



Measurement of the volumetric capacity of anilox rolls

User manual

Table of contents

1. Instrument configuration	2
2. Change the batteries	2
3. Switching on and off the instrument	3
4. Knobs	3
5. Initial screen	4
6. Performing a measurement	5
6.1 Preparation	5
6.2 Measurement	6
6.3 Memory	11
6.3.1 <i>How to read the measurements</i>	11
6.3.2 <i>Delete the measurements</i>	12
6.3.3 <i>Statistics</i>	12
7 Calibration	14
8 Parameters	16
8.1 How to change the measurement unit	16
8.2 Number of a times the probe is applied on the surface	17
8.3 Correction factor	18
8.4 Password	20
8.5 Coating thickness measurement mode	21



ANILOX Research Technologies

Anilox Research Technologies, route de Divonne 5A, CH-1260 Nyon, Switzerland
info@aniloxservices.com, www.aniloxresearch.com

1. Instrument configuration

The instrument is composed of a user interface module, connected to a probe by a flexible cable:



2. Change the batteries

Please note that a new AniCheck device is delivered with the batteries already inserted. Follow the instructions below to change the batteries:

- Loosen the screw of the battery compartment on the back-side of gauge and open the battery
- Compartment lid (e.g. by using a coin).
- Insert the batteries supplied with the gauge into the battery compartment. Respect polarities (as shown below).
- Close lid and fix screw of battery compartment lid.



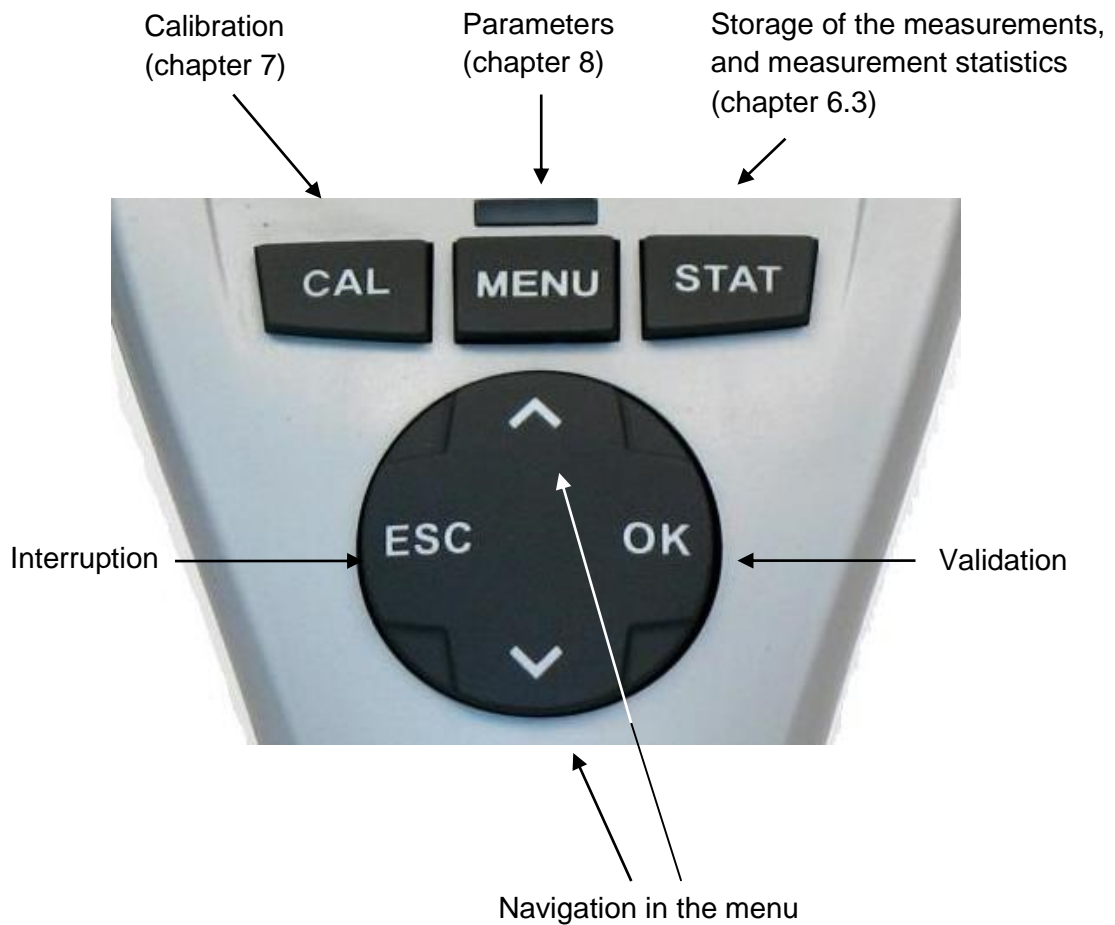
3. Switching on and off the instrument

ON / OFF button
(press during 2 seconds to
switch on)

- Switch on : press the red button on the left during 2 seconds.
- Switch off : press briefly the red button

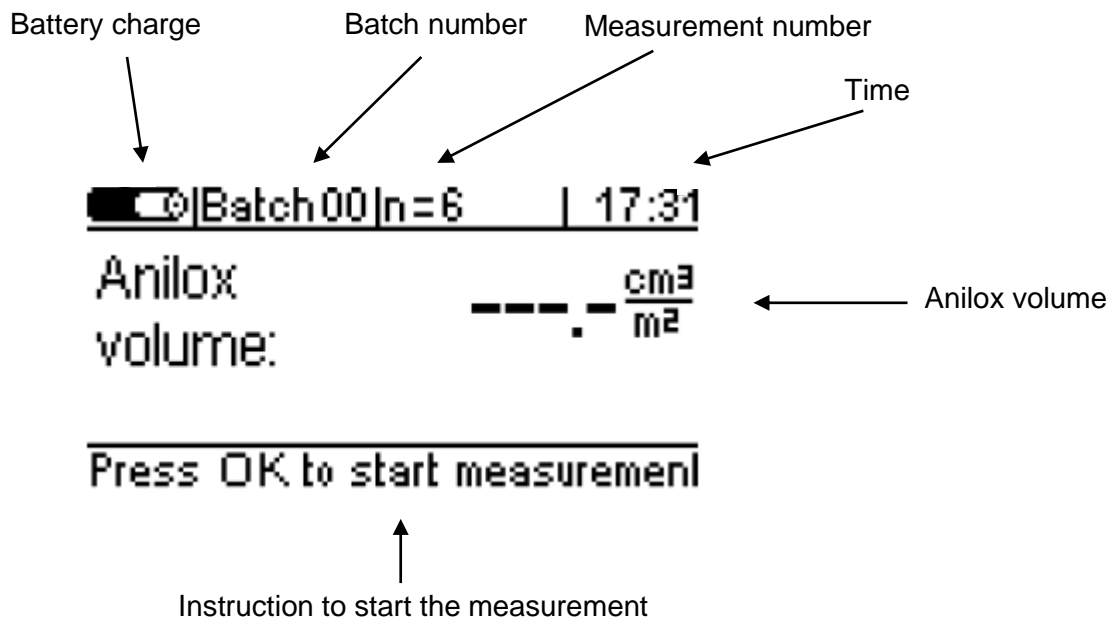


4. Knobs



5. Initial screen

The initial screen contains the following information:

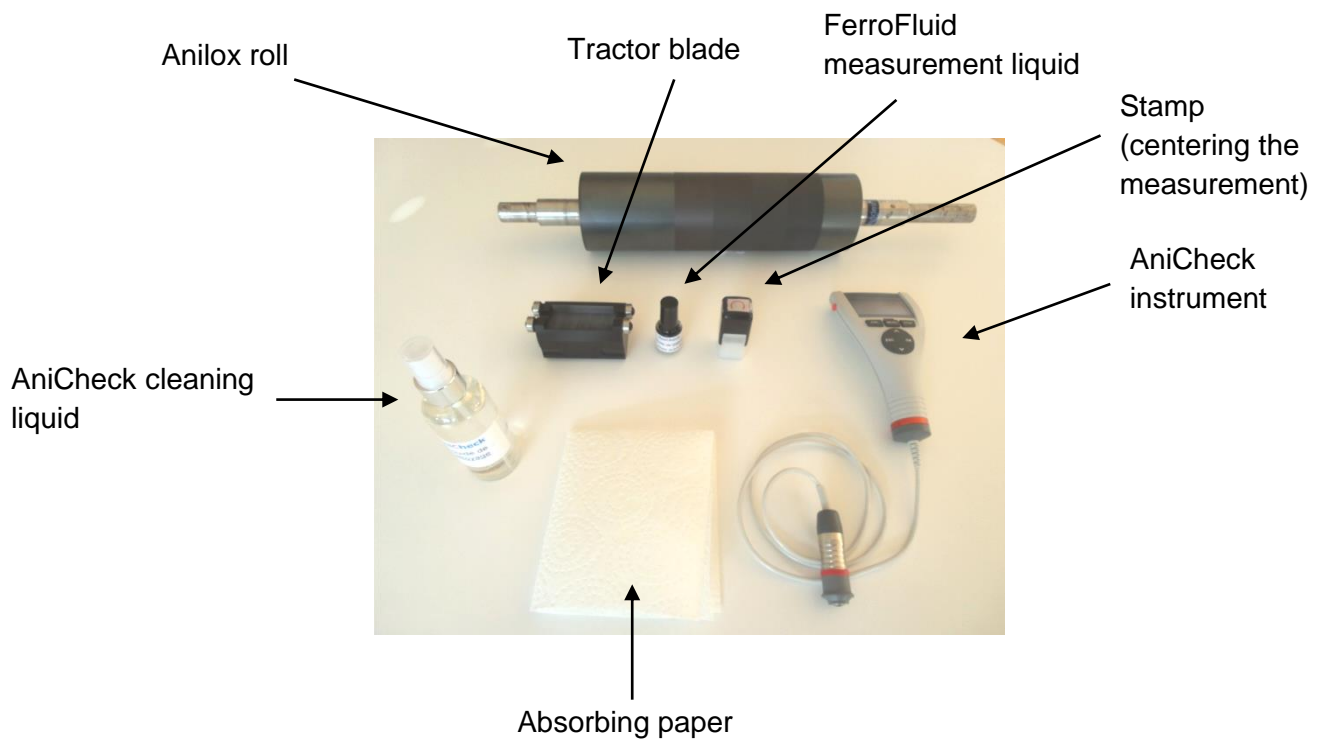


6. Performing a measurement

6.1 Preparation

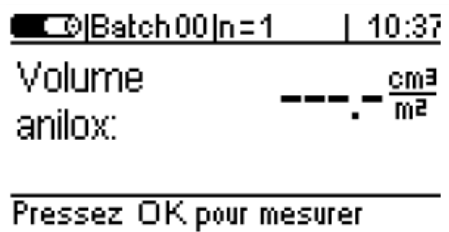
The following components are necessary in order to perform a measurement of the anilox volume :

- Anilox roll to be measured
- AniCheck instrument
- Tractor blade
- FerroFluid (FerroFluid)
- Stamp (used for centering the measurement)
- Absorbing paper
- Cleaning liquid

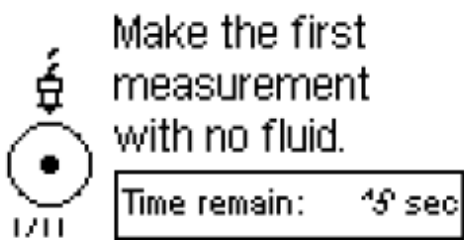



6.2 Measurement

AniCheck instrument

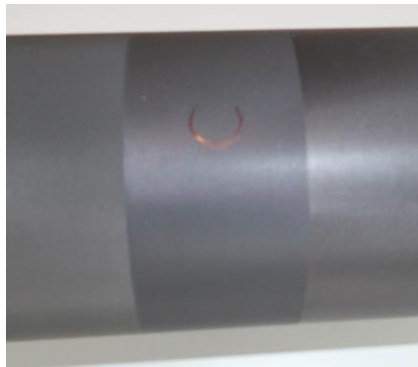


Batch00 | n=1 | 10:37
Volume $\frac{\text{cm}^3}{\text{m}^2}$
anilox: ---.---
Pressez OK pour mesurer




Make the first measurement with no fluid.
Time remain: 15 sec
1/11

Anilox roll



Action

Use the stamp in order to mark the measurement zone

The measurement zone lies inside the circle. The probe has to be positioned in the circle.

Press OK to start the measurement sequence

Do the *first* measurement by applying the probe on the anilox surface, without FerroFluid.

This measurement has to be done within 15 seconds.



Make the second measurement with no fluid.

Time remain: 2 sec



Do the *second* measurement by applying the probe on the anilox surface, without FerroFluid.

This measurement has to be done within 10 seconds.



Make the third measurement with no fluid.

Time remain: 2 sec



Do the *third* measurement by applying the probe on the anilox surface, without FerroFluid.

This measurement has to be done within 10 seconds.

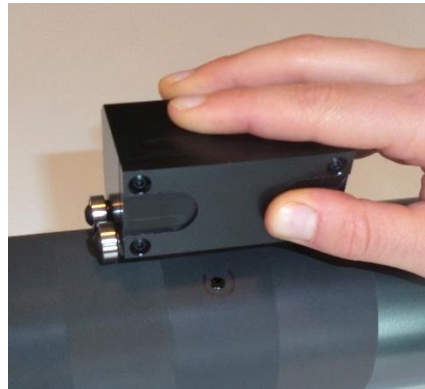


Apply the FerroFluid on the roll surface, in the form of a line about 1 cm long.



Apply and spread the fluid on the surface. (OK)

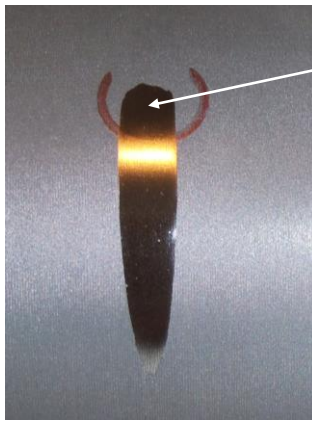
Time remain: 111 sec



Carefully spread the liquid with the tractor blade

This step has to be done within 120 seconds (2 minutes)





The probe has to be positioned in the circle



Make the first measurement on the fluid.

Time remain: 4 sec



Do the *first* measurement by applying the probe on the anilox surface with the liquid.

This measurement has to be done within 10 seconds.



Make the second measurement on the fluid.

Time remain: 0 sec



Do the *second* measurement by applying the probe on the anilox surface with the liquid.

This measurement has to be done within 10 seconds.



Make the third measurement on the fluid.

Time remain: 2 sec



Do the *third* measurement by applying the probe on the anilox surface with the liquid.

This measurement has to be done within 10 seconds.

Batch00 | n=7 | 17:43

Anilox volume: **2.8** $\frac{\text{cm}^3}{\text{m}^2}$

Press OK to start measurement


The volumetric capacity of the anilox roll is shown on the screen.

It is displayed either in cm^3/m^2 or in BCM/in^2 (see section 8.1 to change the unit)



Clean the FerroFluid on the roll surface with the AniCheck cleaning fluid.



 Time intervals between measurements on the fluid must not exceed 10 sec.

Press OK for initial menu.

If the time limit for a measurement is exceeded, a warning message is displayed.

Validate by pressing OK.

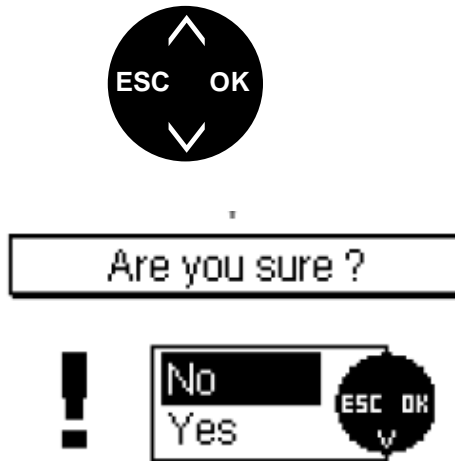
The measurement process has to be restarted from the beginning.



Clean the probe tip after the measurement, with the wipe provided in the kit.

Warning : do not use alcohol to clean the probe tip.

Preferably use the wipes from the box provided in the kit. Alternatively a soft dry absorbing paper can be used.



A measurement can be interrupted at any time by pressing ESC.

The interruption has to be confirmed by selecting "Yes" and pressing OK.

6.3 Memory

The AniCheck instrument automatically stores all measurements (up to 10000 measurements).

6.3.1 How to read the measurements :



Press the STAT knob



Select the function "Readings" with the arrows. Validate by pressing OK.



3	NFe	5.02
4	NFe	4.85
5	Fe	5.78
> 6	Fe	4.47

All stored measurements are displayed.

When there are more than 4 measurements, press the up/down arrows of the central knob to display more measurements.

Measurement number

Roll base material:
NFe: aluminum base
Fe: steel base

Measured volume

6.3.2 Delete the measurements :



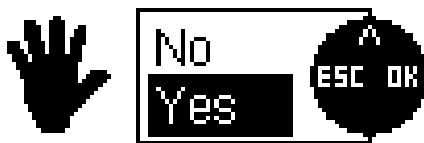
Press the STAT knob



Select the function "Delete" with the arrows.
Validate by pressing OK.



Select "Yes".
Validate by pressing OK.



Warning : all stored measurements are deleted

6.3.3 Statistics :



Press the STAT knob



Select the function "Statistics" with the arrows.
Validate by pressing OK.

Batch 00 Statistics			
Number of measurements →	n	7	\bar{x} 4.88 $\frac{cm^3}{m^2}$ ← Mean value
Max value →	↑	5.78 $\frac{cm^3}{m^2}$	σ 0.50 $\frac{cm^3}{m^2}$ ← Standard deviation
Min value →	↓	4.19 $\frac{cm^3}{m^2}$	v 10.2% ← Variance

Notice: statistics are useful when several measurements are done on the same roll

7 Calibration

The calibration of the unit is recommended once per month, or when the instrument is used in varied conditions of temperature (for example when performing a measurement outside at 10°C, and then inside at 25°C).

Screen



Action

Press the CAL knob

Calibration

Use the steel plate supplied with the gauge to calibrate the sensor.



Apply the probe on the steel plate (dark grey color).

This plate was supplied with the instrument, in a small wallet.

Zero calibration

\bar{x} 1.05

Cal 0.00

n 1 = 1.05

ESC OK

"n1" appears in the bottom left portion of the screen. It indicates that the first measurement is done.

Zero calibration

\bar{x} 1.00

Cal 0.00

n 5 = 1.10

ESC OK



Apply the probe 4 more times (so it makes 5 in total).

"n5" appears in the bottom left portion of the screen.

Press OK

Calibration

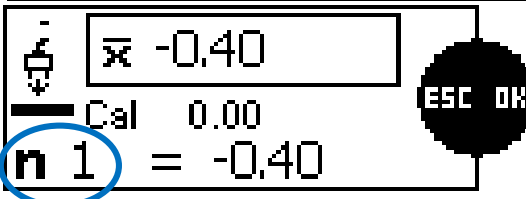
Use the alu. plate supplied with the gauge to calibrate the sensor.



Apply the probe on the aluminum plate (light grey color).

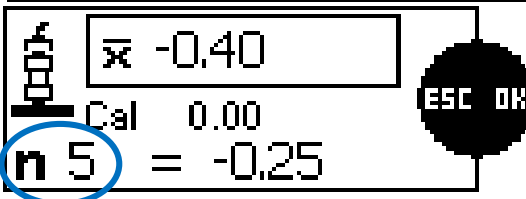
This plate was supplied with the instrument, in a small wallet.

Zero calibration



"n1" appears in the bottom left portion of the screen. It indicates that the first measurement is done.

Zero calibration



Apply the probe 4 more times (so it makes 5 in total).

"n5" appears in the bottom left portion of the screen.

Press OK.

The calibration is completed. The device reverts to the home screen.



Advanced calibration

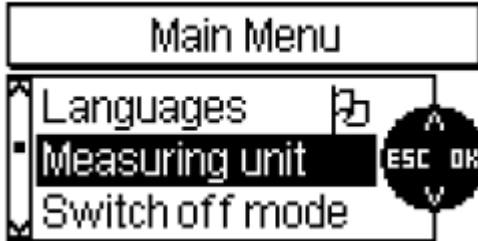
The procedure outlined above is suitable to the vast majority of aniloxes. In some special cases an advanced calibration is recommended (e.g. for very thick ceramic coating: more than 700 microns). The advanced calibration has to be performed in "coating thickness" mode (see chapter 7.5 of this manual). It is described at chapter 6.2.2.2 (two-point calibration) of the manual "Coating thickness gauge".

8 Parameters

8.1 How to change the measurement unit

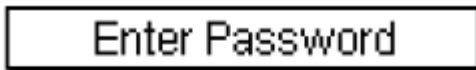


Press the MENU knob



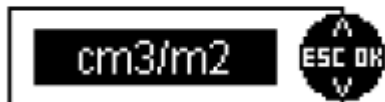
Select the function "Measuring unit" with the arrows.

Validate by pressing OK.



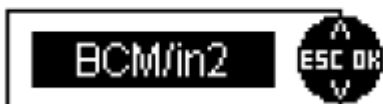
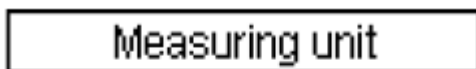
Enter the password.

Validate by pressing OK.



Select the desired unit with the arrows (either cm^3/m^2 or BCM/in^2).

Validate by pressing OK.



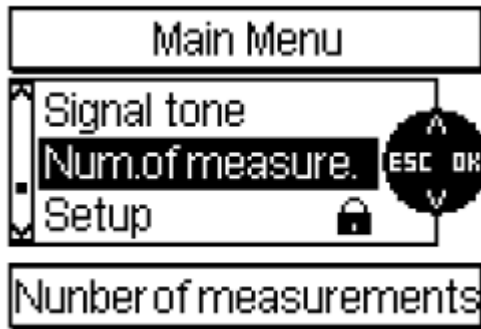
8.2 Number of a times the probe is applied on the surface

The probe is applied several times on the roll surface in order to improve the precision (averaging process). This is done either on the dry surface or on the wet surface (i.e. with the FerroFluid spread). The bigger this number of probe applications, the better the precision of the measurement.

The number of probe applications can be selected from 3 to 5, with the following procedure:

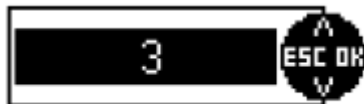


Press the MENU knob



Select the function "Num. of measure." with the arrows.

Validate by pressing OK.



Select the number of times the probe will have to be applied on the anilox surface (dry and wet).

Validate by pressing OK.

8.3 Correction factor

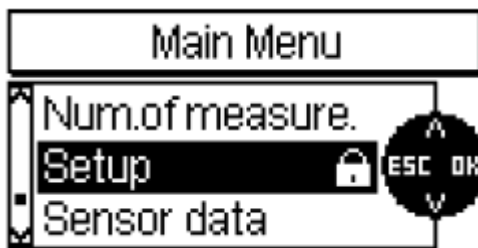
The anilox manufacturers are known to use an anilox measurement method that is specific to their process. This difference in the measurement method from one manufacturer to another can lead to variations in the volume measured up to 20%.

The AniCheck instrument measures the true anilox volume. However, it may be useful in some cases to make the AniCheck reading compatible with the measurement method of an anilox manufacturer. To this end, a "correction factor" can be entered: it can be selected from 0.8 to 1.2 by steps of 0.01. The anilox volume computed by the AniCheck is multiplied by the correction factor. It is this multiplied volume that is displayed.

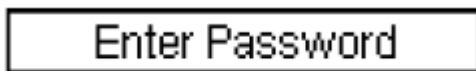
Procedure to enter a correction factor:



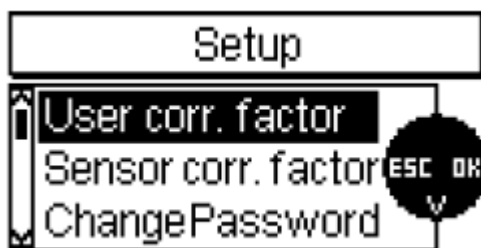
Press the MENU knob.



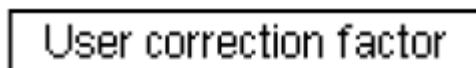
Select the function "Setup" with the arrows.
Validate by pressing OK.



Enter the password.
Validate by pressing OK.



Select the function "Correction factor" with the arrows.
Validate by pressing OK.



Select the desired correction factor by pressing the up arrow on the down arrow.
Validate by pressing OK.



Batch00 | n=7 | 17:56

Anilox
volume: $\frac{\text{cm}^3}{\text{m}^2}$

User correction factor: 0.95

Press OK to start measurement

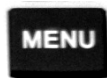
When a correction factor is introduced, it is displayed on the initial screen

8.4 Password

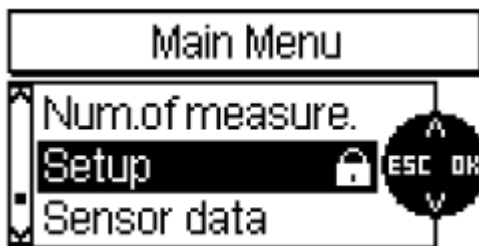
Several functions are protected by a single password.

The instrument is delivered with a preset password: press 5 times the OK knob.

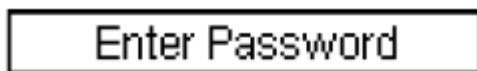
The password can be changed with the following procedure:



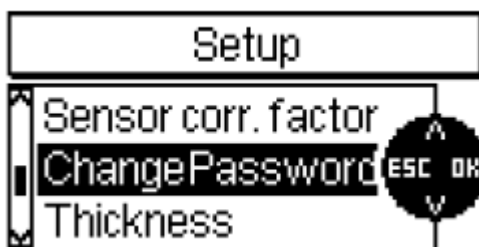
Press the MENU knob.



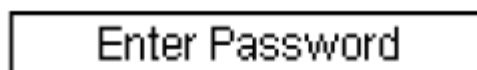
Select the function "Setup" with the arrows.
Validate by pressing OK.



Enter the password.
Validate by pressing OK.



Select the function "Change password" with the arrows.
Validate by pressing OK.



Enter the new password.
Validate by pressing OK.



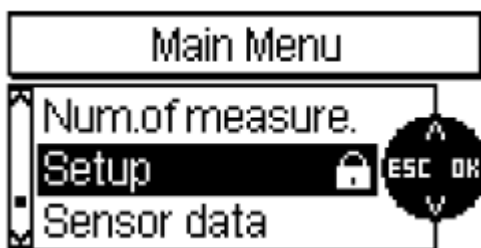
8.5 Coating thickness measurement mode

The AniCheck instrument is also capable of performing the measurement of the thickness of a non-conductive coating on either a steel base (coating thickness up to 1.5 mm), or a non-ferrous base (e.g. aluminum, coating thickness up to 0.7 mm). For more information on the thickness measurement mode, please consult the dedicated chapters of this manual.

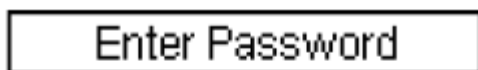
The AniCheck unit is switched from the anilox measurement mode to the thickness measurement mode with the following procedure :



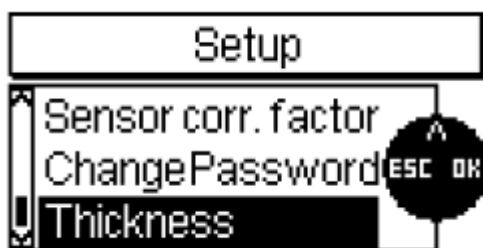
Press the MENU knob.



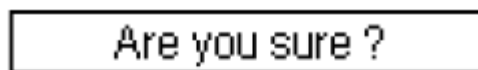
Select the function "Setup" with the arrows.
Validate by pressing OK.



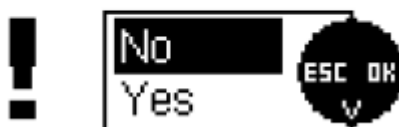
Enter the password.
Validate by pressing OK.



Select the function "Thickness" with the arrows.
Validate by pressing OK.



Select "Yes" with the arrows. Validate by pressing OK. The instrument then switches to the thickness measurement mode.



When the instrument is switched off and on, it always goes in the anilox measurement mode. This procedure has to be repeated in order to select the thickness measurement mode.