


The background is a collage of images related to texture analysis. On the left, there are several images of mechanical testing equipment, including a penetrometer with a probe in a cup, a penetrometer with a probe in a bowl, and a penetrometer with a probe in a container. On the right, there is an image of a sushi roll with a metal probe on top. The background is divided into yellow, blue, and dark blue sections.

**Mecmesin**

# Texture Analysis

---

## Accessories Catalogue

A collection of various accessories for texture analysis, including a large metal cylindrical component, a metal plate, several metal rods, and several metal spheres of different sizes. There are also several clear plastic cones and a metal plate with a grid pattern.

[www.textureanalyzers.com](http://www.textureanalyzers.com)

## Contents

	Page		Page		Page
<b>Probes &amp; Adaptors</b>	4	<b>Puncture &amp; Penetration</b>	6	<b>Tension</b>	18
<b>Cylinder Probes</b>		TMS Magness-Taylor Probe Set	7	TMS Extensibility Fixture	19
FTC Heavy Duty Imperial Sized Probes 0.5" to 2.5" Ø stainless steel cylinders	4	TMS Multiple Needle Probe	7		
TMS Lightweight Imperial Sized Probes 0.25" to 1.5" Ø perspex cylinders	4	TMS Multiple Probe Fixture	7	<b>Industry Specific Fixtures</b>	
TMS Lightweight Precision Probes 1mm to 11.3mm Ø stainless steel cylinders	4			<b>Gelatin &amp; Gels</b>	20
<b>Conical Probes</b>		<b>Compression</b>	8	Bloom Sample Bottles	20
TMS Lightweight Precision Probes 90° to 20° Perspex cones	4	FTC Succulometer	9	Bloom Sample Bottle Stoppers	20
15° st. steel cone	4	TMS 50mm Diameter Platen	9		
<b>Needle Probes</b>		TMS 75mm Diameter Platen	9	<b>Dough And Bakery</b>	21
TMS 2mm st. steel, 9-10° taper	4	TMS 100mm Diameter Platen	9	TMS FMBRA Dough Pots	21
<b>Spherical Probes</b>		TMS Compression Top Plate	9	TMS Dough Stickiness Fixture	21
FTC Imperial Steel Ball Probes 3/4" & 1" Ø ball probe	5	<b>Shearing</b>	10	TMS AACC 36mm Ø Cylinder	21
TMS 1" Ø ball nylon (Avery test)	5	FTC Heavy Duty Blade Set	11	TMS AACC 21mm Ø Cylinder	21
TMS Lightweight Steel Ball Probes 6.35mm to 12.7mm Ø	5	TMS Light Weight Blade Set	11	TMS Dough-Gluten Extensibility Fixture	21
TMS Lightweight Hemispherical 1mm to 3mm Ø st. steel	5	TMS Wire Shear Probe & Plate	11		
TMS Large Hemispherical 1/2" & 1" Perspex	5	TMS Volodkovitch Bite Jaws	11	<b>Sample Presentation</b>	22
<b>Auxiliary</b>		TMS Large Knife Edge	11	TMS Standard Fixture Table	23
FTC 1/2" dovetail top bracket	5	TMS Perspex Knife Edge	11	TMS Small Sample Holder	23
FTC 1/2" dovetail top bracket M6	5	TMS Craft Knife	11	TMS Mini Sample Vice (& 3-Pt Bend)	23
FTC 3/4" dovetail bracket M6	5	TMS Large Craft Knife	11	TMS Container Grips	23
FTC 3/4" dovetail top bracket M10	5	<b>Snapping</b>	12	TMS Spherical Sample Holder	23
FTC 1" dovetail top bracket M12	5	FTC Heavy Duty 3-Pt Bend	13	FTC Large Scale Accessory Table	23
TMS Extension set	5	TMS Mini Sample Vice & 3-Pt Bend	13		
TMS standard fixture nut & bolt	5	TMS Spaghetti Snap Fixture	13		
TMS 'T' slot base plate	5	TMS Friable Food Support	13		
Protective dust cover	5	<b>Extrusion</b>	14		
TMS Lightweight chuck set	5	FTC Universal Cell	15		
		TMS Dual Extrusion Cell	15		
		TMS Extrusion Cone	15		
		TMS Extrusion Platen Set	15		
		TMS Butter & Margarine Spreadability Jig	15		
		<b>Bulk Analysis</b>	16		
		FTC Standard Shear Compression Cell	17		
		FTC Thin Blade Compression Cell	17		

# Background

## Who is Mecmesin?

Mecmesin has provided the food industry with high quality texture testing solutions for 40 years. Our company has a unique heritage evolving from the groundbreaking Kramer Shear Press in providing robust systems for the 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 testing.

## What is Food Texture Analysis?

Food texture in simple terms, is how a product feels when we eat it, or performs when we handle or produce it. Texture Analysis provides food technologists with the opportunity to simulate conditions that foods are exposed to when we eat or process them. This means that we are able to directly measure and predict how a food will behave during processing or consumption.

## Why use Fixtures?

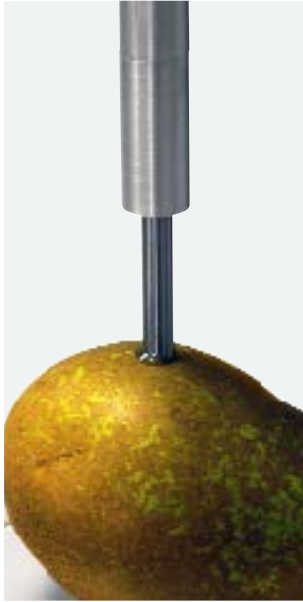
Probes and fixtures are what we use to manipulate the forces created during our texture measurements. We provide you with a texture analyzer and then our team of Application Engineers will tailor the fixtures offered to meet you specific test requirements. Most of the fixtures in this catalogue are compatible with our competitors and remember if you do not see what you want, ask us if we can make it!

## Our Commitment to Quality!

All of our probes and fixture are manufactured from food grade materials and conform to industry standards. Strict tolerances are maintained and all items are inspected in accordance with our stringent quality system.



## Cylinder Probes



Cylinder probes may be used to perform puncture and penetration tests on a wide variety of food products including baked goods, confectionery, dairy products, fruits and vegetables and meats. Precision engineered stainless steel, perspex or acetate probes are included in our standard range. Custom designs and geometries are available on request.

