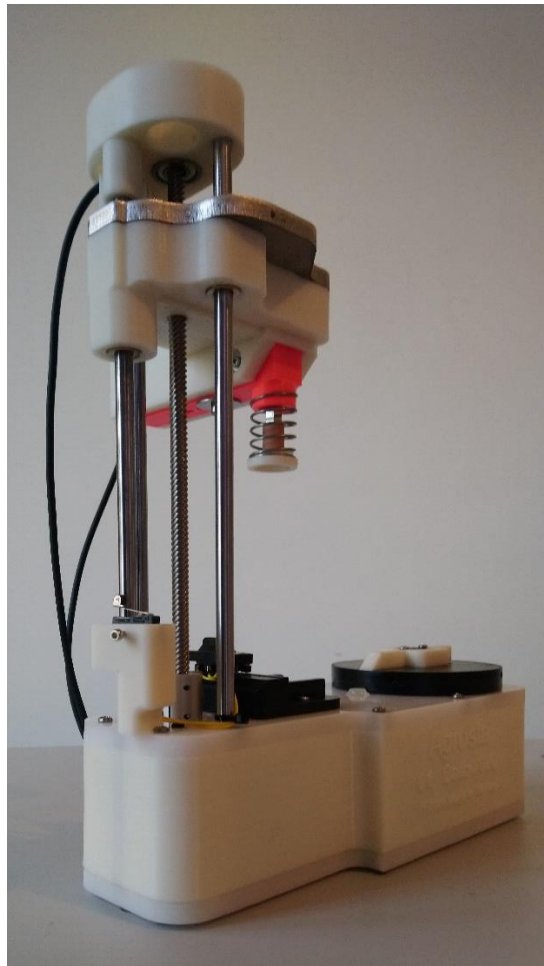


The Agrosta® *Angèle* has been designed in 2020

In order to provide to researchers a simple and reliable tool to determine : Freshness, spreadability, Tenderness, Springiness, Gumminess, Hardness, Firmness, Consistency, Fracturability etc of a variety of Food Products and soft materials



Many thanks for having acquired an Agrosta instrument

Your package contains :

- The instrument itself
- 2 Tables
- Tips according to your requirements
- A calibration stand
- A power supply & a USB cable
- The software for windows on USB stick (With video for software training)
- A certificate of conformity
- A manual

Agrosta® Angèle has been designed and produced in France by Agrosta

- The motors are Nema 23 stepper motors
- The machine comes with a double core microprocessor (ESP32) : One core is managing the pressure measurements, the other one manages the motors and distance measurements
- Comes with a light version of Excel (Inside machine software)

LOAD RANGE (LOAD CELLS TYPES AVAILABLE)	14 Kg max pressure
AVERAGE ACCURACY	+/-2 grams
POSITION RANGE	0 to 170 mm
TEMPERATURE MEASURING RANGE	0 to 90 °C
COMPATIBILITY	Windows 2000 XP Vista Windows 7 Windows 8 Windows 10
POSITION ACCURACY	0.03 mm
SPEED	Up to 27 mm/s
SPEED ACCURACY	+/- 0.1% of set speed
CUSTOM DESIGN FIXTURE AND PROBE	YES (3D printing, immediate result)
CUSTOM SOFTWARE	Option
CUSTOM ELECTRONICS	Electronics can be customized Additional features available
OPEN SOURCE	Code provided to pilot the machine Standard Nema 23 motor Standard ESP32 Low cost spare parts
DESIGN Generation	~ 2019
TEMPERATURE PROBE	No
CALIBRATION	Check using Calibration stand with calibrated weight
VARIETY OF BASE PLATES AND PROBES	More than 100
TEST PARAMETERS	11
PRE-CONFIG TEST MODES	3
MADE IN	FRANCE
DATA EXPORT FROM SOFTWARE	Excel, Word, Xml, Jpg
WORKS WITHOUT COMPUTER	NO
GUARANTEE	2 Years full guarantee
STATISTICS	Unlimited data

