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**HANATEK** **CFA**  
CARTON FORCE ANALYSER

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

# 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

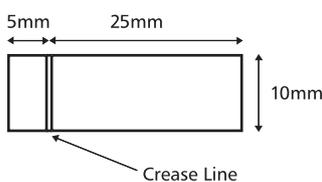
### Rotation Speed

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

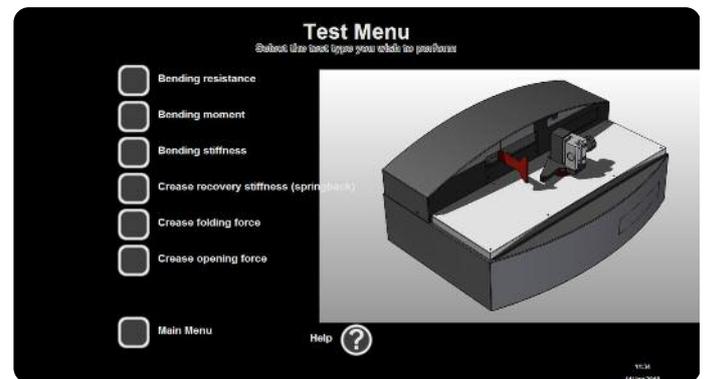
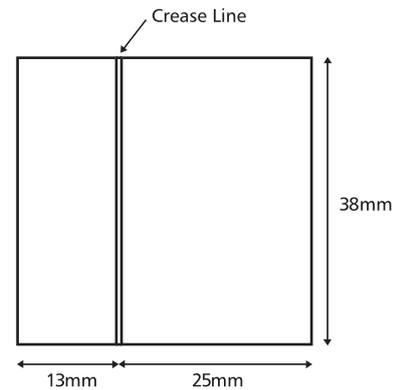
### Choice of sample sizes

The CFA enables the smallest of creases to be analysed.

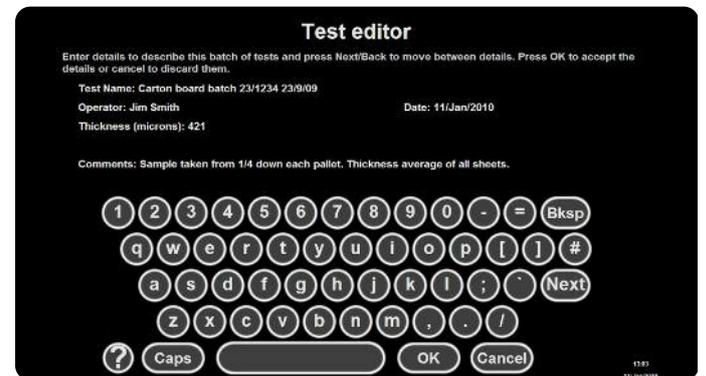
### The smallest crease that can be tested on the Hanatek CFA



### Sample size for traditional crease testing apparatus



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

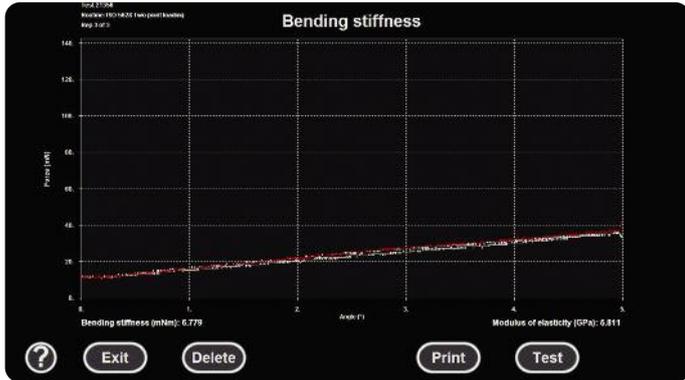


## TEST TYPES

### 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, Gurley units, mN meters or N meters. 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 MEASUREMENT – EASY TO USE

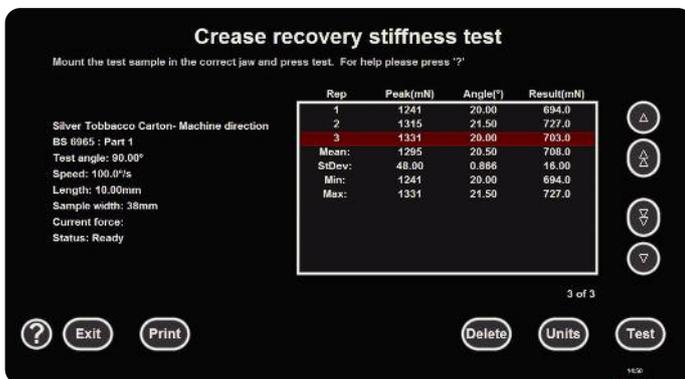


Test results can be saved and compared.

## 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. It will then measure 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 (mNm). The average measurement is calculated as well as the Min, Max and standard deviation on a multiple sample test.



## Ratio Test

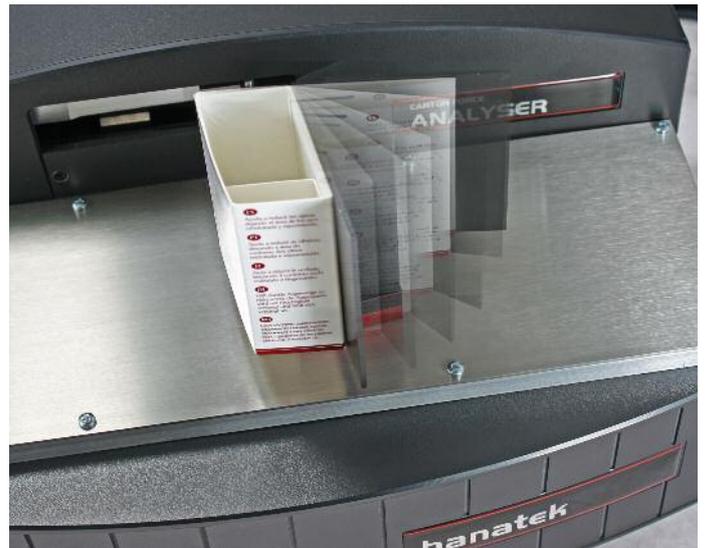
One of the key parameters to assess whether a carton will run on a machine is the crease to board stiffness ratio. As described in BS6965, the ratio of the crease to the board stiffness should be <2. The ratio test jaw allows both the crease and stiffness test to be conducted on one jaw and the resulting 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 Newton's (N) as well as the Energy (mj) required to open the sample.

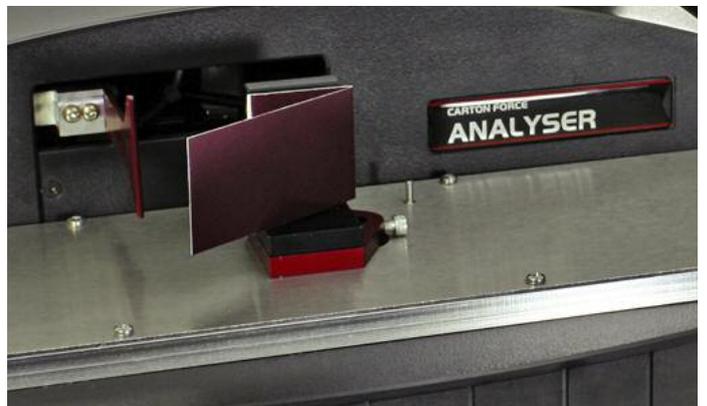
Crease resistance, crease opening and substrate stiffness. Round-corner crease resistance jaw is also available.



## Crease Opening Force

The force required to erect pre-glued skillets can determine the packaging speeds of automatic filling lines. Slow running skillets 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.



## 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).

## 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         | 220 x 225 x 300 (mm)       |
| Net weight   | 7kg (instrument), 4kg (PC) |
| Gross weight | 15kg                       |

### TOUCH SCREEN PC SPECIFICATIONS

Connectivity: Wireless 802.11n, Wireless 802.11b, Wireless 802.11g/ LAN Network

Operating System: Windows 7 Home Premium

Easily integrated into laboratory network for results/backup and printing.

Results can also be exported to USB data key.

## APPLICATIONS



Printed carton board



Unprinted carton board



# CFA Carton Force Analyser

## INCLUDED ACCESSORIES

- 16" touch screen PC
- Carton Force Analyser software and connection cables
- Sample cutter
- 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
- Carton opening force
- Crease opening force
- Ratio test

## CALIBRATION AND SERVICE

Fast and economic service via our global network of accredited calibration and service centres, please visit [www.rhopointinstruments.com/support](http://www.rhopointinstruments.com/support) for detailed information.

## 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