	Part No.		Part No.
FTC 1/2" (12.7mm) Ø cylinder	432-299	TMS 10mm Ø st. steel	432-066
FTC 1" (25.4mm) Ø cylinder	432-300	TMS 9mm Ø st. steel	432-067
FTC 1.5" (38.1mm) Ø cylinder	432-301	TMS 8mm Ø st. steel	432-068
FTC 2" (50.8mm) Ø cylinder	432-302	TMS 7mm Ø st. steel	432-069
FTC 2.5" (63.5mm) Ø cylinder	432-303	TMS 6mm Ø st. steel	432-070
TMS 25.4mm Ø Perspex	432-057	TMS 5mm Ø st. steel	432-071
TMS 38.1mm Ø Perspex	432-058	TMS 4.5mm Ø st. steel (for margarine)	432-072
TMS 12.7mm Ø black acetate	432-059	TMS 4mm Ø st. steel	432-073
TMS 6.35mm Ø black acetate	432-060	TMS 3mm Ø st. steel	432-074
TMS 12.7mm Ø Perspex	432-061	TMS 2mm Ø st. steel	432-076
TMS 25.4mm Ø Perspex	432-062	TMS 1mm Ø st. steel	432-077
TMS Kobe st. steel (for agar gels)	432-063		

## Conical Probes



Mecmesin offers six Perspex and one stainless steel conical probes with angles ranging from 15° to 90°. Cone penetrometry is traditionally used within dairy products to assess hardness and spreadability. It has also found application in biscuits and other similar brittle products.

	Part No.
TMS 90° Perspex	432-079
TMS 60° Perspex	432-080
TMS 45° Perspex	432-081
TMS 40° Perspex	432-082
TMS 30° Perspex	432-083
TMS 20° Perspex	432-084
TMS 15° st. steel	432-085

## Needle Probes



Available in either 1mm or 2mm diameter, needle probes are used on fruits, vegetables, confectionery, cosmetics and fats. Values relate to firmness, yield, consistency and even skin or coating characteristics.

	Part No.
TMS 2mm st. steel, 9-10° taper	432-087

## Spherical Probes



For determining surface hardness of products such as cheeses, fruits and vegetables, or the fracturability of potato chips, the spherical probe range features precision-engineered stainless steel ball-end probes, and plastic hemispherical probes which replicate squeezing in hand.

	<b>Part No.</b>
TMS 1" Ø ball nylon (Avery test)	432-088
FTC 1" Ø ball probe	432-304
FTC 3/4" Ø ball probe	432-305
TMS 1/2" Ø ball st. steel	432-089
TMS 10mm Ø ball st. steel	432-090
TMS 8mm Ø ball st. steel	432-091
TMS 1/4" Ø ball st. steel	432-092
TMS 1mm Ø hemispherical st. steel	432-093
TMS 2mm Ø hemispherical st. steel	432-094
TMS 3mm Ø hemispherical st. steel	432-095
TMS 1" Ø hemispherical Perspex	432-096
TMS 1/2" Ø hemispherical acetate	432-097

## Auxiliary

	<b>Part No.</b>
FTC 1/2" Dovetail Top Bracket	432-306
FTC 3/4" Dovetail Top Bracket (Replacement fitting for 1000N S-Beam load cells)	432-098
FTC 1" Dovetail Top Bracket (Replacement fitting for 2500N S-Beam load cell)	432-099
TMS Extension Piece Set (Replacement load cell extension adapters for MultiTest)	432-100
TMS Standard Fixture Nut & Bolt (Replacement 'T' bolt fittings for use with MultiTest base plate)	432-101
TMS 'T' Slot Base Plate (Replacement aluminium plate for MultiTest. Includes 'T' bolt fittings)	432-294
TMS Lightweight Chuck Set (3/8" (9.5mm max capacity) chuck with M6 top fitting)	432-308

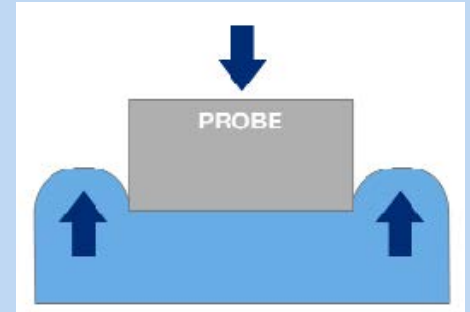
## Fixture Principles

Small diameter cylinders, balls and cones are used to puncture and penetrate a samples surface. The forces generated in the sample depend upon the geometry of the probe used and can be manipulated to accommodate sample irregularities, or recreate conditions imposed during consumption. Mecmesin also offer a range of multiple probe assemblies for the measurement of several test sites in a single sample.

- **Biscuits** to determine hardness
- **Bread** crust and crumb firmness
- **Butter and margarine** penetrometry as quality indicators
- **Chocolate** to measure tempering hardness
- **Fish muscle** profile as fat content indicator
- **Fruits** for ripeness testing in the field
- **Gelatine** Bloom quality measurement
- **Hydrocolloid** functionality and blend development
- **Roasted nuts** to optimize oven profile
- **Sugar confectionery** for sensory correlations

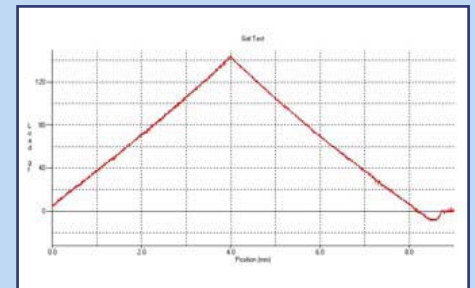
## Characteristics

- Consistency
- Firmness
- Fracture
- Gel Strength
- Hardness
- Rigidity
- Ripeness
- Softness
- Spreadability
- Yield Point

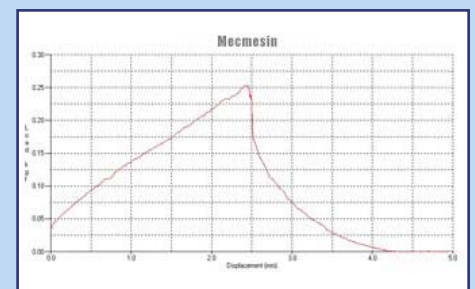


Probe has surface area smaller than that of sample. Probe will puncture sample when sufficient stress is reached, resulting in irreversible damage to the sample.

