Agrosta® *Belle 2*

Texturometer for soft materials, semi-solids and gels, pharmacy, food

User guide *Belle 2®*
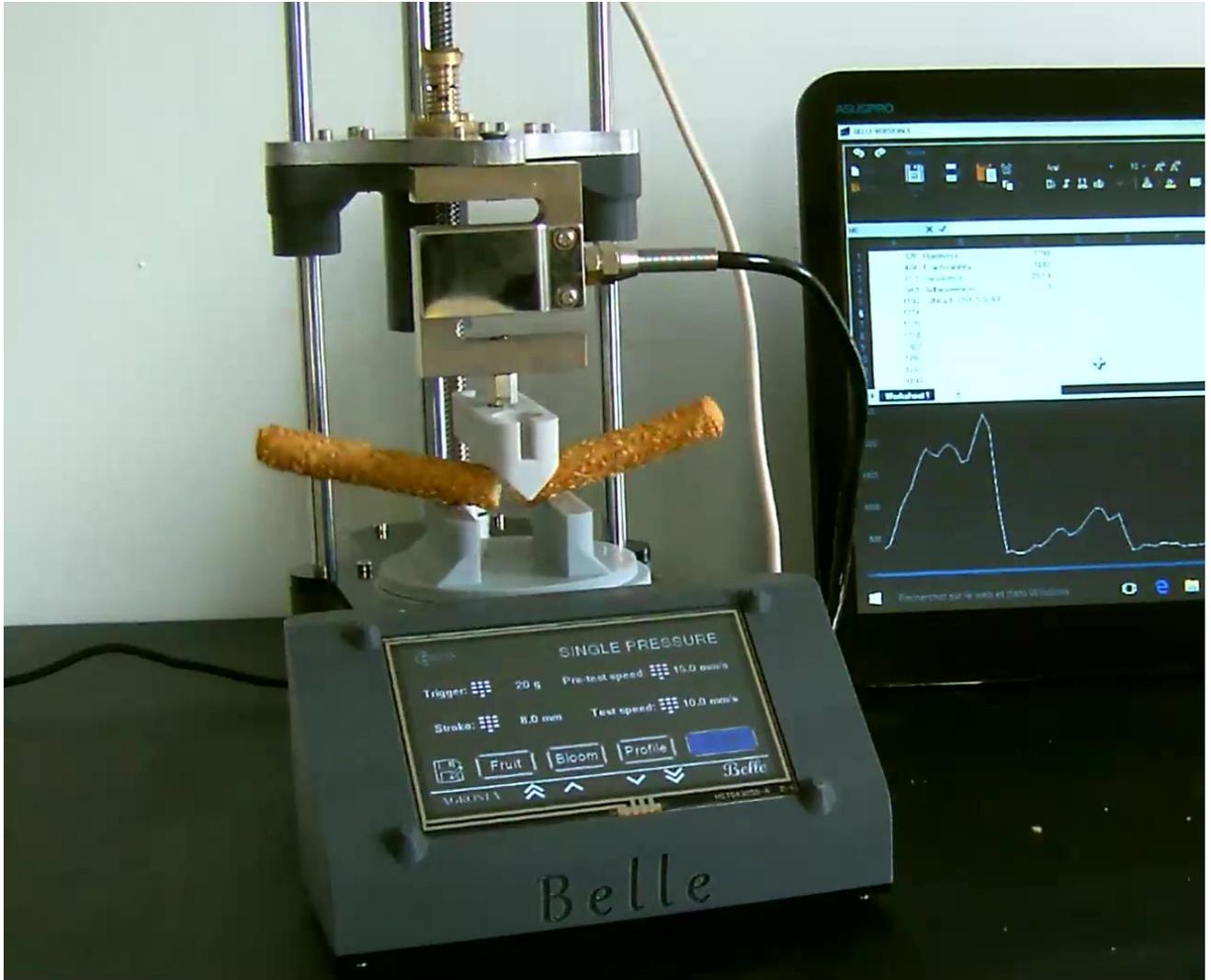
Texture analyzer for food and pharmacy

Thanks for having acquired Belle2, it comes with :

- The machine itself
- The power module
- The manual with 2 apps downloadable : One for Windows and the other one for android
- The certificate of conformity

