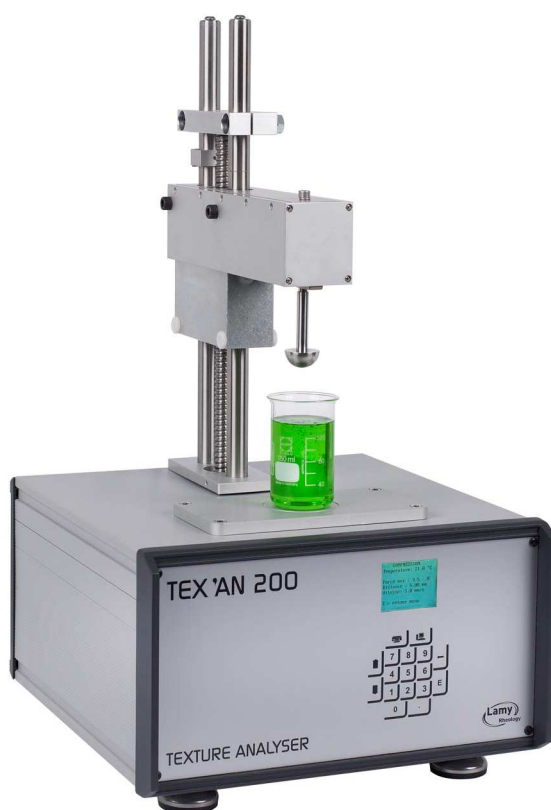


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**Using
manual
TEX'AN 200**



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1. Introduction

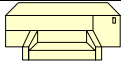

TEX'AN 200 is a Texture Analyzer which enables to determine the texture of different substances in laboratory or on production site.

Consistency, Elasticity, Adhesiveness, Cohesion and so lot many sensorial properties could be analysed with this instrument.

The display give to read following information :

- Temperature of sample, in °C
- Measured force in Newton
- Speed of displacement in mm /s
- Sensor position in mm

2. Numeric keyboard of TEX'AN

BUTTON	ENTER	FUNCTION
0, 1, ..., 9	Figures	Enter the Data values
E	Valid	Validation of Data
0 « zéro »		To do the Zero sensor adjustment
←	Modify/return	return
↑		Move to the top of arm / and inside the menus
↓		Move to the down of arm / and inside the menus
	Printer	Print measurement data
	Computer	To drive by TEX'AN drive software

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3. Start of instrument



Switch on the *ON* button placed on the rear of instrument.

- Choice of measurement :

On the Display:

Temp. : 23.0°C
Measuring mode ?


1.COMPRESSION
2.COMP/RELAX
3.COMP/RELAX/TRAC
4.TPA CYCLE
5.PENETROMETRY

It is possible to Up and Down the arm all the time with the button  et 

4. Compression Mode

- At the switch on of the instrument, the « compression » mode is highlighted.
- To select this mode , press on « E ».

On the Display:

Compression
Speed : 1.00
Distance : 10.0
Force to start : 0.2
Initial Position: 5.0
E = Valid  modify

Meaning of parameters :

Speed : is the speed of progression of the probe in the analyzed sample in mm/sec.

Distance : is the depth of penetration in the sample in mm.

Force to start : is the choose limit of detection for the force in Newton : From this value , when the sensor goes down and touches the surface of sample, the distance meter start.

Initial Position : is the distance to go up of the sensor above the sample after the measurement, in mm .

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If the values in memory are right for the measurement, press on « E ».
If you desire to modify those value press on ↑

To modify the values, you must just change the highlighted figures and then press on « E » at the end of modification. Press on « E » to the end to valid all.

Following Display :

On the display :

Sensor Position
Temperature : 23.0 °C
Position :-5.00mm
↑ ↓ E=Valid

This indicate the force sensor position in front of surface of sample :

Be careful: before the first measurement, this displayed distance is random.

You could go up and down the sensor into pressing up and down arrows.

Press on « E » to continue.

Following Display :

On the display :

Temperature :23.0 °C
Max Force : 0.05 N
Position :
Speed :
E :start ← : cancel

This display verify the zero adjustment of sensor: to adjust this zero , press on « 0 (zéro) » button.

Press on « E » to start the measurement.