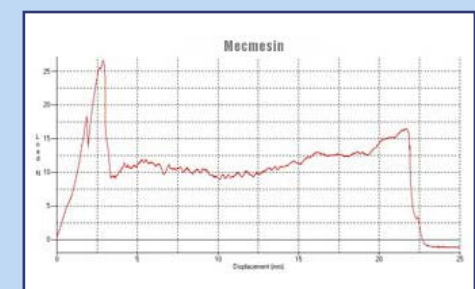
## Test Images



Gelatine bloom strength testing



Wine gum penetration test



Apple puncture testing

## Fixtures



### TMS Magness-Taylor Probe Set

3/8" (9.5mm max capacity) chuck with 3mm, 4mm, 5mm, 6mm and 7mm diameter stainless steel probes each with 1 flat and 1 radius end. Also includes 5/16" and 7/16" traditional Magness Taylor probes for fruit penetrometry and special peeler tool.

**Part no. 432-241**



### TMS Multiple Needle Probe

Set of 9 stainless steel needle probes with 15 degree and taper for the measurement of jams, jellies and other inhomogeneous products.

**Part no. 432-249**



### TMS Multiple Probe Fixture

Set of 20 stainless steel rods with corresponding base holder for the measurement of french fries and other baton shaped products. Easily adapted for use with bean and berry-shaped samples at customers request.

**Part no. 432-253**

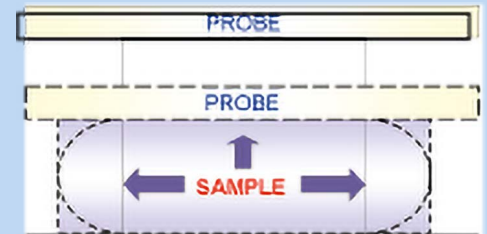
## Test Principles

Compression testing involves compressing a sample in one direction while leaving it unrestrained in the other two. Mecmesin compression probes are large diameter, flat-bottomed cylinders, or platens, used to deform solid or self-supporting samples. It is important that the surface area of the probe is greater than that of the sample throughout the test if true compressive forces are to be maintained.

- **Cakes & breads** during development & manufacture
- **Cheeses, butter & dairy spreads** as a quality indicator
- **Eggs** to measure shell strength
- **Extruded snacks** to improve sensory profile
- **Fruits & vegetables** in the field & factory
- **Gelatine & gels** to quantify strength
- **Low fat sausages** to quantify benefits of fat replacers
- **Packaging** to measure functional strength
- **Sugar confectionery** to optimize formulation
- **Tablets** to quantify consistency for drug release

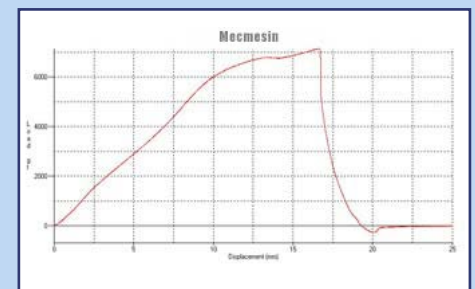
## Characteristics

- **Consistency**
- **Crush force**
- **Elasticity**
- **Failure**
- **Firmness**
- **Hardness**
- **Rigidity**
- **Stickiness**
- **Stringiness**
- **Succulence**

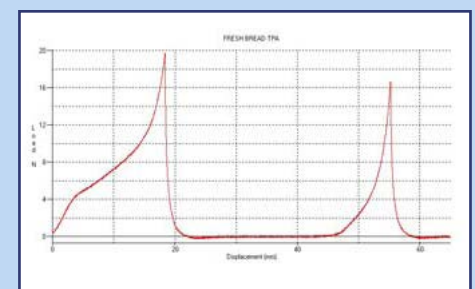


Geometry of samples changes as it is squashed. Friction is generated at test interface. The probe area, by definition, should remain greater than the sample surface area.

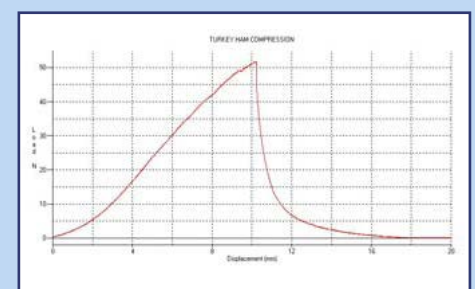
## Test Images



Rigidity testing of carrageenan gel



Texture profile analysis of fresh bread



Compression of reformed turkey ham



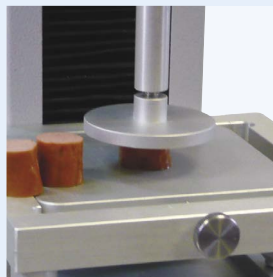
## Fixtures



### FTC Succulometer

Heavy duty cylindrical vessel with corresponding plunger. The cylinder part of the fixture is fitted with a spout to allow free moisture to be expressed and measured as an indicator of sample succulence. For use only with 1000N and 2500N load cells.

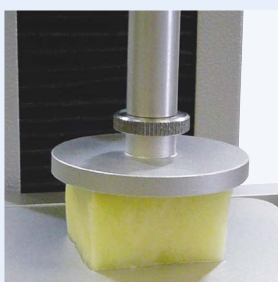
**Part no. 432-255**



### TMS 50mm Diameter Platen

Large 5mm thick aluminium platen with anodized finish for compression testing. Fitted directly to load cell extension piece.

**Part no. 432-009**



### TMS 75mm Diameter Platen

Large 5mm thick aluminium platen with anodized finish for compression testing. Fitted directly to load cell extension piece.

**Part no. 432-010**



### TMS 100mm Diameter Platen

Large 5mm thick aluminium platen with anodized finish for compression testing. Fitted directly to load cell extension piece.

**Part no. 432-011**



### TMS Compression Top Plate

100mm x 150mm rectangular plate for crush testing of large samples. Should be used with 'S' Beam type load cells only, due to high forces generated. Ideal for packaging, whole loaves of bread, cross-section samples of vegetables.

