



Spectronic
CamSpec Ltd

Food Technology
Corporation

Your path to consistent quality



TU Tenderometer

Pea maturity
TR measurement system

www.tenderometer.eu

TU Tenderometer

Pea maturity TR measurement system

Measure maturity, grade quality and monitor the texture of peas from grower to retailer with accuracy and ease

Designed exclusively for peas, the Food Technology Corporation (FTC) Model TU Tenderometer is the industry standard for measuring the maturity of fresh peas.

It has been proven to be the most dependable, accurate and trouble-free system ever created for grading pea quality, in the production process 'from field to fork'.

Precise TR grading provides a common point of reference between the grower and processor ►

Grade		Green peas
AA	TR ≤ 105	Premium garden 150
A	TR 106-115	Garden, non-150
B	TR 116-125	Catering
C	TR 126-135	Value grades
D	TR 136-145	
DD	TR > 145	



Benefits



Profits and savings

Processors of peas worldwide are using the Model TU Tenderometer to determine harvesting dates, to grade at intake within a short 150 minute time window and to monitor texture during storage.

With profits at stake, a point or two off the standard can be very costly.



Durable, rugged and reliable

Designed to withstand harsh environments, the splash-proof Model TU will perform in factory conditions with a minimum of maintenance.

FTC texture management systems have been in continuous operation in 24/7 production environments for over 50 years.



Controlled, optimised process

Accurate TR (Tenderometer Reading) measurements can save large sums of money for a medium to large processing operation. This can quickly pay back the initial investment by grading the peas more precisely.



Easy-to-use

The Tenderometer is easy to operate with minimal training.

Simply load the peas, close the safety door and press 'START'. The system will test the sample and clearly indicate the TR result on the digital display directly in Tenderometer Units.

“Understanding crop maturity and the accuracy of this measurement is key to staying ahead of crop and knowing when to make the move from value to premium product. The TU units give us the accuracy to work to much tighter tolerances, which in turn can affect final product grading and profitability. The units are well designed, very low maintenance and are backed up with a strong support service.”

Colven Wilson, Technical Manager,
Eyemouth Freezers Ltd.



The FTC TU Tenderometer in the pea production process

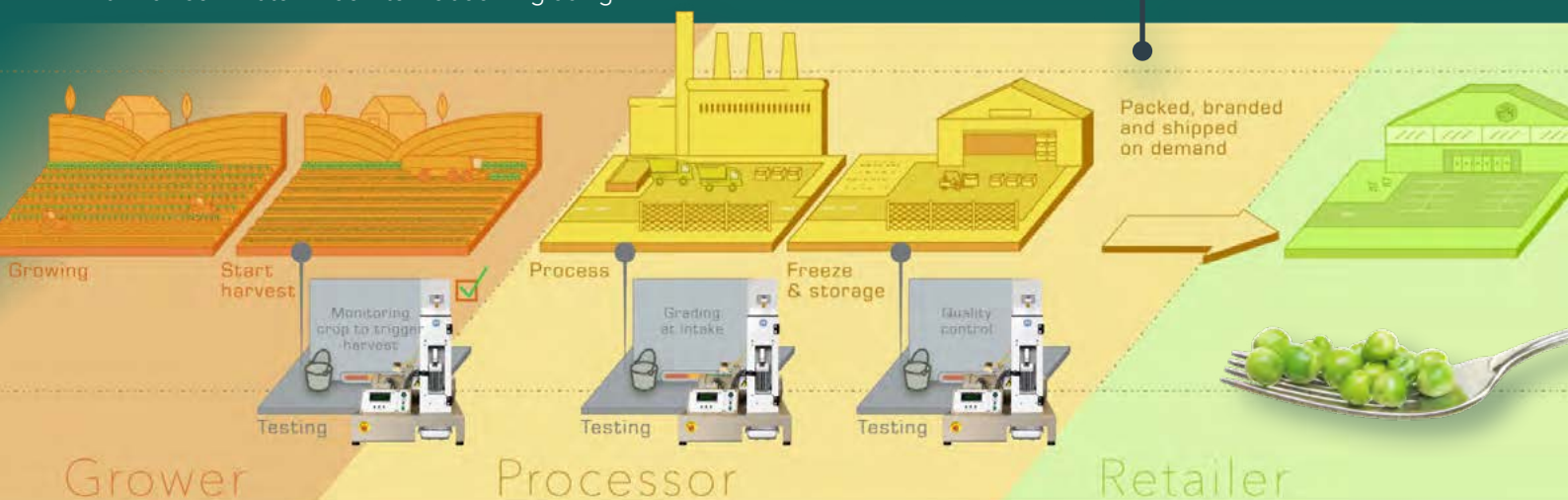
In just a few days, ripening peas may double their weight but lose their tenderness. To maximise yield, the moment at which to harvest must be determined. TR measurement in the field ensures this is determined with confidence.