1/ Install Driver

- Don't connect your machine
- Insert USB stick in your computer

Nom	Modifié le	Type	Taille
CH341SER	14/04/2018 10:23	Dossier de fichiers	
INSTALL	14/04/2018 10:23	Dossier de fichiers	
Agrosta_Driver.EXE	24/01/2017 01:17	Application	238 Ko
INSTALL.EXE	26/02/2014 10:39	Application	212 Ko
INSTALL.ZIP	16/02/2018 15:50	Archive WinRAR ZIP	11 735 Ko

- Double click on "Agrosta_Driver" – Follow setup procedure

2/ Connect Usb cable between instrument and your computer

3/ Wait a few seconds till it is recognized (Driver linked to device)

4/ Install Software from USB Stick

CH341SER	27/08/2019 14:07	Dossier de fichiers	
INSTALL	29/08/2019 17:00	Dossier de fichiers	
Agrosta_Driver.EXE	24/01/2017 01:17	Application	238 Ko
autorun.inf	03/08/2019 16:27	Informations de c...	1 Ko
BelleSoftPubli.mp4	29/08/2019 16:56	Fichier MP4	309 095 Ko
INSTALL.EXE	30/10/2017 11:38	Application	232 Ko
INSTALL.ZIP	29/08/2019 17:00	Dossier compressé	19 304 Ko

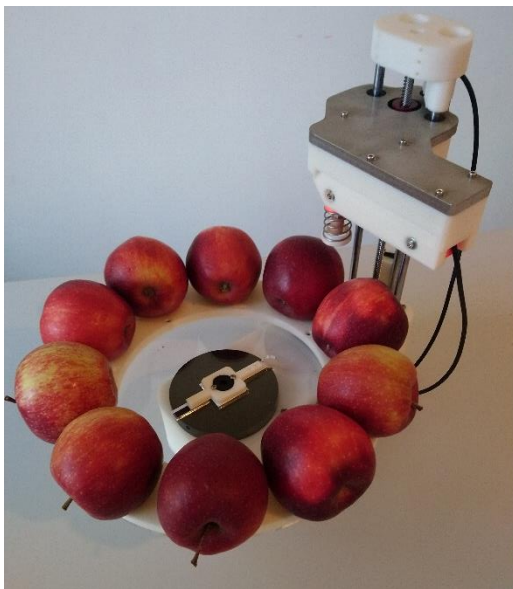
- Double click on "INSTALL.EXE"
- Follow Setup procedure

5/ Connect the camera via USB

6/ Connect Power Plug

Operating :

- In case of EMERGENCY = REMOVE POWER PLUG !
- Start the software from the PC, and select the COM port corresponding to your device - Usually, the last COM is the good one (As far as the driver has been installed according to previous instructions)



First Cycle :

- Once the COM is selected, a window is displayed and asks you the maximum acceptable pressure for the tests you are going to perform
- Choose 1000 grams for very fine testing like Bloom, and 17 000 grams for fruit penetrometry (Please note that Angèle will be limited to 14 000 grams anyway by the motor power, even if 17 000 grams is selected)
- Then click on “OK”

For testing the machine, place the table, put any tip on the sensor head, and place something thick and soft on the table, inside the cups like a piece of foam

Then click on the preset button “FRUIT PENETRO”

Then select “Single measurement” in the bottom left of the window

Then click on “LAUNCH CYCLE (PUSH)”

The tray moves down, and a graph of pressures is displayed, the data is recorded under Excel

Select “HBVCAM CAMERA” in the list of cameras – As far as the camera provided with the machine has been connected

The screenshot displays the software interface for the Agrosta Angèle texture analyzer. The window title is "AGROSTA ANGELE : AUTOMATIC TEXTURE ANALYZER FOR LARGE BATCHES".

Left Panel: Contains device selection (COM1), buttons for "EXPORT AND PROCESS DATA", "SWITCH TO EXCEL AND DATA VIEW", "USE A NEW EXCEL SHEET", "RECORD PROFILE", "LOAD PROFILE", and "TARE CLICK TILL OK APPEARS IN GREEN". It also features a "Cell Factor" input field and a "Click and USB disconnect / reconnect + refresh" button.