Touchscreen interface
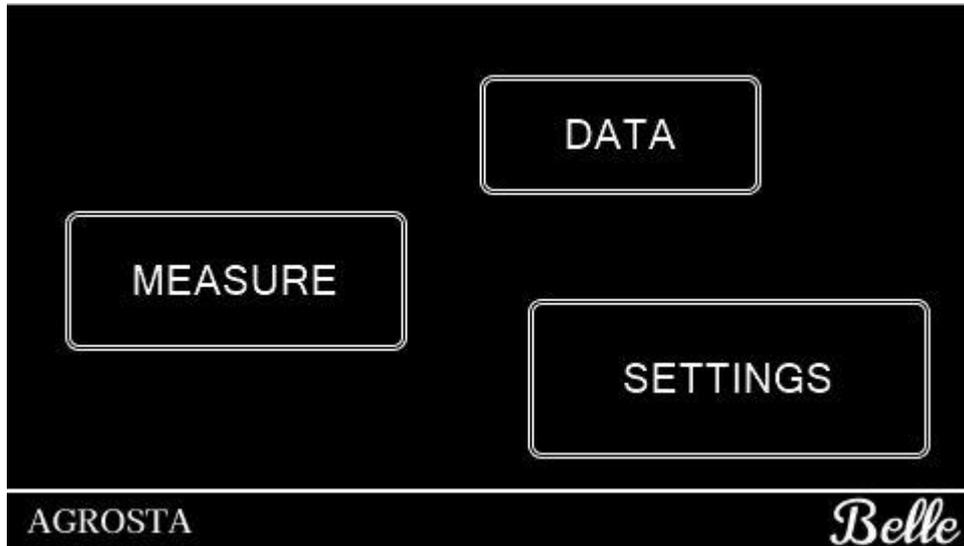
[1] Home page

This homepage allows you to navigate through the many features of our texturometer. From there, you can set up your device, view your data and initiate measurements.

[2] MEASURE page

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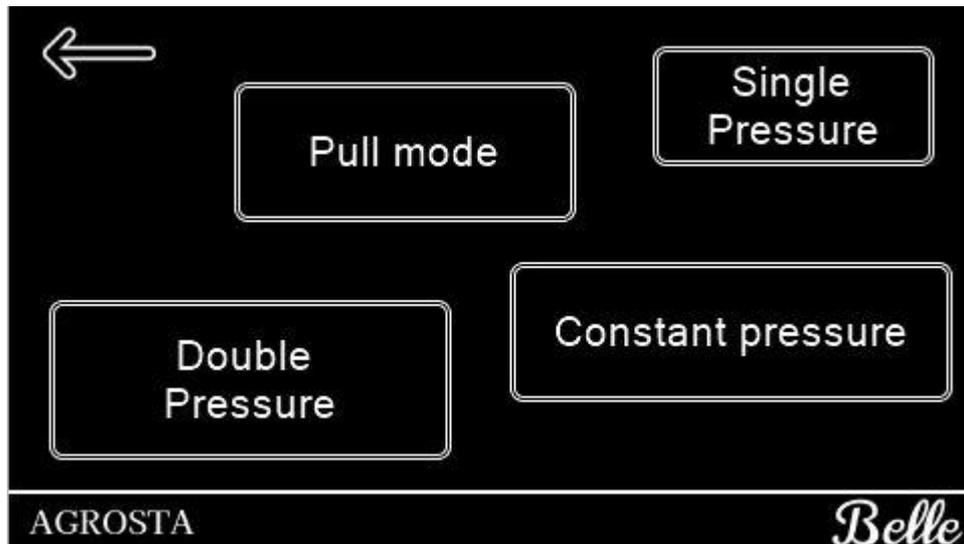
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Belle 2® allows you to perform 4 tests to meet all your needs, here is the data it gives you:

- **SINGLE PRESSURE**: Hardness, fracturability, adhesiveness, resilience.
- **DOUBLE PRESSURE**: Hardness, fracturability, adhesiveness, resilience, gumminess, springiness, chewiness, cohesiveness.
- **PULL MODE**: Max pressure, fracturability.
- **CONSTANT PRESSURE**: Initial deflection (once we first reach the load), final deflection (at the end of the measure).

Our texturometer is designed to provide the greatest flexibility, which is why you can change every parameter. Here is an overview of customization for each mode. If you have any questions, please send us a message at lak@agrosta.org.
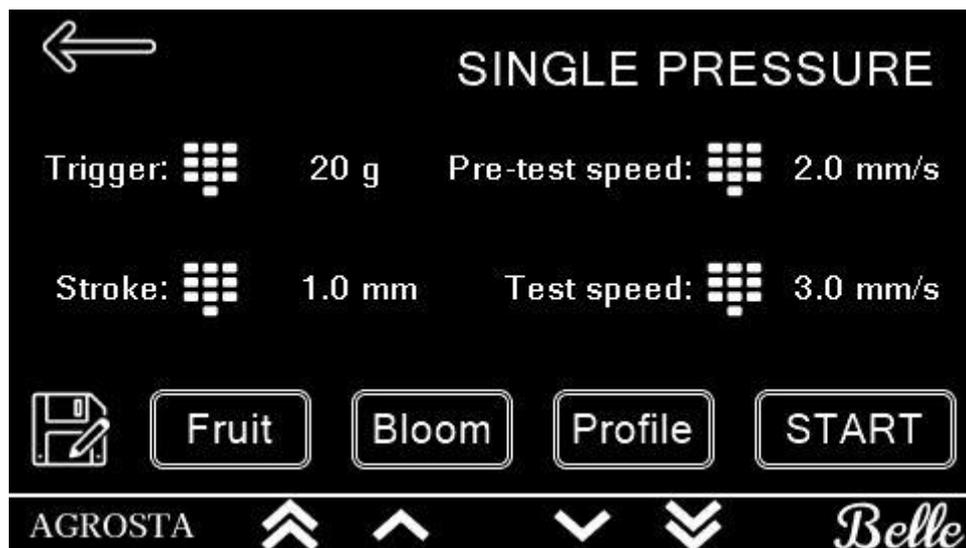
[3] Single pressure