**Part no. 432-013**

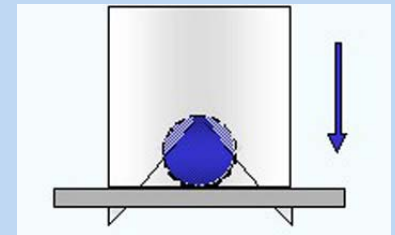
## Test Principles

Precision blades and wires are used to cut through a sample creating a combination of shearing, tearing and compression forces depending upon blade geometry. The blade passes through the sample evaluating its cross-section and accommodating variations in homogeneity. Mecmesin shearing fixtures range from heavy-duty blades developed in conjunction with the USDA to highly sensitive wires for the ISO butter shear test.

- **Butter** to measure process quality
- **Cheese** to optimize ripening
- **Chewing gum tablet** hardness and crispness
- **Chicken breast & other meats** to optimize muscle texture
- **Confectionery bars** to measure bite profile
- **Pasta** for cooking profile
- **Pastry** to measure toughness at different formulations
- **Sausages** as an indicator of shear toughness
- **Snack bars** to measure cross-section
- **Vegetable** to optimize heat treatment

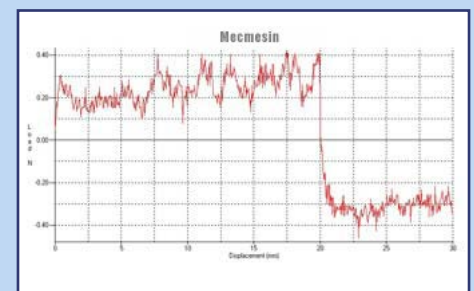
## Characteristics

- **Bite Strength**
- **Consistency**
- **Cook Quality**
- **Resistance**
- **Rigidity**
- **Shear Force**
- **Skin Break**
- **Softness**
- **Tenderness**
- **Toughness**

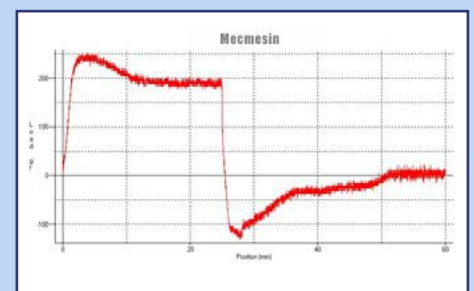


Sample is located beneath the shear blade. Stress increases as blade moves down until sample yields and blade starts to cut through.

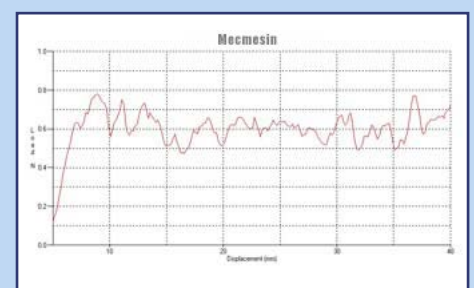
## Test Images



Shear profile of fish gel using a lightweight blade

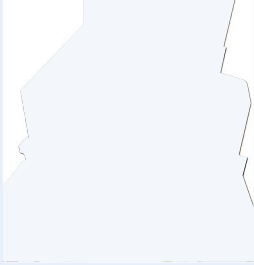


Cutting test of a Hot Dog using a Warner-Bratzler blade



Cut profile of a butter sample following the ISO method

## Fixtures



### FTC Heavy Duty Blade Set

USDA design, Warner-Bratzler type and flat ended 3.2mm thick aluminium blades for use in high force applications with 1000N and 2500N load cells. Includes base plate for easy alignment and complete shearing through sample.

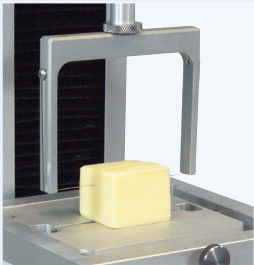
**Part no. 432-014**



### TMS Light Weight Blade Set

Precision 1.2mm thick, stainless steel blades for testing in lower force applications. Set consists of 2 Warner-Bratzler type options as well as, Notched and Flat end configurations for maximized test flexibility. Recommended for use in applications below 1000N.

**Part no. 432-245**



### TMS Wire Shear Probe & Plate

Rigid 80mm frame support supplied with 0.3mm diameter wire conforming to ISO 16305:2005 Butter Firmness standard method. Base plate is included for easy alignment and complete shearing of sample. Recommended for applications below 100N.

**Part no. 432-242**



### TMS Volodkovitch Bite Jaws

Established test technique used to imitate biting action of front incisors. Consists of upper and lower 3mm diameter knife edges generating compression and shear forces. 1cm sq samples are fitted between knife edges and tested via guillotine action.

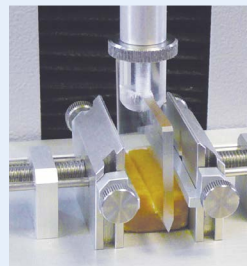
**Part no. 432-016**



### TMS Large Knife Edge

Stainless steel blunt knife edge probe for creation of shear forces in sample. Wide angle creates wedge effect in biscuits, hard cheeses, confectionery and pulses.

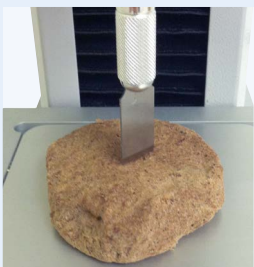
**Part no. 432-017**



### TMS Perspex Knife Edge

Perspex light weight knife edge for low force shear tests in soft foods (less than 250N) such as nougat and mallow.

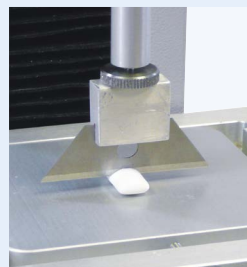
**Part no. 432-018**



### TMS Craft Knife

Rigid support frame holding sharpened steel craft blade. Designed to pass completely through sample and measure entire cross-section.

**Part no. 432-019**



### TMS Large Craft Knife

Large-scale craft blade to cut through samples too hard for the wire or too large for the standard craft blade. Ideal for vegetable florets, meats, pastries and expanded extrusions.