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When the measure is finished :

On the display :

Temperature : 23.0 °C
Max Force : 3.55 N
Position : -5.00mm
Speed : 1mm/s
E= Main Menu

Here the Max Force is the maximum Force measured, during the compression phase.

To go to the main menu: press on « E ».

5. Compression + Relaxation Mode

This type of measurement chains one compression phase, then one relaxation phase in the sample, with no move force measurement of the sensor in the sample.

To select this mode, press on « 2 » of the main menu then on « E ».

Compression/Relax

Speed : 1.00
Distance : 10.0
Force to start : 0.2
Relax Time : 30
Initial position : 5.0

E = Valid ↑ modify

Meaning of parameters :

Speed : is the speed of progression of the probe in the analyzed sample in mm/sec.

Distance : is the depth of penetration in the sample in mm.

Force to start : is the choose limit of detection for the force in Newton : From this value , when the sensor goes down and touches the surface of sample, the distance meter start.

Relax Time : Time after compression; no move but measurement of force during a time to fix in sec

Initial Position : is the distance to go up of the sensor above the sample after the measurement, in mm .

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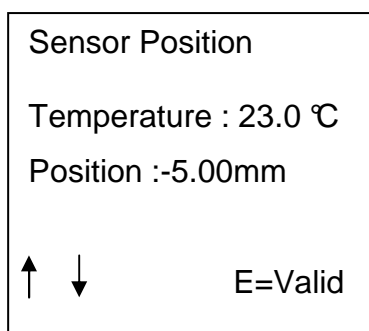
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a-If displayed values are OK for your measure, press on « E ».

b-If you desire modify those values, press on ↑

To modify the values, you must just change the highlighted figures and then press on « E » at the end of modification. Press on « E » to the end to valid all.

On the display :



This indicate the force sensor position in front of surface of sample :

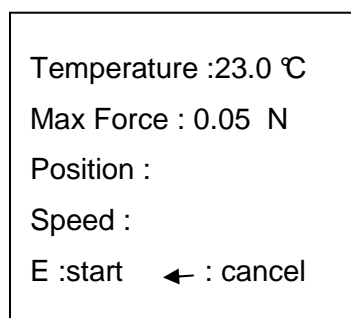
Be careful: before the first measurement, this displayed distance is random.

You could go up and down the sensor into pressing up and down arrows.

Press on « E » to continue.

Following Display :

On the display :



This display verify the zero adjustment of sensor: to adjust this zero , press on « 0 (zéro) » button.

Press on « E » to start the measurement.

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When the measure is finished :

On the display :

```
Temperature : 23.0 °C
Max Force : 3.55 N
Eq. Force : 2.82 N
Position : -5.00mm
Speed : 1mm/s
%Relaxation 20.5
E= Main Menu
```

**Here the Max Force is the maximum Force measured, during the compression phase.
The Eq. Force the force measured at the end of relaxation time (equilibrium force)
% Relaxation is reverse of elasticity of sample: $\text{relax} = (\text{Fmax} - \text{Fequ}) / \text{Fmax} * 100$**

One sample exclusively elastic give closed 0% as %relax (Fequ around = Fmax)

One sample exclusively without elasticity give closed 100% as %relax (Fequ around 0)

To go to the main menu: press on « E ».

6. Mesure en compression + relaxation + traction :

This type of measurement chains one compression phase, then one relaxation phase and one traction phase : i.e. one measurement of force during the go up sensor time (this enables to quantify the adhesiveness of sample).

-To select this mode, press on « 3 » then on « E ».

```
Compression/Relax/Trac
Speed : 1.00
Distance : 10.0
Force to start : 0.2
Initial position : 5.0
Up speed : 0.5
Relax Time : 30
E = Valid    ↑ modify
```

Meaning of parameters :

Speed : is the speed of progression of the probe in the analyzed sample in mm/sec.

Distance : is the depth of penetration in the sample in mm.

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Force to start : is the choose limit of detection for the force in Newton : From this value , when the sensor goes down and touches the surface of sample, the distance meter start.

Relax Time : Time after compression; no move but measurement of force during a time to fix in sec

Initial Position : is the distance to go up of the sensor above the sample after the measurement, in mm .