Fruit and Bloom initializes a predefined set of parameters optimized to perform tests on fruits and gelatins.
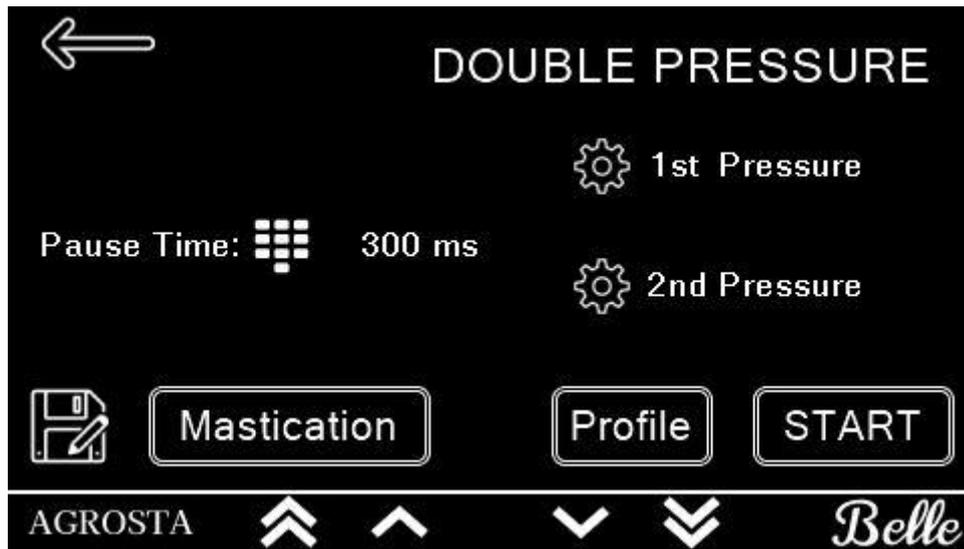
[4] Double pressure

