

Computer Control Electromechanical  
Universal Testing Machine

**Software of Model WDW-10**

Serial No.: 021360

**Operation Manual**

TE Forcespeed Corporation  
The People's Republic of China

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## Chapter 1 Brief Instruction

### Section 1 Foreword

The MaxTest.exe program applies to all kinds of material testing machine such as Electron Control Universal Testing Machine, (Servo control) Oil Pressure Universal Testing Machine, (Screen display) Oil Pressure Universal Testing Machine, (Screen display with displacement) Oil Pressure Universal Testing Machine, (Proportion control) Oil Pressure Universal Testing Machine, that are differed from its configuration files. The program of different configuration files has different way of operating; this enchiridion has incorporated all possible ways of use.

### Section 2 Characteristic of the program

- 1** The program could be configured four different load sensors at most, users could switch the sensor in the four if needed, the MFS of the load sensor is in the range of 50kN to 2000kN.
- 2** The program could be configured eight elongation sensors (extensometer) at most, users could switch the sensor in the eight if need.
- 3** The Program has a open framework, which supports different database modules of testing. The initialization of the program incorporates the testing method of GB228-87, GB228-2002, GB7314-87 etc, that could be added if need.
- 4** The program could display the load value, the load peak in scaled and non scaled mode,  $\pm 1\%$  of the display value (no lower than 20% of the MFS of the scale) in precision when in scaled mode, and  $\pm 0.5\%$  of the MFS in precision when in non scaled mode.
- 5** The program could display the elongation value, the elongation peak in scaled and non scaled mode,  $\pm 1\%$  of the display value (no lower than 20% of the MFS of the scale) in precision when in scaled mode, and  $\pm 0.5\%$  of the MFS in precision when in non scaled mode.
- 6** Automatically records load/time, elongation/time, load/elongation, load/displacement curve, frequently specimen.
- 7** Automatically calculates the mechanical performance of the material according to testing curve, the result could be manually modified.
- 8** Automatically saved the data and the curve of the test, the data is managed by database.
- 9** The program integrates some other useful programs such as MaxIni.exe, MaxBatch.exe.

## Chapter 2 Installation and Startup

### Section 1 Environment of circulate

**Hardware demand:** Pentium MMX200 CPU/128M Memory or more, SVGA Color Display (800\*600 Resolving Power or more), Mouse, Printer

**Operating System:** English Windows 98/Me/2000/XP

### Section 2 Installation

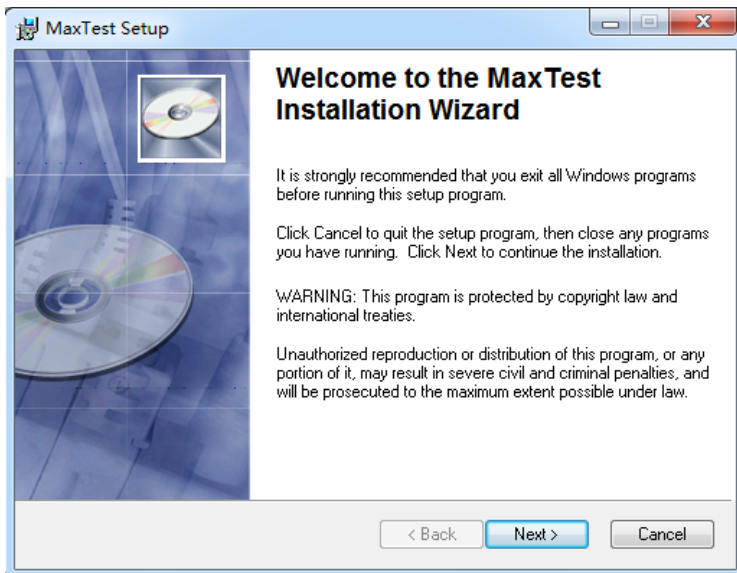
If your computer is equipped with automatic operation (AutoRun) function, you simply insert MaxTest installation disk, wait a moment, there will be a selection interface; If your computer is not equipped with automatic-run feature, find

 StartRun.exe in the installation disk, double-click to run .

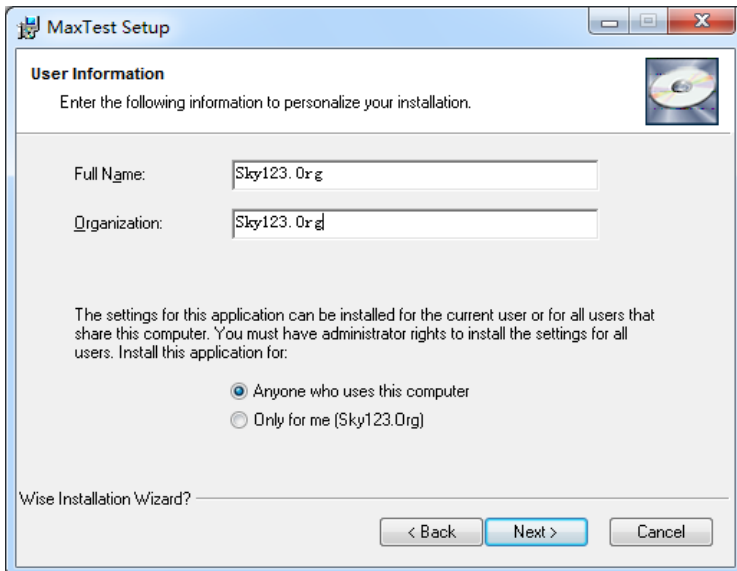
The installation menu shows as below:



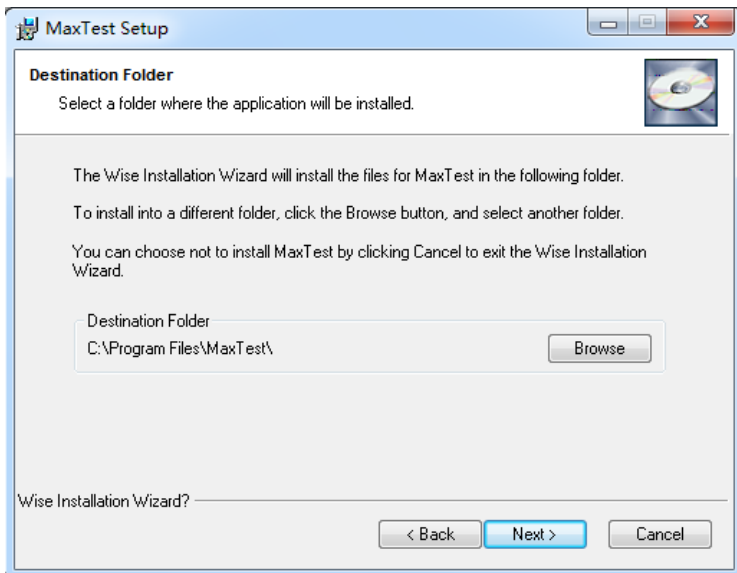
Click MaxTest Install.



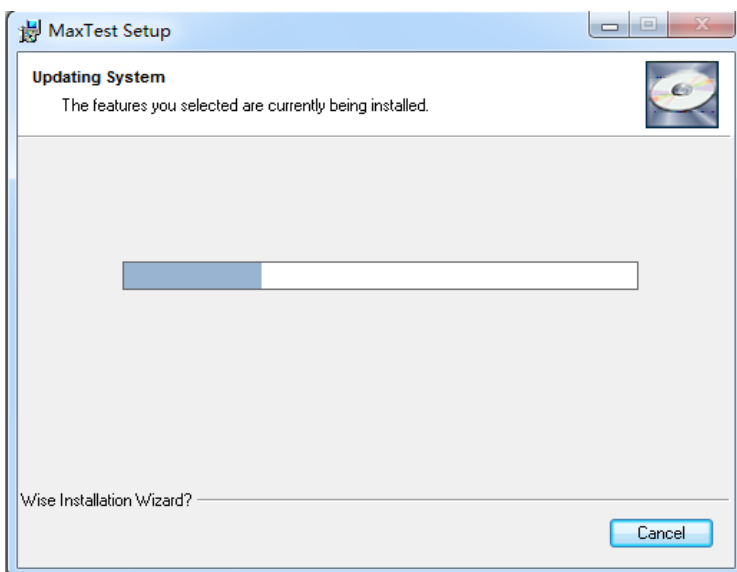
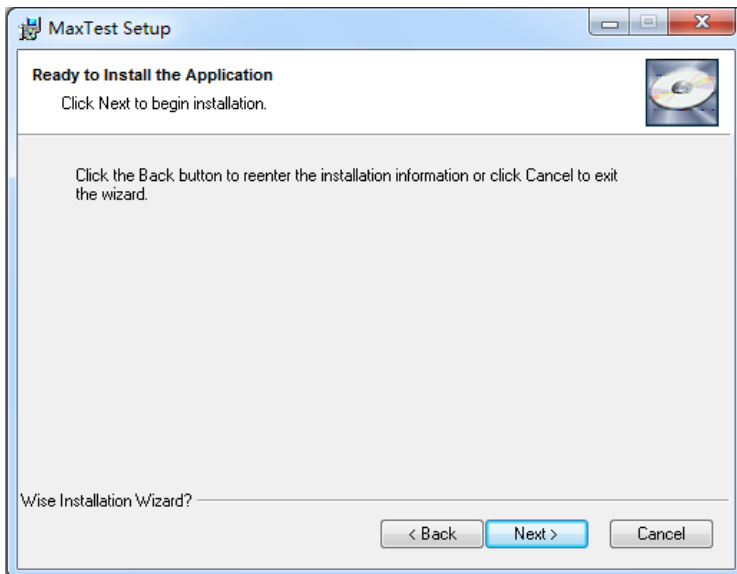
1. The diagram of the next window shows below:

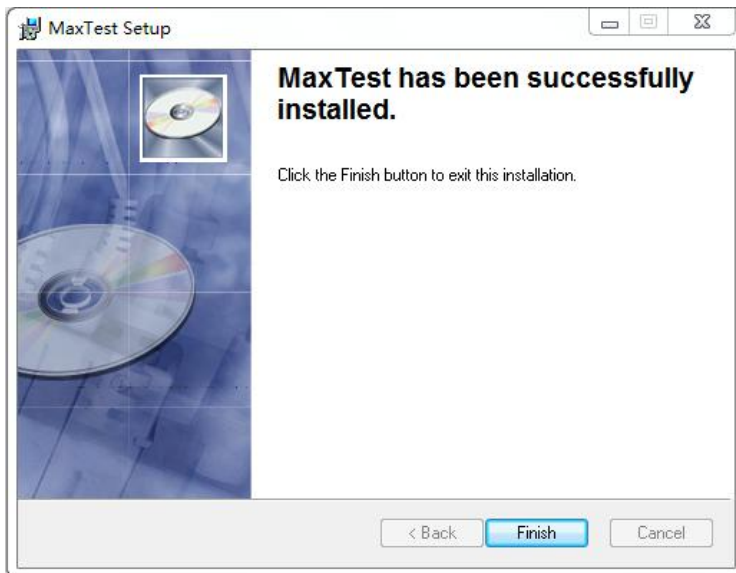


2. On the window, enter the "Full Name" and "Organization" of you, and click "Next";
3. The next window shows below, the default installation folder of the program is "C:\Program\MaxTest", if you want to install into a different folder, click the Browse button, and select another folder, and click "Next";



4. The window shows below, if the fore steps are exactitude, click “Next” to install the program in your computer, or click “Cancel” to exit installation;





5. If the program install successfully on your computer, in the "All programs" menu of the "Start" menu, there will turn on the "MaxTest" programs, also there will turn on a




icon on the desktop of your computer.

Observingly, if there have not auto run function of your computer, you could find out the "Setup.exe" of the MaxTest by explorer, and double-click it to install the program.

### Section 3 Startup



On the desktop of your computer, double-click the icon , the interface of the desktop shows below:

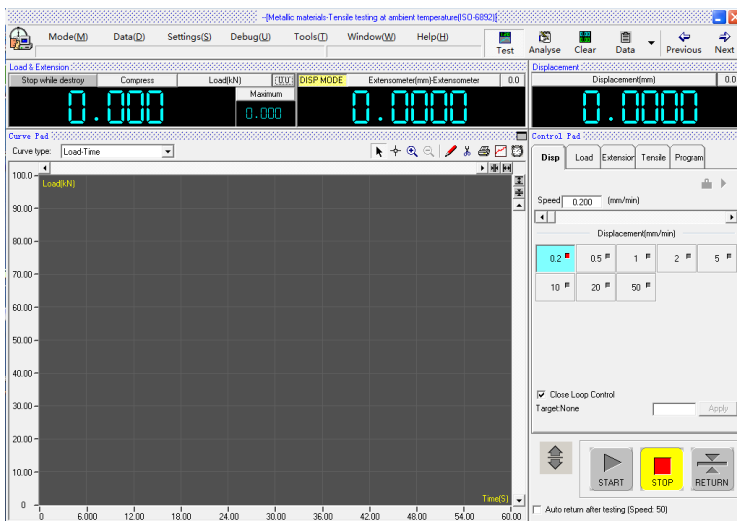


Or click button "Start" - "All programs" - "MaxTest" - "MaxTest", to start the program, the interface shows below:





The diagram of the startup menu of the MaxTest shows below:

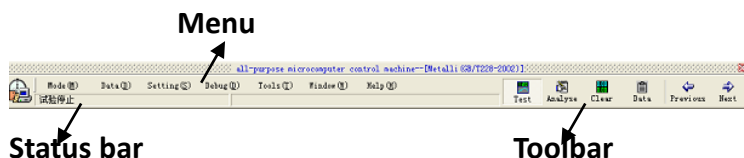


### Section 4 Uninstallation

Open the “Control Panel” of your computer, click “Add or Remove Programs”, select the “MaxTest” on the program list, and click button “Remove”, then the MaxTest programs could be deleted from your computer fleetly and in security.

