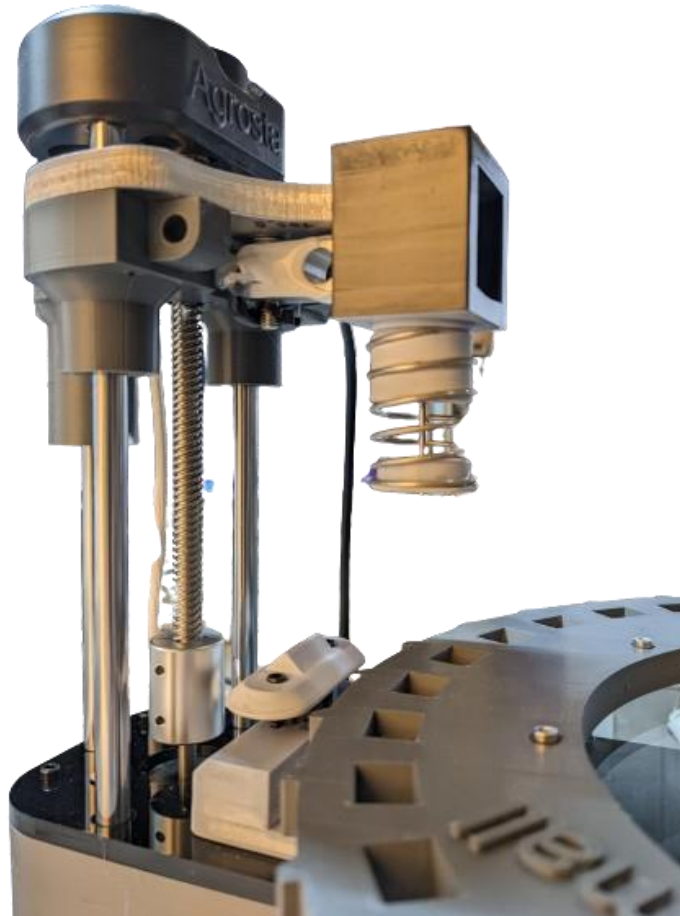


The Agrosta® *Angèle* has been designed in 2020 and updated in 2024  
In order to provide to researchers a simple and reliable tool to determine : Freshness, spreadability, Tenderness, Springiness, Gumminess, Hardness, Firmness, Consistency, Fracturability etc of a variety of Food Products and soft materials



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

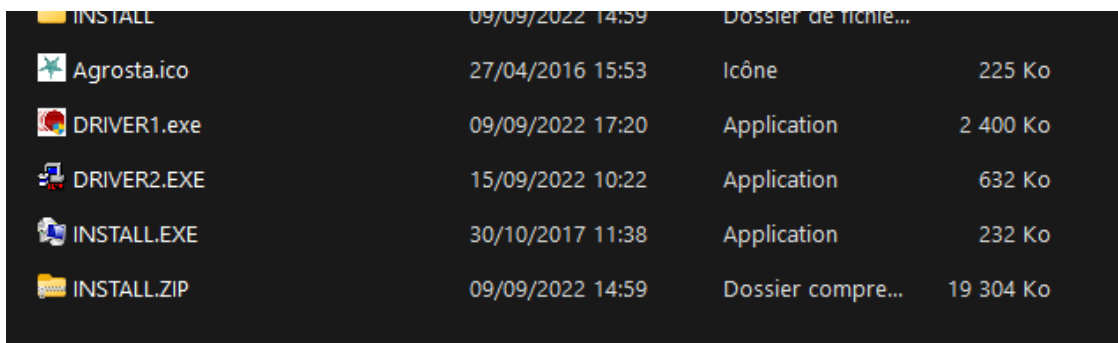
**Agrosta®** *Angele* has been designed and produced in France by Agrosta

