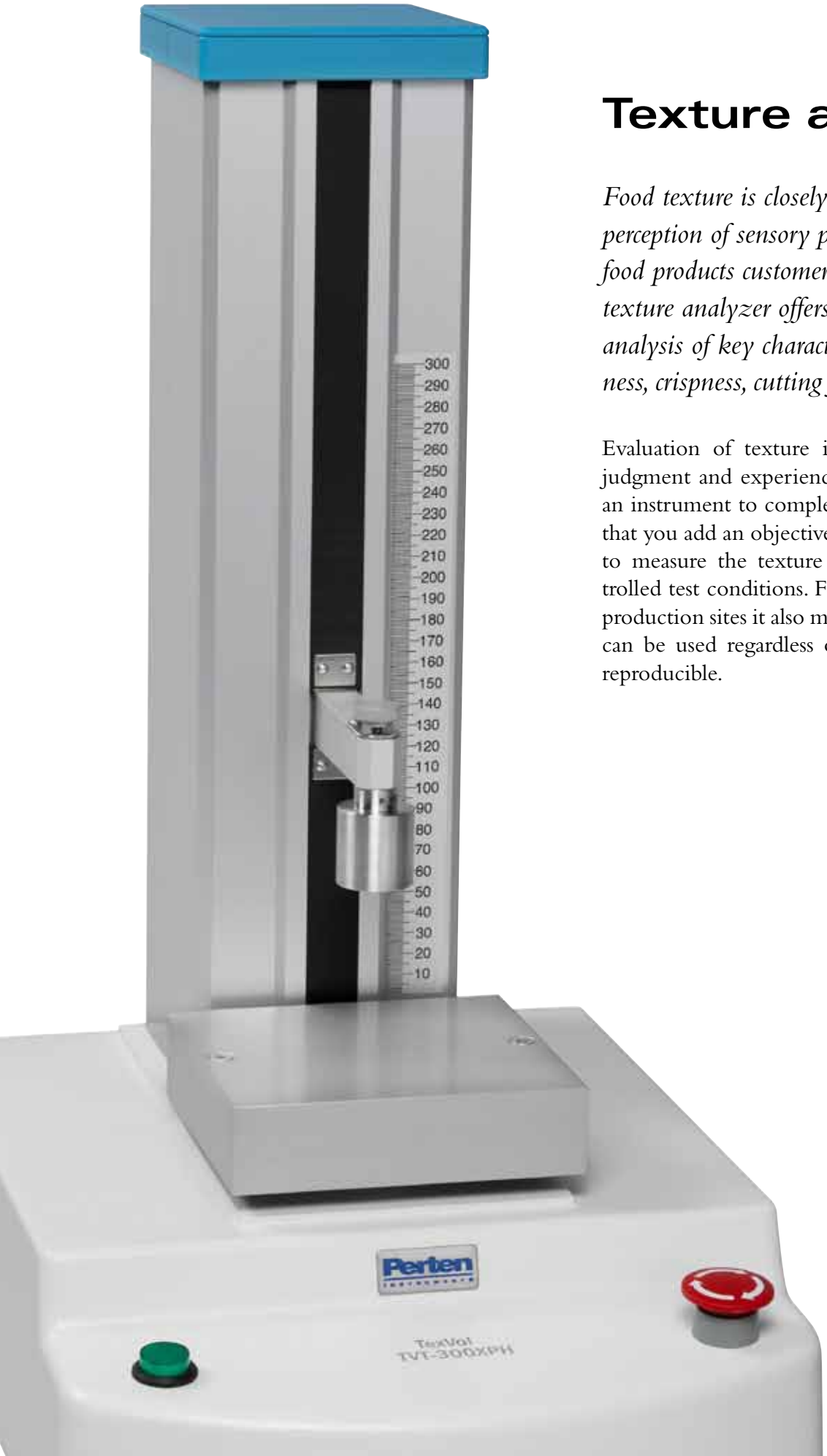
Texture Analyser

TexVol TVT-300

Texture analysis made simple

Perten INSTRUMENTS



Texture analysis

Food texture is closely linked with customer perception of sensory properties and hence with food products customer value. The TVT 300 texture analyzer offers rapid and objective analysis of key characteristics, including firmness, crispness, cutting force and elasticity.

Evaluation of texture is often based on sensory judgment and experience. The advantages of using an instrument to complement sensory evaluation is that you add an objective, fast and cost efficient way to measure the texture in well-defined and controlled test conditions. For producers with multiple production sites it also means that the same methods can be used regardless of location, and results are reproducible.