## Chapter 3 Operation interface

### Section 1 Main faceplate



The main faceplate which always on the top of the screen is the control center of the program, it manages all the other function faceplates of the program.

**Detail explains:**

#### 1 Menu:

##### 1.1 Mode:

**Testing method:** Switch the interface of the program to test control mode;

**Analysis mode:** Switch the interface of the program to data Analysis mode;

**Exit:** Exit from the program;

##### 1.2 Data:

**Input Specimen Information:** Fill information to specimen; add specimen information to the program;

**Open:** Open the recorded data;

**Save:** Save the data of testing;

**Save as Txt File:** Save the data of testing as format “.Txt”;

**Print:** Print out the data of testing;

**Print in EXCEL:** Print out the data of testing by Excel mode;

**Analysis Test Curve:** Analysis the test curve;

##### 1.3 setting:

**Select Loader:** Switch the load sensor;

**Select Extensometer:** Switch the elongation sensor (Extensometer);

**Option:** Open the system option window;

**Analysis Way:** Set the automatically Analysis way;

##### 1.4 Debug:

**Hardware Zero:** Adjust the benchmark of the zero of the hardware magnify parameter;

**Loader Bias:** Adjust the load magnify parameter;

**Extensometer Bias:** Adjust the elongation magnify parameter;

**Displacement Bias:** Adjust the displacement magnify parameter;

**Debug Parameter:** Open the Debug parameter window to check all debug parameters;

##### 1.5 Tools:

**Test/Control Watch Window:** Watch the process of test control of the program;

**User Definability Item:** Open the user-defined data window;

**Save Monitor File:** Save all debug parameters as a txt file;

##### 1.6 Window:

**Arrange sub windows:** Realign all sub windows;

**Screen Top/Left:** Realign all sub windows to Top/Left of the screen;

**1.7 Help:**

**About:** Check the program’s version, the type and version of driver of the AD800 card, etc.

**Register:** Check the state of register of the program or register again.

**2 Status bar:**

Departed to two parts as the left part and the right part, the left part displays the information of control, such as the control speed; and the right part displays the information of the specimen, such as the area, the serial number, etc.

**3 Toolbar:**

It incorporates some shortcut buttons as follows:



: Switch the interface of the program to test control mode;



: Switch the interface of the program to data Analysis mode;



: Clear all display values of the interface;



: Switch to data board, to check data or change testing type;

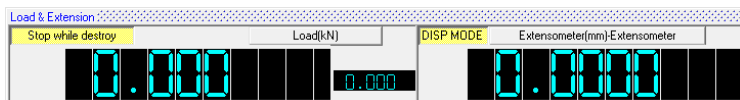


: When in checking data, to check the previous data;



: When in checking data, to check the next data;

**Section 2 Load and extension display board**



non scaled

Stop of broken    Load value    Extension value



clear button Disp Mode

Scaled

**Load value display:** Automatic stipulations of an agreement;

**Load peak display:** Automatically cleared when the testing starts;

**Extension value display:** Automatic stipulations of an agreement;

**Scale switched rule:** When in the beginning of the testing, it should be selected the lowest scale, so that the high precision of display value could be gotten;

**Stop of broken:** When the button be pressed down, if the testing meets the broken condition, the program would stop the testing automatically;

**Clear button:** Clear the current display value;

**Disp Mode:** Switch the extension measure mode, if the button be pressed down, the

extension would be replaced by the displacement, else the extension would be measured by Extensometer.

### Section 3 Displacement display board

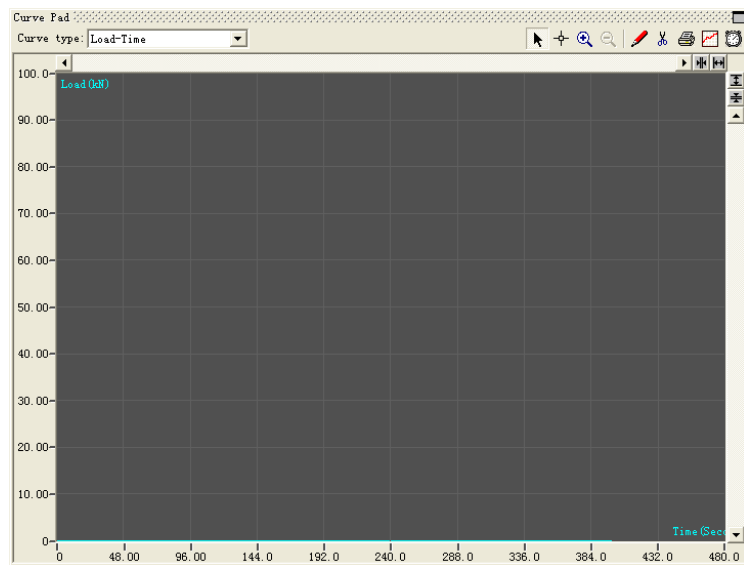
The board does not exist in the display machine (reference chapter 1 the section about the sort of the program).



**Displacement value display:** Displays the displacement value;  
**Piston position:** Only displays in hydraulic pressure servo machine;  
**Manual control direction:** Only displays in electronic machine.

### Section 4 Curve display board

The curve display board would display the curve when in testing, display the history curve when in browsing data; and display the result of curve analysis when in analysis mode.



1. **Curve type:** The program would record six different type of curves: Load-Time, Extension-Time, Load- Extension, Load-Displacement, Stress-Strain, Load-Strain, these could be switched displaying here;

2. **Curve analysis tools:**



Drag point: When the curve display board is under the analysis mode, clicks the left button of the mouse to pitch

on the points of the curve, and drag them moving;

Anchor point: When the tool be selected, the curve analysis toolbar would display the coordinate of the cursor relative to the curve analysis board real time; When clicks the left button of the mouse, the cursor would jump to the nearest point of the curve, then clicks the right button of the mouse, selects a name for the point from the pop window;



Blow up curve display: When the tool be selected, selects a area on the curve analysis board by the mouse, the area would be blew up when the mouse button be released;



Reduce curve display: when presses the icon, the curve would be reduced by one scale;



Reveal line: When clicks the left button of the mouse, there would be a red line indicates the linearity of the curve;



Clip curve: Clips the excrescent section of the curve, the changes of the curve is beyond retrieve;



Print out the current curve;



Save the current curve as BMP format file;



Curve record frequency: When the button is pop, it means the current curve record frequency is 1, if it is pressed, it means the current curve record frequency is 10;



Window size maximum button: Blows up the curve analysis board to the screen size;



### 3. The scroll bar:



## Section 5 Control board

The board does not exist in the display machine (reference chapter 1 the section about the sort of the program).

### 1. Control mode switch card



**Disp:** Closed loop (open loop) displacement control mode;

**Load:** Closed loop load control mode;

**Elongation:** Closed loop elongation control mode;

**Tensile:** Typical metal tensile program control mode;

**Program:** One programmable control mode;

### 2. Control buttons board

The control buttons board has two states: testing control state and move control state,



the button used to switch the two states;

**Testing control mode:**

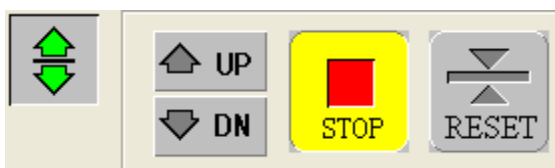


: To control the start of the testing;



: To control the stop of the testing;

### 3 Move control mode:



: To control the piston or the beam moves up;



: To control the piston or the beam moves down;



: To stop the movement of the piston or the beam;



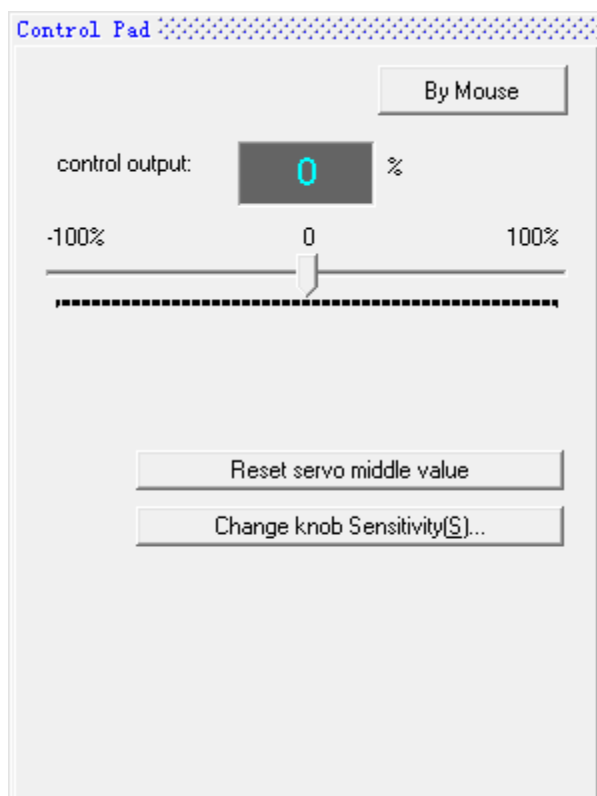
: To reset the position of the piston or the beam;

### 4. Servo output board

The board only exists in (Servo control) Oil Pressure Universal Testing Machine.



Presses the button , selects the second card, switch to servo output board;



The servo output board shows above, which has two buttons, “Reset servo middle value” and “Change knob delicacy (S)”;

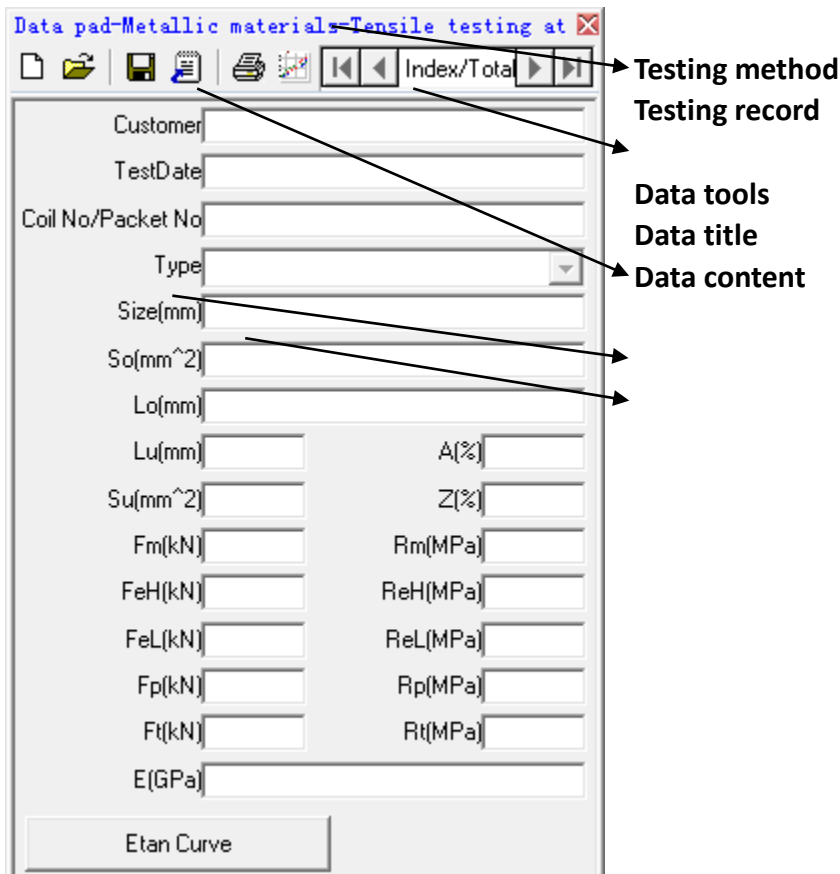
**Reset servo middle value:** The servo middle value is a parameter that acts on the output signal’s range of the potentiometer on the electric cabinet. The initialization of the value is in the range of -100% and 100%, corresponding that the delicacy value is 0.1% that means the piston’s move speed could get to the maximum. The servo middle value could be changed by changing the knob delicacy;

**Change knob delicacy (S):** the delicacy value 0.1% corresponds -100% and 100% the range of the servo middle value, and 0.5% corresponds -50% and 50% the range of the servo middle value, the rest may be deduced by analogy.

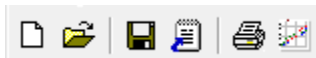
## Section 6 Data board

### 1. Data board

The data board displays all information of the test, which is differ in the interface of the different testing method, for example, the picture shows above is the data board of Metallic materials- Tensile testing at ambient temperature (GB 228-2002);



**2 Data Tools**



: Create a new data board to save originality information of the testing, it usually be done before the testing start;

: Lookup the history data of the testing;

: Save the current testing data to database;

: Save the current testing data as a “.txt” file;

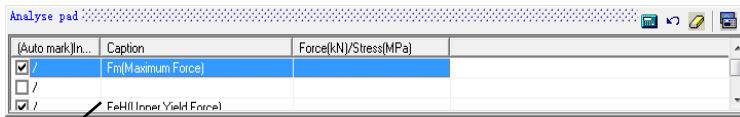
: Print out the testing data, there has two printout mode of the program, this one is common mode, the details about the two mode would be explained in the latter part.