- 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



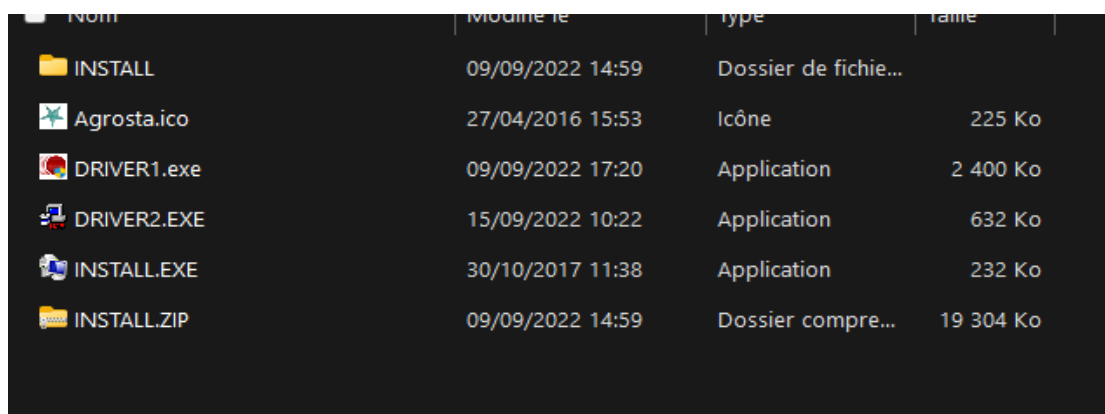
Nom	Modifié le	Type	Taille
INSTALL	09/09/2022 14:59	Dossier de fichier...	
Agrosta.ico	27/04/2016 15:53	Icône	225 Ko
DRIVER1.exe	09/09/2022 17:20	Application	2 400 Ko
DRIVER2.EXE	15/09/2022 10:22	Application	632 Ko
INSTALL.EXE	30/10/2017 11:38	Application	232 Ko
INSTALL.ZIP	09/09/2022 14:59	Dossier compre...	19 304 Ko

- Double click on “DRIVER1” – Follow setup procedure
- Double click on “DRIVER2” – 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



Nom	Modifié le	Type	Taille
INSTALL	09/09/2022 14:59	Dossier de fichier...	
Agrosta.ico	27/04/2016 15:53	Icône	225 Ko
DRIVER1.exe	09/09/2022 17:20	Application	2 400 Ko
DRIVER2.EXE	15/09/2022 10:22	Application	632 Ko
INSTALL.EXE	30/10/2017 11:38	Application	232 Ko
INSTALL.ZIP	09/09/2022 14:59	Dossier compre...	19 304 Ko

- Double click on “INSTALL”
- Follow Setup procedure

## 5/ 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
- Then click on “OK”

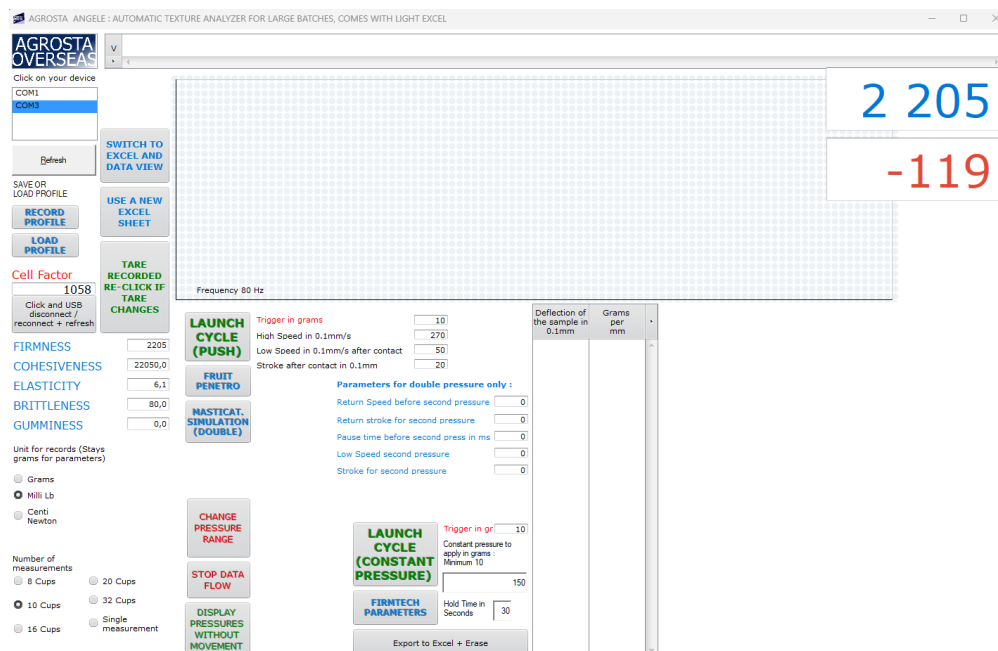
For testing the machine, place the table, put any tip on the sensor head, and place something thick and soft on the table, inside the cups like a piece of foam