Up speed : speed of the traction phase until the « initial position », in mm/s

a-If displayed values are OK for your measure, press on « E ».

b-If you desire modify those values, press on ↑

To modify the values, you must just change the highlighted figures and then press on « E » at the end of modification. Press on « E » to the end to valid all.

On the display :

Sensor Position

Temperature : 23.0 °C

Position :-5.00mm

↑ ↓ E=Valid

This indicate the force sensor position in front of surface of sample :

Be careful: before the first measurement, this diplayed distance is random.

You could go up and down the sensor into pressing up and down arrows.

Press on « E » to continue.

Following Display :

On the display :

Temperature :23.0 °C

Max Force : 0.05 N

Position :

Speed :

E :start ← : cancel

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This display verify the zero adjustment of sensor: to adjust this zero , press on « 0 (zéro) » button.

Press on « E » to start the measurement.

When the measure is finished :

Temperature : 23.0 °C
Max Force : 3.55 N
%Relaxation 20.5
Position : -5.00mm
Speed : 1mm/s
Min Force : -0.68 N
E= Main Menu

The Max Force is the maximum force measured during the compression time.

The Min Force is the minimum force measured, during the traction time (expressed with the “-“ sign / Consistency (Fmax) of the compression phase expressed with positive symbol.

%Relaxation reverse to the elasticity : %relax= (Fmax-Fequ)/Fmax*100

One sample exclusively elastic give closed 0% as %relax (Fequ around = Fmax)

One sample exclusively without elasticity give closed 100% as %relax (Fequ around 0)

To go to the main menu: press on « E ».

7. TPA cycle :

This type of measurement chains 2 measures in Compression/Traction which gives 2 Fmax and a value of « cohesion », indicating the facility of sample to take back his structure between 2 stress.

To select this mode, press on « 4 » then on « E ».

On the display:

Cycle TPA	
Speed :	1.00
Distance :	10.0
Force to start :	0.2
Initial position :	5.0
Up speed :	0.5
E = Valid	↑ modify

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Meaning of parameters :

Speed : is the speed of progression of the probe in the analyzed sample in mm/sec.

Distance : is the depth of penetration in the sample in mm.

Force to start : is the choose limit of detection for the force in Newton : From this value , when the sensor goes down and touches the surface of sample, the distance meter start.

Relax Time : Time after compression; no move but measurement of force during a time to fix in sec

Initial Position : is the distance to go up of the sensor above the sample after the measurement, in mm .

Up speed : speed of the traction phase until the « initial position », in mm/s

a-If displayed values are OK for your measure, press on « E » .

b-If you desire modify those values, press on ↑

To modify the values, you must just change the highlighted figures and then press on « E » at the end of modification. Press on « E » to the end to valid all.

On the display :

Sensor Position	
Temperature : 23.0 °C	
Position :-5.00mm	
↑ ↓	E=Valid

This indicate the force sensor position in front of surface of sample:

Be careful: before the first measurement, this displayed distance is random.

You could go up and down the sensor into pressing up and down arrows.

Press on « E » to continue.

Following Display :

On the display:

Température :23.0 °C	
Force max : 0.05 N	
Position :	
Vitesse :	
E :start	← : cancel

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This display verify the zero adjustment of sensor: to adjust this zero , press on « 0 (zéro) » button.

Press on « E » to start the measurement.

When the measure is finished :

Temperature : 23.0 °C
Fmax1 : 3.55 N
Fmax2 : 3.26 N
Position : -5.00mm
Speed : 1mm/s
Cohesion : 0.92
E=Main Menu

Fmax1 is the maximum force measured during the 1st phase of compression

Fmax2 is the maximum force measured during the 2nd phase of compression

Cohesion is the ratio of Fmax2/Fmax1, this indicates the cohesion level of the sampler after 2 compression/traction

To go to the main menu: press on « E ».

8. « Penetrometry » mode :

This type of measurement is the maintaining of the programmed force during a predefined time.

It corresponds to the classical measurement of penetrometry to a constant charge.

Its analyze gives the distance covers through the sample by the sensor probe during the time of measurement.

To select this mode, press on « 5 » then on « E ».

On the display :

Penetrometry
Imposed Force : 10.00
Measure time : 15.0
Force to start: 0.2
Initial position : 5.0
E = Valid ↑ modify

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Meaning of parameters :

Imposed Force : Maintaining force during compression phase in N. (to Define)

Measure time: Time of maintaining the force in the sample in sec. (to Define)

Force to start : is the choose limit of detection for the force in Newton : From this value , when the sensor goes down and touches the surface of sample, the distance meter start.

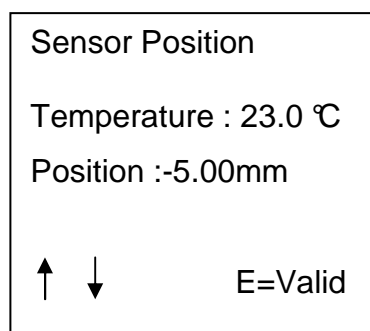
Initial Position : is the distance to go up of the sensor above the sample after the measurement, in mm .

a-If displayed values are OK for your measure, press on « E » .

b-If you desire modify those values, press on ↑

To modify the values, you must just change the highlighted figures and then press on « E » at the end of modification. Press on « E » to the end to valid all.

On the display :



Sensor Position
Temperature : 23.0 °C
Position :-5.00mm
↑ ↓ E=Valid

This indicate the force sensor position in front of surface of sample:

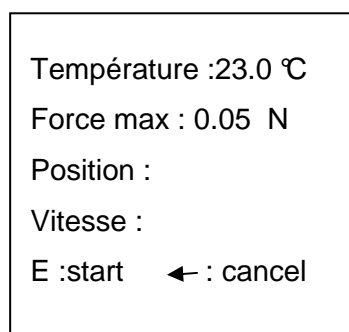
Be careful: before the first measurement, this displayed distance is random.

You could go up and down the sensor into pressing up and down arrows.

Press on « E » to continue.

Following Display :

On the display:



Température :23.0 °C
Force max : 0.05 N
Position :
Vitesse :
E :start ← : cancel

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This display verify the zero adjustment of sensor: to adjust this zero , press on « 0 (zéro) » button.

Press on « E » to start the measurement.

When the measure is finished :

Temperature : 23.0 °C
Actual Force : 0.12 N
Position : 23.0 mm
Imp. Force: 2.01 N
Mesure Time : 10 sec
E= Main menu

Actual Force is the actual measured force, after the compression phase.

Position is the depth covered in the sample during the compression phase at the imposed force.

The Imp. Force is the force imposed during the compression phase.

To go to the main menu: Press on « E »

9.Mesure en mode pilotage par un ordinateur :

When the TEX'AN 200 is driven by the **TEX'AN DRIVE software**, all instructions, measured or calculated values are on the computer.

A the start :

1. –Start the software on the computer,
2. –Switch on the TEX'AN ,
3. –Press on « Computer » button of TEX'AN , **Start** appears on the software screen and the temperature appears on the screen of computer too,

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During all driven measurements, TEX'AN display is :

Remote Mode
Temperature :23.0°C
Speed : mm/s
Position : -5.00 mm
Force : 0.02 N

Programming of methods of measurement and experiments including data treatment are realised by TEX'AN DRIVE software, delivered on option.

For all additional information, please contact :

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10. Technical Characteristics of TEX'AN 200

<u>Measuring Princip</u>	Force Measure
<u>Speed range</u>	0.1 to 10 mm/s (accuracy $\pm 0.2\%$)
<u>Resolution of move</u>	0.05 mm
<u>Force range</u>	200 N resolution 0.06 N (accuracy $\pm 1\%$)
<u>Temperature reading</u>	
<ul style="list-style-type: none">• Sensor Type• Temperature range• Resolution	Pt100 sensor -20 to +120°C (accuracy $\pm 0,2^\circ\text{C}$) 0,1°C
<u>Ambiant Temperature</u>	+10 to +40°C
<u>External Data</u>	
<ul style="list-style-type: none">• Printer• Computer	Parallel Port (Centronics) Serial port (RS232)
<u>Supply voltage</u>	90 to 240 VAC 50/60 Hz
<u>Dimension</u>	400 x 400 x 500mm
<u>Weight</u>	15 kg
<u>Manufacturer</u>	LAMY RHEOLOGY 11A, rue des Aulnes F-69410 CHAMPAGNE AU MONT D'OR France Tél : +33 (0)4.78.08.54.06. Fax : +33 (0)4.78.08.69.44. http://www.lamyrrheology.com