Mastication initializes a predefined set of parameters optimized to reproduce mastication.
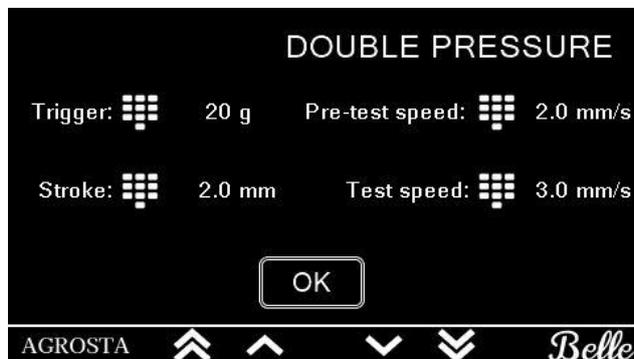
[4.a] Double pressure (1st pressure)
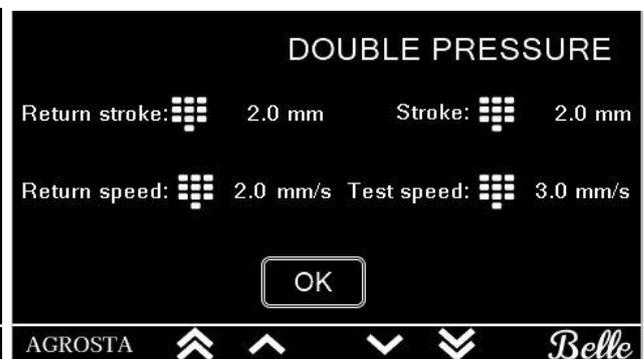
[4.b] Double pressure (2nd pressure)
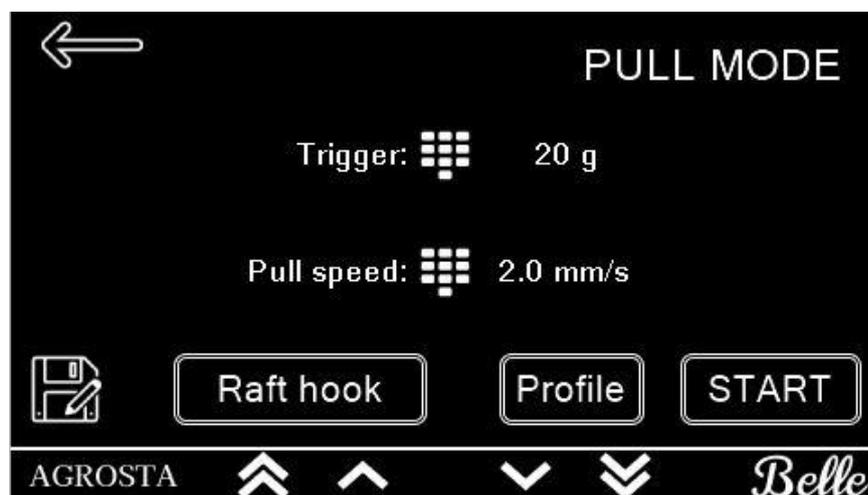
[5] Pull mode
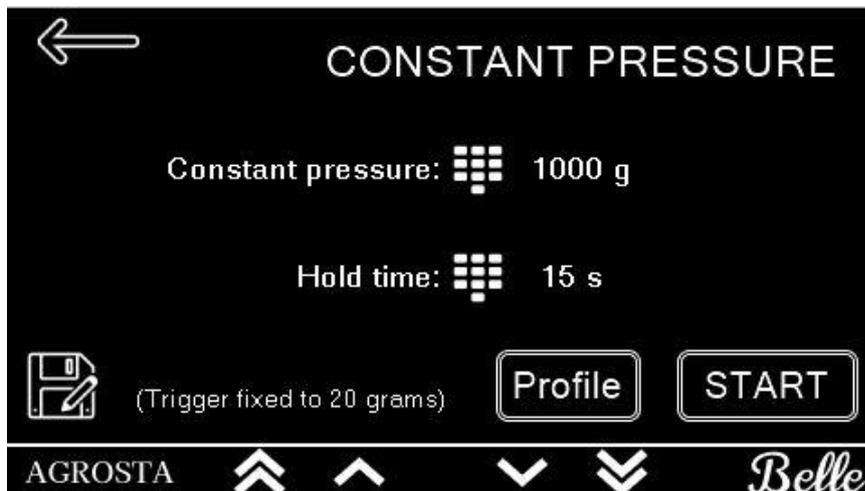
[6] Constant pressure

In order to optimize your time once you have set your parameters, each mode allow you to save up to 6 profiles (6 set of parameters) by clicking the button

At any time you can reach your profiles by clicking the button which bring you to this page:
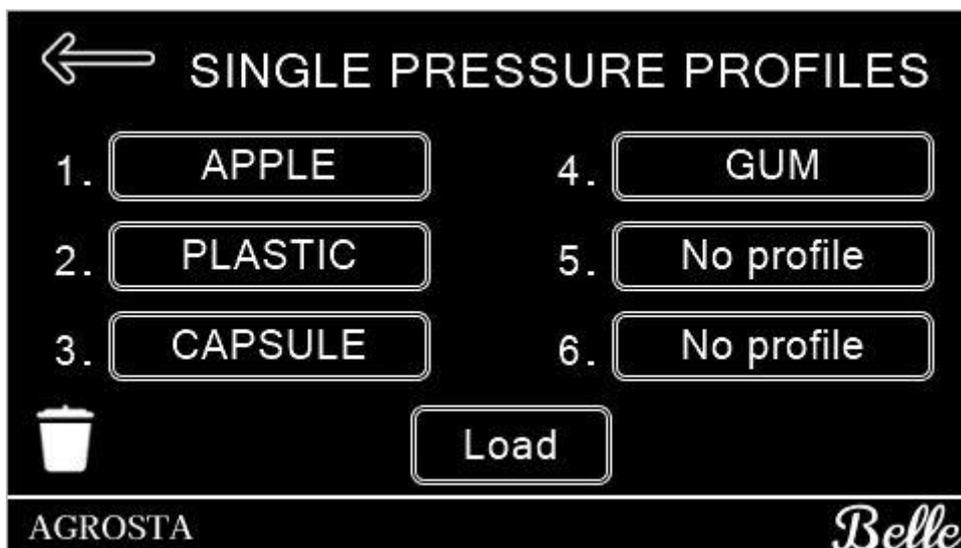
[6] Typical profiles page