Then click on the preset button “FRUIT PENETRO”

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

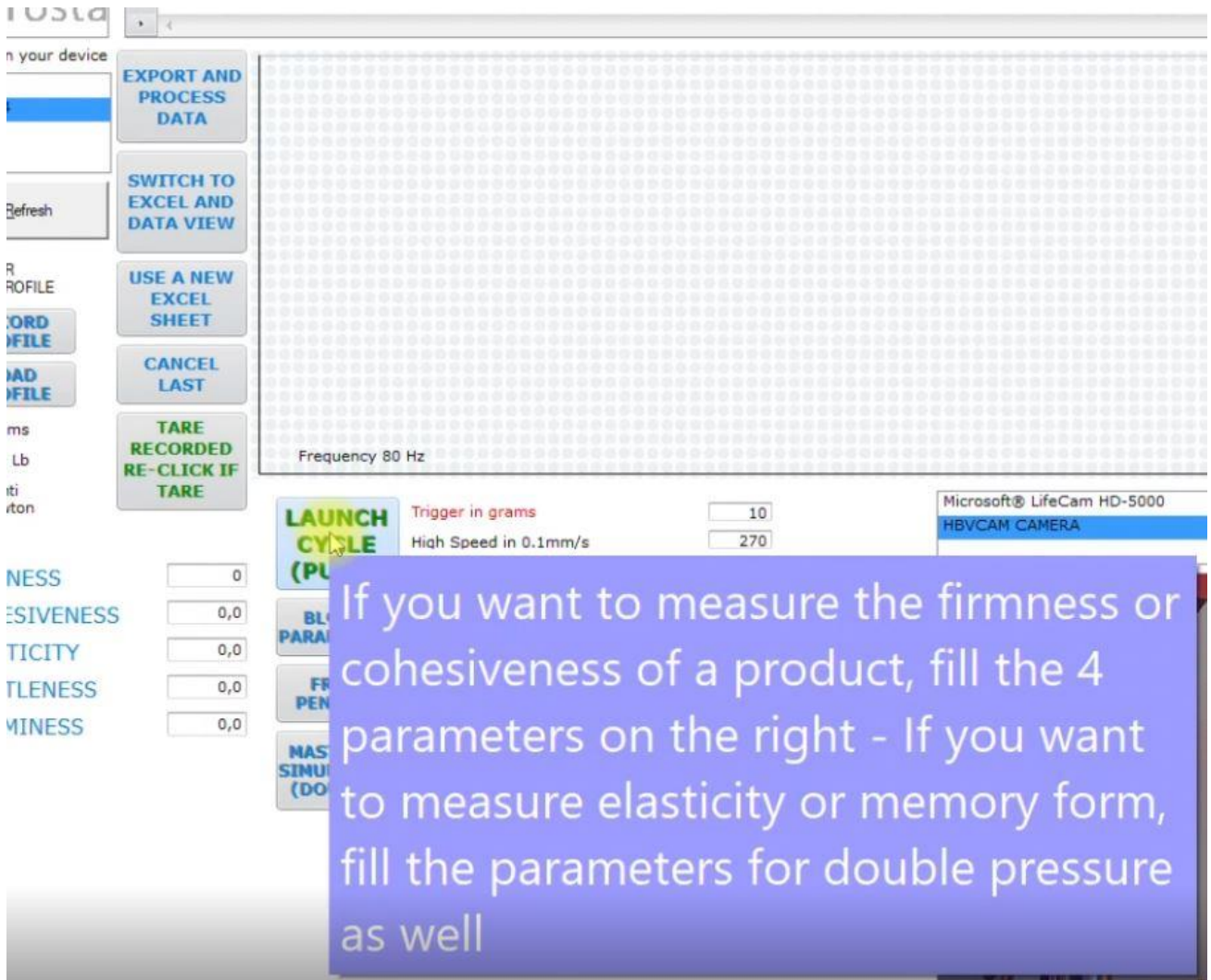
Then click on “LAUNCH CYCLE (PUSH)”