**Part no. 432-295**

## Test Principles

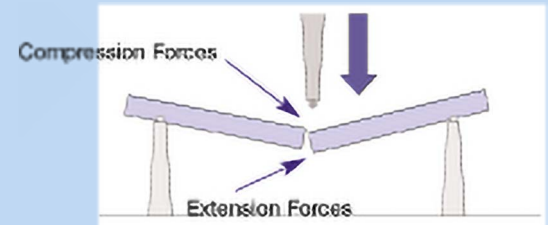
Bending, or snap tests are used to measure the fracture properties of bar or sheet type food products. Samples are typically brittle solids with an homogeneous structure. The most popular Mecmesin fixture used for snap testing is the Three-Point Bend assembly. The sample is supported at either end and deformed in its center causing it to fracture and break at its weakest point.

## Typical Products Tested

- **Celery sticks** to quantify crispness
- **Chocolate bars** to measure break strength
- **Potato chips** to determine shelf-life crispness & staling
- **Digestive biscuits** to measure effect of oven heating
- **Dry spaghetti & other pastas** to standardize production
- **Potatoes** to compare different varieties
- **Sliced almonds** to compare toasting profiles
- **Snack bars** during development for break strength
- **Tablets** as an indicator of hardness
- **Tortilla** to optimize manufacturing process

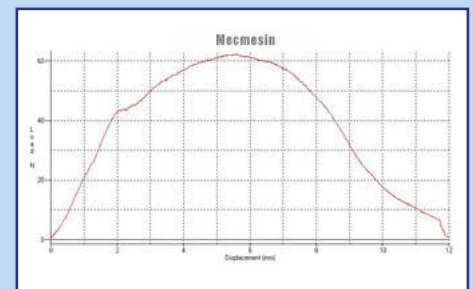
## Characteristics

- **Break**
- **Brittleness**
- **Crispness**
- **Crunchiness**
- **Failure**
- **Flexure**
- **Fracture**
- **Hardness**
- **Snap**
- **Work at break**

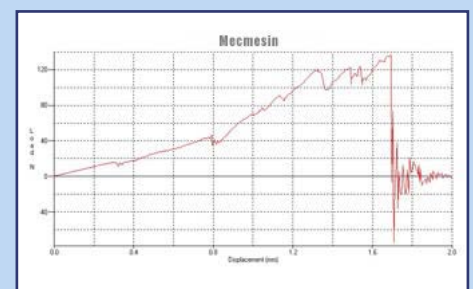


Significant stress is created within the sample to the point where failure occurs and the sample breaks.

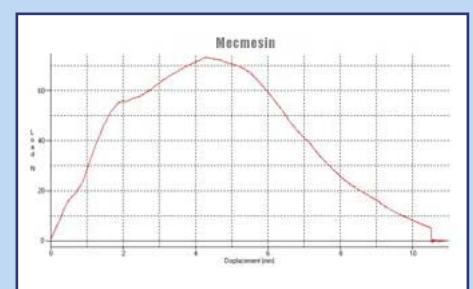
## Test Images



Bend profile of soft cookie



Break strength of spaghetti



Snap force of celery sticks

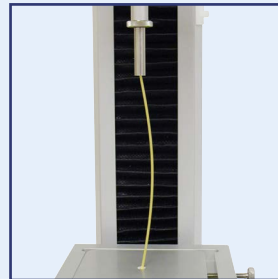
## Fixtures



### FTC Heavy Duty Three-Point Bend

Large scale three-point bend assembly with 85mm high arms and 200mm support span. Ideal for large samples, such as bananas, which are tested whole and generate higher forces. Use with 1000N and 2500N load cells.

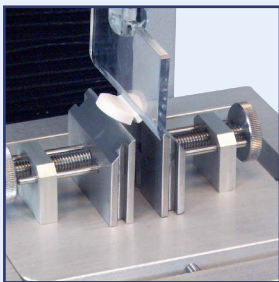
**Part no. 432-024**



### TMS Spaghetti Snap Fixture

Top and bottom fixing used to hold prepared pieces of uncooked spaghetti. Flexure properties can be quantified and used as an indication of durum wheat quality used in the production of the spaghetti. This fixture provides interesting information relating to the potential resilience of the product during packing and transportation i.e. its brittleness.

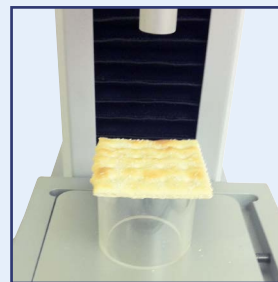
**Part no. 432-025**



### TMS Mini Vice & Three-Point Bend

Small scale three-point bend assembly with 1-40mm span for precision fracture of small samples such as tablets. Includes Perspex knife edge and is ideally suited for applications below 250N.

**Part no. 432-247**



### TMS Friable Food Support

All sided support fixture for 'crisp and potato chip' type products. Use with hemispherical probes to replicate punching through with finger.

**Part no. 432-042**

## Technique

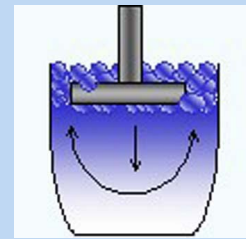
Extrusion tests are used to displace viscous liquids or semi-solid products not suitable for traditional viscometry. Samples are either extruded in a forward direction through a holding container base or in a backward direction up and around a loosely fitting probe. The Mecmesin product range includes shallow discs to extrude samples in factory type containers, or precision test cells for enhanced manipulation.