Once everything is set, you can start the measurement, you will be redirected to the results page. Here you will have access to all the data of your mode and see the AVERAGE and STANDARD DEVIATION (StDev) of the most important data.
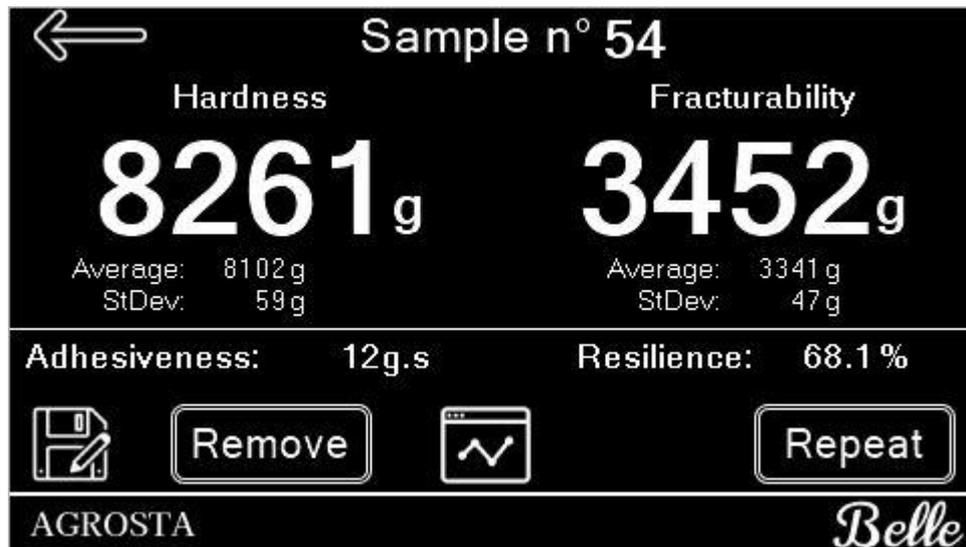
[7] Example of a result page (here the simple pressure mode)

If a sample is corrupted you can remove it from the batch. Each batch can have **300 measures.** For each sample you can see the measure graph by clicking the button .

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AGROSTA
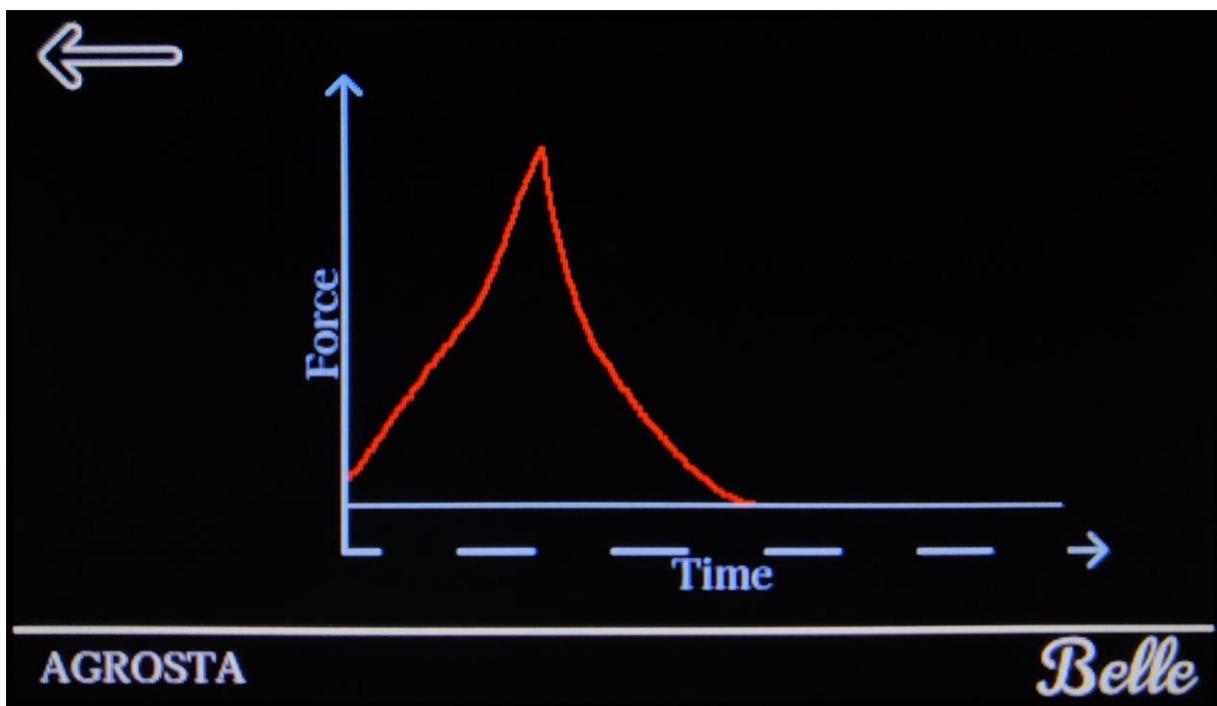
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Once you are done you can save the data of the batch by clicking on the save button, then tap the keyboard to enter the batch name. At any time you can see your saved data by clicking the DATA button on the **[1] Home page**. By doing so you'll see your data table:

