

hanatek



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CFA Carton Force Analyser

- Measure all the forces required to erect cartons
- Increase the running speed of carton packaging
- Eliminate rejections and reduce waste

Hanatek products are exclusively
manufactured and distributed by

 **RHOPOINT**
INSTRUMENTS

CFA Carton Force Analyser

INCREASE THE RUNNING SPEED OF CARTON PACKAGING

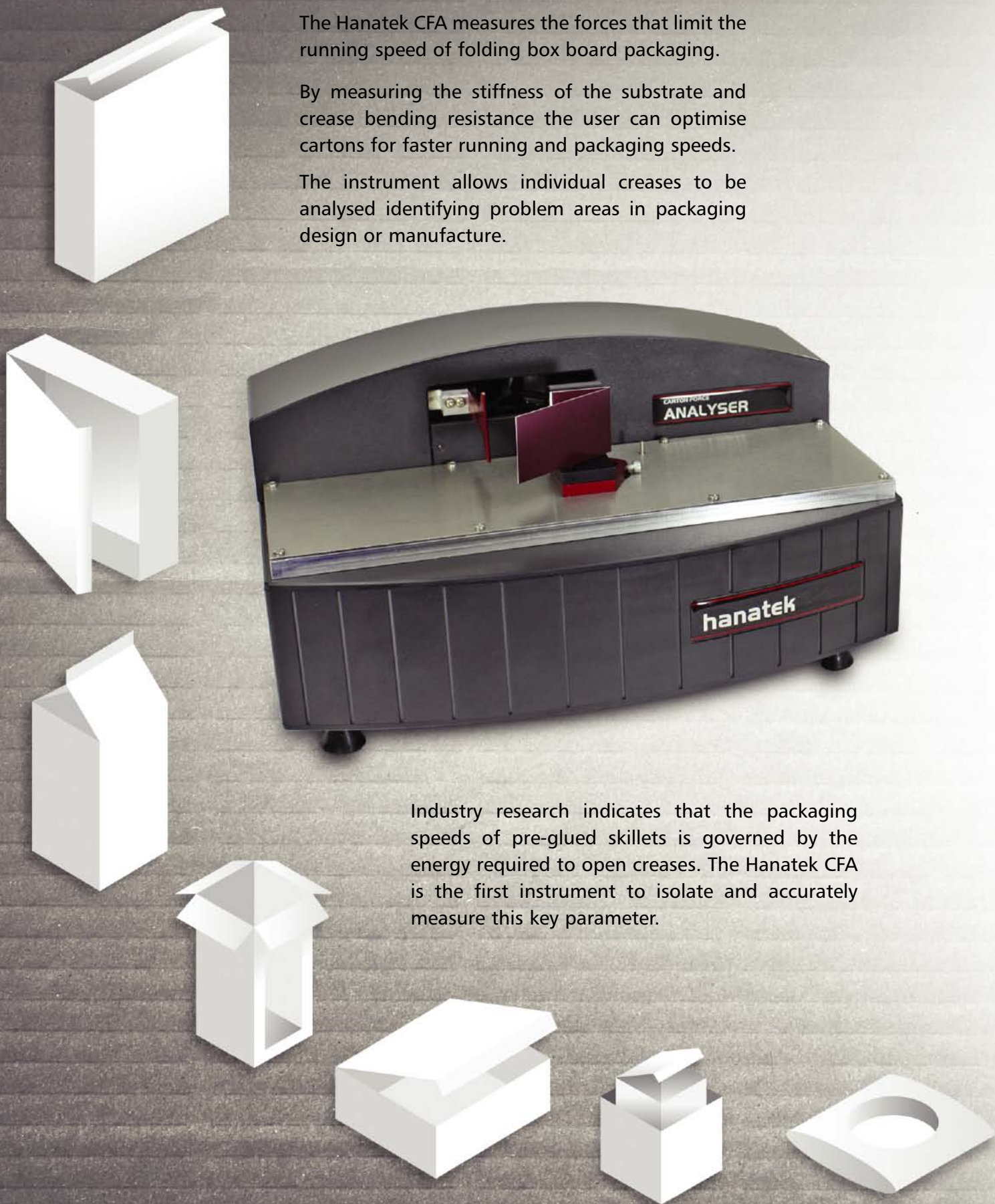
The Hanatek CFA measures the forces that limit the running speed of folding box board packaging.