## Typical Products Tested

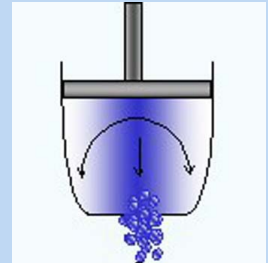
- **Fruit purées** to assess pumpability
- **Fruit topping** with particulates to optimize viscosity
- **Mayonnaise and thick sauces** to correlate with mouthfeel
- **Personal care products** to quantify functional structure
- **Pumpable fats** to measure shear thinning
- **Starch pastes** to assess thickening
- **Thick soups & sauces** for ready prepared foods
- **Weak hydrocolloid gels** to assess thickening
- **Whipped creams** to measure stability
- **Yogurts** to measure affect of formulation changes

## Characteristics

- **Adhesiveness**
- **Consistency**
- **Flow**
- **Internal Structure**
- **Mouthfeel**
- **Stringiness**
- **Thickness**
- **Thinning**
- **Viscosity**
- **Yield Point**



Displaced sample flows up and around probe

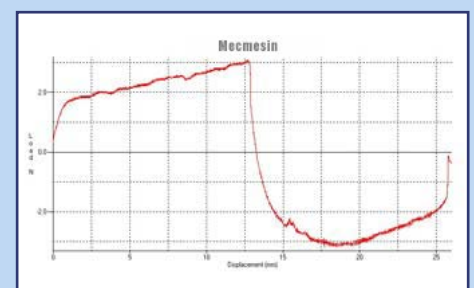


Displaced sample flows through aperture in base

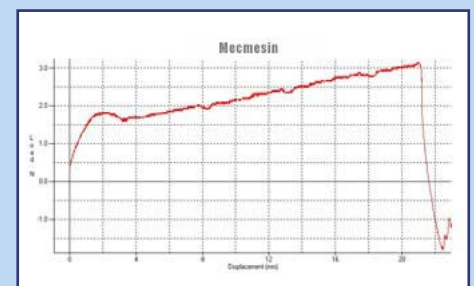
## Test Images



Back extrusion of confectionery frosting

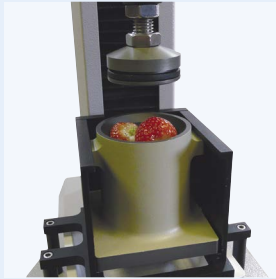


Back extrusion of a low fat yogurt



Forward extrusion of hydrogenated baking fat

# Fixtures



## FTC Universal Cell

Universal testing cell for back and forward extrusion testing. The test cell consists of a 195ml capacity sample chamber and is supplied with slotted and drilled base plates for forward extrusion with a 57mm diameter piston plunger. A solid plate for back extrusion is supplied for use with a 51mm diameter plunger. The cell is used with a wide range of semi-solid and viscous fluids from rehydrated potato flakes to sugar syrups.

**Part no. 432-032**



## TMS Dual Extrusion Cell

Set of 3 cylindrical pots with changeable bottom plates for backward and forward extrusion testing. Includes 4 extrusion plates to accommodate different sizes of sample particulates, ideal for fruit purées and yogurt products.

**Part no. 432-026**



## TMS Extrusion Cone

170 degree 40mm diameter 20mm high Perspex plunger to facilitate air removal during testing.

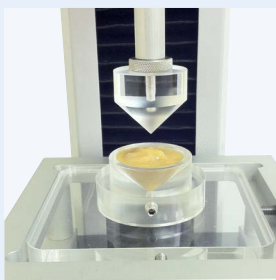
**Part no. 432-027**



## TMS Extrusion Platen Set

Set of 30mm, 40mm and 50mm diameter aluminium plates each 5mm thick for back extrusion testing in standard factory or consumer packaging.

**Part no. 432-029**



## TMS Butter & Margarine Spreadability Jig

Used to measure the spreadability of margarines, butter, table spreads and waxes. Prepared samples are forced between 90 degree corresponding cones during the compression cycle of testing providing an indication of sample spreadability.

**Part no. 432-309**

## Technique

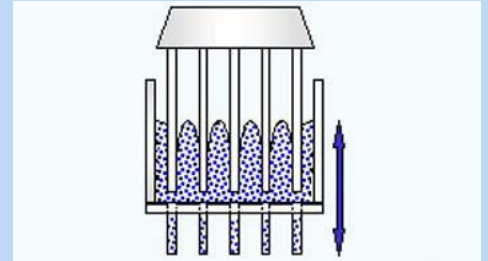
Bulk analysis is used to measure particulate products where analysis of individual components is not practical or representative. Mecmesin test fixtures are designed to maximize the contact area between probe and sample surfaces. Multiple blades are used in the Kramer shear cell causing combinations of compression, shear and extrusion forces while the Universal test cells follow compression to extrude particulate samples.

## Typical Products Tested

- **Beans & pulses** to assess heat treatment
- **Breakfast cereals** for bowl life testing
- **Cheese curds** during production
- **Cooked pasta** to identify formulation changes
- **Cooking sauces** to optimize heat treatment
- **Meat patties** for toughness & sensory correlation
- **Peas** for standard testing in the field
- **Pickles & preserves** during process development
- **Raw and processed fruits & vegetables** for firmness
- **Rice** for ready cooked packaging

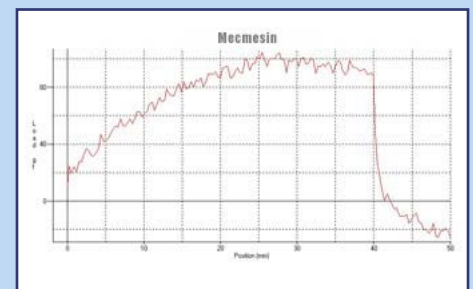
## Characteristics

- **Adhesiveness**
- **Cook Quality**
- **Fibrousness**
- **Flow**
- **Shear Hardness**
- **Softness**
- **Stickiness**
- **Tenderness**
- **Toughness**
- **Viscosity**

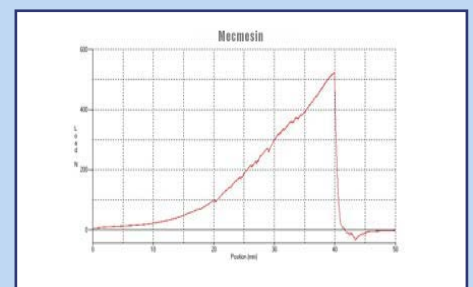


Large sample size is representative of treatment and handling by the consumer. Increased sample size provides increased reproducibility in highly variable product.

## Test Images



Kramer shear profile of blueberry sample



Kramer shear profile of chopped Italian tomato



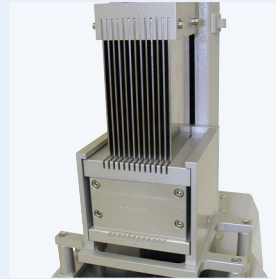
# Fixtures



## Mecmesin Standard Shear Compression Cell - Model CS-1

The full size Kramer Shear Cell, with ten 3.2mm thick parallel blades and corresponding test cell, for compression-extrusion-shear testing of inhomogeneous large particulate samples. The test cell design is by far the most widely used device in the food industry for the measurement of food texture. Generates high forces and is only suitable for use with 1000N and 2500N load cells.