:Print out the testing data in excel. This one is Excel mode, the details about the two mode would be explained in the latter part.

**Section 7 Analysis board**

Analysis toolbar





**Analysis result**

The analysis board shows above, this board would exist in the analysis mode of the program. Clicks the analysis button on the toolbar, or selects the “Analysis Mode” option in the Menu to switch to the analysis mode.

Generally under circumstance, while experiment be over, the system will analyze the test curve right away, and fill analysis as a result in the analysis board and the curve board, but does not need the customer handicraft intervention. If automatic analysis inaccuracy, so, the customer can change analysis method, then carry on to the curve again. The analytical method is set by the customer at the analysis before. If the customer wants to change the analytical method, can click the analytical tool [the analysis option] button, will appear the analytical constitution window (as follows diagram). Customer can accord to the kind of the specimen to select a specific analysis method. After analysis complete, the physics function parameter of the material test will mark out on the curve.

**2 Analysis toolbar**



: Analyze curve, Click it, will according to constitution of analytical method is analytical to test the curve afresh, break analytical result;



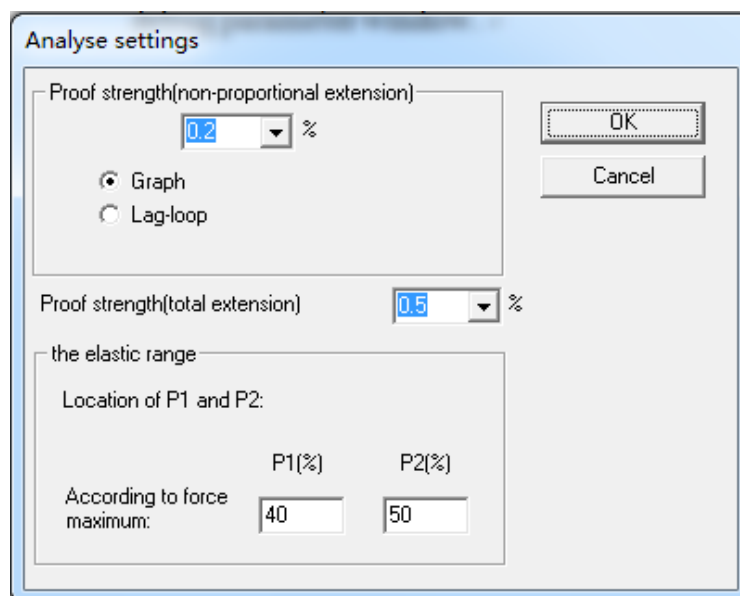
: Undo, The one-step handicraft changes the previous appearance on the instauration, most recover 10 steps;



: Remove all, clear all analytical result and refresh;



: Analysis option, the window as the diagram shows below:



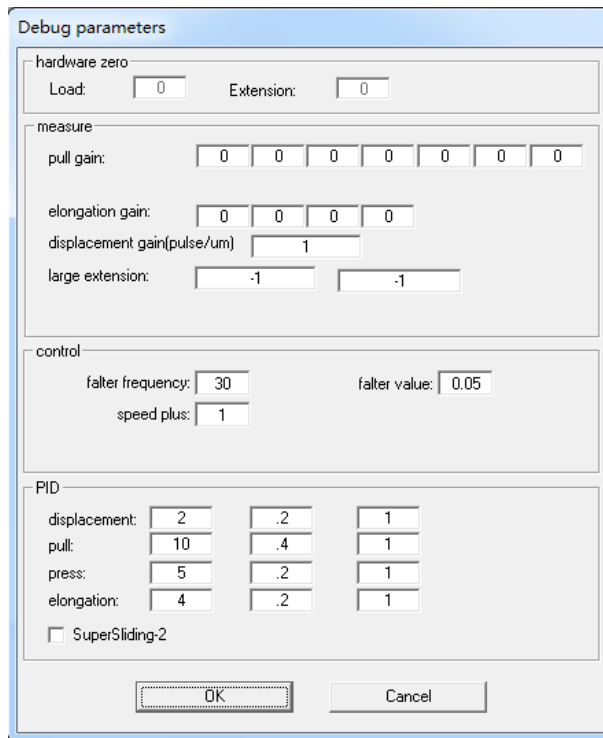
**3 Choose analytical method**

Choose analytical method. Different analytical method to analyze the test sometimes

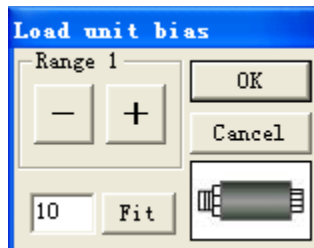
has great analytical result; Before Choices the analysis method, please consult carefully the standard of related. The particular testing method sometimes needs to adopt the particular analytical method. Non reasonable analytical method will cause mistake of analysis result.

**(H) Debug parameter window**

Under general circumstance, the customer should not change these parameters. Press [F12] key will open the debug parameter window.

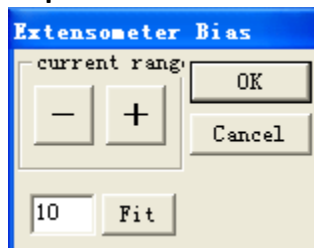


**(I) Load value examination parameter**



Selects the option “Load bias” in the Menu or press [F8] key to open the tiny adjust the window of the load value, the window shows above;

**(J) Extensometer value examination parameter**



Selects the option “Extensometer bias” in the Menu or press [F9] key to open the tiny adjust the window of the extensometer value, the window shows above;

## Chapter 4 Process of a test

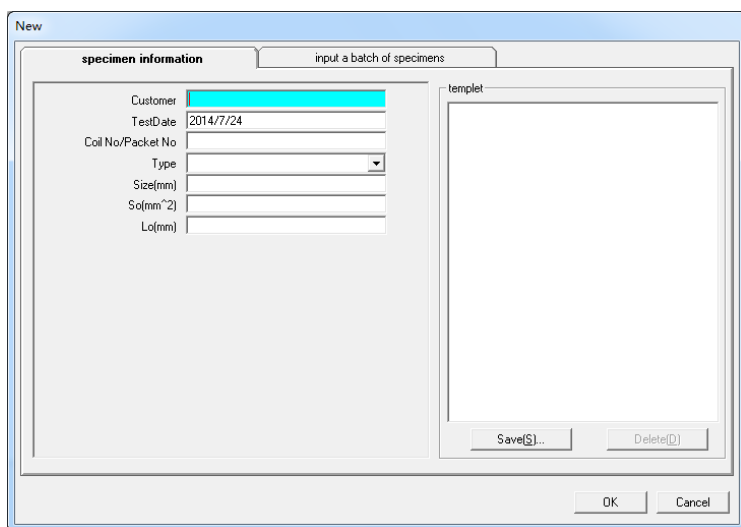
### Step 1 Select a testing method

While preparing to start a test, choose the testing method at the data board first. as the diagram shows below, click the tool column up" the data plank" button side of bottom pull the arrowhead, win election the item of choose the accommodation at the on trial type the row watch that appear. Such as the diagram, we choose" the metals material indoor temperature pulls to stretch to experiment (GB228-2002)".

### Step 2 Create testing information

#### 1. Input bases on templet

Customer fills some related information of the test in [the templet importation] page such as testing batch number, testing serial number, testing date, tester, specimen shape and size, So(cross section area), Lo, etc, the diagram shows below:

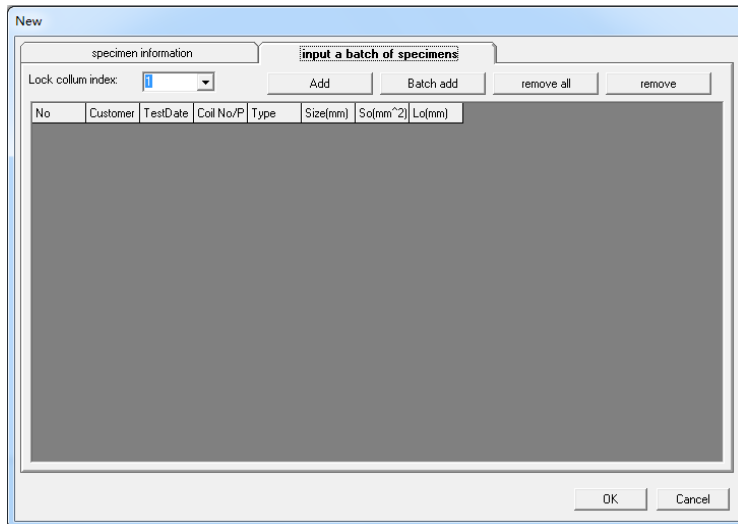


The customer can also open directly the templet document keeping in the right side list, but no need input the importation of the test one by one more again; Click the templet name with the mouse, so, the contents of the templet will directly fill in. After filling the information, click button [keep the templet] on the right side of the page, the data fill will save for another templet document.

#### 2. Batch of input

When the testing information is filled, switch the window to [input a batch of specimens] page next (the diagram shows as follows):

Click the button [Add], copy the templet data to the data buffer area.



Click the button [Batch add], to copy the data to the data buffer area in batches.

### Step 3 (modification of information)

Double-click the table of the data buffer area, and change the information as needed.

There has option [Lock column index] on the window, which is used when there has too many columns of the table that could not display on interface, lock some columns to make them displaying always. That is usually used when changing the information.

### Step 4 Confirm information

This step is to save the information in the data buffer area to the program

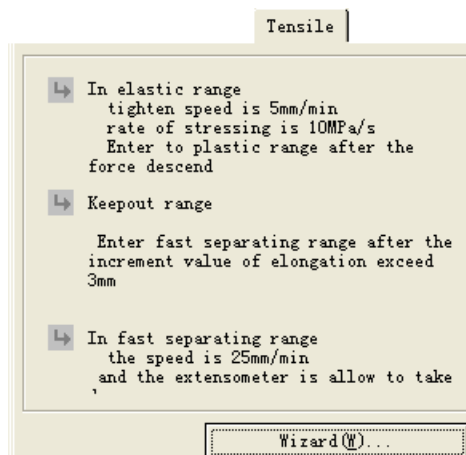
When the information is created, click the button [OK], the information would be saved to the database of the program, as the diagram shows below, the information would display on the data board of the program:

## Step 5 Select a testing control mode

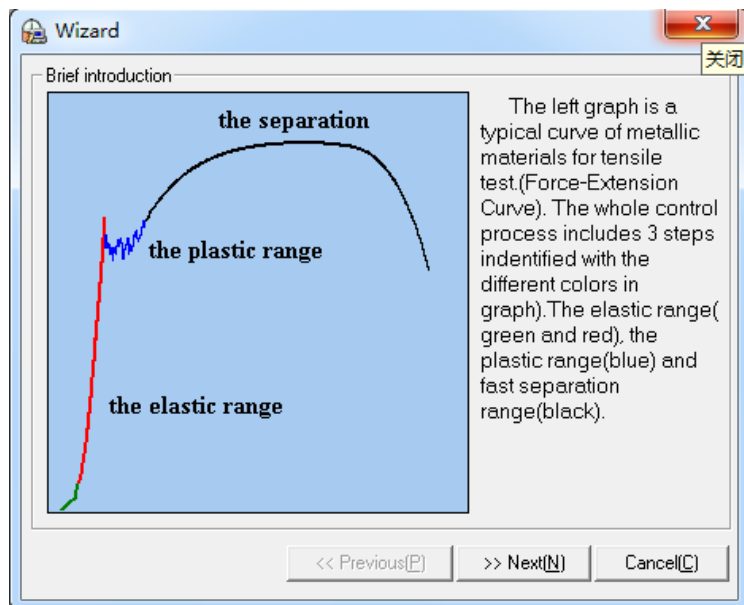
Select testing control method from the control board. The control mode could be selected as simplex one, such as “Disp mode” or “Load mode”, or complex one, such as “Tensile mode”. In the step 6 we will take the “Tensile mode” as example to detail;

## Step 6 parameter of the control

The interface of “Tensile mode” on the control board as the diagram shows below:



Click the button [Wizard (W)] to open the parameter configure wizard window:



The wizard would lead you configuring parameter step by step, directly according the show of the window of each step.

### Step 7 Start test

Check back the steps before; if they are all correct, then the test could be started. Click the button [Start] on the control board, start the test.

### Step 8 End test

If the test meets one of these conditions, the program would stop the test:

1. Manually stop the test by clicking the button [Stop];
2. Over loading protect;
3. The specimen meets the broken condition.

### Step 9 save testing data

When the test is accomplished, the program would analyze the testing curve based on the analytical method and then save the result of analysis to the database automatically.

### Step 10 Artificial analysis of testing curve


If the result of the automatically analysis doesn't meet actual need, the program could also support artificial analysis function.

The general process of data analysis details:

1. Click the toolbar of the program with the mouse, switch the program to the [analysis mode];


2. The program will show automatically [the analysis board], because we want to analyze load- extensometer curve, so will switch the curve display to the load-extensometer on the curve board;

3. Generally, we still adopt the automatic analytical method first. Press the auto analysis

button  on the analysis board with the mouse, the program will analyze the curve automatically, and order each marking on the curve, at the same time at[the analysis board] list the position that each marking order and show the related information, and show the analysis result at[the data board].