Batch	Hardness (g)		Fracturability (g)	
	Average	StDev σ	Average	StDev σ
BATCH5	8102	59	3341	47
BATCH4	8356	84	3512	62
BATCH3	8004	54	3316	39
BATCH2	7994	42	3210	24
BATCH1	8523	99	3841	90
18.01	5123	562	265	12
--------	0	0	0	0
--------	0	0	0	0
--------	0	0	0	0
--------	0	0	0	0

SINGLE MODE DATA

AGROSTA ❮ 1 / 5 ❯ *Belle*

The settings in **[1] Home page** allow you to choose the unit of result data: either **gram** or **mlb**. You can also select the maximum pressure of the device to keep your sample safe: 1Kg - 2Kg - 5Kg - 10Kg - 17Kg.

⚠ Take care, if the max pressure defined in the settings is reached, the tray will go back, and the machine won't provide any data So adjust your parameters in order to measure pressure always below the MAX defined in the settings (Reduce the stroke for example)

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App for android

- First, switch on your Belle2 and associate it to your phone or tablet
- For this, go in PARAMETERS / BLUETOOTH and click on "Add device"

You can download the app here : **https://agrosta.org/BELLE.apk**

Or scan this QR code :
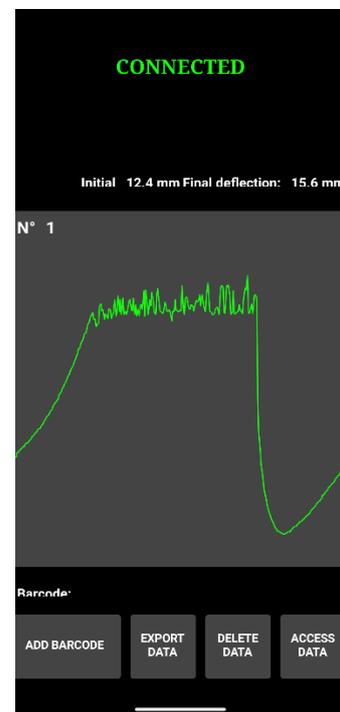
The app comes with a barcode scanner

The data is stored under CSV format and can be accessed on your phone or

tablet in this directory : **Android/data/com.lak.BELLE/files**

App for windows

You can download the app for Windows here :

https://agrosta.org/belle2.zip

First, you need to add the Bluetooth device to your PC :

Setting up the Bluetooth communication :

- **Switch on the Belle 2**
- **On your computer, go the parameters, and then Bluetooth devices:**
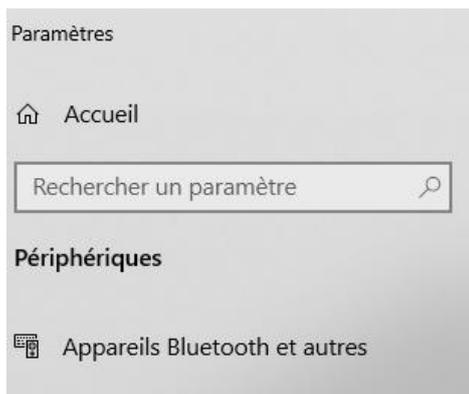
- **Click on "Add a Bluetooth device", and check that the Bluetooth is activated**
- **Then click on the first category : Bluetooth keyboards, mouse, audio and others :**