**Part no. 432-240**



## Mecmesin Thin Blade Compression Cell - Model CS-2

Variation of the Kramer Shear Cell, with thirteen 1.5mm thick parallel blades, for compression-extrusion-shear testing of inhomogeneous small particulate samples, such as rice, bread crumbs and cottage cheese curds. Generates high forces and is only suitable for use with 1000N and 2500N load cells.

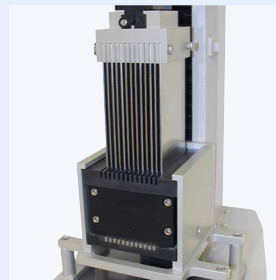
**Part no. 432-031**



## Mecmesin Standard Shear Compression Cell - Model CS-1A

The CS-1A is geometrically identical to the Standard Kramer Shear Cell, but made from Delrin, with the blades being Stainless Steel. When testing high acid foods, such as diced tomato products, the CS-1A provides a much longer life span. Generates high forces and is only suitable for use with 1000N and 2500N load cells.

**Part no. 432-240-A**



## Mecmesin Thin Shear Compression Cell - Model CS-2A

The CS-2A is geometrically identical to the model CS-2 Kramer Shear Cell, but made from Delrin, with the blades being Stainless Steel for testing high acid foods. Generates high forces and is only suitable for use with 1000N and 2500N load cells.

**Part no. 432-031-A**

## Technique

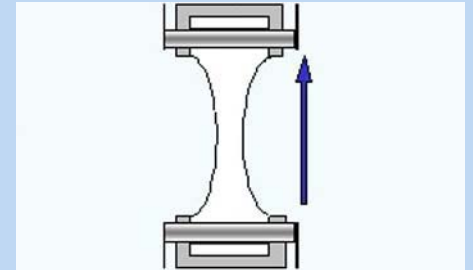
Tension tests are used to measure the break or extension properties of a sample. Products are held firmly at each end and stretched until they break at their weakest point. The irregular geometries of food make it very difficult to grip samples. The Mecmesin tension grips accommodate the widest range of sample shapes, imitating handling by the consumer.

## Typical Products Tested

- **Cherry stalks** as a ripeness indicator
- **Chewing gum** sticks for break properties
- **Gummy sweets** extension properties for sensory correlation
- **Meat loaves & bologna** quality assessment
- **Noodles & pasta** for cooked tensile strength
- **Packaging films** for snap evaluation
- **Packaging seals** for integrity & strength
- **Pizza base** tear testing in product development
- **Processed cheese strings** for extensibility in development
- **Salami skin** peel profile for process optimization

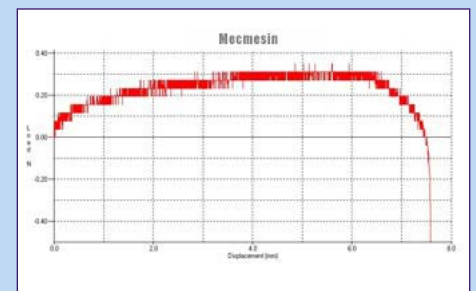
## Characteristics

- **Break Load**
- **Deflection**
- **Deformation at Break**
- **Extension**
- **Modulus/Stiffness**
- **Peel Strength**
- **Seal Integrity**
- **Snap**
- **Stretch**
- **Work at Break**

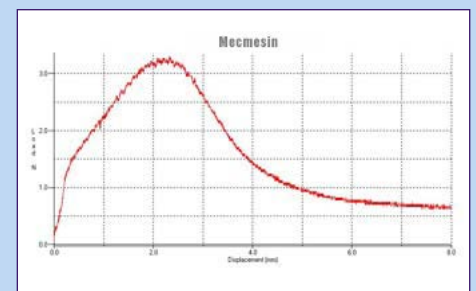


Sample is fixed at base. Top jaw moves up and sample is extended until a break is caused at the weakest point.

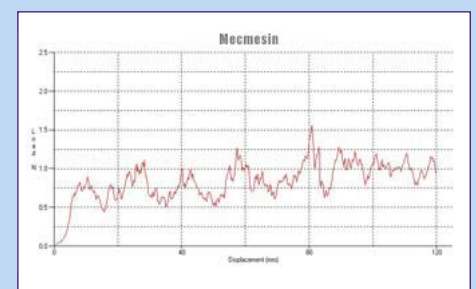
## Test Images



Tensile strength of gummy sweet



Break profile of chewing gum strip



Peel properties of sausage skin

## Fixtures



### **TMS Extensibility Fixture**

Large and small aluminium lower plate with radiused hole with corresponding top plate for gripping sample. Purchase test probe to burst sample separately.

**Part no. 432-046**

## Gelatine & Gels

Mecmesin texture analyzers conform directly to ISO 9665 and BS757:1975 or AOAC 23.007 recommendations for gelatine Bloom strength measurement. Mecmesin product range includes all equipment for the preparation, calibration and analysis of Bloom strength. High-level processing power of the Emperor software makes detailed analysis of a wide range of other gelled ingredients and products possible. Mecmesin provide a range of cylinders, ball probes and blades specifically for gel investigations.



### Typical Products Tested

- Agar
- Alginate
- Carrageenan
- Gelatin
- Mixed Polysaccharides
- Pectin
- Starch Gels
- Surimi
- Tara Gum
- Xanthan Gum

### Characteristics

- Adhesiveness
- Bloom Strength
- Break
- Deformation
- Elastic Modulus
- Hardness
- Rigidity
- Rupture Point
- Stress Relaxation
- Yield Point

### Gelatin Fixtures



#### Bloom Sample Bottles

Conforms to ISO 9665, GME, AOAC 1985 and BS757 standards. Pack of 10.

**Part no. 432-053**

#### Bloom Sample Bottle Stoppers

Conforms to ISO 9665, GME, AOAC 1985 and BS757 standards. Pack of 10.