Efficient, easy and productive

TVT-300 Series

This powerful yet easy-to-use texture analyzer can be used for a variety of tests on different products and materials. It ensures an efficient, easy and productive manner to objectively describe texture.
The instrument can compress, pull, or cut samples, and accurately measures position and force over time to describe textural properties of food products. Force data are stored in tables and displayed as graphs. The TVT software is intuitive, easy-to-use and doesn't require texture analysis expertise to provide valuable information, but still allows for extensive analysis of results.

Features and Benefits

Objective Analysis - The TVT provides fast, simple and objective evaluation of physical properties. Results are reproducible and will be the same regardless of operator.

User-Friendly - The comprehensive but easy-to-use software, allows operators to use the instrument immediately after installation. The TVT comes delivered with pre-installed standard curves and starter methods, and doesn't require expertise in texture analysis or rheology.

Easy Data Access - The TVT stores data in a database, and using the software you can at any time search, sort and filter to find exactly the data and results you need. The software also makes it very easy to export any data and results to other applications such as spreadsheet programs or report software.

Rugged - The robustness of the instrument makes it equally suitable in laboratory or production line settings.

Versatile - Many sample testing attachments available for a wide range of products – solids, gels, crackers, baked goods, noodles and much more.

Configurable - Measure standard parameters or report in-house/customized terms developed by your R&D or customers. Create your own lexicon.

Gel

Confectionary

Bakery

Applications

The TVT series of instruments are suitable for a wide range of applications. A variety of accessories are available for testing of different types of products. To get the most information on your samples the instrument can be set for different test modes, such as Single cycle, Multiple cycles, Hold until time, Fracturability, Tensile, Adhesiveness and Springback.

Regardless of the type of product you need to test and which characteristics that are necessary to determine, the TVT is very easy to use and results are easily interpreted and transferred to other software.

Texture characteristics

Hardness/Firmness
Relaxation
Springiness
Resilience
Adhesiveness
Cohesiveness
Stickiness
Fracurability
Bending capacity
Rupture/Break Force
Crispness
Brittleness
Chewiness
Gumminess
Tensile strength
Extensibility

Fruits

Vegetables

Bakery

Analyze dough as well as finished products to ensure the right quality and characteristics, and to minimize rework and scrapping in production:

- Dough extensibility
- Bread firmness and staling rate
- Crispness of crackers and cookies

Use standardized methods (AACC and AIB) as well as generic or customized ones.

Pasta and noodles

Test cooked and dry pasta and noodle products to verify that every batch meets specifications. Using a TVT you can get information to complement your sensory experts and panel – in less than a minute:

- Cutting and shearing
- Firmness and adhesiveness
- Elasticity and break strength
- Fracture test

A number of probes and test profiles are available for pasta and noodle testing.

Fruits and vegetables

The TVT is suitable when breeding, producing, buying and processing fruits and vegetables. It can determine a range of characteristics, including:

- Ripeness
- Bruising
- Crispness
- Flexibility

Dairy products

In dairy products texture, consistency and mouthfeel are extremely important. A texture analyzer enables you to verify the key characteristics of most dairy products:

- Firmness and spreadability of butter and margarine
- Firmness in hard cheese
- Hardness, stickiness and spreadability of soft cheeses
- Consistency testing of yoghurt, ice-cream and similar products

Meat, fish and egg

Test firmness, toughness, cutting force, tensile strength and more in a wide range of products.

Confectionary

Determine hardness, flexibiilty and tensile strength of candy and stringiness of syrups.

Other applications

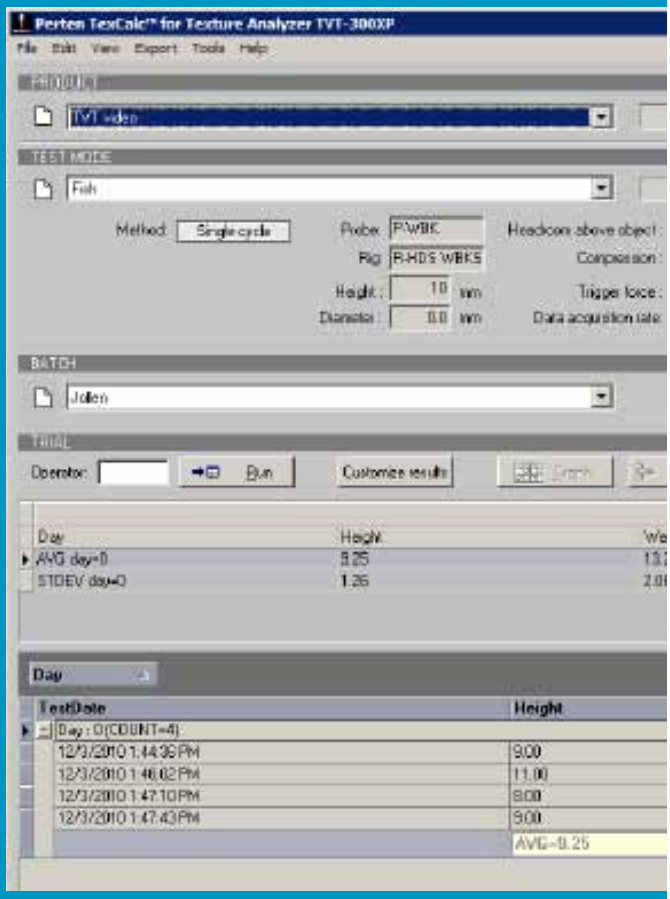
The TVT is used in a wide range of applications. Please consult with Perten Instruments regarding your requirements.

