth	39 mm
Tablet Falling Height	156 mm
Rotation Count	10-900 r
Rotation Speed	25 rpm
Speed Regulator Accuracy	±1 rpm
Hardness Range	2~199.9N (50Kg, 499.9N is optional)
Probe Procession Range	3~40 mm
Power Supply	220V/ 50Hz, 110V/ 60Hz
Power	500W
Dimension	360×450×350 mm
Weight	15 Kg

Specifications from the LORDERAN product documentation. Subject to change without notice for product improvement.

AT A GLANCE

MODEL

PJ-2D

Hardness range
2–199.9 N (499.9 N option)

Friability
2 drums, 25 rpm, 10–900 r

Power
500 W

Dimension
360 × 450 × 350 mm

Weight
15 kg

THE LORDERAN TABLET TESTING RANGE · THIS MODEL HIGHLIGHTED

Instrument	Models	Highlights
Dissolution, manual turn-over head	RC-1 · RC-3 · RC-6 · RC-8	1–8 vessels, ChP 2020 parameters stored
Dissolution, auto-lifting head	RC-6D · RC-8D · RC-8DS · RC-12D	Up to 12 vessels, self-inspection alarms
Dissolution, auto-lifting + turn-over	RC-3DT · RC-6DT · RC-8DT	3–8 vessels, lifts and turns over
Disintegration tester	BJ-1 · BJ-2 · BJ-3	6–18 tubes, independent stations
Friability tester	CS-4 · CS-2 · CS-3 · CS-1	1 or 2 drums; CS-1 20–90 rpm
Hardness tester, manual	YD-1	2–199.9 N, ±0.5 %
2-in-1 hardness + friability	**PJ-2D**	**2–199.9 N, two drums**
4-in-1 tablet tester	PJ-4D · PJ-6D	Hardness, friability, disintegration, dissolution

FRIABILITY TEST REFERENCE · USP <1216>

Item	USP <1216>	LORDERAN drum
Drum internal diameter	283–291 mm	Ø 286 mm
Drum depth	36–40 mm	39 mm
Rotation	25 ± 1 rpm, 100 rotations	25 rpm ±1 rpm
Sample, unit ≤ 650 mg	Whole tablets close to 6.5 g	—
Sample, unit > 650 mg	10 whole tablets	—
Limit	Mean weight loss not more than 1.0 % for most products	—

Reference summary for planning; the current pharmacopoeia and the product monograph govern the test.

FROM BREAK FORCE TO TENSILE STRENGTH · USP <1217>

Break force F	Diameter D	Thickness t	Tensile strength σ
50 N	10.0 mm	4.0 mm	0.80 MPa
100 N	10.0 mm	4.0 mm	1.59 MPa
150 N	10.0 mm	4.0 mm	2.39 MPa

Calculated reference values for a flat-faced round tablet, $\sigma = 2F / (\pi \cdot D \cdot t)$. Tensile strength compares tablets of different size.

APPLICATIONS & SERVICE

Where it works, and what comes with it

QC release
Hardness and friability of each batch.

Press set-up
Balance break force against friability.

Formulation R&D
Mechanical strength across formulations.

Teaching
Two core tablet tests on one bench.

INSTALLATION

Supply
220 V / 50 Hz or 110 V / 60 Hz.

Bench
360 × 450 mm footprint, 15 kg.

Balance
Analytical balance reading to at least 1 mg.

WARRANTY & SERVICE

Warranty
Major defects under warranty: full refund or replacement.

30-day returns
Return most new, unopened items within 30 days.

Free DDP shipping
Delivered duty paid, no surprise import charges.

Formal quotation
PDF quote on request, with a confirmed ship date.

Request a quotation

Send your application, model and quantity through www.lorderan.com and we will reply with a formal PDF quotation.

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LORDERAN

www.lorderan.com

Laboratory and environmental test equipment