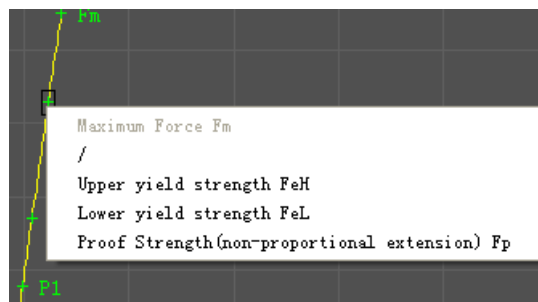
4. If the automatically analysis result doesn't meet actual need, take these steps to artificial revise:

The step of the artificially define symbolize the point is:

4.1. Click the button  on the curve analysis toolbar, the mouse will switch to cross cursor;

4.2. In needing to define the curve of symbolize the point or the neighborhood click the mouse, the mouse cross would automatically be adsorbed to the curve;


4.3. Click the right key of single shot mouse at the position, will appear order define menu, select a corresponding name in the menu, to define this order as a symbolize the point, at the same time, the reference information of the point will display on the analysis board; As the diagram shows below:

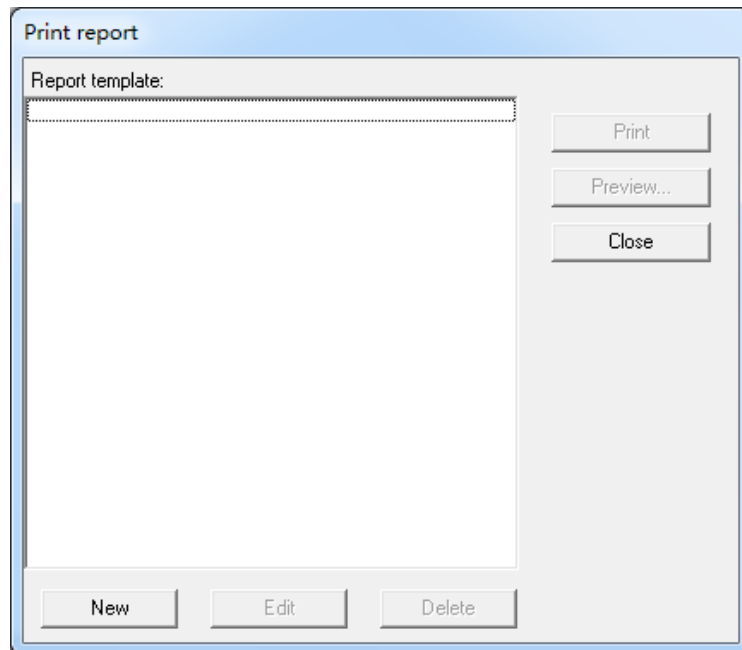


## Step 11 Print out the data

If the testing result needs to be print out, there has two print out modes in the program; those are common mode and Excel mode.

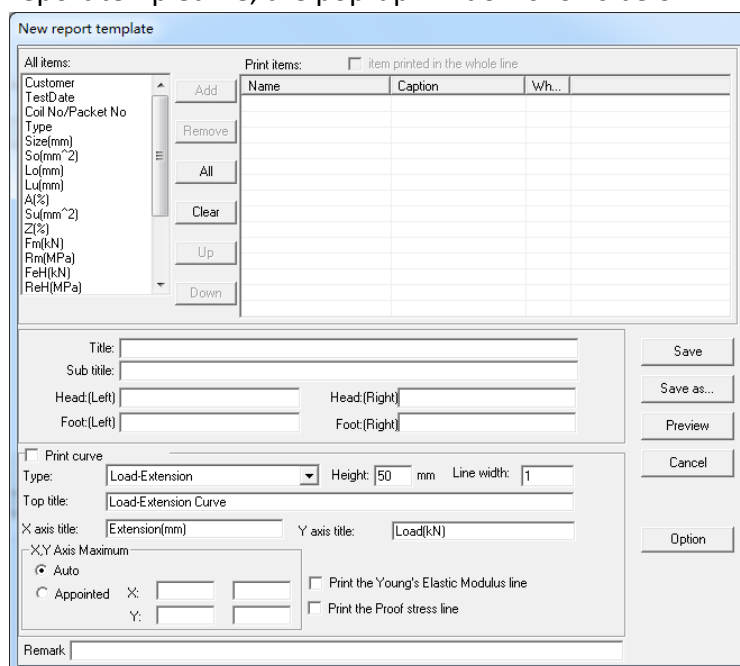
### 1. Common print out mode

Click the button  on toolbar of the data board, open the print templet selects window, the diagram shows below:



Select one templet file in the report templet window; Click the button [Print] to print out the data.

**Edit report templet:** Click the button [Edit], or click the button [New] to create a new report templet file, the pop-up window shows below:



The window is a new report templet editor, on which the customers could edit the report templet neatly as they want. The next is the detailed introduce of the editor:

### 1. Optional items

On the left-top of the window, there lists all basal items of the test, if the report contains the item, select it here, and add it to report templet.

### 2. Report items

The report items are added from optional items. Double-click the item; there would pop-up a window shows below:





The caption of the item could be changed here.

### 3. Report title

On the center of the window, there have “Title” and “Sub title” input field, the diagram shows below:

**Title:** used to be inputted header of the report;

**Sub Title:** used to be inputted subhead of the report;

**Head :( Left):** used to be inputted left head of the report;

**Head :( Right):** used to be inputted right head of the report;

**Foot :( Left):** used to be inputted left foot of the report;

**Foot :( Right):** used to be inputted right foot of the report.

### 4. Report curve

On the bottom of the window, there have “Print curve” check box, the diagram of the window shows below:

If it is checked, that means the test curve could be print out;

**Type:** the print curve’s type, which could be selected as Load-Elongation, Stress-Strain, Load-Time, Load-Displacement, Elongation-Time, and Load-strain;

**Height and Width:** the height and width of the print curve;

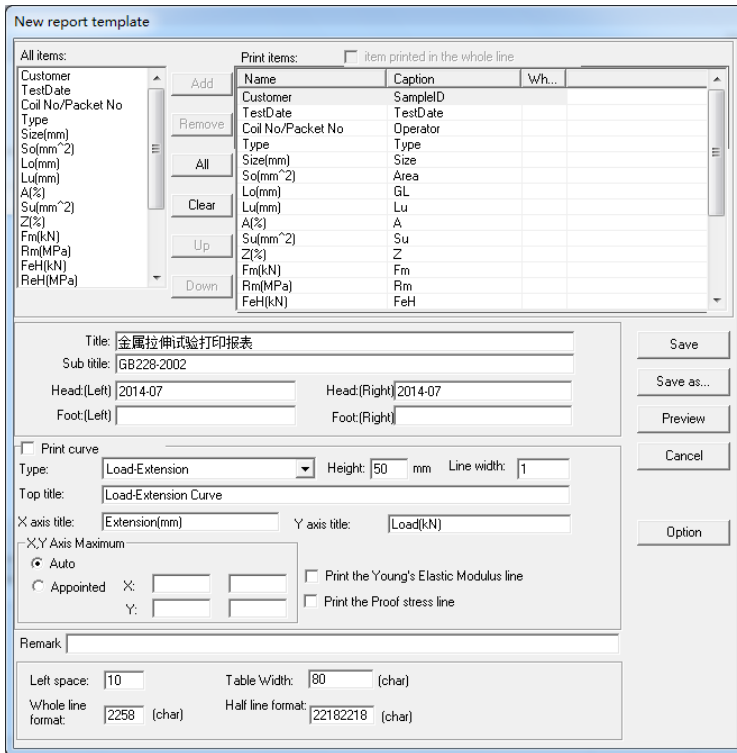
**Title:** the title of the curve;

**X title:** the title of the X axis;

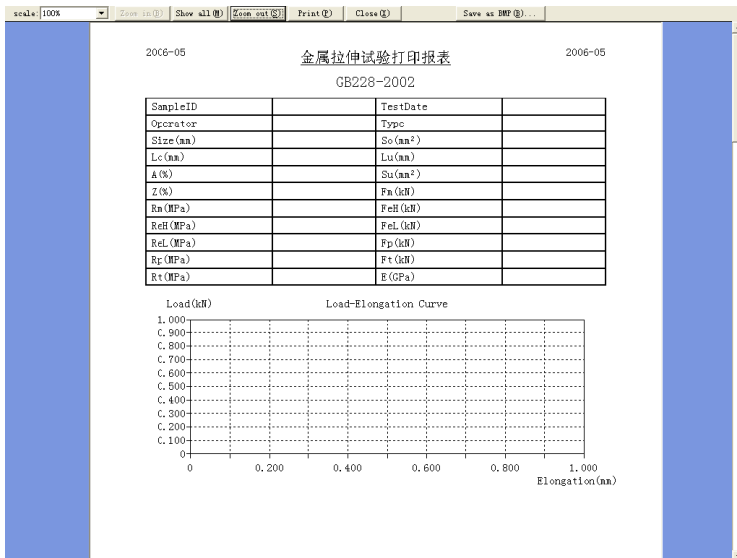
**Y title:** the title of the Y axis.

### 5. Example

As the diagram shows below, we have set an example of a report here, click the button [Save] on the right of the window, the report templet could be save as a “.mrt” file;

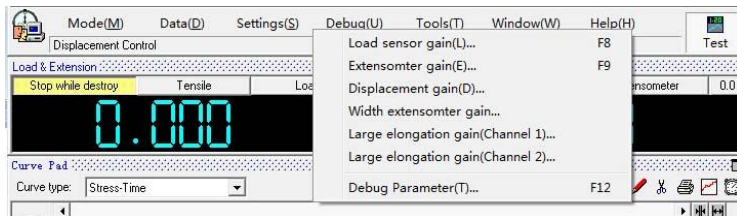


Click the button [Preview] on the right of the window, the report templet shows as the diagram below;

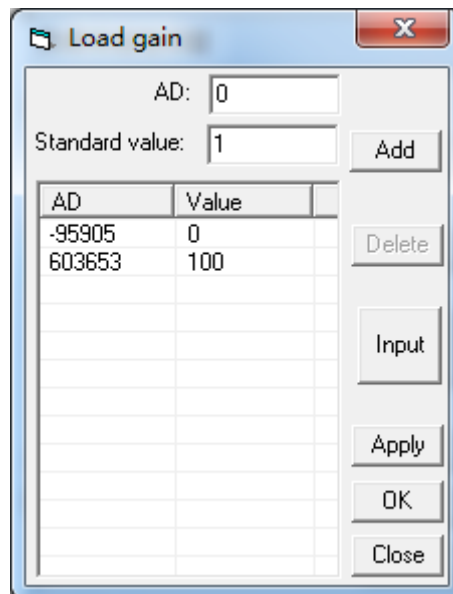


## Chapter 5 Calibration

### Section 1 load sensor gain



Select the option [Load sensor gain] under the [Debug] menu or press F8, open the gain window(the diagram shows below).The gain window corrects the values of a plurality of different sample values to correct the linearity of measurement sensor.



#### Gain steps:

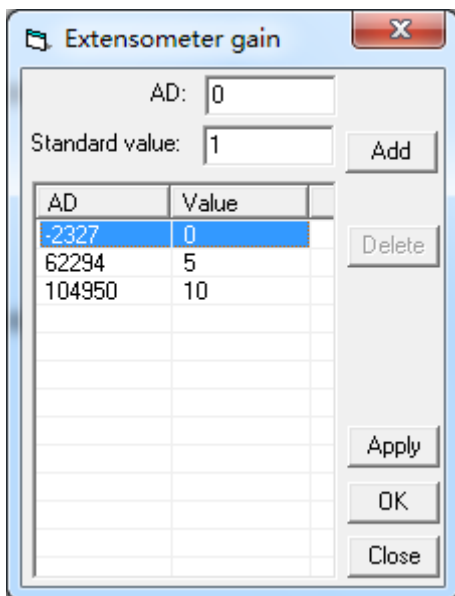
1. Start testing machine through the manual feed of oil or other methods to start pressure, and add standard dynamometer, such as pressure ring, measuring load value.
2. When the actual load reaches a certain value, such as 10KN, filling the actual load value at this time in the [Standard value] , then pressing the [Add] buton.

Repeat steps 2 , through multi-point correction mode to achieve the best measurement linear of the differential transformer.The calibration can choose any point to fix, as long as the number of points is less than 21.

If the machine had been calibrated well, but due to a software system reinstall or other ransons ,need re-calibration.Copy the right date backup , through [manual input] to add in the new system.

### Section 2 Extensometer gain

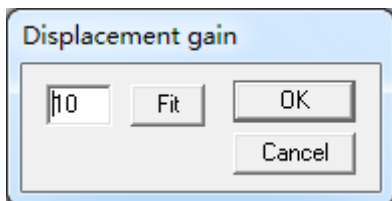
Select the option [Extensometer gain] under the [Debug] menu or press F9, open the gain window(the diagram shows below).The gain window corrects the values of a plurality of different sample values to correct the linearity of measurement sensor.



Calibration steps and methods is the same as load sensor gain.

### Section 3 Displacement gain

Select the option [Displacement gain] under the [Debug] menu, open the gain window(the diagram shows below).