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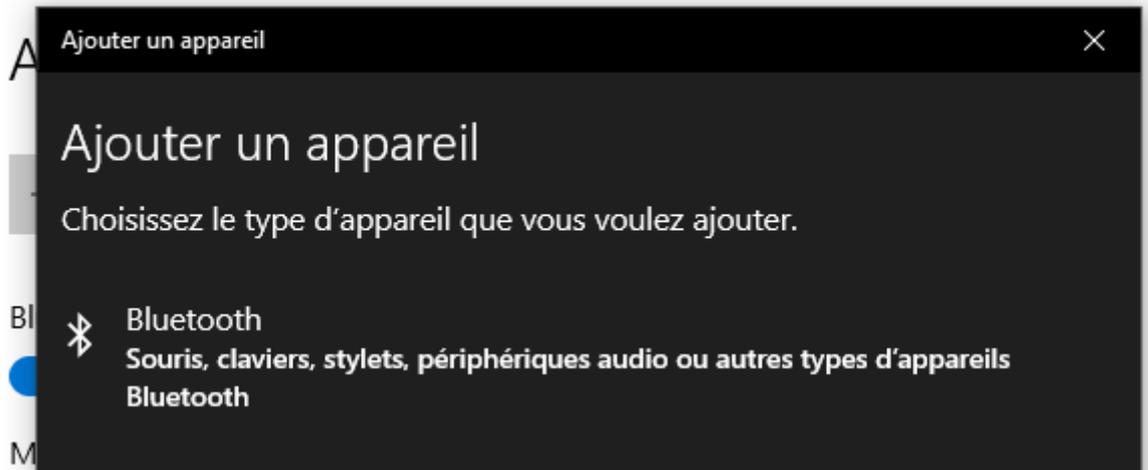
Then click on "BELLE"
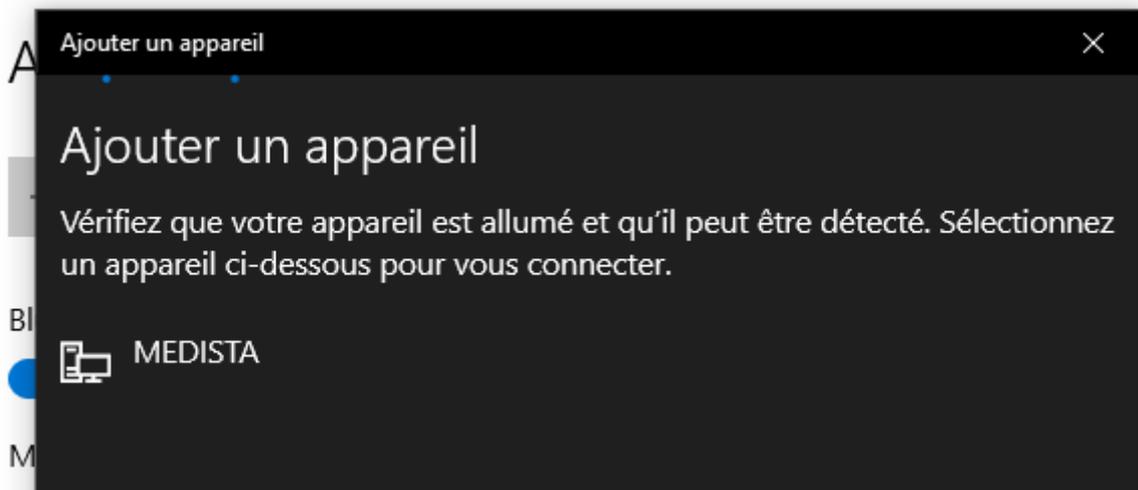
- **Once you have clicked on "BELLE"**
- **Your computer indicates : "the device is ready to use"**

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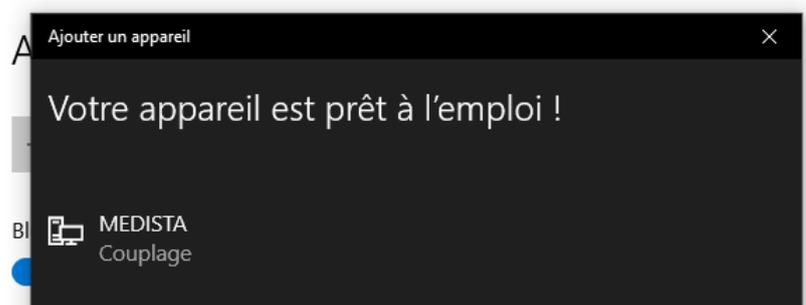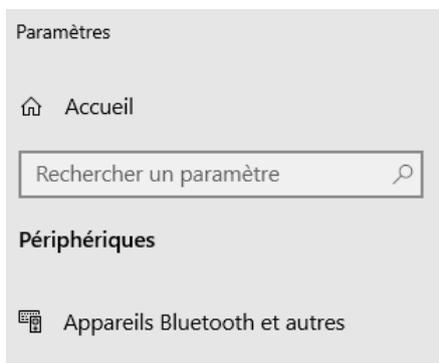
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Start the software – One of the COM indicated in the middle corresponds to your device

Click on it 2 times
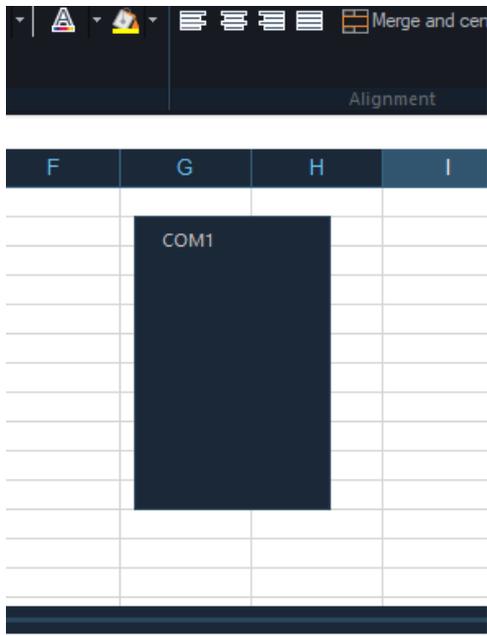
If you have selected the right COM, the data will arrive automatically when you are doing some tests

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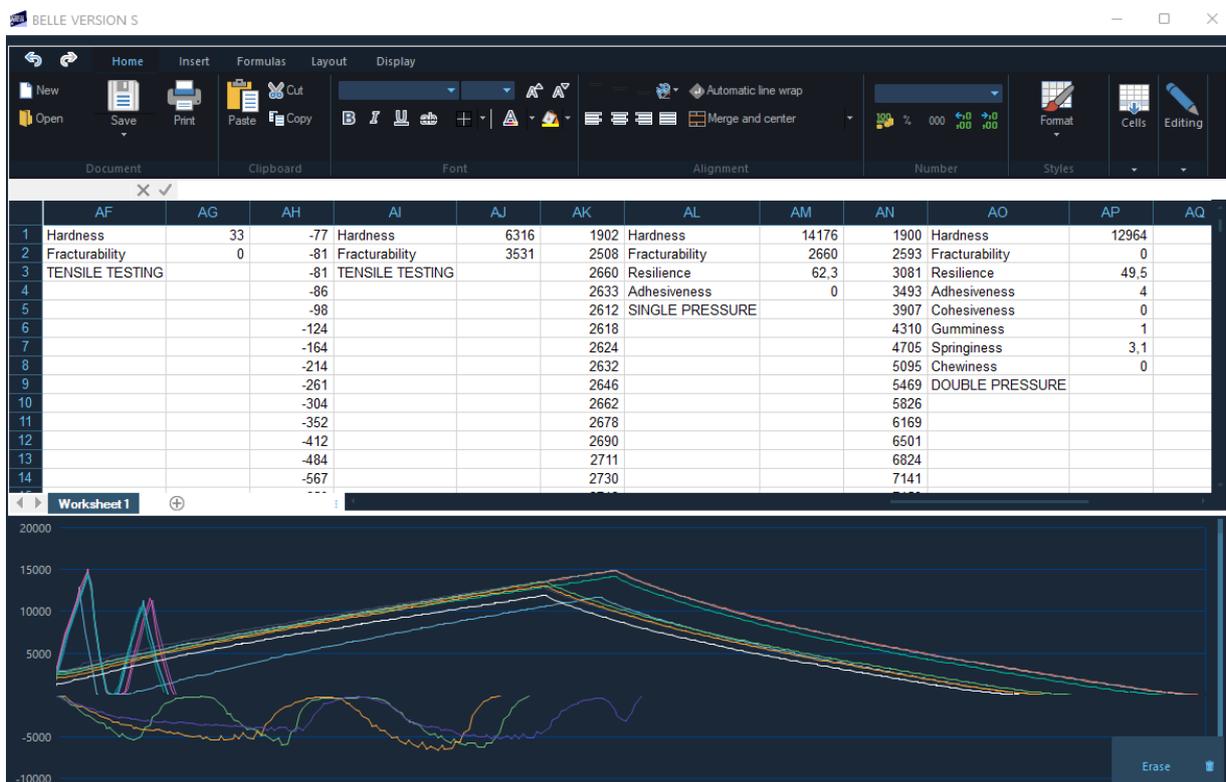
Some discussions with users

Discussion with a producer of almonds & peanuts :

You have to choose 17Kg as max pressure for everything in your job – Never change this
Here is how it works :

- *The tray moves down at the pre-test speed*
- *It touches the sample (the peanut)*
- *The pressure on the peanut increases as the tray moves down*
- *Once the Trigger is reached (here 50 grams), the machine starts to make the length you have defined (named as Stroke),and starts to collect the data too*
- *So the 3mm run will start only after the trigger is reached, the data will be measured only after the trigger is reached, it's like a start of measurement for the machine*
- *The trigger says to the machine "OK, I have touched the sample"*
- *You cannot say to the machine : "consider that you have touched the sample when the pressure will have reached 10 000 grams " Because when the pressure has reached 10 Kg, the sample is already destroyed…*
- *Then you have the test speed, which can be very slow in your case (like 1mm/s) with a pre-test speed of 20mm/s*

Un gran saludo,

PS : If you reach too easily the maximum of 17Kg, it means that you have to change the tip, nor more a flat large tip, but something like a 5mm stainless tip
In order to make the almond burst instead of crushing it