**Part no. 432-054**

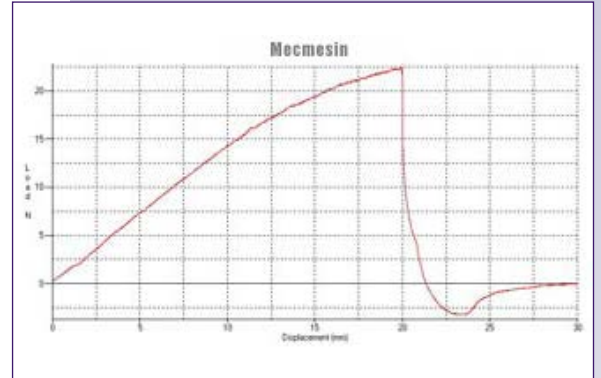
# Dough Testing Fixtures



## TMS FMBRA Dough Pots

For controlled preparation of soft biscuit dough. Includes aerator and compressing plunger. For a sample penetration test it is recommended to use the 6mm Ø probe.

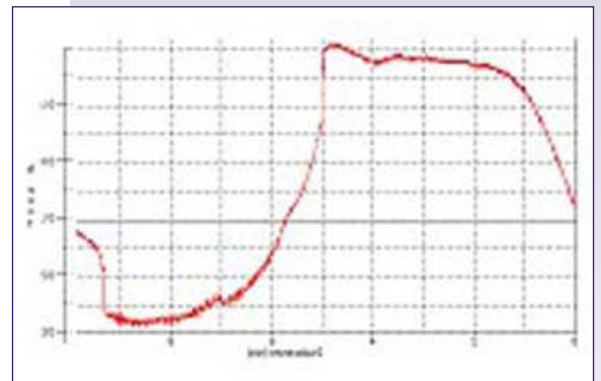
**Part no. 432-034**



## TMS Dough Stickiness Fixture

For controlled extrusion of prepared dough following principles established within the Chen/Hoseney technique. For a stickiness test it is recommended to use the 25.4mm Perspex probe.

**Part no. 432-035**



## AACC 36mm Ø Cylinder AACC 21mm Ø Cylinder

Standardized aluminium cylinders developed by the American Association of Cereal Chemists (AACC) for the measurement of breadcrumb and other bakery products.

**Part no. 432-036**

**Part no. 432-037**



## TMS Dough-Gluten Extensibility Fixture

Based on the Keifer design, this fixture allows users to make wheat quality determinations prior to processing.

**Part no. 432-506**

## Technique

The way in which a sample is held or presented will directly influence the accuracy of results generated. Forces are commonly manipulated with test accessories to replicate consumer handling or consumption. It is also important to secure or present the sample to the instrument as reproducibly as possible.

Mecmesin sample presentation fixtures are specifically designed to accommodate irregular shaped samples or containers. These fixtures prevent sample movement during testing, allowing accurate calculation of characteristics, such as adhesiveness, where it is critical that the sample remains firmly in place during the return stroke of the texture analyzer. Once set up, the technologist can simply test sample after sample with the guarantee of central alignment between test probe and product.

# Fixtures



## TMS Standard Fixture Table

Standard fixture table is used for easy configuration and alignment of TMS test fixtures. The unique design facilitates the rapid configuration of tests using our wide range of TMS fixtures. In addition, the

table is designed to accept competitor fixtures and accessories maintaining consistent test conditions and facilitating cross-correlations between different instruments so you can have complete confidence when transferring texture methods between testing locations.

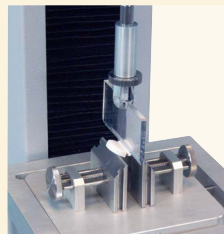
**Part no. 432-243**



## TMS Small Sample Holder

The Small Sample Holder has been designed to accommodate spherical or irregular samples. Three sizes of holding plate are supplied which are fitted above and below samples, maximizing test flexibility. The small sample holder is a must for clumsy puncture tests where it is difficult to hold individual samples.

**Part no. 432-244**



## TMS Mini Sample Vice (& Three-Point Bend)

The mini sample vice consists of two adjustable vice jaws that move horizontally to grip the sides of regular shaped samples. 'V' slots in the jaws accommodate tablet type products and

prevent movement during puncture and penetration tests. Top jaws with vertical travel are used to firmly fix samples in place increasing result accuracy during decompression of the sample.

**Part no. 432-247**



## TMS Container Grips

This fixture is used in extrusion tests where semi-solid or liquid samples are tested in their consumer packaging or other collection vessel. Soft grip rubber arms hold containers from 10mm to 70mm in diameter firmly. This is critical in measuring adhesion properties of viscous liquids during the return cycle of testing.

**Part no. 432-038**

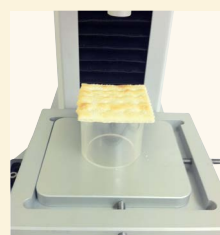


## TMS Spherical Sample Holder

This fixture is used to support large diameter spherical samples that do not require holding in place during the return cycle of testing. It is ideal for holding eggs for shell hardness testing

or fruits such as pears and avocado from which only compression data is required.

**Part no. 432-039**



## TMS Friable Food Support

The friable food support consists of a hollow ring used to provide 360° support to brittle foods with roughly circular geometries such as potato chips. Based upon original research

from the 1960's this fixture is used in conjunction with small diameter ball probes to punch through and measure sample fracture.

**Part no. 432-042**



## FTC Large Scale Accessory Table

This heavy-duty table is used to support Mecmesin Kramer shear cells. The table is designed to hold the cells in accurate alignment during testing and prevent the automatic cleaning

plate from rising up with the blades during the return stroke of the texture analyzers.

**Part no. 432-043**

Mecmesin reserves the right to alter equipment specifications without prior notice. E&OE

# Mecmesin

a PPT Group company

a world leader in affordable  
texture analysis solutions

Mecmesin has extensive experience in practical food texture measurement and provides texture analysis systems for field, factory and laboratory test environments. Our expertise combined with our cost effective solutions makes us your ideal partner for your texture measurement needs.



ISO 9001  
Quality  
Management  
Systems  
CERTIFIED

FS 58553  
BS EN ISO 9001:2015

Head Office - UK  
Mecmesin Limited

e: [sales@mecmesin.com](mailto:sales@mecmesin.com)

[www.mecmesin.com](http://www.mecmesin.com)

431-975-02