Continuous tenderness grading at intake enables the desired time window from vining to freezing to be achieved.

Monitoring the tenderness of the frozen peas in storage gives further confidence in the product quality delivered to the retailer.



Premium grade peas typically must be harvested and processed within a 150 minute window to include TR grading ▼



Measuring pea TR value

The TU Tenderometer is incredibly easy to use, delivering repeatable and reproducible measurements by all users in all factory locations. Simply fill the Shear Cell with a sample of peas, load into the TU, press the start button and record the displayed value.



STEP
01

Fill



STEP
02

Load



STEP
03

Set



STEP
04

Start



STEP
05

Measure



STEP
06

Record



STEP
07

Unload



STEP
08

Repeat

▲ Simply, safely and swiftly measure pea tenderness anywhere in the production process

Features

Automatic calculations

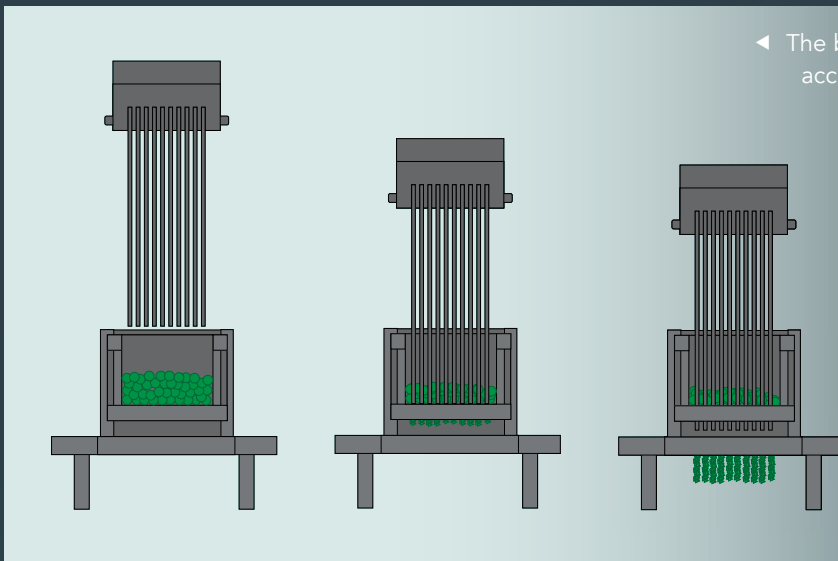
With 'Auto Cycle' one-button operation, the Tenderometer will automatically calculate and update the 'peak', or highest force readings incurred during a test. Set to 'PEAK' and press 'START'.

Standard equipment

The TU Tenderometer comes with the industry-standard CS-1 Kramer Shear Test Cell and an FTA-TU Loadcell, factory-calibrated as a pair for fresh pea tenderness measurement.



The CS-1 Kramer Shear Cell



◀ The bulk sample of peas is compressed and sheared, accurately simulating the bite and chew mechanism

The Kramer Shear Cell was developed by FTC and is generally accepted as the universal standard for making objective measurements of the relative tenderness, softness and similar mouth-feel properties of most foodstuffs, due to its combined compression and shearing action.

The test cell gives consistent and reliable results for bulk product texture measurement by mechanical averaging across the complete product sample.