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



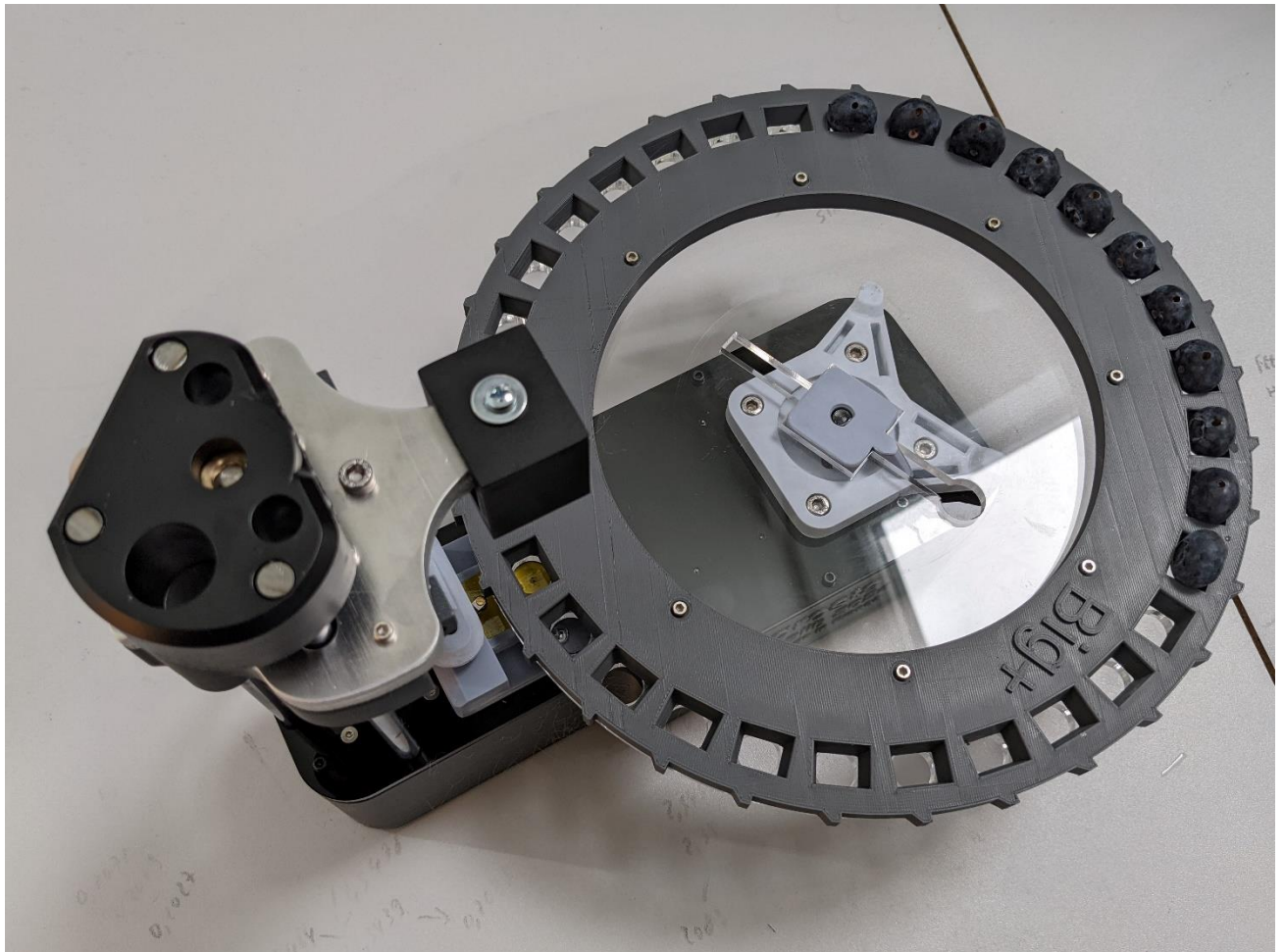
**Parameters :**

- 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 :





For blueberries, we have used the following parameters :

<b>LAUNCH CYCLE (PUSH)</b>	Trigger in grams	<input type="text" value="10"/>
	High Speed in 0.1mm/s	<input type="text" value="200"/>
	Low Speed in 0.1mm/s after contact	<input type="text" value="30"/>
	Stroke after contact in 0.1mm	<input type="text" value="230"/>

All other parameters are at zero

Here, the stroke after contact is 230 = 23 mm but it has to be a little more than the biggest blueberry in order to cross completely all blueberries