Measurement Parameters: Includes "FIRMNESS", "COHESIVENESS", "ELASTICITY", "BRITTLINESS", and "GUMMINESS" sliders. A "Unit for records" section allows selection between Grams, Milli Lb, and Centi Newton. A "Number of cups on the table you use" section offers options for 8, 10, 16, 20, and 32 cups, along with "Single measurement (No Table)".

Measurement Settings: Includes "FRUIT PENETRO" and "MASTICAT. SIMULATION (DOUBLE)" buttons. A "CHANGE PRESSURE RANGE" button is also present. A "STOP DATA FLOW" button and a "DISPLAY PRESSURES WITHOUT MOVEMENT" button are located at the bottom left.

Measurement Parameters (Right): Includes "Trigger in grams" (50), "High Speed in 0.1mm/s" (200), "Low Speed in 0.1mm/s after contact" (30), and "Stroke after contact in 0.1mm" (70). It also has "Parameters for double pressure only" with fields for "Return Speed before second pressure", "Return stroke for second pressure", "Pause time before second press in ms", "Low Speed second pressure", and "Stroke for second pressure".

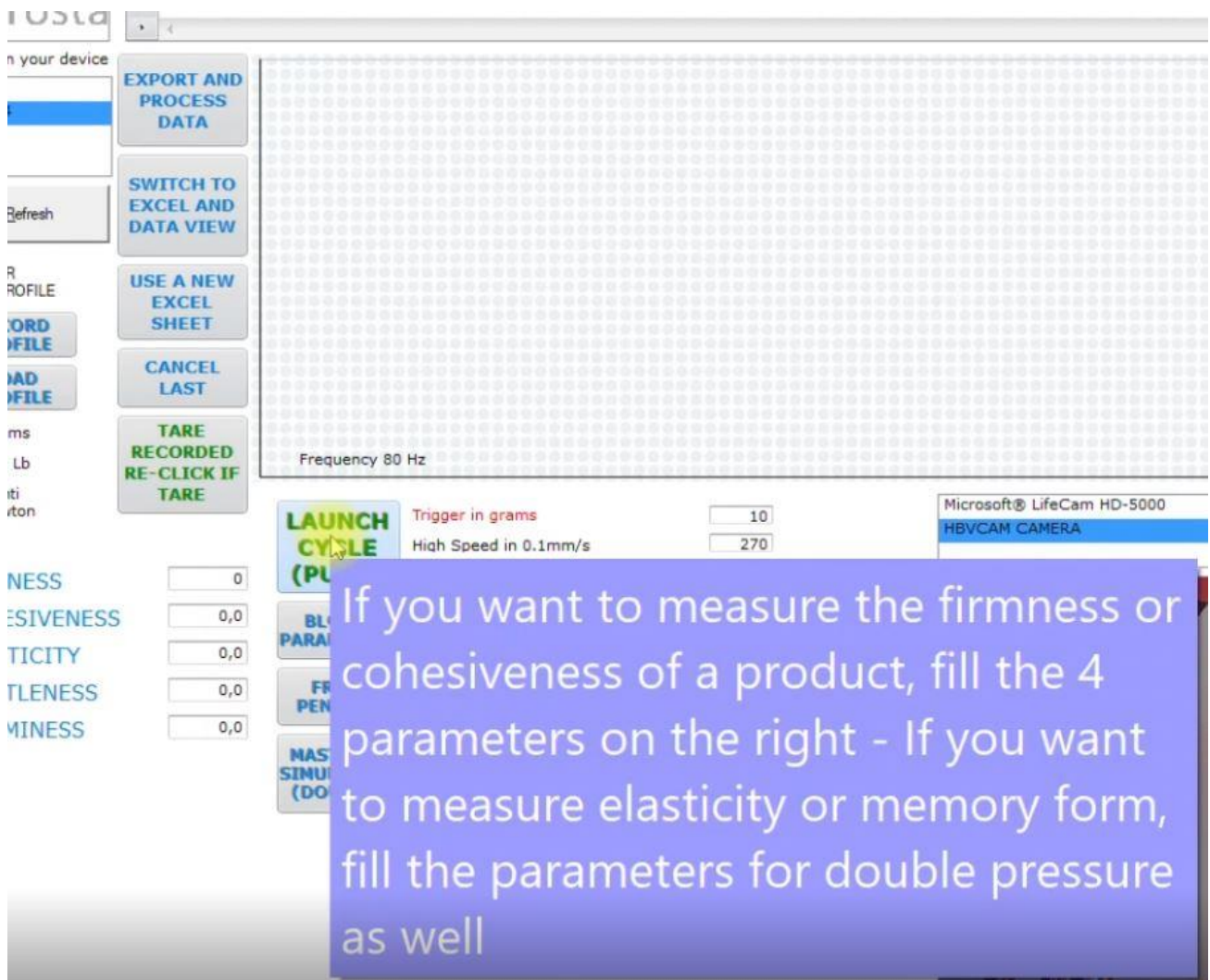
Data Table: A large table with columns for "Deflection of the sample in 0.1mm" and "Grams per mm".