Factory-calibrated for TR pea grading accuracy

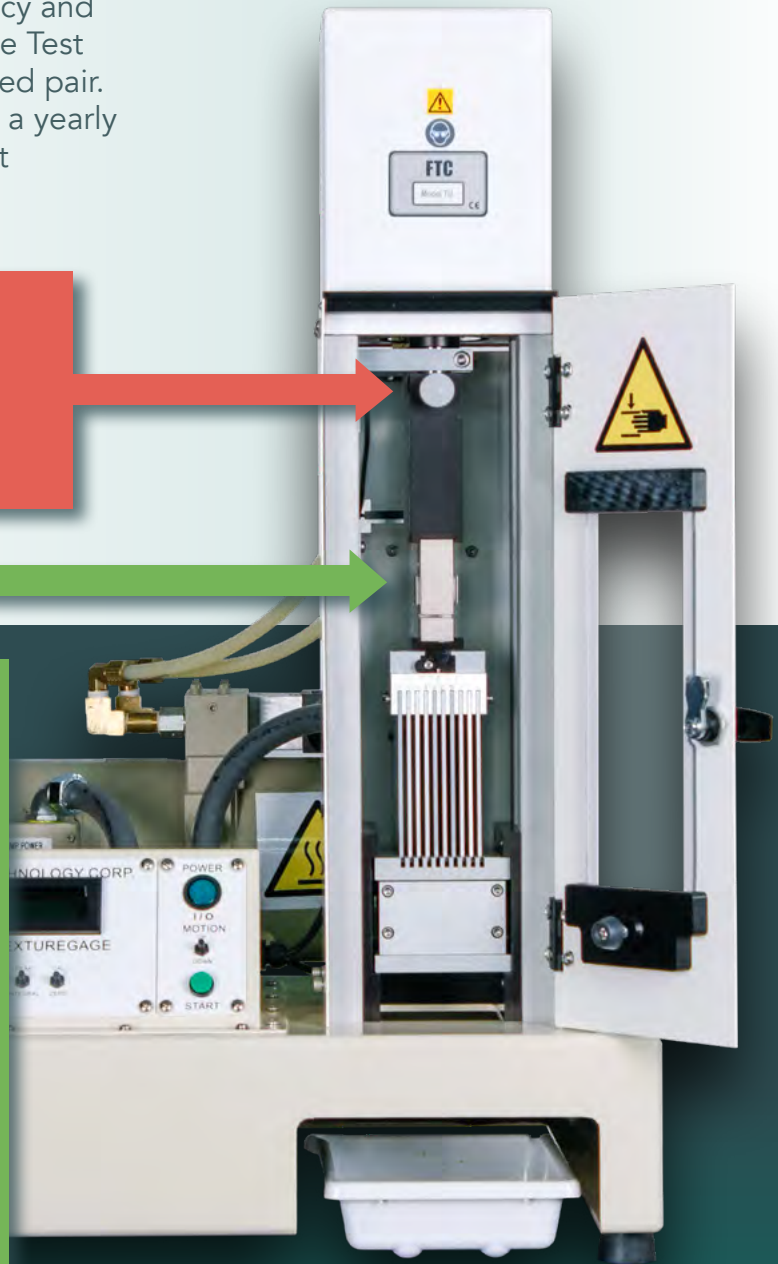
To achieve the ultimate in measurement accuracy and repeatability of Tenderometer Unit readings, the Test Cell and the Loadcell are calibrated as a matched pair. To maintain this pea grading accuracy, we offer a yearly calibration service; just send us your equipment (as indicated) prior to pea season.



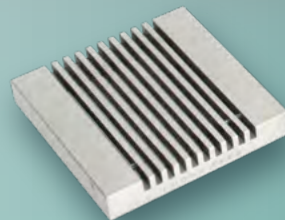
**Please retain
the mounting pin!
Do NOT send to FTC**



