ISO 7500-1 V3.0
MANUAL

1. INTRODUCTION

This program has been developed according to ISO 7500-1.
It allows generating automatically the verification reports of static uni - axial testing machines.

2. MINIMAL CONFIGURATION

- CPU configuration: Pentium III (400 MHz advised) or higher
- Memory: 256 MB RAM or higher
- Free hard disk space: 100MB
- Operating system: Windows 2000, Windows XP
- 1 communication port RS232
- Resolution: 1024x768 pixels

3. INSTALLATION

1. Insert the CD-ROM

2. Via Explorer, access into CD-ROM, and start the file «install.exe».

3. Click on "Next" in the window that appears to validate the directory on your hard disk.
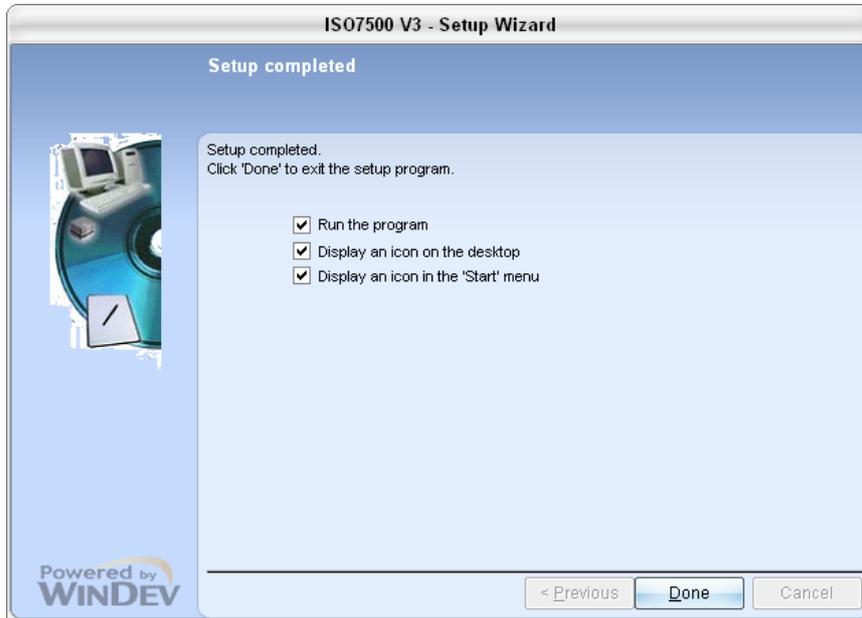
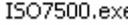4. Click "Next" in the appearing window to choose the installation directory.

5. The summary of the installation appears to confirm clicking below.

6. Installation assistant copies the necessary files for the correct operating of the program and creates a short cut on your desk.

To run the program, simply click on the icon "Sensy ISO7500" ISO7500.exe on the desktop or in the "start" menu.

4. FIRST START

When you start for the first time the software, you must put a serial number according to your computer.
Indeed, this window below appears:

Copy the serial Code and send it to SENSY (info@sensy.com). We will send you an activation Key to activate the software on your computer.

5. TESTING PROCEDURE

Each machine with the standard reference transducers has to undergo 3 preloads.
Then, the test consists in 3 series of measurements divided by identical steps of loads.
The procedure consists in charging the test machine with the announced value by the program for then taking measurements via the standard reference transducer; these two values will be compared for the calculation of the errors and the determination of the class of the machine.
You have the possibility to do a reversibility test.
In the case of machines working with and without accessories, the normative ISO7500-1 foresees a complementary serine.
When the 3 pre-loads and series of measures are finished, the software will transfer the data in Excel to allow the personalisation of the report according to customer wishes.