Pasta & noodles

How the instrument works

The TVT texture analyzer is extremely easy to use, and requires very little training. Anyone can use the instrument, and new operators will confidently analyze samples after just a few minutes.

1. Attach suitable accessory to the instrument (depends on application) and place the sample on the instrument
2. Select a Product
3. Select a Test Mode
4. Select/Add a Batch
5. Start the measurement. Force is applied to the product either by pulling or compressing it and the force is plotted as a function of time or distance
6. Test results are shown on screen with statistical information calculated automatically. All test results and measurement data can easily be exported to a spreadsheet program for further analysis.



How to view the results

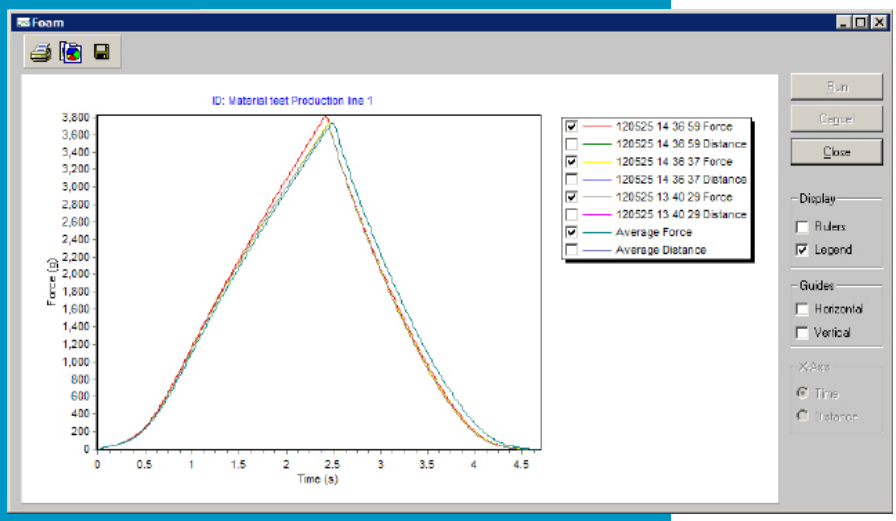
Statistics are automatically calculated for the results. Sort the results on the screen. Choose which results to be shown on screen by dragging them to and from the Customize box.

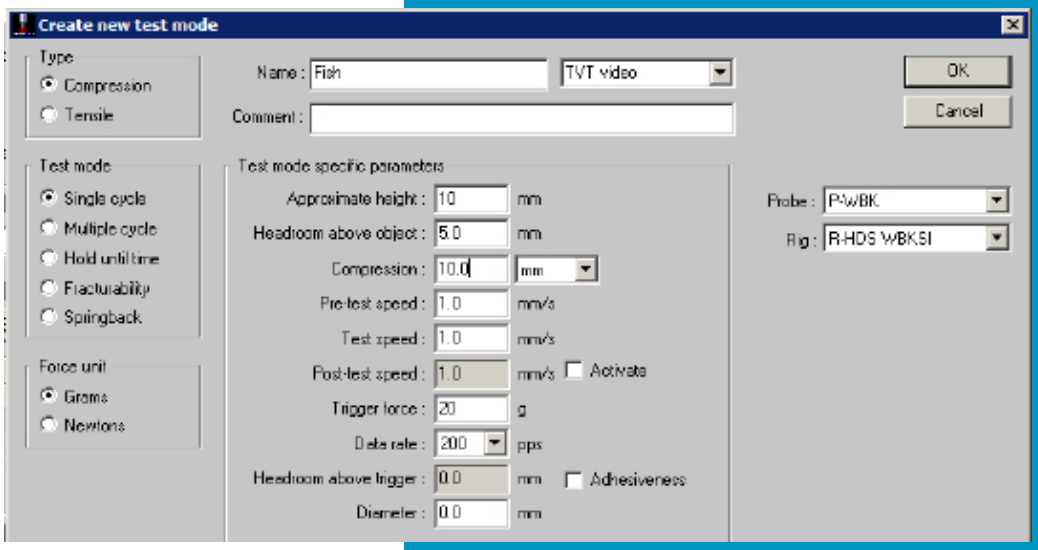
Several graphs can be shown in the same window for comparison.