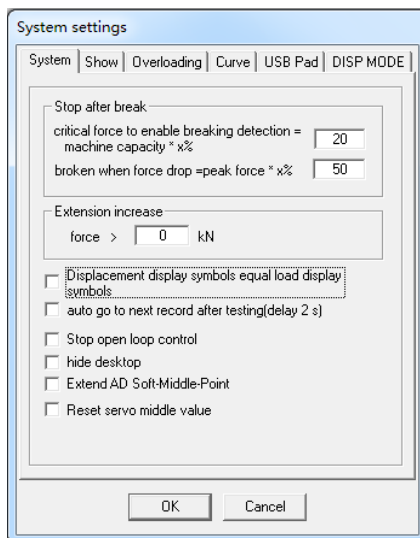


Enter the target value in the calibration window, move the beam to the target value, then click the calibrate button.

## Chapter 6 Configure system

### Section 1 System setting

Select the option [Option] under the [setting] menu, the program would pop the “System setting” window (the diagram shows below), there have five pages on the window: “System”, “Show”, “Overloading”, “Curve”, “USB Pad” and “DISP MODE”;

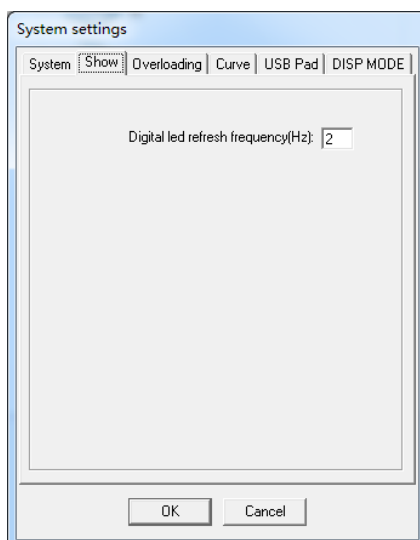


**System:**

**Judge minimal force:** If only the loads value of the program exceeds this value, the specimen could be treated as broken;

**Condition:** When the loads value meets this condition, the program treats the specimen as broken;

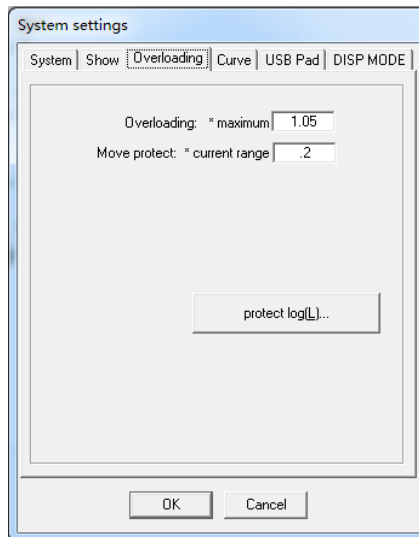
**Show:**



Setting about the led display;

**Led refresh frequency:** refresh frequency of the led display could be modified here;

**Overloading:**

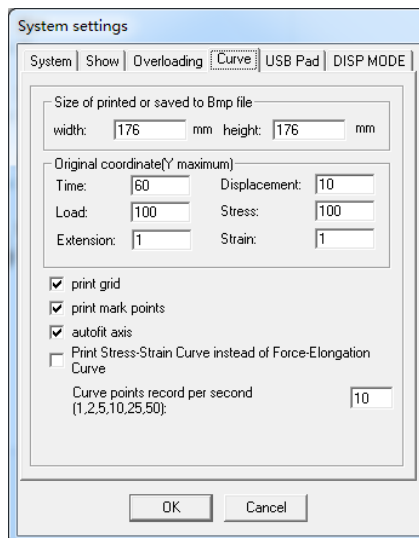


**Overloading:** If the loads value meets this condition, the program will stop the test;

**Protect speed:** the speed of uninstal;

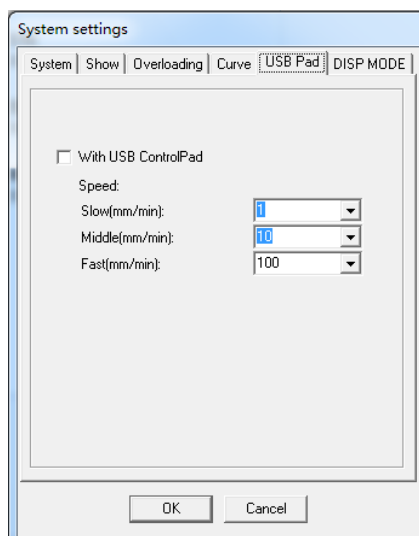
**Overloading log:** the window to record overloading log;

**Curve:**



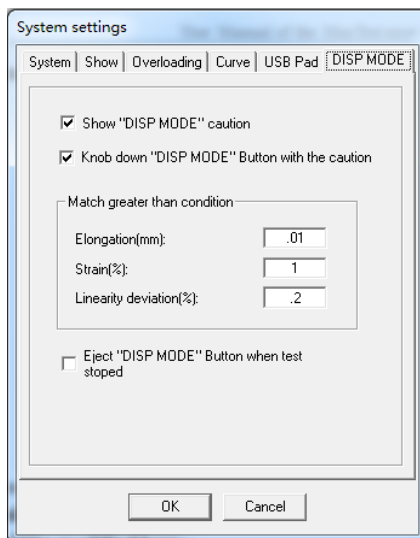
Setting about the testing curve's display and print;

**USB Pad:**



Activating the USB controller manually control function. Setting the speed value of the

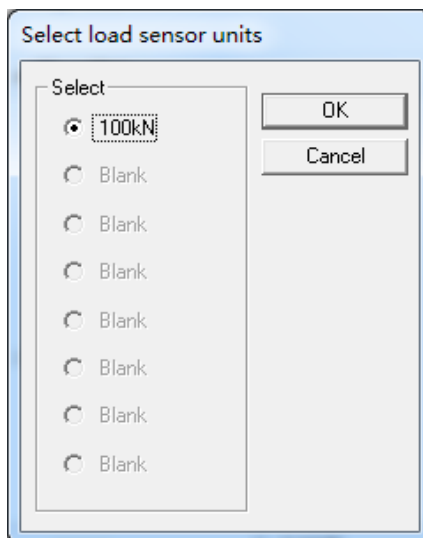
speed control button of hand controller, referring USB hand control box ;  
DISP MODE:



Removing the extensometer.

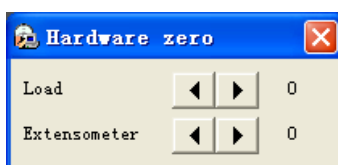
### Section 2 Select ergometer and extensometer

Select the option [Select Loader] and [Select Extensometer] under the [setting] menu, the pop window shows below:





The ergometer and extensometer are configured in the subprogram “MaxIni.exe” beforehand;

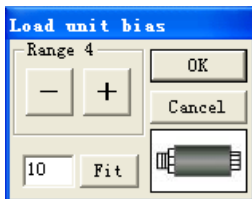
### Section 3 Hardware Zero



Select the option [Hardware zero] under the [Debug] menu, to adjust the parameter value of

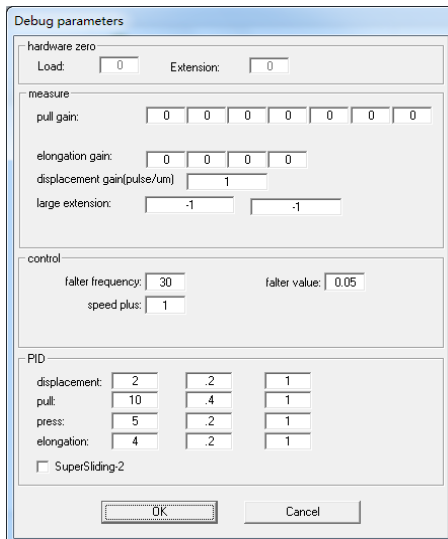
the load zero and extensometer zero by clicking the button  and ;

### Section 4 Loader Bias



Select the option [Loader Bias] under the [Debug] menu, to adjust the parameter about the load value display; [Extensometer Bias] and [Displacement Bias] are similar to [Load Bias].

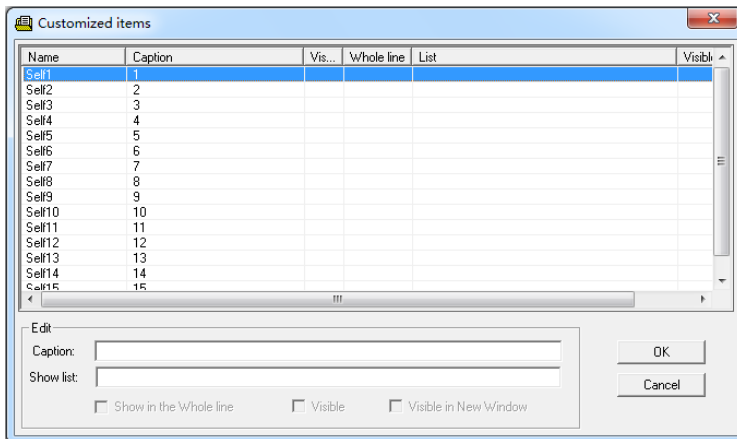
### Section 5 Debug parameter



Select the option [Debug parameter] under the [Debug] menu, the diagram of the debug parameter window shows up, the window mostly shows the parameters about hardware zero, measure, control, and PID control, the parameters could also be directly modified here.

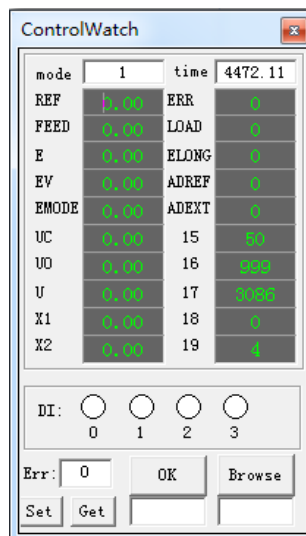


### Section 6 User Definability Item



Select the option [User Definability Item] under the [Tools] menu, the diagram of the User Definability Item window shows up. In the window, users can define items as they will; table “Caption” is written the title of the item. If the item is a list, the items of the list could be written in the table “List”, divided by “,”.

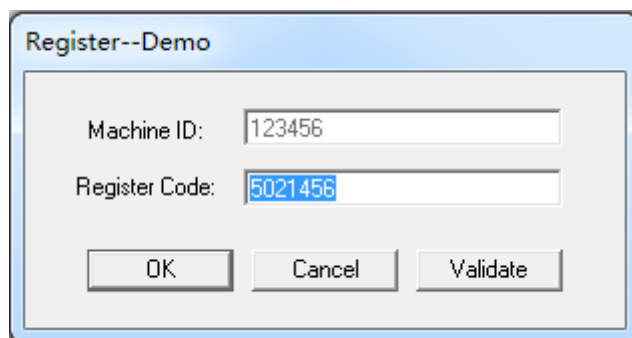
### Section 7 Test/Control Watch Window



Select the option [Test/Control Watch Window] under the [Tools] menu, the diagram of the Test/Control Watch window shows up. The window displays the sampling about controls of the test, so that faults could be diagnosed if the test has some accidents.

### Section 8 Register program

Select the option [Register] under the [Help] menu, the diagram of the register window shows below. The program has one and only Machine ID, Offer the ID to the relational technician, the technician would return the Register Code of the machine.



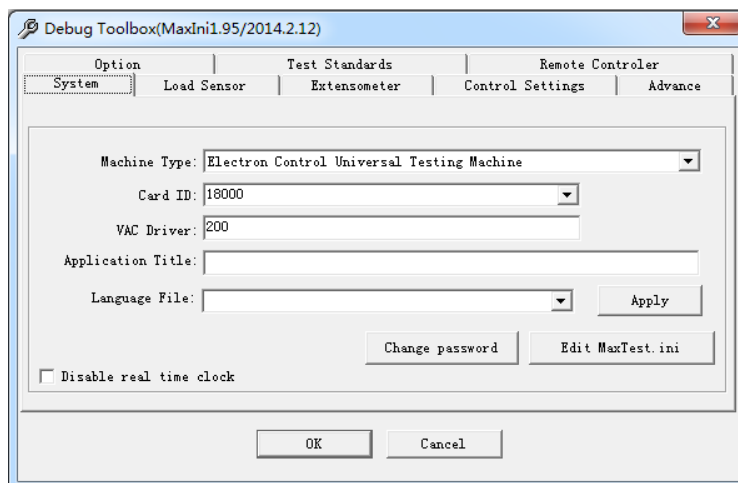
The image shows a software dialog box titled "Register--Demo". It contains two text input fields. The first field is labeled "Machine ID:" and contains the text "123456". The second field is labeled "Register Code:" and contains the text "5021456". Below the input fields are three buttons: "OK", "Cancel", and "Validate".

|                              |         |
|------------------------------|---------|
| Machine ID:                  | 123456  |
| Register Code:               | 5021456 |
| OK      Cancel      Validate |         |

## Chapter 7 MaxIni.exe

The MaxIni.exe, names Debug toolbox, is a Debug program specifically for the MaxTest.exe. The program is in the root directory of the MaxTest.exe. Before run it, there has a password originally is 85359710, which could be changed in the program.

The start-up menu of the program shows below:



There have eight pages on the window: “System”, “Load Sensor”, “Extensometer”, “Control Settings”, “Advance”, “Option”, “Test standars” and “Remote Controller”.