6. PRESENTATION AND PROGRAM CONFIGURATION

The image below represents the main menu of the program:

Description of the different buttons of this menu:

CONFIGURATION	Gives access to the page where all parameters are defined in relation with the communication with the display, the tolerances, etc...
TEST BENCH	It's a data base which allows recording the characteristics of test bench
DATA OPERATOR	To allow recording names of different operators
DATA CUSTOMER	To allow recording information related to the customers
PARAMETERS	Page in which parameters of the standard reference transducer and the display are defined

CALIBRATION	Page that allows proceeding to the tests
SEARCH	List of previous editable test results
ABOUT SENSY	SENSY General information and address.
EXIT	Software Exit

6.1. Definition of « CONFIGURATION » page
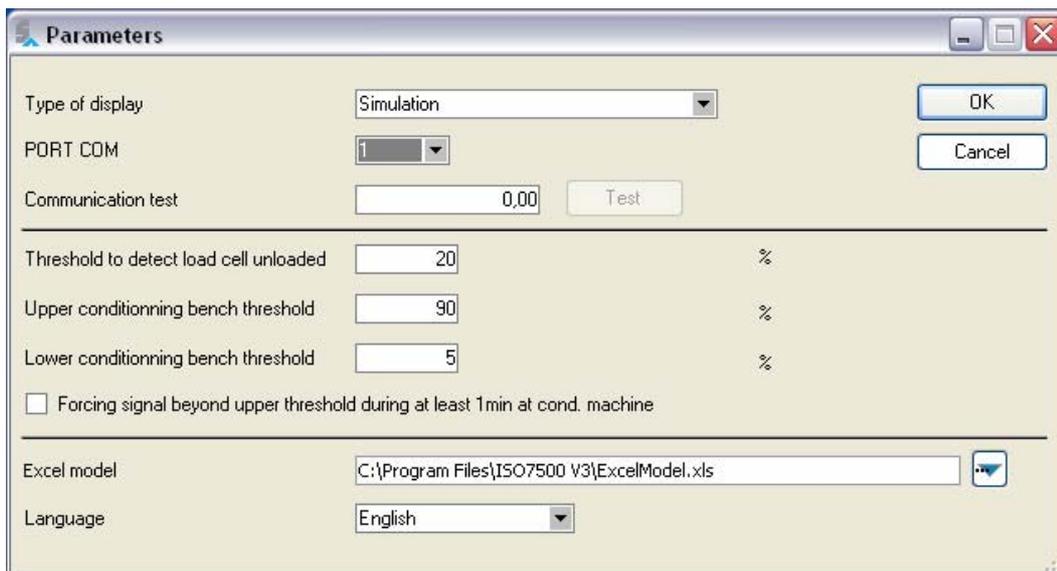
You can define the type of display used by the drop-down list.

RS232 communication protocol used between the indicator and INDI00 the program.

You can set the following parameters :

« PORT COM »   This parameter sets the communication port in use.

« Test de communication »   Check the communication between the PC and the display.

« Tare detection level »   This value can define the range within the sensor is measuring zero load.

« Upper conditioning bench threshold » Iso7500-1 Norm foresees a test of conditioning machine which consists in charging and discharging the machine 3 times. This parameter allows defining the upper threshold on which the machine is considered as charged.

« Lower conditioning bench threshold » Iso7500-1Norm foresees a test of conditioning machine which consists to charge and discharge the machine 3 times. This parameter allowed defining the lower threshold which the machine is regarded as discharged.
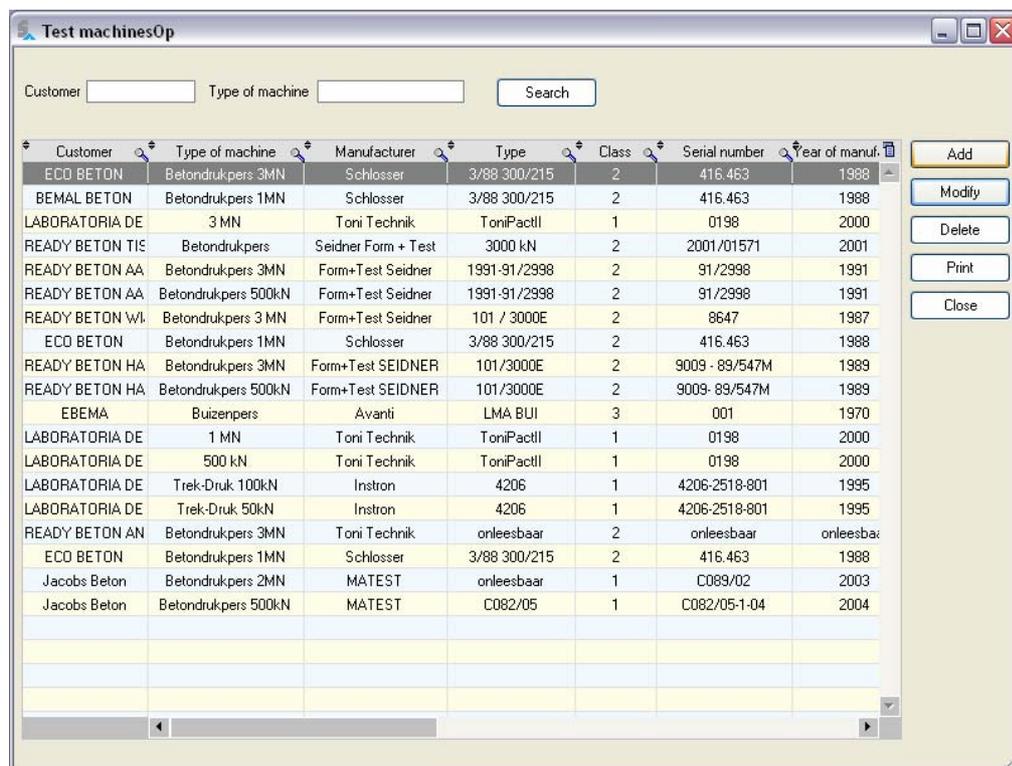
6.2. Information storing