It is possible to add specific information to a batch by adding a comment. E.g. if different enzymes are used in the batches to the same Product name, it is possible to specify which enzyme that is used before starting the test.

For further processing of the data, you can transfer it to a spreadsheet software.

6.

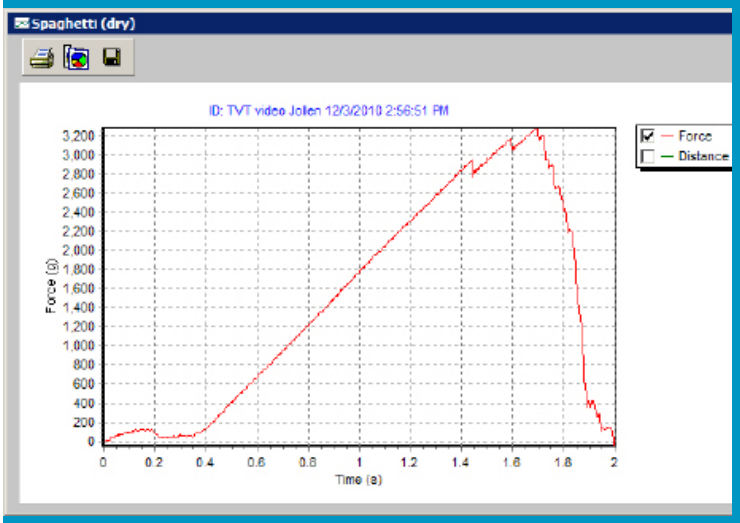


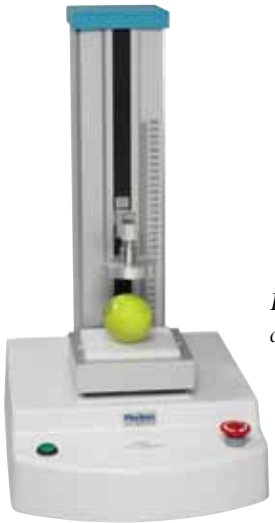


Setting up new products

The TVT software includes a number of selectable starter methods. You can also set up your own measurement profiles, with settings that allow you a "SOP"-Standard Operating Procedure and give the results you need from your samples.

Compare a stored standard profile with your result curve in order to visualize the accepted variation. After the measurement several curves can be overlaid in order to identify abnormal results.





Place the sample on the instrument.

Accessories - rigs and probes

A wide range of rigs and probes are available, and a few examples are listed below. We also offer customization and can develop accessories according to your requirements.

Cylinder probes and compression plates Cylinder probe is most commonly used for compression and puncture test. Compression plates are used for back and forward extrusion of a product.

Spherical and conical probes Conical probes are used to test the spreadability of plastic products, spherical probes are used for sensitive products for a gentle compression.

Break and knife probes Used for the fracturability and break strength, firmness, hardness and cutting force.

Technical Specifications

Two configurations are available based on the load cell requirements. The TVT-300XP is supplied with load cells ranging from 3 to 30 Kg and the TVT-300XPH with load cells ranging from 5 - 100 Kg. The load cell should be selected to correspond to the estimated maximum force the test will apply to the product or range of products.

Force Range: +/- 3, 5, 7, 10, 15, 20, 30, 50, 75, 100 Kg
Force Resolution: 1 g
Force Accuracy: Better than 0.017%
Speed Range: 0.1-30 mm/sec
Speed Accuracy at 5mm/s: up to 0.01 %.
Position Accuracy: +/-0.02 mm
Data Acquisition Rate: Up to 333 datapoints/sec.
Operating Temperature: 0-40°C
Instrument Dimensions XP/XPH (H x W x D): 60/64 x 34 x 44 cm
Net Weight: 20 Kg
PC Interface: Standard RS 232 serial porter USB (USB/serial converter included)
Power Supply: 100-250 VAC 50-60 Hz

PC Requirements

Operating System: Windows 2000, XP, Vista, 7
Processor: 1.6 GHz
Memory: 512 Mb RAM
Hard Drive Space: 100+Mb