**Please send
the loadcell
and the Shear
Cell to FTC
for calibration**



FOOD TECHNOLOGY CORP. VIRGINIA, USA	
MODEL NO.	FTA-TU
SERIAL NO.	
CAL. NO.	
POWER	
USE WITH	
DATE	



▲ Calibration label pairs the TU Loadcell to the Test Cell by serial number

System Specification

FTC TU TENDEROMETER		
Rated capacity	Over 300 Tenderometer Units	
SPEED		
Stroke (top to bottom)	30 seconds default, or factory set to your specification if required	
DIMENSIONS		
Height, Width, Depth	915 mm (36"), 610 mm (24"), 610 mm (24")	
Weight	73 kg (160 lb). A stable work bench able to support the system must be used	
ELECTRICAL SUPPLY		
	UK/EU	US
Voltage	230 V ac, 50/60 Hz	115 V ac, 50/60 Hz
Fuse rating	10A (T) 20mm x 5mm cartridge fuse, IP67 rated panel mounted fuse holder	
Generator capacity (for portable use)	3 kVa minimum	
LOADCELLS / FORCE TRANSDUCERS		
Models compatible	FTA-TU, FTA-3000*, FTA-1000*, FTA-500*, FTA-250*, FTA-100*, FTA-50*, FTA-30* and metric equivalents (suffix 'M')	
ENVIRONMENT		
Operating temperature, relative humidity	5 °C to 40 °C, 30 % - 80 % RH, non-condensing	
SUPPLIED AS STANDARD		
FTA-TU Loadcell		
CS-1-TU Shear Cell		
Certificate of Calibration		
Operator and Installation Manual		
OPTIONS		
Other test cells to measure a variety of industry-standard textures are available**		
Integral function—calculates the work performed on the sample, or 'area under the curve', applicable to non-TU measurement		

* The FTA-TU loadcell is calibrated specifically for pea tenderness TR readings directly in TU units. Other imperial or metric loadcells may be fitted to the Tenderometer to display load value results in pounds-force or Newtons; work measurements are displayed in either inch/pounds or Joules. Select a loadcell capacity rated close to the peak force to be measured in order to optimise accuracy.

** FTC test cells are used throughout the world to grade the textural attributes of products ranging from legumes, fruit and vegetables to grains, ground meat and pet food. Firmness, succulence, consistency and shearing properties can all be measured on the Model TU with the appropriate loadcell and test cell combination. Contact us with your exact application requirements.



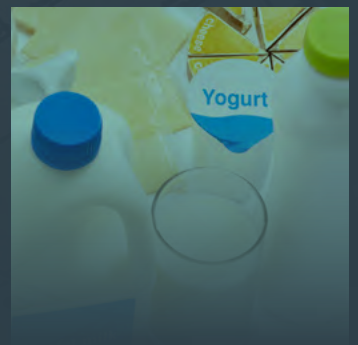
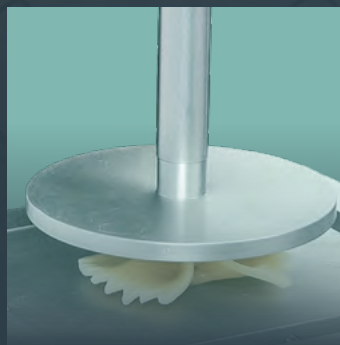
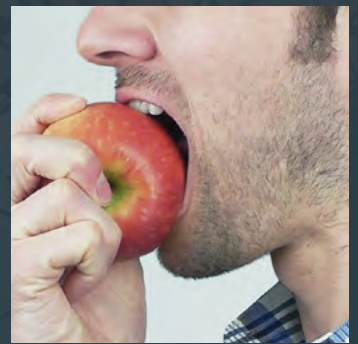
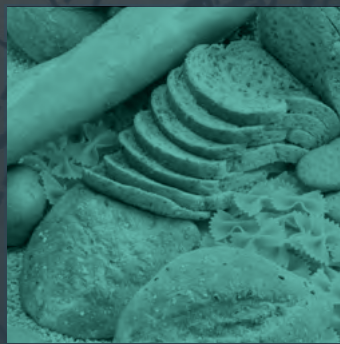
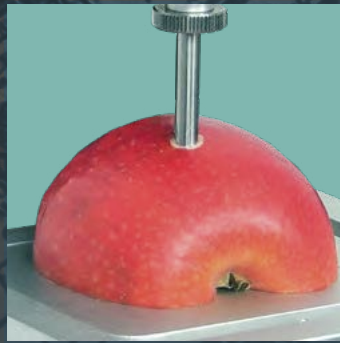
▲ The Kramer Shear Cell can measure the firmness of many food products

Test Cells to perform other texture measurements are available ►

Food Technology Corporation

a world leader in affordable texture analysis solutions

Founded in 1966, Food Technology Corporation is the industry's longest standing provider of quality texture measurement systems. With over 50 years' experience evolving from the ground breaking Kramer Shear press, our company is able to provide systems for field, factory and laboratory test environments. Our extensive experience in practical food texture measurements, combined with our cost effective solutions makes us the ideal partner for your texture instrumentation needs.



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Spectronic CamSpec Ltd reserves the right to alter equipment specifications without prior notice. E&OE

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