By measuring the stiffness of the substrate and crease bending resistance the user can optimise cartons for faster running and packaging speeds.

The instrument allows individual creases to be analysed identifying problem areas in packaging design or manufacture.



Industry research indicates that the packaging speeds of pre-glued skillets is governed by the energy required to open creases. The Hanatek CFA is the first instrument to isolate and accurately measure this key parameter.



INCREASE THE RUNNING SPEED OF CARTON PACKAGING

FEATURES

This flexible instrument can be configured for quality or research use –

Research Tool

- Create and save bespoke test methods
- Variable sample length, rotation speed and crease angle
- Statistical and graphical analysis of results

Q.A.

- Pre-loaded ISO/BS/TAPPI test methods
- Date/operator stamped results
- Pre-set pass/fail criteria
- Optional password protection

All operations and test methods have comprehensive graphical on-screen help.

- Intuitive and easy to use
- Easy training for new users
- Consistent results for all operators
- No need to consult complicated manuals

Real time graphs detail the process of folding, showing increased crease resistance until board fibres break and the crease relaxes. The CFA allows these fingerprints to be saved and overlaid, a powerful tool that allows detailed comparison of different crease formats, substrates and manufactured batches.

FLEXIBLE TESTING

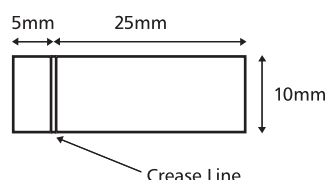
Rotation Speed

Automatic, user selectable speed of rotation. This removes errors associated with manual rotation.

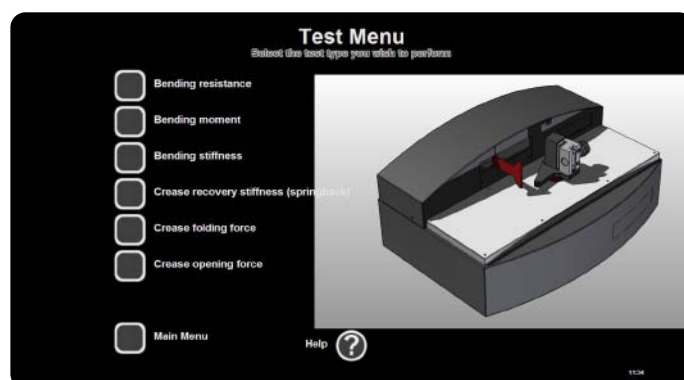
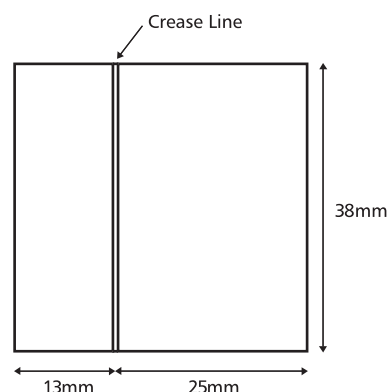
Choice of sample sizes

The CFA enables the smallest of creases to be analysed.

The smallest crease that can be tested on the Hanatek CFA



Sample size for traditional crease testing apparatus



The instrument has pre-loaded test instructions that ensure samples are tested to international standards.

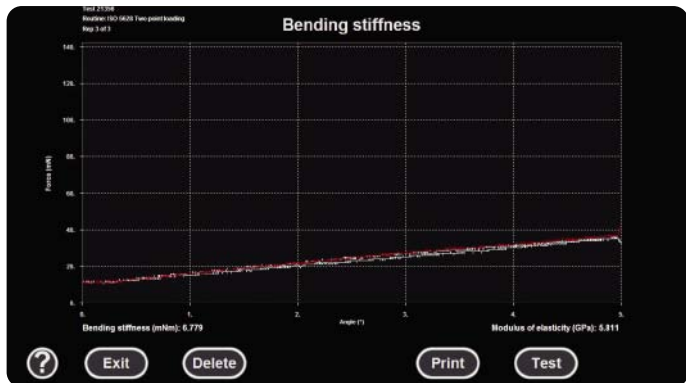


TEST TYPES

Board Stiffness

Measures the stiffness of the card sample to ISO 2493. The stiffness of the sample is measured twice, once with the printed side of the carton facing forward and the second time with the printed side facing to the rear. The resultant force is displayed in grams per cm (g/cm), Gurley units, milliNewton meters (mN m) or Newton meters (N m). The average of the two measurements is calculated as well as the Min, Max and standard deviation on a multiple sample test.