Camera View: A live video feed from a "Microsoft® LifeCam HD-5000" showing the testing mechanism.

Control Buttons: "MULTIPLE CAPTURES", "CAPTURE ONE IMAGE", and "DELETE PICTURES" are located near the camera view. A "FIRMTech PARAMETERS" button and an "Export to Excel + Erase" button are also visible.

Parameters :

- You can hover over each button with the mouse to get the corresponding explanations :



- You can hover over each parameter field to get corresponding explanations :

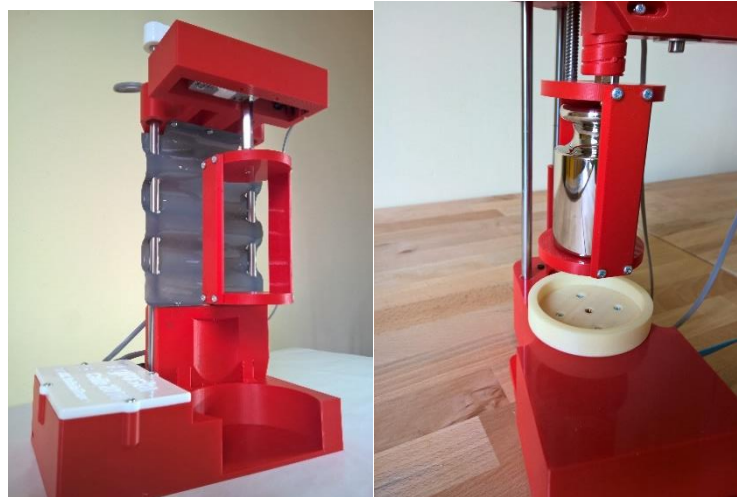


Calibration check :

The calibration stand is provided with the machine – You can check the calibration using any calibrated weight and measuring the corresponding value

If the spring is mounted, remove it

Then put the calibration stand in place :



- Connect the machine, and start the software
- If the machine was already connected and soft already started, click on the button “TARE” once the calibration stand is mounted
- Then click on “DISPLAY PRESSURES WITHOUT MOVEMENT”
- And place the calibrated weight on the tray (as shown on picture before)
- The corresponding weight shall be displayed by the software
- You can change the load cell factor in order to calibrate the machine
- Look at the value obtained once weight stabilized : For example if you obtain a value of 1003 grams for a weight of 1000 grams, with a cell factor of 1294 change the factor as follows : $\text{New factor} = 1294 \times 1003 / 1000 = 1298$
- Change the value, click on the button, remove the weight from stand, remove usb plug, re-connect usb plug, click on Refresh, select the COM of your machine and check again

The screenshot shows the software interface with the following elements:

- Buttons: CORD OFFILE, OAD OFFILE, EXCEL SHEET, CANCEL LAST, TARE (CLICK TILL OK APPEARS IN GREEN), LAUNCH CYCLE (PUSH), BLOOM.
- Units: ams, li Lb, nti, wton.
- Fields: INESS (0), ESIVENESS (0,0).
- Frequency grid.
- Cell Factor display: 1129.
- Instruction: Click and USB disconnect / reconnect + refresh.