### Section 1 System

**The diagram of the system page shows up:**

**Machine Type:** select the type of the testing machine, the MaxTest.exe supports the Electron Control Universal Testing Machine, (Servo control) Oil Pressure Universal Testing Machine, (Screen display) Oil Pressure Universal Testing Machine, (Screen display with displacement) Oil Pressure Universal Testing Machine, (Proportion control) Oil Pressure Universal Testing Machine

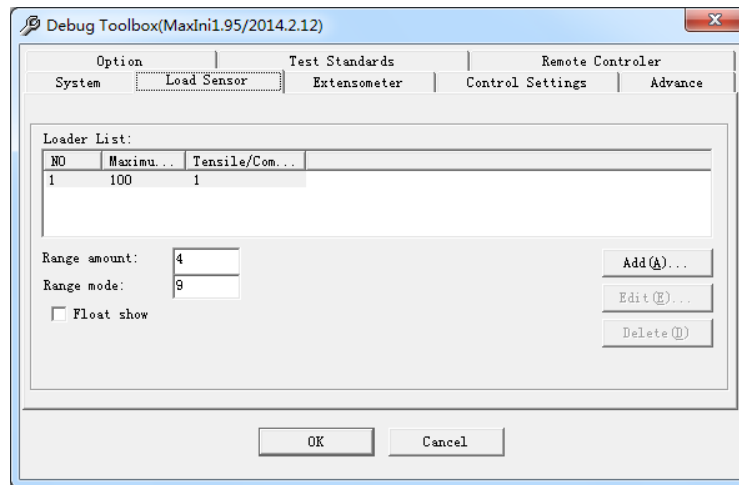
**Card ID:** The ID of the AD card, which relates to the type and the position in the computer of the card.

**VAC Driver:** the VAC Driver of the MaxTest.exe, different testing machine has different VAC Driver.

**Application Title:** The title of the MaxTest.exe.

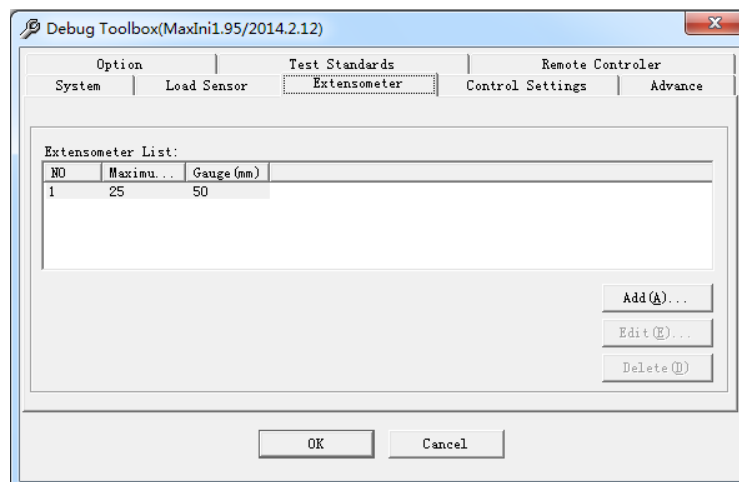
**Language File:**Select a language pack to modify software interface language.

## Section 2 Loader Sensor



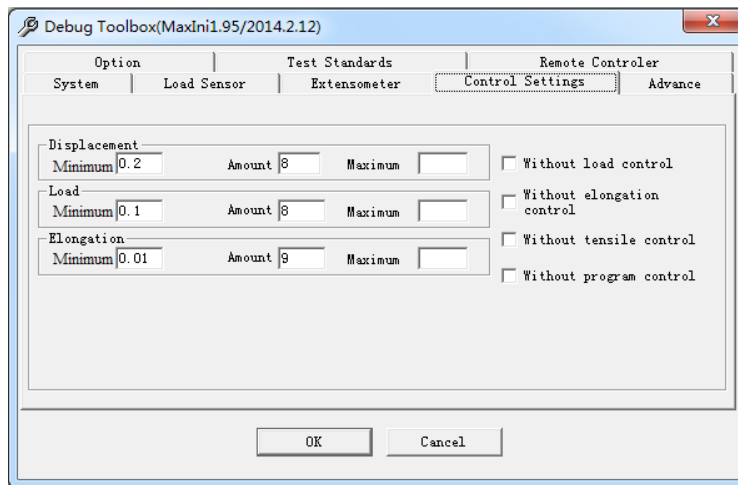
The page is used to add ergometer.

## Section 3 Extensometer



The page is used to add Extensometer.

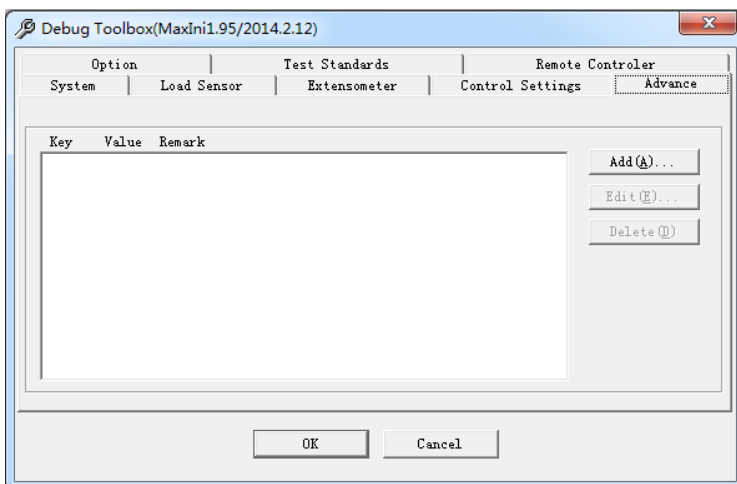
### Section 4 Control Settings



This page is used to customize the control speed of the Displacement, Load, and Elongation. The interface customized shows below:

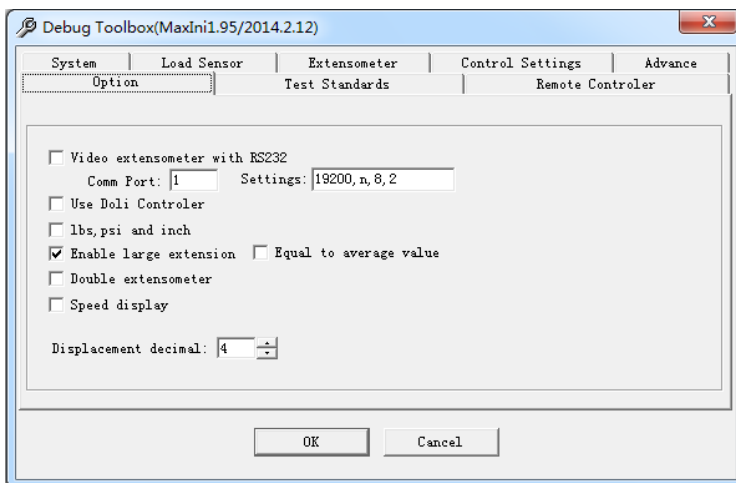


### Section 5 Advance



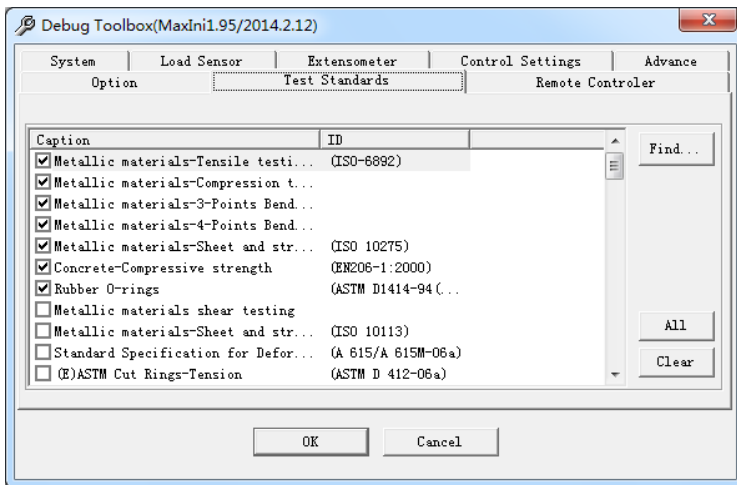
This page is used to custom Vac.dll configuration parameters(referring the manufacturer’s instructions).

## Section 6 Option



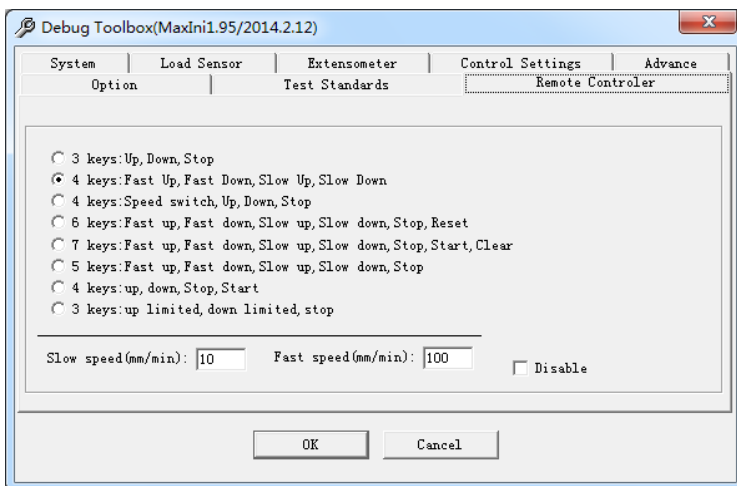
This page is used to modify the analysis data and the decimal places of displacement. Displacement may display two or three decimal places according to the resolution of measuring apparatus.

## Section 7 Test standards



This page is used to select test standars.All the MaxTest built-in test program standars are listed ,some may not need, users simply remove them through setting out the frontVof the standard.

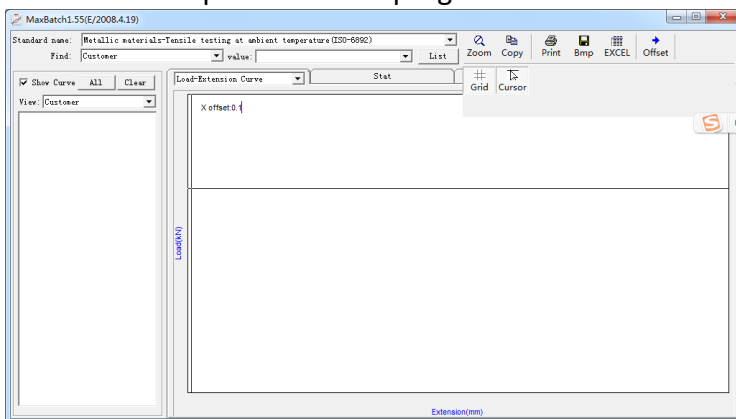
## Section 8 Remote Controler



## Chapter 8 MaxBatch.exe

The MaxBatch.exe, it can gather the test data and curves more manifestation and print out, and the customer can customize print format from the user-defined.

The start-up menu of the program shows below:



### 1. Toolbar

As the diagram shows up, on the top of the window there have some tool buttons,



: Renew the curve's display;



: Copy the curves to the Clipboard;



: Print out the data and curves;



: Save the curves as a .BMP file;



: Set down the bias of the curve;



: Display gridding or not;

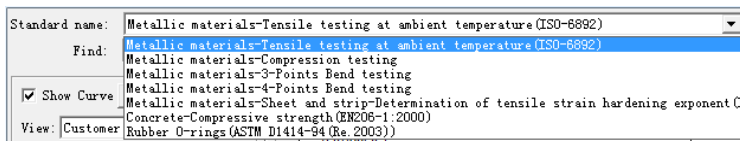


: Display surveyor's staff or not;

### 2. Switch standar

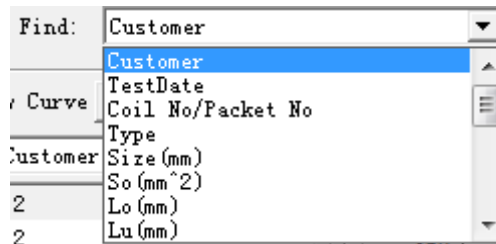


On the left-top of the window, there have a list box of standar name, the diagram shows below:



**3. Rogatory condition**

On the left-top of the window, there have a list box of rogatory condition, the diagram shows below:



**4. Rogatory keyword**

On the left-top of the window, there have a list box of rogatory keyword, the diagram shows below:



**5. Rogatory record**

When the rogatory condition and rogatory keyword is selected, on the right-top of the window, there lists all accordant data, the diagram shows below:




**6. Details of the record**

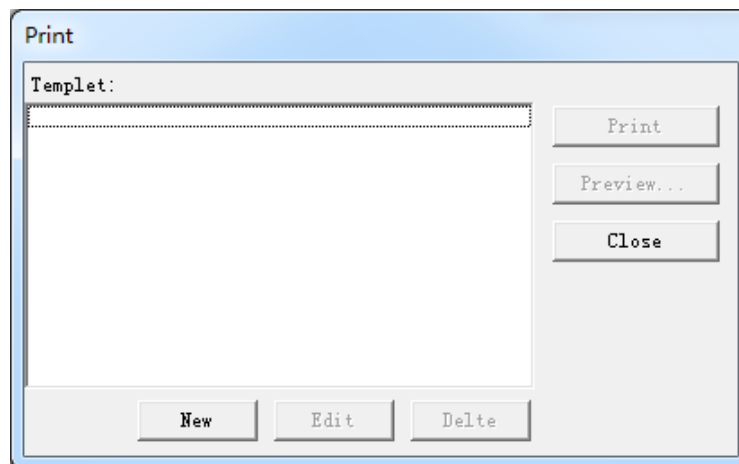
On the middle of the window there displays the details of the rogatory record, the

diagram shows below:

| Load-Extension Curve  |         |         | Stat    |          |          |
|-----------------------|---------|---------|---------|----------|----------|
| item                  | average | maximum | minimum | standard | disperse |
| So (mm <sup>2</sup> ) | 148.44  | 254.47  | 113.10  | 70.685   | 17.671   |
| A (%)                 | 18.00   | 18.00   | 18.00   |          |          |
| Su (mm <sup>2</sup> ) |         |         |         |          |          |
| Z (%)                 |         |         |         |          |          |
| Fm (kN)               | 109.40  | 183.60  | 35.20   | 104.935  | 52.467   |
| Rm (MPa)              | 516.00  | 721.00  | 311.00  | 289.914  | 144.957  |
| FeH (kN)              | 27.98   | 27.98   | 27.98   |          |          |
| ReH (MPa)             | 247.00  | 247.00  | 247.00  |          |          |
| FeL (kN)              | 95.15   | 166.20  | 24.10   | 100.480  | 50.240   |
| ReL (MPa)             | 433.00  | 653.00  | 213.00  | 311.127  | 155.563  |
| Fp (kN)               | 95.15   | 166.20  | 24.10   | 100.480  | 50.240   |
| Rp (MPa)              | 433.00  | 653.00  | 213.00  | 311.127  | 155.563  |
| Ft (kN)               | 13.98   | 24.96   | 3.00    | 15.528   | 7.764    |
| Rt (MPa)              | 116.50  | 221.00  | 12.00   | 147.785  | 73.893   |
| E (GPa)               | 7.00    | 7.00    | 7.00    |          |          |

## 7. Print out the data and curve

1. Click the button  on the toolbar, select a appropriate templet in the print window, as the diagram shows below:



2. Click the button [Print] on the window, then the data and curves could be print out according to the format of the templet.
3. If there has no templet, click the button [New] on the window to new a templet. As the diagram shows below, the pop-up window is a new report templet editor.