This new version allows managing data about operators, customers and tests bench. Indeed, you can search, modify, and delete all information.

There is also a link between tests bench and each customer to minimize a risk of mistake and decreasing configuration time for a test.

All windows have the same configuration, a table from which you can manage data and an individual window to modify information.
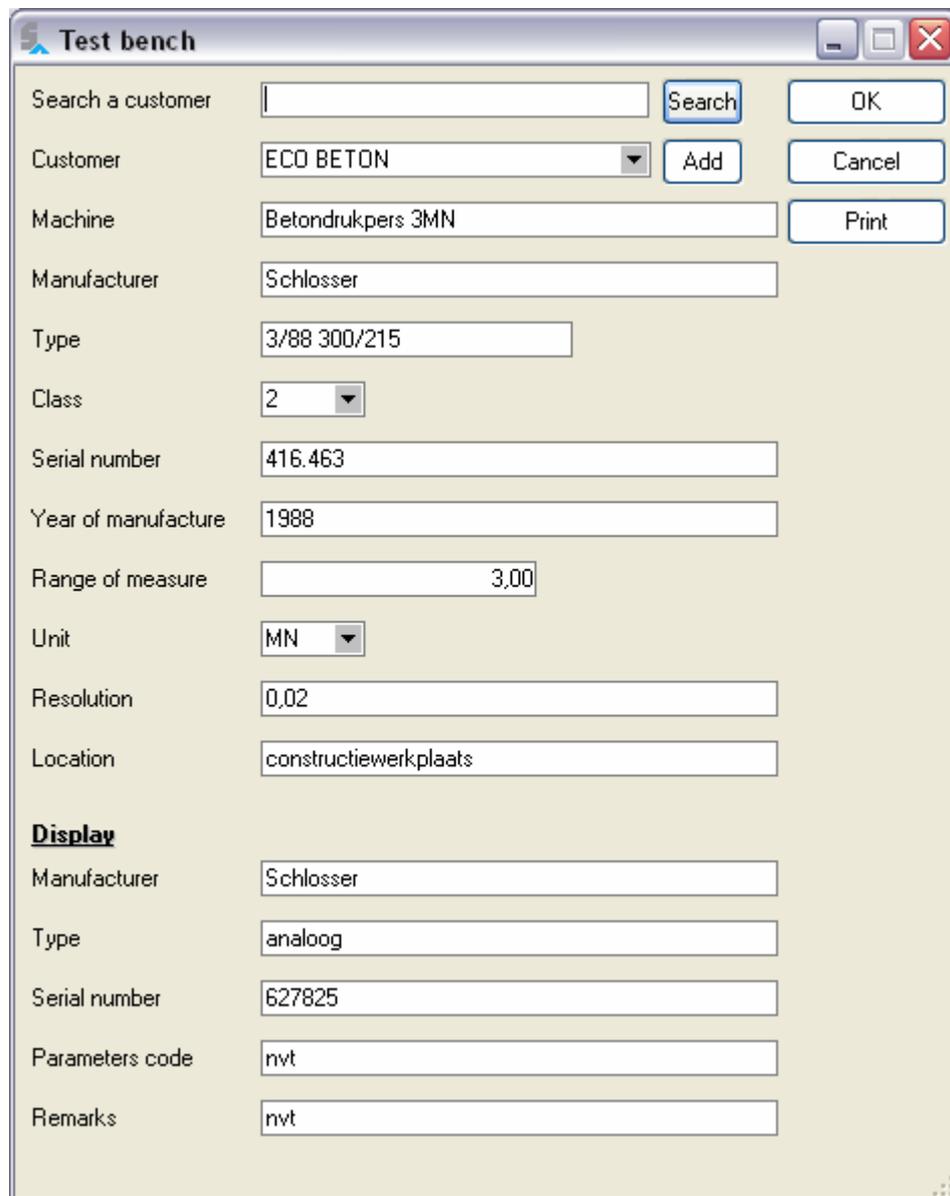
For example:

Starting from this page, you can search a machine and modify it by click on "Modify".

To change or create a machine, you will use this individual page.

Starting from this page, you can do a research on the customer corresponding to the machine you will register. Automatically, the customer list is sorted with all the customers who start with what you wrote.
If the customer doesn't exist, you can create it by click on the button "Add".

All the zones present on these pages are not mandatory EXCEPT the "Class", "range of measure" and "Unit".
Indeed, the zone "Class" allows checking the compatibility with the class of the standard reference transducer.
The zones "range of measure" and "Unit" are used for the conditioning test. The higher and lower thresholds are calculated with these values.
When all the zones for a new recording are filled, click on "OK" to save them.
These explications are also valid for the page "Dated operator" and "Dated customer".

Notice that all the data files must imperatively be in the repertory «C:\Program Files\ISO7500 V3 ».

6.3. « Parameters » page definition

The page "Parameters" allows defining all the coefficients of the line calibration of the standard reference transducers.

Each standard reference transducers have a equation like above: $\quad F(x) = a \cdot x + b \cdot x^2 + c \cdot x^3$
Where F = force and x = electric signal of display.
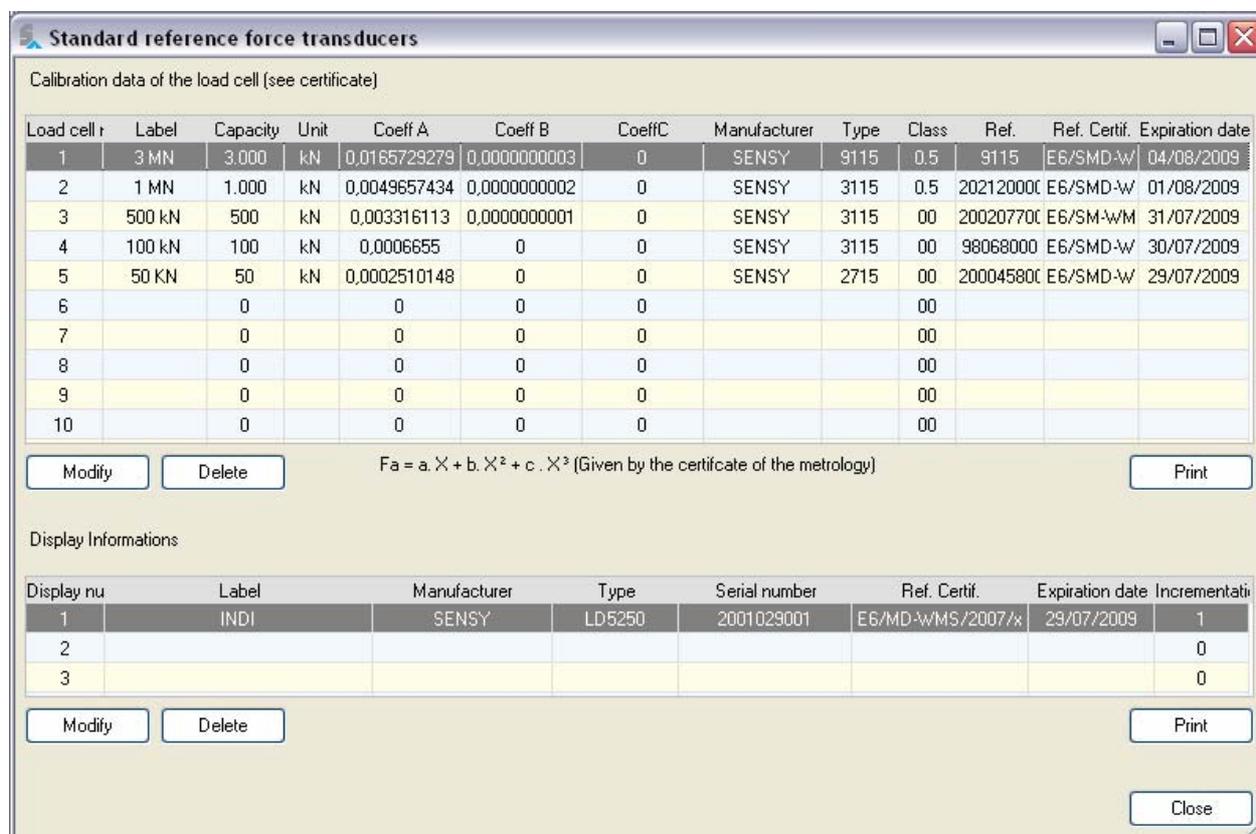
Standard reference force transducers

Calibration data of the load cell (see certificate)

Load cell n	Label	Capacity	Unit	Coeff A	Coeff B	CoeffC	Manufacturer	Type	Class	Ref.	Ref. Certif.	Expiration date
1	3 MN	3.000	kN	0,0165729279	0,0000000003	0	SENSY	9115	0.5	9115	E6/SMD-W	04/08/2009
2	1 MN	1.000	kN	0,0049657434	0,0000000002	0	SENSY	3115	0.5	202120000	E6/SMD-W	01/08/2009
3	500 kN	500	kN	0,003316113	0,0000000001	0	SENSY	3115	00	200207700	E6/SM-WM	31/07/2009
4	100 kN	100	kN	0,0006655	0	0	SENSY	3115	00	98068000	E6/SMD-W	30/07/2009
5	50 KN	50	kN	0,0002510148	0	0	SENSY	2715	00	200045800	E6/SMD-W	29/07/2009
6		0		0	0	0			00			
7		0		0	0	0			00			
8		0		0	0	0			00			
9		0		0	0	0			00			
10		0		0	0	0			00			

Modify   Delete $Fa = a \cdot X + b \cdot X^2 + c \cdot X^3$ (Given by the certifcate of the metrology)   Print

Display Informations

Display nu	Label	Manufacturer	Type	Serial number	Ref. Certif.	Expiration date	Incrementati
1	INDI	SENSY	LD5250	2001029001	E6/MD-WMS/2007/x	29/07/2009	1
2							0
3							0

Modify   Delete   Print

Close

When you start a calibration test, the « label » zone will be proposed for the choice of the standard reference transducers. It is thus advised to indicate the capacity of the sensor.

The zones "Capacity" and "unit" are **very significant**, because it's with these values that all calculations will be carried out. It is mandatory that the capacity of the standard reference transducer is expressed in the same unit as the defined capacity from the calibration certificate that the coefficients that follow are coherent.

For example, you can have a load cell 1MN with the certificate coefficients for a capacity of 1000kN. In this case, the zone "Capacity" must be equal to 1000 and units to kN.

The other zones just represent the informations relating to standard reference transducers, EXCEPT the zone "Class" which is used for the compatibility test.

Indeed, if you chose to test a machine with a class 0.5 with a standard reference transducer with a class 1, the software informs you that it is impossible.

6.4. Calibration

Test description :

1. **Chose the information relating to the report**: Firstly, chooses the customer by clicking on the list and then the operator, the machine, standard reference transducer and the display.

2. Define the type of test, i.e.: chose the number of "steps", the test of reversibility, and the maximum value of the standard reference transducer to be tested.

   Thus, if you have a standard reference transducer with a capacity of 1MN, and you want to test a machine until 800kN by step of 80kN, automatically, the force range will be 80% that the upper limit of the sensor.

Next step

3. In the first one, you must discharge the machine and click on "1st preload (F2)". The program then requires you to charge the machine until threshold indicated at bottom right of the above picture. In this case, it's 900kN, that means that in the zone "Upper threshold of bench" of the configuration page, 90% show up.

4. Start again this test 3 times, and you will be able to begin the test of the machine.

Note: conditioning machine is imposed by the ISO7500-1 Norm, **point 6.4.3**

5. To start the test, click « continue »

6. The software waits minimum 30 seconds for the stabilisation of the "zero" like indicated in the Norm, **point 6.4.5**

7. Click on "Measure"

8. The software doesn't take directly thee measurement to allow users to wait additional time, you must then "click" again on "Measure" to take the "zero".
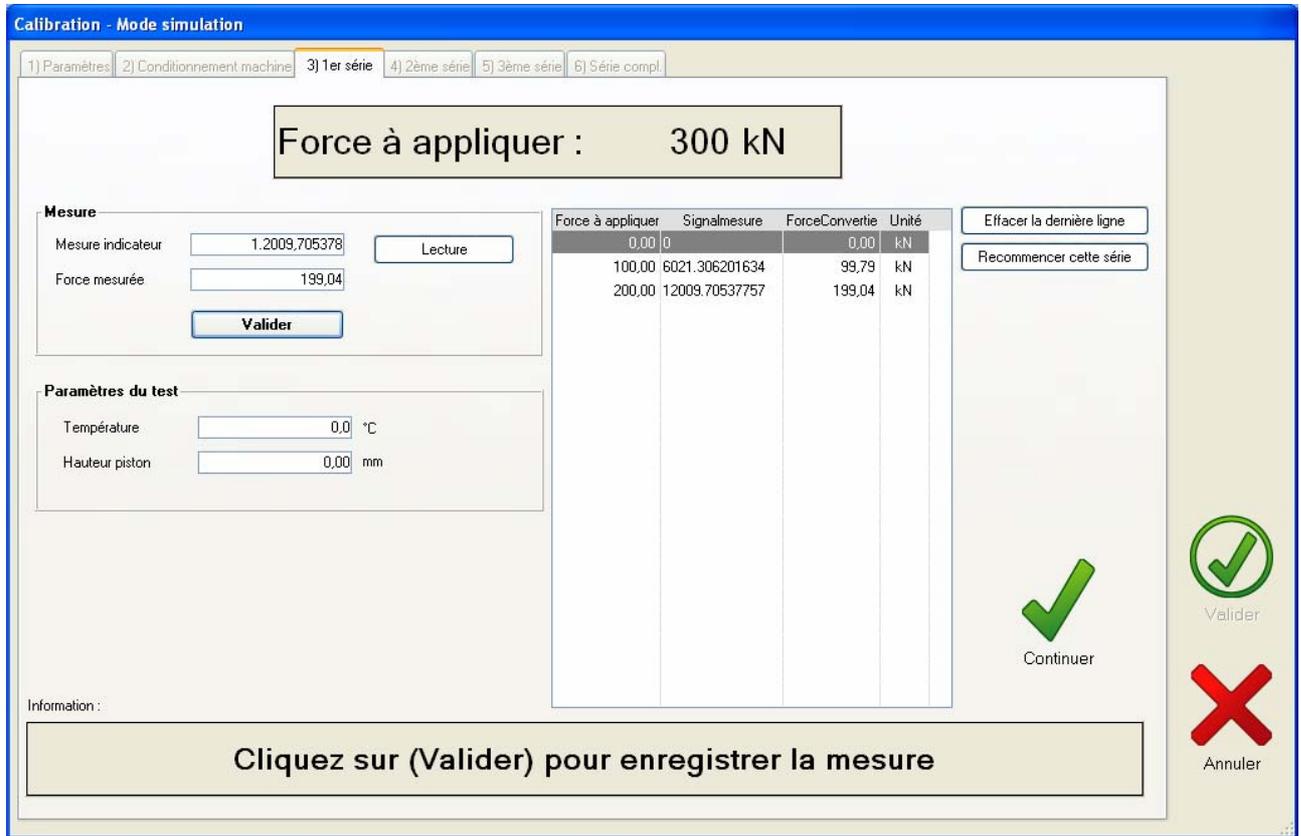
This page allows encoding the temperature for the first series like indicated in **point 6.4.2** of the Norm.

9. Apply the announced charge and click on "Measure"

10. All other measurements are carried out same way, until the last "zero" where there is also a temporization of 30 seconds before taking measurement.

When you are finished the first series, you can carry out the following series same way.

After the 3 series, the program gives you 2 possibilities,
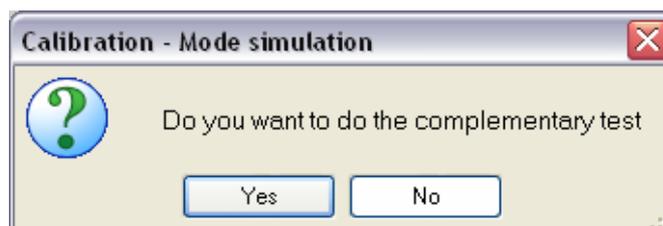
-   to launch the generation of a report by clicking on Generate "Excel report",
-   to do a complementary series for the case of machine working with and without accessory like indicated in the **point 6.4.6** of the Norm. Indeed, if the machine often works without accessory, then the first 3 series of tests must be done without accessories, but for the complementary series, the machine will have to be used with its accessories and reversely.

The software also allows doing a reversibility test, this option must be chosen before the 3rd series like indicated in the **point 6.4.6.**
In this case, after having tested the machine with all the steps of increasing loads, instead of measuring the zero, the program requires you to discharge the machine step by step.

6.5. Report making process

Using the button "search" on the home page to access this window.
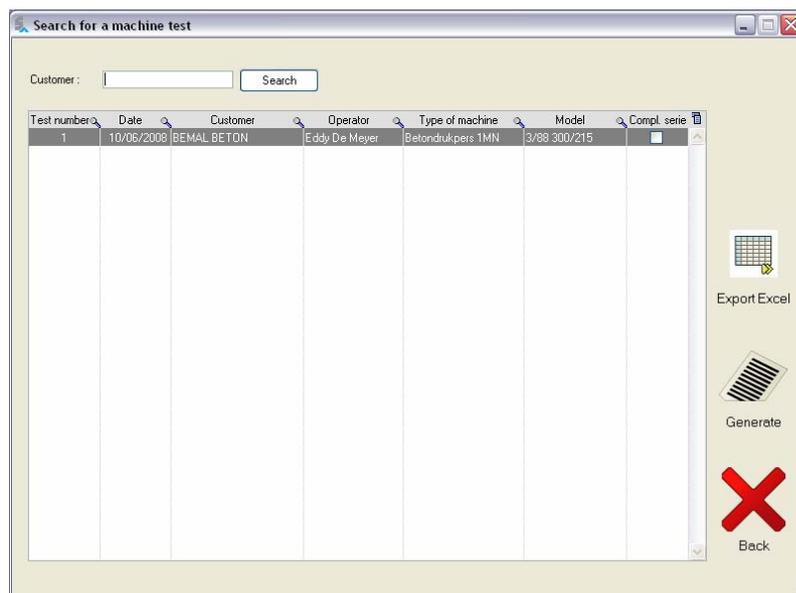
You can search for different customers.
Once the tests finished, if you click on the button "Excel report", the software starts the Excel sheet as a model and introduces the values into the preset cells.

This model can be configured by Save as in Excel model, but if you want to modify the position of the measured values, it is advised to create a page 2 of the Excel sheet being used as model.
Recall: It is mandatory that the model files Excel are in repertory C:\Program Files\ISO7500 V3.

Annexe: Setting the RS232 output of INDI-5250 or INDI-00

1/ Go to the menu SETUP

Press the key [→Fn], introduce Fn49 with keys [→T←▶] and [▽T▲]

Confirm with key [⊙↵] → display SETUP

Confirm with key [⊙↵]

2/ modifying the communication parameters

Press the key (1x) [▽T▲] to show SETUP2, then press [⊙↵]

Check all the parameters below by pressing the key [⊙↵]

2.t = 02
2.c = 65
2.l = 01
2.r = 00
2.a = 00
2.f = 00
2.e = 1
2.1 = 0
2.2 = 0
2.3 = 0
2.4 = 0
2.5 = 0
2.6 = 0
2.7 = 0
2.8 = 0
2.d = 17
SETUP2

Press key [→0←Esc] to exit

3/ Change the update speed of the display

Press key ▽ to display « Par »

Press the key ⊙ several times until appears « 6.P » enter « 14 » using key ▽ .

Press the key ⊙ to confirm

Press the key →0← Esc to exit.

 4/ Modification storing

Press the key (2x) ▽ to use « STORE » confirm with ⊙

5/ Cable specification

RS232 cable.