VERSATILE INSTRUMENT – REPEATABLE MEASUREMENTS – EASY TO USE

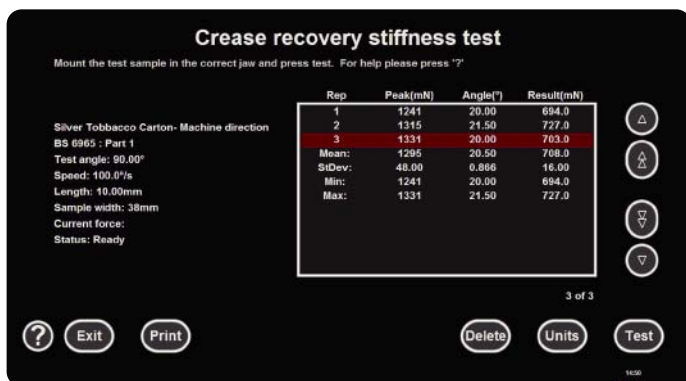


Test results can be saved and compared.

Crease Resistance

Choice of 2 tests.

The first measures the crease recovery to BS 6965. During the test, the crease is folded through the pre-selected crease angle; the resultant force is measured after 15 seconds. The second measures the force exerted on the crease as the instrument rotates the sample throughout the desired test angle. The peak force is displayed as well as the angle at which this force was reached. The resultant force is displayed in Newtons (N), grams force (gf) or milliNewton meters (mN m). The average measurement is calculated as well as the Min, Max and standard deviation on a multiple sample test.



Ratio Test

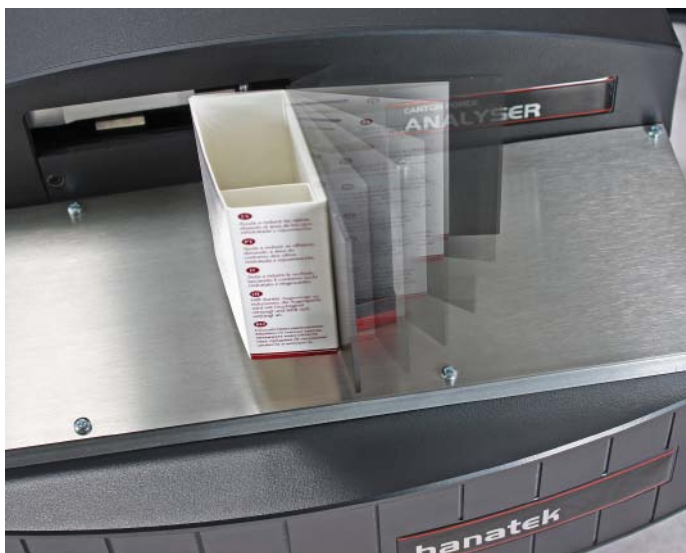
One of the key parameters to assess whether a carton will run on a machine is the crease to board stiffness ratio. As described in BS 6965, the ratio of the crease to board stiffness should be <2. The ratio test jaw allows both the crease and stiffness tests to be conducted on one jaw and the resulting ratio is calculated and displayed.



Carton Opening Force

This test will record the forces involved in erecting a skillet into an open carton, simulating the process during machine opening. The resultant force is displayed in real time on the screen, in graphical format as the sample is rotated through the pre-selected test angle (usually 90°), and reported in Newtons (N) as well as the Energy (mj) required to open the sample.

Crease resistance, crease opening and substrate stiffness.
Round-corner crease resistance jaw is also available.



Crease Opening Force

The force required to erect pre-glued skilletts can determine the packaging speeds of automatic filling lines. Slow running skilletts are often rejected, leading to increased waste.

The Hanatek CFA measures the force and energy required to erect each individual folded crease. This information can be used to optimise carton design and predict the running speed of samples before committing machine time.



Relative Crease Strength

Measures the bending force of a creased structure and an uncreased structure and calculates the relative crease strength ratio. Results are in %. The average is calculated as well as the Min, Max and standard deviation on a multiple sample test.

$$\text{RCS (\%)} = \frac{\text{Bending force of the crease (mN)}}{\text{Bending force of the uncreased board (mN)}} * 100$$

Geometrical Stiffness

Measures the bending stiffness of the structure in both Machine Direction (MD) and Cross Direction (CD) and calculates the geometrical stiffness. Results are in mN. The average is calculated as well as the Min, Max and standard deviation on a multiple sample test.

$$\text{Geometrical stiffness (mN)} = \sqrt[2]{\text{Bending stiffness MD} * \text{Bending stiffness CD}}$$

Crease/Board Analysis

Displays the curve of the force vs the angle needed to bend a sample to a certain angle, at a certain speed, with a certain relaxation time. Also calculates the maximal force (Fmax) in mN, the maximal angle (ϕ_{max}) in degrees, the moment at relaxation (M relax) in mNm, the total work at stop (W stop) in mJ, the angle after relaxation (ϕ_0) in degrees, and the stiffness in mN. The average is calculated as well as the Min, Max and standard deviation on a multiple sample test.

DATA TRANSFER

Tests performed on the Carton Force Analyser can be easily output to PDF for simple reporting and data storage. PDF files show the full graphic information, test statistics as well as individual test results.

In addition, full details of the forces detected by the load cell can be output to a .csv file.

The instrument can be added to a company network to facilitate simple data sharing and regular data back-up (requires operating system upgrade).

APPLICATIONS



Printed carton board



Unprinted carton board

SPECIFICATIONS

INSTRUMENT SPECIFICATIONS

	Resolution	Repeatability
Rotation angle (°)	0.01	<0.1
Rotation speed (°/s)	0.001	<0.01
Sample length (mm)	0.01	<0.05
Load cell (mN)	1	<10
Power	120V/230V; 50Hz/60Hz	
Load cell capacity	20N	

INSTRUMENT DIMENSIONS

Size	220mm x 225mm x 300mm
Net weight	5.5kg (instrument), 5.35kg (PC)
Packed weight	19kg (including screen, sample cutter and jaws)
Packed dimensions	480mm x 540mm x 450mm
Commodity code	9024 8091

TOUCH SCREEN PC SPECIFICATIONS

Connectivity	Wireless 802.11n, Wireless 802.11b, Wireless 802.11g/ LAN Network
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Operating System	Windows 7 Home Premium
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Easily integrated into laboratory network for results/backup and printing

Results can also be exported to USB data key.



CFA Carton Force Analyser

INCLUDED ACCESSORIES

- 16" touch screen PC
- Carton Force Analyser software and connection cables
- A choice of 3 testing jaws (see below)
- UKAS traceable calibration certificate
- Calibration check standard

Test jaw options:

- Carton crease
- Rounded corner creases
- Carton stiffness
- Whole carton opening force
- Whole crease opening force
- Ratio test

OPTIONAL ACCESSORIES

- Dedicated crease & board sample cutter
- Hanatek universal sample cutter

EXTRAS

FREE EXTENDED WARRANTY

Register for a two year comprehensive guarantee

CALIBRATION AND SERVICE

Fast and economic service via our global network of accredited calibration and service centres



APPLICATIONS & STANDARDS

ISO 2493: Paper and board – Determination of resistance to bending (Lorentzen & Wettre/Taber)

ISO 5628: Paper and board – Determination of bending stiffness by static methods

Tappi T 556: Bending resistance of paper and paperboard (Lorentzen & Wettre/Taber Tester)

T 543: Bending resistance of paper (Gurley-type tester) – *Calculated results equivalent to this method.*

T 489: Bending resistance (stiffness) of paper and paperboard (Taber-type stiffness tester in basic configuration)

SCAN-P-29-95: Bending resistance

DIN 53121: Testing of paper and board – Determination of the bending stiffness by the beam method

BS 6965-1: Creasing properties of carton board.

Method for determination of crease recovery (spring back) of 90° fold.



Certificate no: FM 29741
ISO 9001:2008

LOCAL AGENT

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