## Chapter 9 AD800 universal testing card and Vir800

### Section 1 Introduction

AD800 universal testing card is a microcomputer add-on PCI card based on PCI interface, in line with PCI2.1 specification. Vir800 is a microcomputer add-on PCI card based on PCI-E interface, in line with PCI-E 1.1 specification. They can both be plugged directly into a computer's PCI/PCI-E slot, through a simple connection connecting to the test machine, you can achieve microcomputer automatic measurement and control (PIP Cug & Test).

### Section 2 Installation and Uninstalation

#### 1. Hardware Installation Steps

- 1) Cut off all power.
- 2) Open the computer cover.
- 3) Make the AD800 universal testing card/ Vir800 align vertically either a PCI/PCI-E expansion slot and seat firmly.
- 4) Mount the expansion baffle inside another empty slot.
- 5) Tighten the screws to hold test card and baffle.
- 6) Close the computer cover.

#### 2. Vir800 Driver Installation Steps

- 1) Start the computer and open the software installation package, select <StartRun>, double-click execution.
- 2) Click <AD1800 driver installation>, the system will automatically install the driver.
- 3) After complete installation, display "install completed successfully".

#### 3. AD800 Driver Installation Steps

Start the computer and put the installation disk into the CD-ROM drive.

- 1) After start windows, come out "Find New Hardware" window, PCI Brige window find new hardware and now it is looking for software.
- 2) Add new hardware wizard <Next>.
- 3) Which action do you want windows to choose?  
Choose: the latest driver search device (recommended) < Next >.
- 4) Windows will search for new drivers in the drier database follows in the hard disk selected location.  
Choose: specified location.
- 5) Browse the installation disc, select the drive directory, such as \AD800<Next>.
- 6) Windows device driver search:  
AD800 Universal Testing Card<Next>.
- 7) Windows has installed a new hardware device required software <Done>.
- 8) Restart windows, you can see "the type of device UTC, name AD800 Universal Testing

Card” in the “System Properties\Device Manager” .

4. Uninstallation steps
  - 1) Turn off the computer, cut off all power.
  - 2) Take off the input and output cables.
  - 3) Open the computer cover
  - 4) Remove the screws used to fix test card and baffle.
  - 5) Pull the test card from the expansion slot out straight.
  - 6) Remove the baffle.
  - 7) Close the computer cover.

### Section 3 Vir800 Interface Definition

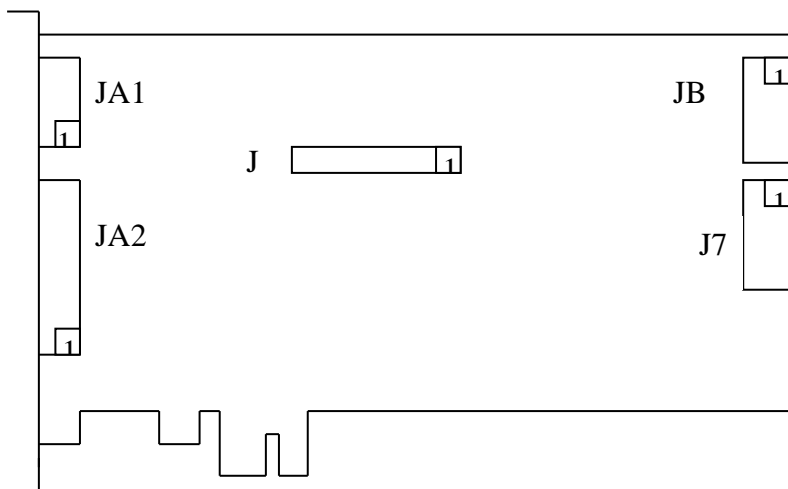


Table 1 DB25 Core Holes definition(JA2)

| Pin | Definition           | Function  |
|-----|----------------------|---|
| 1   | AIN                  | Analog Input (Knob)   |
| 2   | VCCD_12              | Digital 12V   |
| 3   | PA+                  | Encoder A+  |
| 4   | PB+                  | Encoder B+  |
| 16  | PA-                  | Encoder A-  |
| 17  | PB-                  | Encoder B-  |
| 5   | DIO                  | Digital Input 0   |
| 18  | DI1                  | Digital Input 1   |
| 6   | DI2                  | Digital Input 2   |
| 19  | DI3                  | Digital Input 3   |
| 7   | GNDDI                | Digital Input Ground  |
| 8   | DO3-/PNMA-<br>/PWMA- | Digital Input 3、PNMA、<br>PWMA Multiplexed<br>Differential Output<br>Negative Terminal |

|      |                      |   |
|------|----------------------|---|
| 20   | DO3+/PNMA+<br>/PWMA+ | Digital Input 3、PNMA、<br>PWMA Multiplexed<br>Differential Output<br>Negative Terminal |
| 9    | DO0-                 | Digital Input 0<br>Differential Output<br>Negative Terminal                           |
| 21   | DO0+                 | Digital Input 0<br>Differential Output<br>Negative Terminal                           |
| 10   | DO1-                 | Digital Input 1<br>Differential Output<br>Negative Terminal                           |
| 22   | DO1+                 | Digital Input 0<br>Differential Output<br>Negative Terminal                           |
| 11   | DO2-/PNMB-<br>/PWMB- | Digital Input 2、PNMA、<br>PWMA Multiplexed<br>Differential Output<br>Negative Terminal |
| 23   | DO2+/PNMB+<br>/PWMB+ | Digital Input 2、PNMA、<br>PWMA Multiplexed<br>Differential Output<br>Negative Terminal |
| 14   | DA                   | Servo Analog Output   |
| 15   | GNDA                 | Analog Ground   |
| 13   | VCCD_5               | Digital 5V  |
| 25   | GND                  | Digital Ground  |
| Else | Vacant               |   |

Table 2 DB9 Core Holes definition(Load channel JA1)

| Pin  | Definition | Function                       |
|------|------------|--------------------------------|
| 1    | GNDA       | Analog Ground                  |
| 2    | SIGNALA+   | Sensor SignalA+                |
| 3    | SIGNALA-   | Sensor SignalA-                |
| 4    | VCCA_5     | Analog 5V                      |
| 5    | GNDA       | Analog Ground (Connect shield) |
| Else | Vacant     |                                |

Table tow DB9 Core needles definition(Extensometer channel JB1)

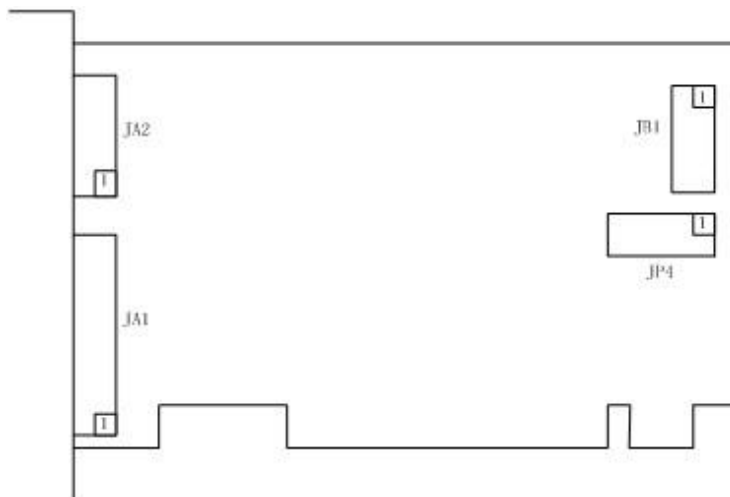
| Pin | Definition | Function        |
|-----|------------|-----------------|
| 1   | GNDA       | Analog Ground   |
| 2   | SIGNALB+   | Sensor SignalB+ |

|      |          |                                |
|------|----------|--------------------------------|
| 3    | SIGNALB- | Sensor SignalB-                |
| 4    | VCCA_5B  | Analog 5V                      |
| 5    | GNDA     | Analog Ground (Connect shield) |
| Else | Vacant   |                                |

Table tow DB25 Core needles definition(Large elongation channel J7)

| Pin  | Definition | Function             |
|------|------------|----------------------|
| 1    | EX_PA1+    | Large Elongation A1+ |
| 14   | EX_PA1-    | Large Elongation A1- |
| 2    | EX_PB1+    | Large Elongation B1+ |
| 15   | EX_PB1-    | Large Elongation B1- |
| 3    | EX_PA2+    | Large Elongation A2+ |
| 16   | EX_PA2-    | Large Elongation A2- |
| 4    | EX_PB2+    | Large Elongation B2+ |
| 17   | EX_PB2-    | Large Elongation B2- |
| 5    | GND        | Digital Ground       |
| 18   | VCCD_5     | Digital 5V           |
| Else | Vacant     |                      |

### Section 4 AD800 Universal Testing Card Interface Definition



AD800 universal test card provides 9-core(JA2) and 25-core (JA1) two basic input/output interface, 10-pin (JB1) input/output interface.

- JA2:9 core holes connects the sensor, pin definitions are shown in Table one.
- JB1:black 10-pin interface connects to the baffle of 9-core connect to through flat wires, then to the sensor, pin definitions of 1 to 9 feet is the same with JA2, 10 feet is vacant; the fabrication method of short interfaces of 9-core pin and hole as Figure 1.
- JA1:25-core hole is a common multifunction input and output interfaces, pin definitions as Table 2.
- JP4: white 10-pin interface connects to the baffle of 25-core connect to through flat

wires, it is large elongation input interface, pin definitions as Table 3.

Table 1 9 core interface pin definitions

| Pin | Dedinition | Description                  | Remarks   |
|-----|------------|------------------------------|---|
| 1   | -VREF      | Bridge Power Supply Negative | AD700: -5V, AD800 A channel: -2.5V, B channel: 0V |
| 2   | +SIGN      | Singnal Positive             |   |
| 3   | -SIGN      | Singnal Negative             |   |
| 4   | +VREF      | Bridge Power Supply Positive | AD700:+5V , AD800:+7.5V                           |
| 5   | GND A      | Analog Ground                |   |
| 6   | GND A      | Analog Ground                |   |
| 7   | -VFB       | Bridge Feedback Negative     |   |
| 8   | +VFB       | Bridge Feedback Positive     |   |
| 9   | GND A      | Analog Ground                |   |

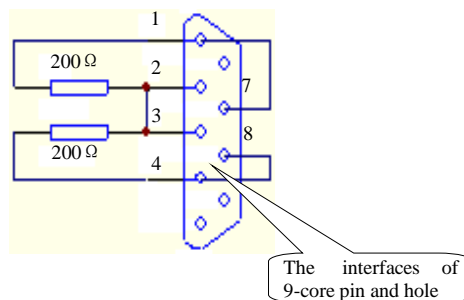


Figure 1

Table 2 25-core hole interface pin definitions

| Pin | Dedinition | Description  |
|-----|------------|--|
| 1   | ANIN       | External Analog Input                                      |
| 2   | +12V       | Analog 12V   |
| 3   | PAIN+      | Digital Pulse Differential Input Phase A Positive Terminal |
| 4   | PBIN+      | Digital Pulse Differential Input Phase B Positive Terminal |
| 5   | DINO       | Digital Switch Input Channel 0                             |
| 6   | DIN2       | Digital Switch Input Channel 2                             |
| 7   | GNDDI      | Digital Input Qround                                       |
| 8   | PULOUT-    | SWP/PWM Signal output negative terminal                    |

|    |         |   |
|----|---------|---|
| 9  | DOUT0-  | Digital Differential Output Channel<br>0 Negative Terminal    |
| 10 | DOUT1-  | Digital Differential Output Channel<br>1 Negative Terminal    |
| 11 | DOUT2-  | Digital Differential Output Channel<br>2 Negative Terminal    |
| 12 | DO1     | Reservation   |
| 13 | VCC     | Digital 5V  |
| 14 | DAOUT   | DA Output   |
| 15 | GNDA    | Analog Ground   |
| 16 | PAIN-   | Digital Pulse Differential Input<br>Phase A Negative Terminal |
| 17 | PBIN-   | Digital Pulse Differential Input<br>Phase B Negative Terminal |
| 18 | DIN1    | Digital Switch Input Channel 1                                |
| 19 | DIN3    | Digital Switch Input Channel 3                                |
| 20 | PULOUT+ | SWP/PWM Signal Output Positive<br>Terminal                    |
| 21 | DOUT0+  | Digital Differential Output Channel<br>0 Positive Terminal    |
| 22 | DOUT1+  | Digital Differential Output Channel<br>1 Positive Terminal    |
| 23 | DOUT2+  | Digital Differential Output Channel<br>2 Positive Terminal    |
| 24 | DO0     | Reservation   |
| 25 | GNDD    | Digital Ground  |

Table 3 25-core pin interface needle pin definitions


| Pin | Dedinition | Description               |
|-----|------------|---------------------------|
| 2   | GND        | Common Ground             |
| 4   | A1         | Channel 1 Encoder A Phase |
| 5   | B1         | Channel 1 Encoder B Phase |
| 14  | 5V+        | Power Supply Positive     |
| 17  | A2         | Channel 2 Encoder A Phase |
| 18  | B2         | Channel 2 Encoder B Phase |

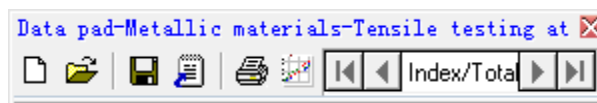


## Chapter 10 Print in Excel

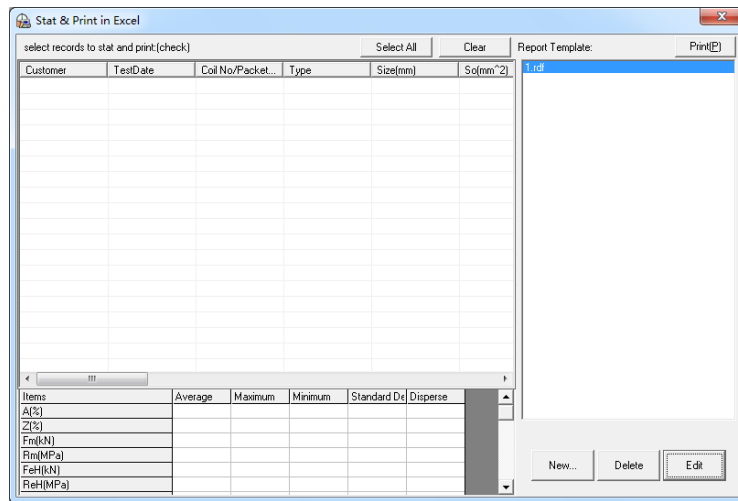
There has two printout mode of the program, one is common mode, the other is Excel mode. If the test data would be print in Excel mode, the computer should have been installed the Microsoft Excel.

### Section 1 Print out the data

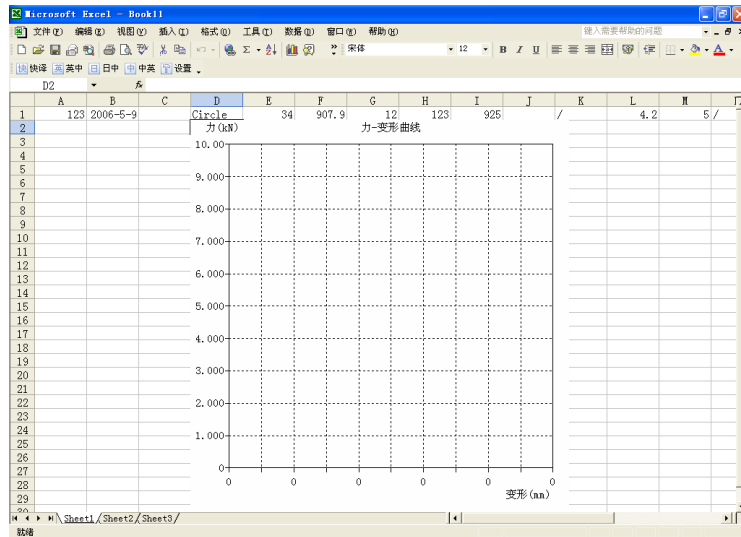
As the diagram shows below, when the test is completed, switch to the data board, click the button ;




The pop-up window as the diagram shows below:



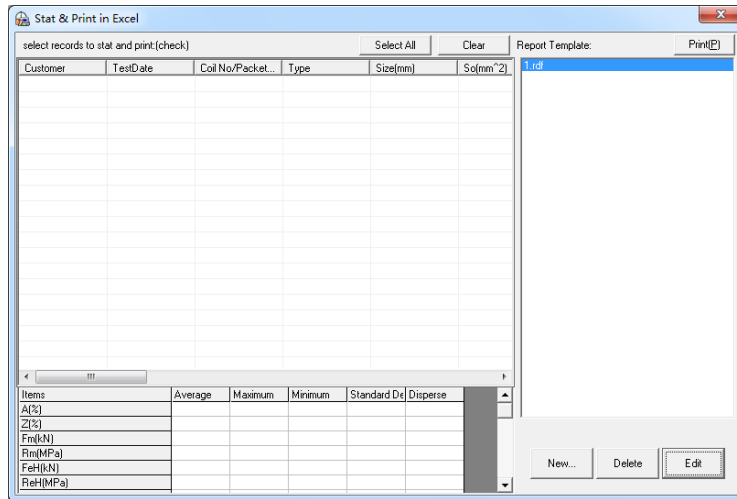
The left part of the window shows the data that would be printed out, the right part of the window lists the report templates. Pitch on the data and select a report template, click the button [Print], the data would be filled in the Microsoft Excel, the diagram shows below:



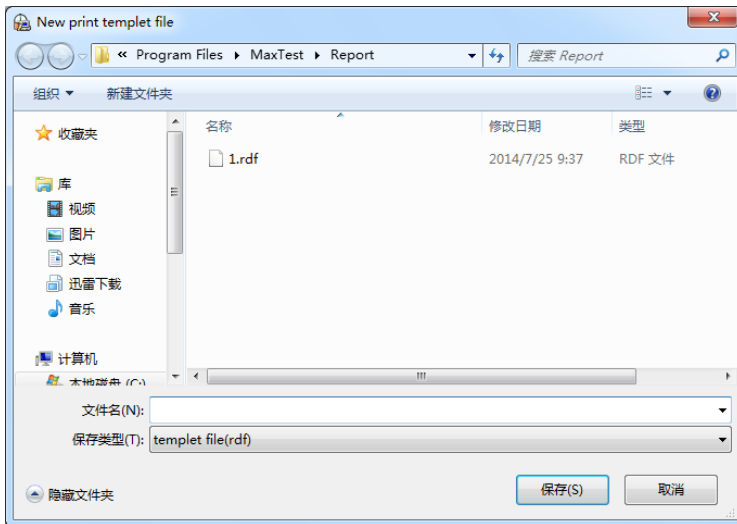
In this window, if there has some lacks of the report, that could be modified here. Finally, select the option [Print] in the [file] menu or click the button , the data would be printed out.

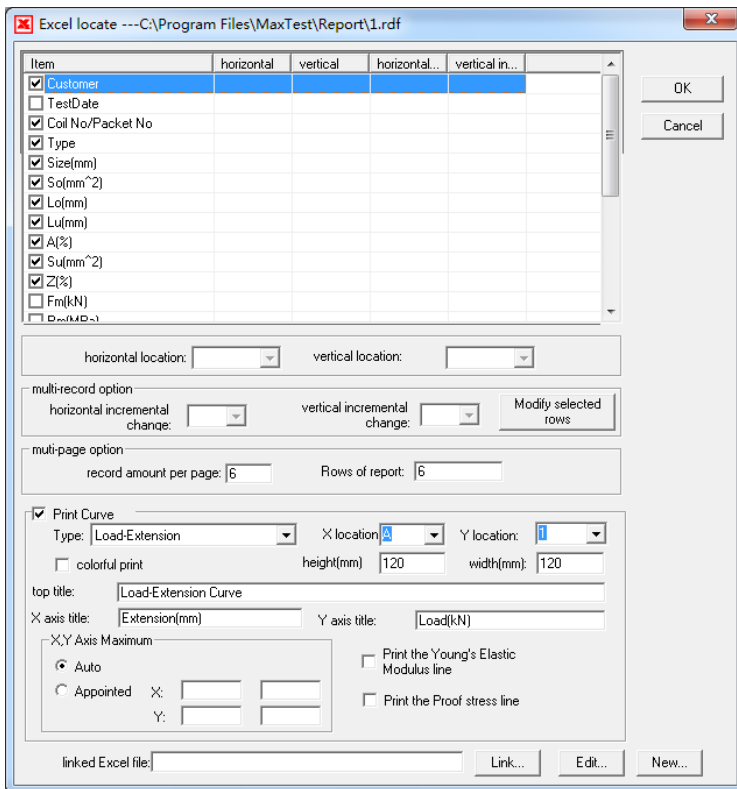
## Section 2 New templet

In this section, it introduces how to create a new report templet in the Excel print mode. Observingly, it is different to create a templet in the common print mode, in the Excel print mode, it has to create two files: a Excel file and a positional file, The Excel file is used as a table and the positional file is used to tell the data which position it fill into.



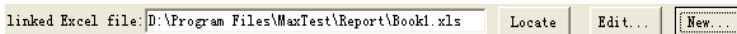
Suppose there has been a Excel file, as the diagram shows up, on the right-bottom of the window there has a button [New], click the button to create a new report templet as listing in the window.





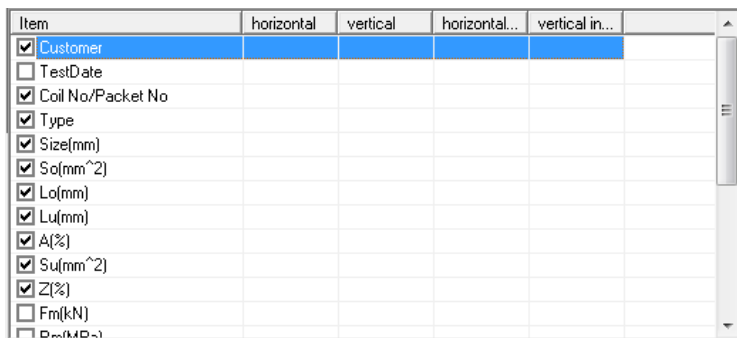
As the diagram shows up, this window is used to define the position of the data in the Excel file.

On the bottom of the window, there have “linked Excel file” sash, which is used to locate the associated Excel file:



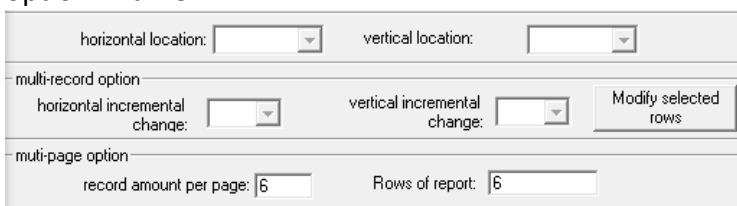
On the left-top of the window, there lists all print items, if it is checked, that means it could be printed out;

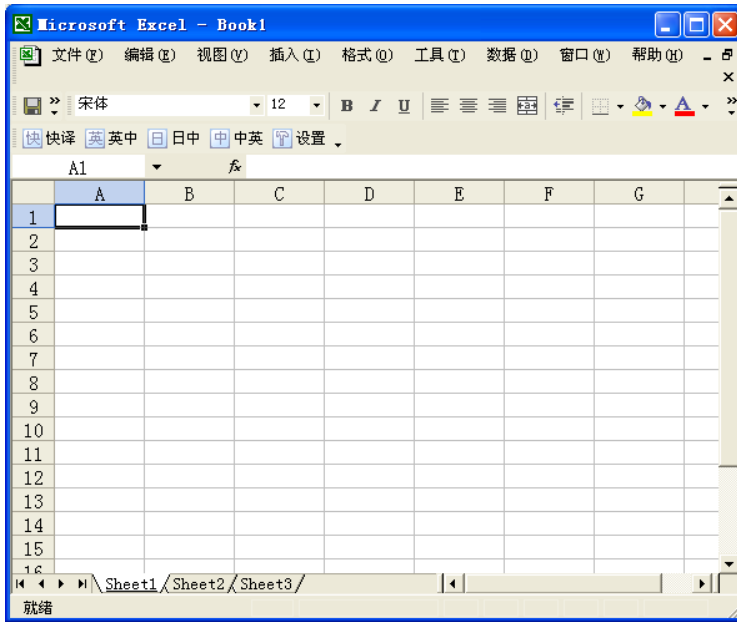
On the right-top of the window, there display the positional parameters of the print item;



On the center of the window, there is used to define the positional parameters of the print item, as the diagram shows below, the horizontal position and vertical position correspond to the position on the Microsoft Excel;

If there have multilateral data to print out, fill the parameters on the “multi-record option” frame.





If the curves would be printed out, check the “Print Curve”, and fill the definition of the print curve.

Print Curve

Type:  X location:  Y location:

colorful print      height(mm):       width(mm):

top title:

X axis title:       Y axis title: