Digitized Automation for a Changing World

Delta DIAServoPress Software User's Manual

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Applicability of Instructions

	S series	F series (with HMI)	F series (no HMI)
Recipe Setting	Delta Servo Press Operating Instructions		Recipe Setting Software Instructions
Data Capture	DIAServoPress Software User's Manual		DIAServoPress Software User's Manual (Does not support recipe edit function)

1. Opening the DIAServoPress Software

1.1 Software Introduction

DIAServoPress is a PC tool for Delta's servo press. It helps users perform live monitoring, statistical analysis and plotting, and remote settings during the pressing process.

Before beginning the use of the DIAServoPress, be sure that your operating system meets the below requirements.

Item	System requirements
OS	Windows 8 / 8.1 / 10 / 11
CPU	Models with Pentium 1.5G or higher
Memory	4GB or more
Disk space	At least 100MB space must be provided for the DIAServoPress
Display	1280 x 1024 or more
Ethernet	For connection with the servo press
USB	For connection with the servo press
OFFICE	Microsoft Excel 2007 or higher version (for exporting statistics reports)

1.2 The First Time Using DIAServoPress

When the first time open the DIAServoPress, please log in the senior engineer access. (Password: 2222). Enter the "equipment parameter", then touch "PC". Please provide the S/N to the Delta. Delta will provide the Key based on the S/N on the servo press. The DIAServoPress will be available after entering the key and checked.

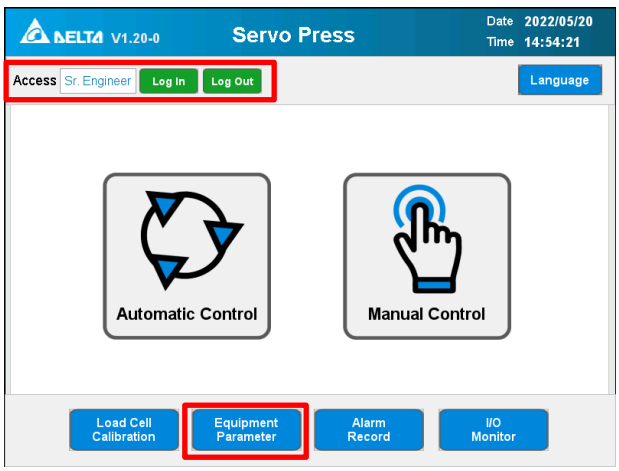


Figure 1-2-1 Equipment Parameter

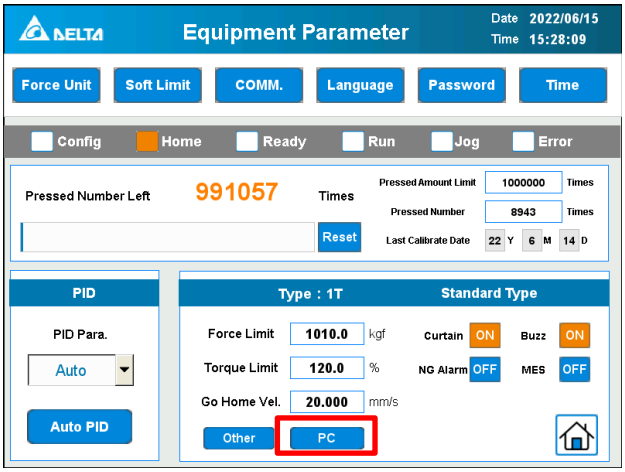


Figure 2-2-2 PC

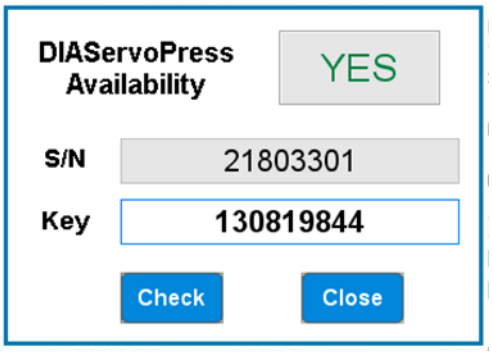


Figure 3-2-3 Availability

1.3 How to Open DIAServoPress

After open the DIAServoPress folder, please open the DIAServoPress.exe (Figure 1-3-1). There are two modes after open the software, please choose the "One-To-One" (Figure 1-3-2). Please refer to the chapter 7 for the "One-To-Many" mode.

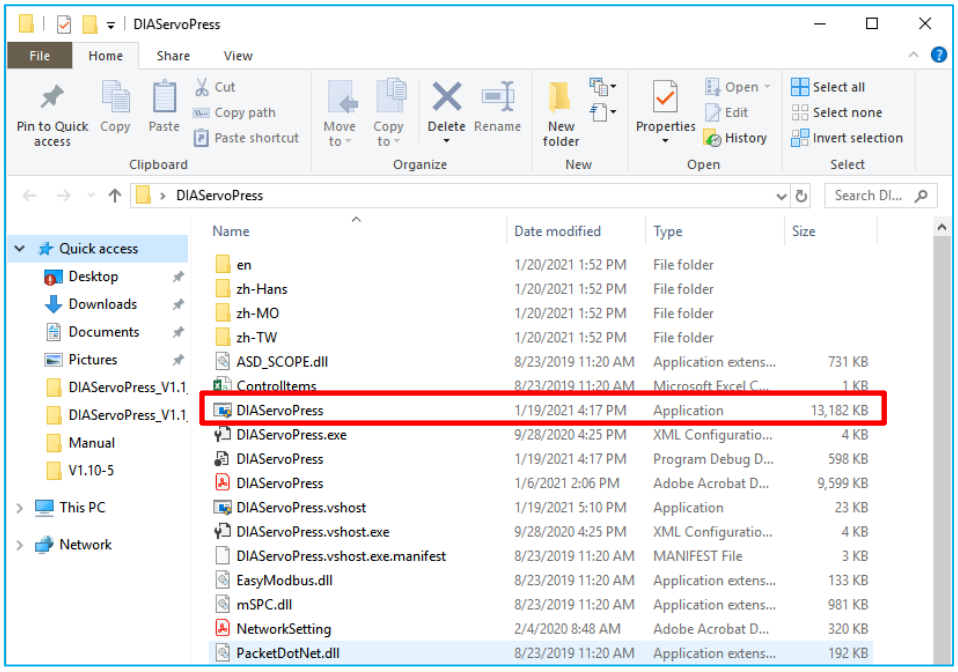


Figure 4-3-1 Open DIAServoPress

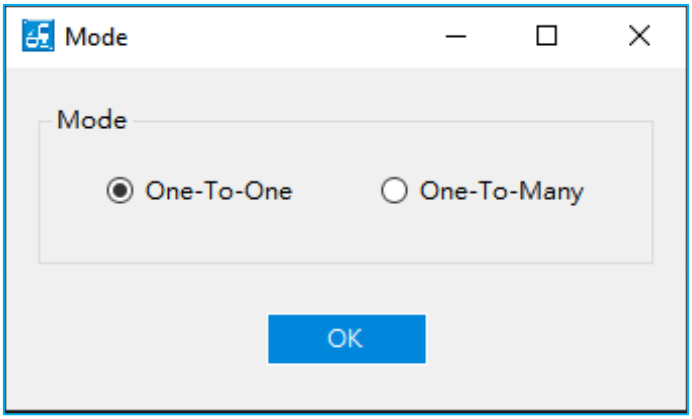


Figure 1-3-2 DIAServoPress Mode Chosen

2. Using the DIAServoPress Software

Once the DIAServoPress software is open, the below processes must be followed before pressing may begin. This chapter gives an introduction and explains the operation of each process.

Connection: Once the software is open, it must connect to the servo press via Ethernet or USB. Check the IP and connection port settings before connecting. Successfully connected, the software may operate and retrieve data from the machine through communications. See Section 2.1 for details.

Initialization: When the servo press is turned on, it must undergo spindle resetting and parameter initialization. These actions required to be operated through the servo press human machine interface. If the servo press has already completed initialization when DIAServoPress opens, the software will automatically proceed to standby. See Section 2.2 for details.

On: When the servo press is not running, recipe and related setting may be performed. Once turned on, the spindle will move from the mechanical origin to the working origin, and no recipe parameter modification is allowed under this condition. On and off actions required to be operated through the servo press human machine interface. If the servo press is already on when DIAServoPress opens, the software will automatically proceed to pressing standby. See Section 2.3 for details.

2.1 Connection

Make sure that the PC is connected to the servo press through Ethernet or USB, and enter connection parameters such as IP address and port on the software's functions menu. When done, click **[Connect]**, as in Figure 2-1-1. If connection is successful, the type chosen window will display, as shown in Figure 2-1-2. The software will detect the information from the servo press, so user only has to check the setting value. Then, the main window will show the **[Connecting]** as shown in Figure 2-1-3. If connection failed, it will display **[Connect Failure]**, as in Figure 2-1-4. Reconfirm the IP address and port parameters then. To disconnect the PC and servo press, click **[Disconnect]**, as shown in Figure 2-1-5. If user use **[RJ45]**, 300 data per second can be acquired. If user use **[USB]**, more than 2000 data per second can be acquired.

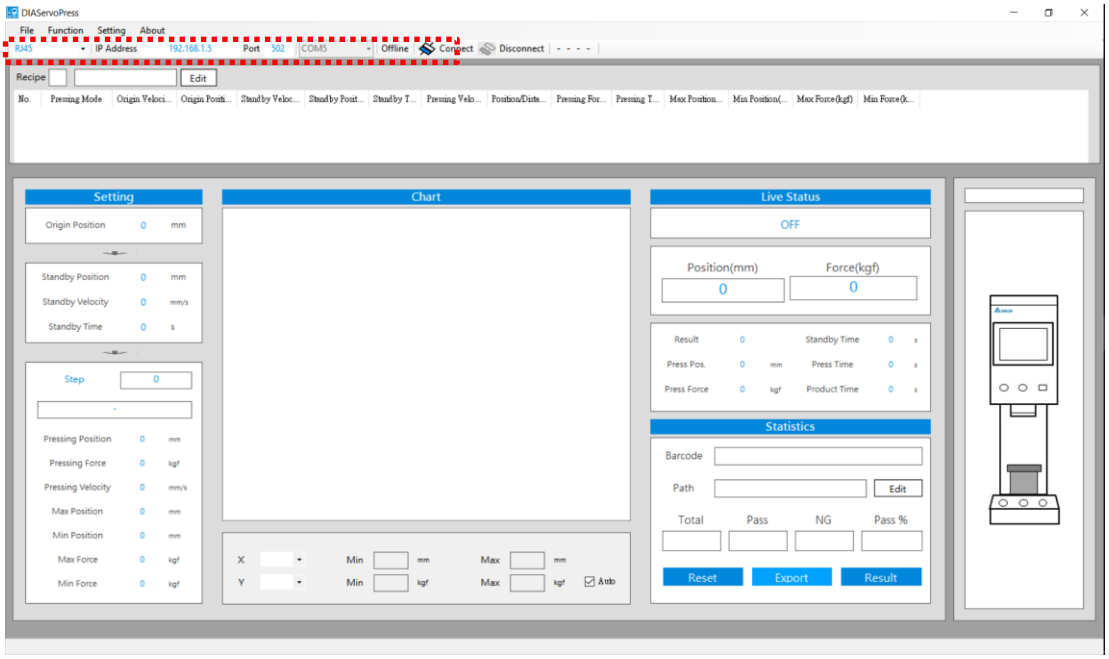


Figure 2-1-1 DIAServoPress connection setting

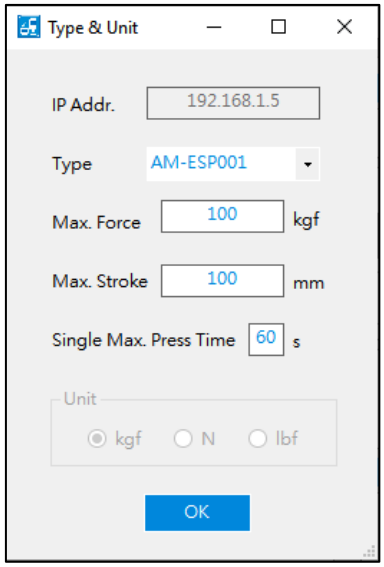


Figure 2-1-2 DIAServoPress type chosen

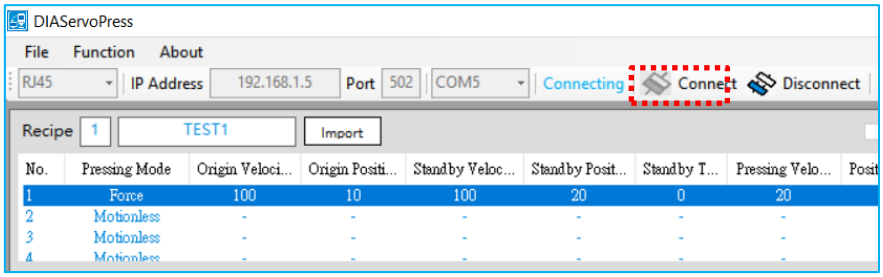


Figure 2-1-3 Connection successful

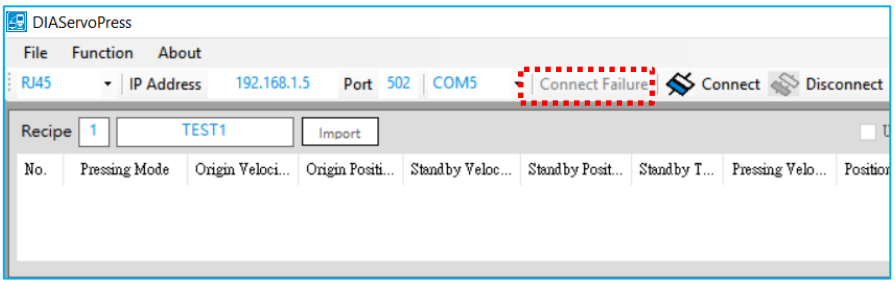


Figure 2-1-4 Connection Failure

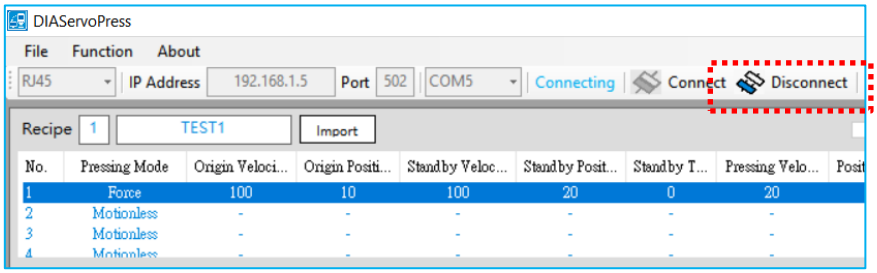


Figure 2-1-5 Disconnect

3. Parameter Setting for Recipe Steps

3.1 Import

3.1.1 Default Recipe

Once connected to the servo press, DIAServoPress will automatically import the current servo press recipe parameters and display the recipe number and name in the window, as shown in Figure 3-1-1-1.

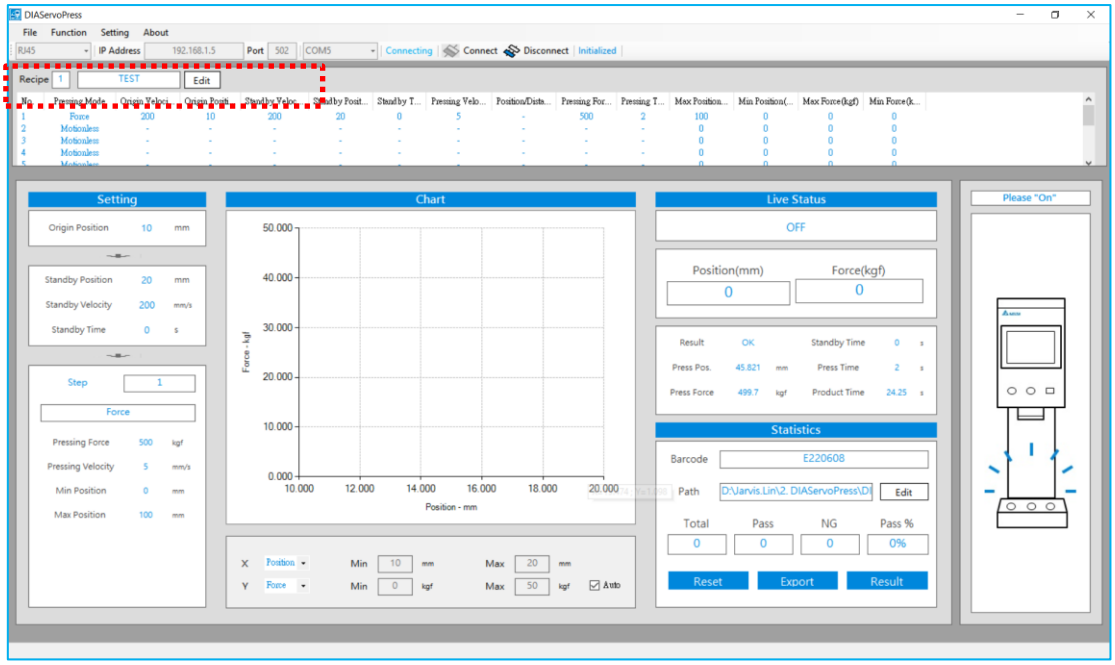


Figure 3-1-1-15 Recipe step window

3.1.2 External File Recipe

3.1.2.1 Export External Recipe Files

DIAServoPress may export the parameters saved in the servo press, as external Excel files for external use or for later importation to the servo press. Click **[File]** -> **[Export Recipe]**, as in Figure 3-1-2-1-1, and select the location and name of the file, as in Figure 3-1-2-1-2. Saved Excel files will be displayed when save completed, as in Figure 3-1-2-1-3.

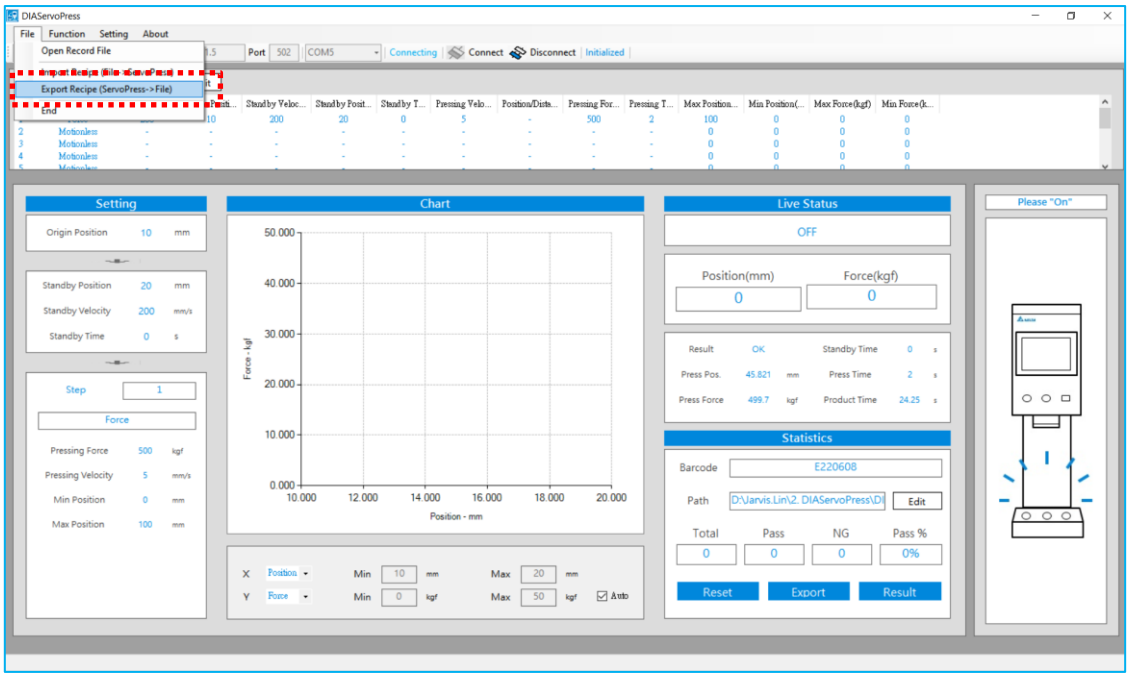


Figure 3-1-2-1-1 Export external recipe files

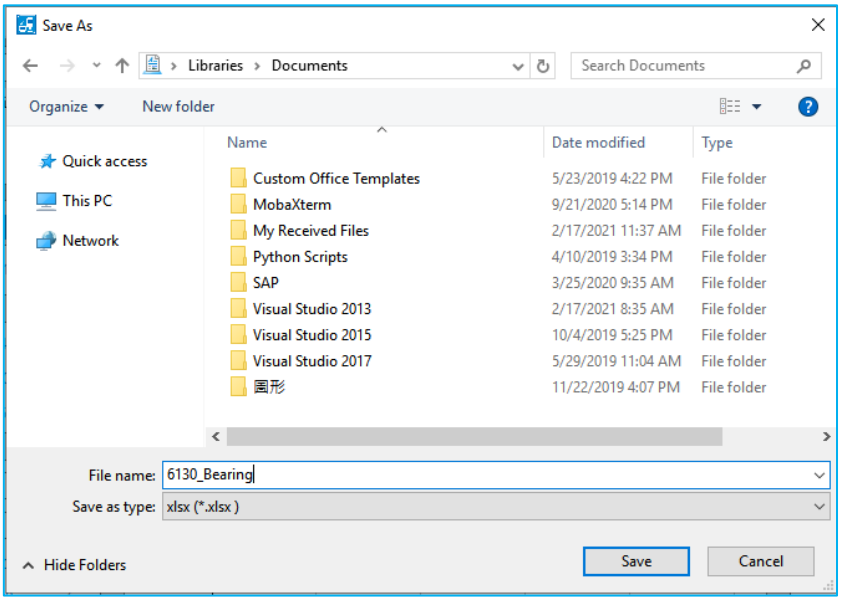


Figure 3-1-2-1-2 Export external recipe files - name file

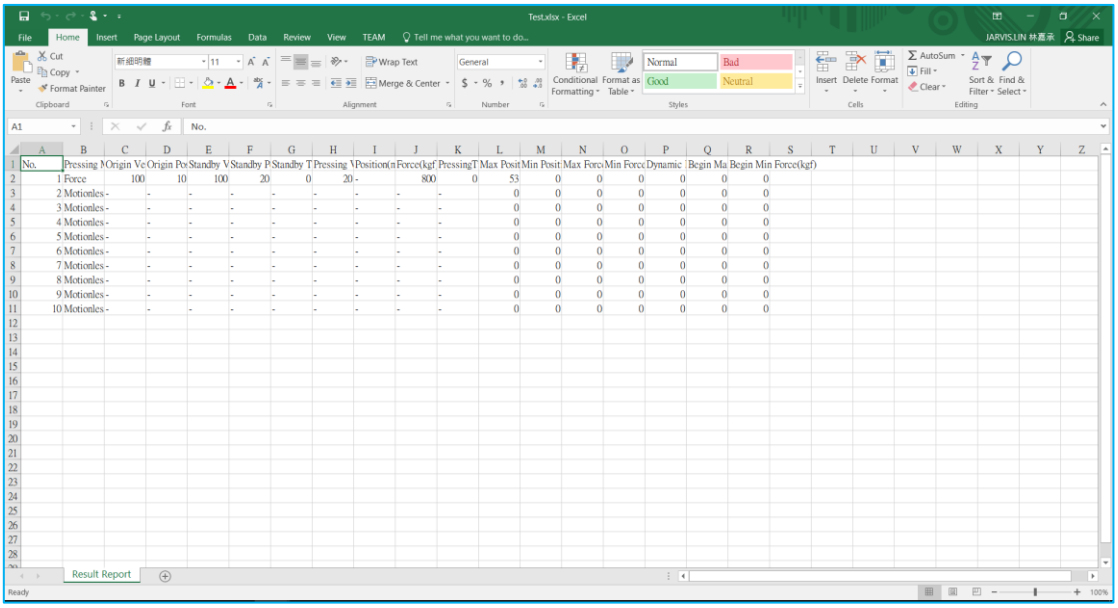


Figure 3-1-2-1-3 Export external recipe files - display files

3.1.2.2 Import External Recipe Files

DIAServoPress imports external recipe files exported from the software. Click **[File]** -> **[Import Recipe]**, as shown in Figure 3-1-2-2-1, and select a target file to import, as in Figure 3-1-2-2-2. Once imported, the parameters will be automatically displayed in the window and imported to the servo press. Please ensure the excel file hadn't been opened by any other program.

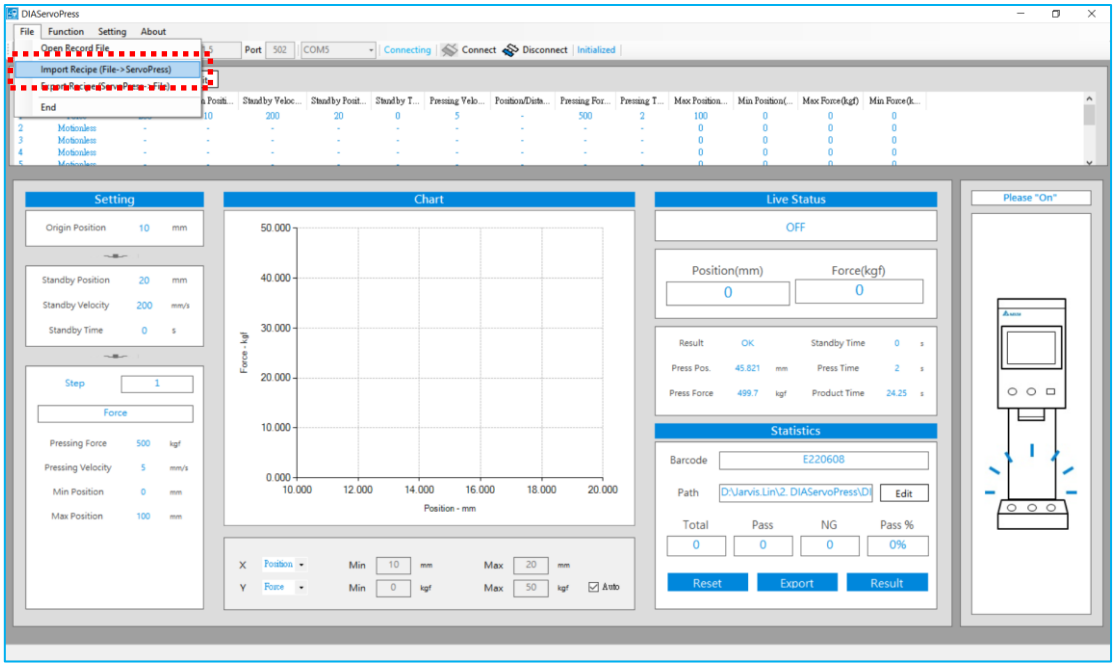


Figure 3-1-2-2-1 Import external recipe files

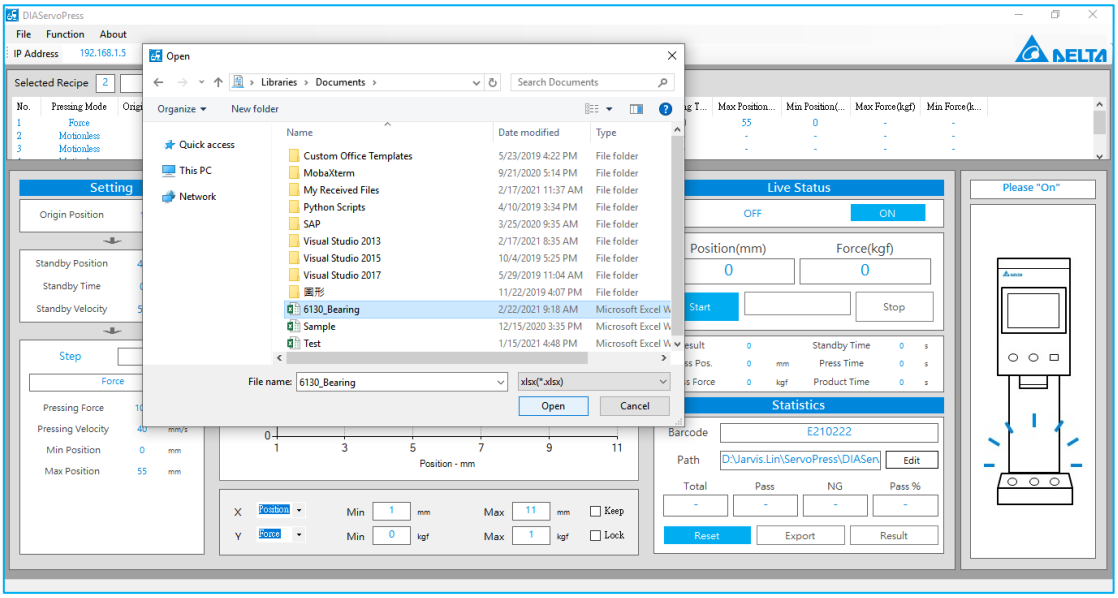


Figure 3-1-2-2-2 Select external recipe file

3.2 Edit Recipe

When DIAServoPress is connected to the servo press, the window will display the parameters set for the current recipe steps, as in Figure 3-2-1. The recipe step parameters may be modified when the machine is not **[On]**, and click **[Edit]** to enter the step modification window.

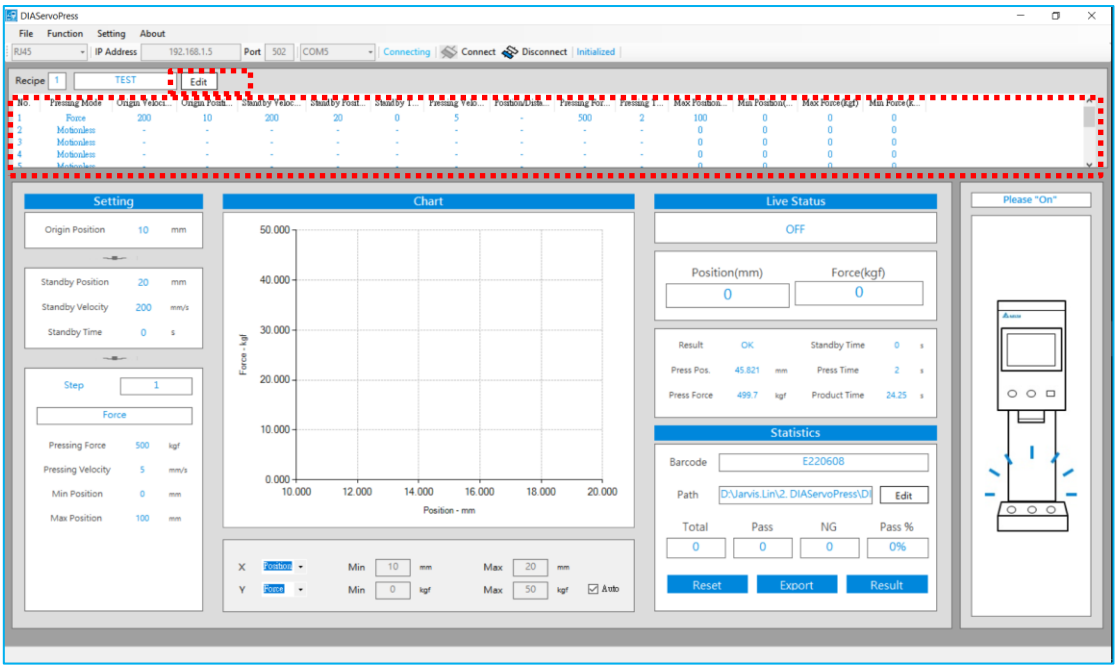


Figure 3-2-1 Recipe step window

3.2.1 Pressing Curve for Setting

The pressing curve can help user to set the appropriate parameter. DIAServoPress provided three major functions to import the pressing curve.

(1) After pressing process：

When the user recorded the pressing curve via DIAServoPress, the last curve will be showed on the screen. If the recipe edit windows had been opened, this curve would be imported for setting.

(2) Manual control curve：

If there is no curve imported on the window**,** the pressing curve will be recorded when user applied the manual control to make the jog pressing. The **[Clean]** will clean the entire pressing curve. The **[Export]** can export the current pressing curve on the screen into the file for the further application in the future.

(3) Historical curve import：

If user have the file export from the above function, the file can be imported by touching **[Import]**. The pressing curve file saved by the automatic pressing process also can be imported.

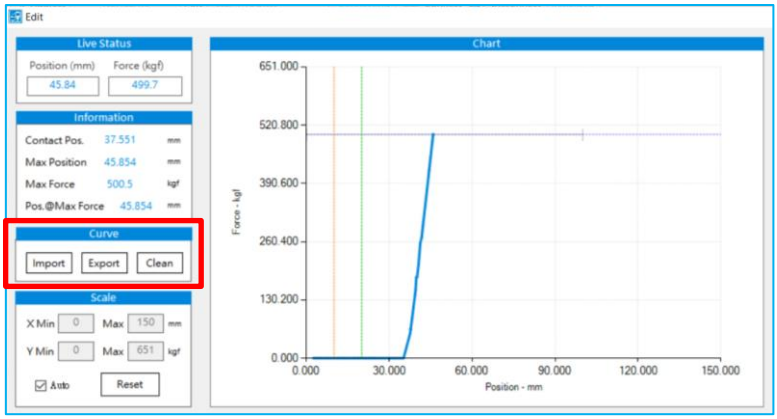


Figure 3-2-1-1 Curve

Curve Scale：If the **[Auto]** is unchecked,the maximum and minimum of chart scale can be adjusted.

Touch the **[Reset]** the scale will be adjusted automatically.

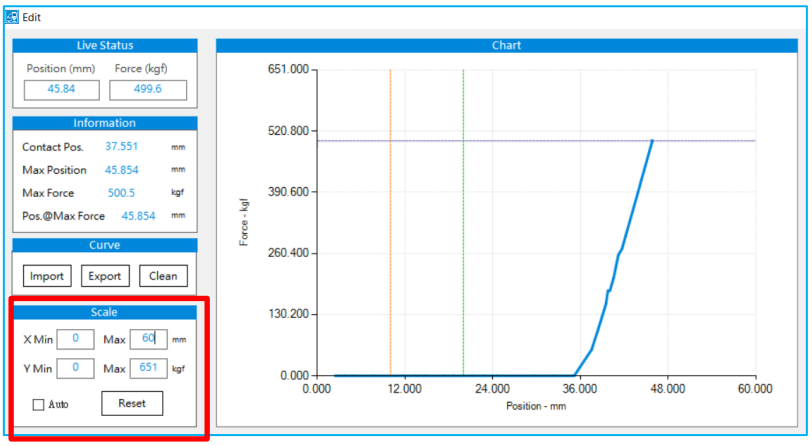


Figure 3-2-1-2 Curve Scale

Infor：The related information during the manual control pressing process will be showed on this column.

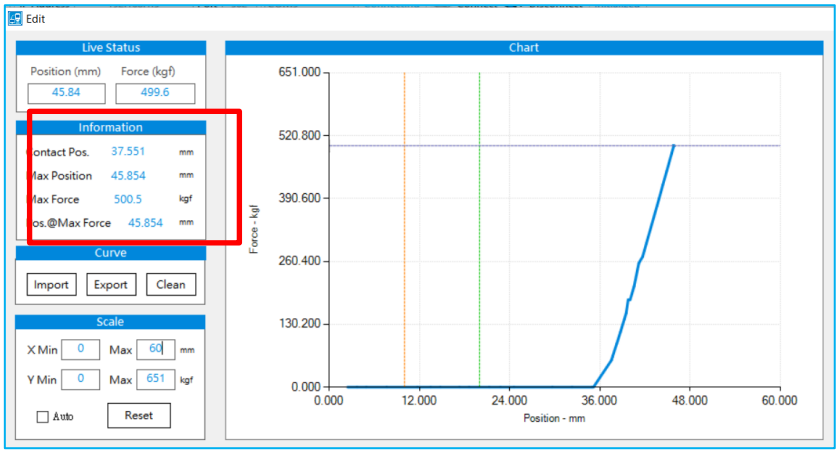
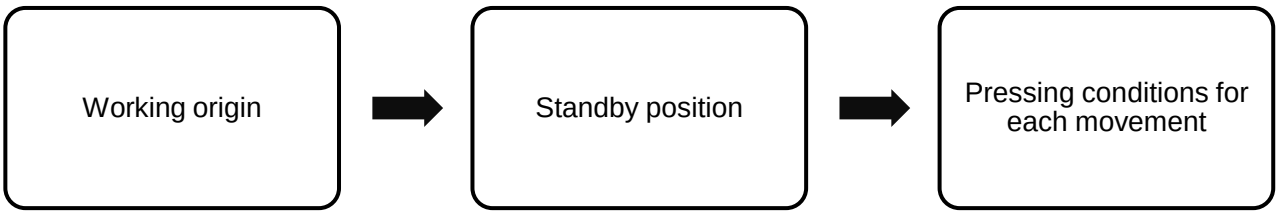


Figure 3-2-1-3 Infor

3.2.2 Mode

The recipe step window uses a graphical interface to perform parameter modifications, as in Figure 3-2-2-1. Click on a movement mode in **[Mode]**. The window will show the correspond parameters.



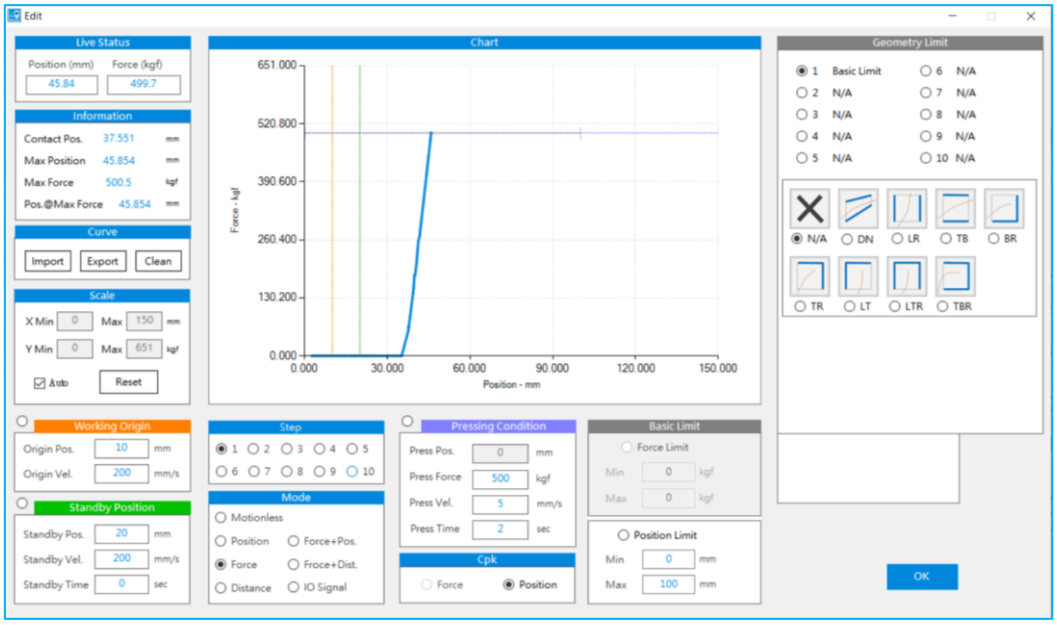


Figure 3-2-2-1 Step edit window

3.2.3 Working Origin Condition Setting

The working origin is the home position of each time pressing begins and returns, as shown in Figure 3-2-3-1. Once the servo press is **[On]**, the spindle will move from the **[Mechanical Origin]** to the **[Working Origin]**, and return to the **[Working Origin]** from the end position when single process had been done. The **[Original Velocity]** is the velocity for moving from the **[Mechanical Origin]** to the **[Working Origin]** and for returning to the **[Working Origin]**. Except for entering the value, user can also check the item on the upper left corner. Then, click the point on the curve will enter the position value of that point to the field.

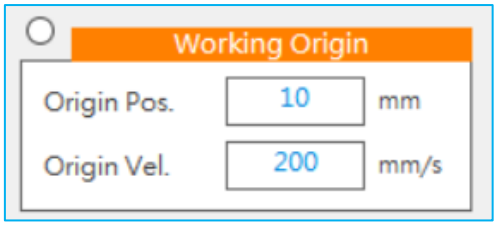


Figure 3-2-3-1 Working origin condition setting

3.2.4 Standby Condition Setting

The standby conditions are those when the spindle have moved downwards but have not yet pressed the work piece, as shown in Figure 3-2-4-1. The **[Standby Position]** is the end position for the spindle's rapid downward movement from the **[Working Origin]** without load. After reaching the standby position, the spindle will follow mode settings to continue pressing. The **[Standby Velocity]** is the spindle's velocity for movement from the working origin position to the **[Standby Position]**, and the **[Standby Time]** is the waiting time for the spindle at the standby position. When the **[Standby Time]** is up, the spindle will continue downward pressing. Then, click the point on the curve will enter the position value of that point to the field.

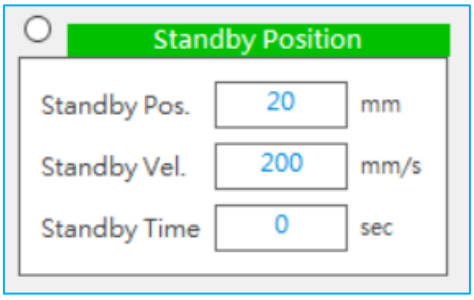


Figure 3-2-4-1 Standby position condition setting

3.2.5 Mode Condition Settings During Pressing

The spindle waits at the **[Standby Position]** and performs pressing movements after the **[Standby Time]**. The servo press provide 6 modes and motionless. Users may arrange modes according to process requirements with up to 10 steps for a single pressing movement. Then, click the point on the curve will enter the position or force value of that point to the field. For basic limit, the similar function also be supported, but the user has to click two points for the range between maximum and minimum value.

Position mode: Press and stop when the setting position is reached.
Force Mode: Press and stop when the setting load is reached.
Distance mode: Press down a setting distance.
Force Position mode: Press to the setting position with the constant force.
Force Distance mode: Press to the setting distance with the constant force.
IO Signal mode: Stop for waiting the specific input signal or output the assigned signal on the step.

3.2.5.1 Motionless

No pressing parameter setting required. This step will be finished for this step during the process.

3.2.5.2 Position mode

The position mode has a clearly defined Pressing Position and will perform the downward press at the user-defined constant velocity.

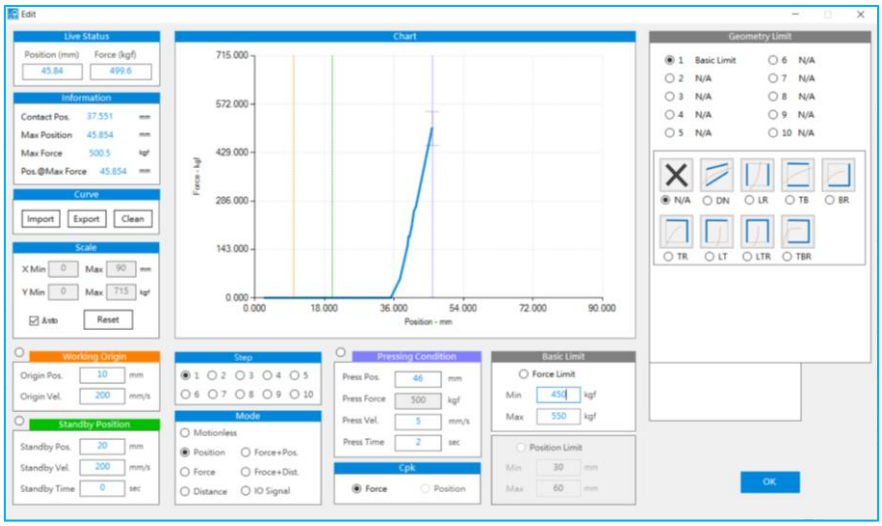


Figure 3-2-5-2-1 Position mode setting window

Pressing conditions: In position mode, the spindle will press down at **[Pressing Velocity]** to the **[End Position]**, wait for a **[Pressing Time]**, and return to the working origin.

Limit conditions: When the spindle has reached the **[Pressing Position]**, the servo press will check if the force is between the **[Max]** and **[Min]** of force limit. If yes, it will be judged OK, if not then NG.

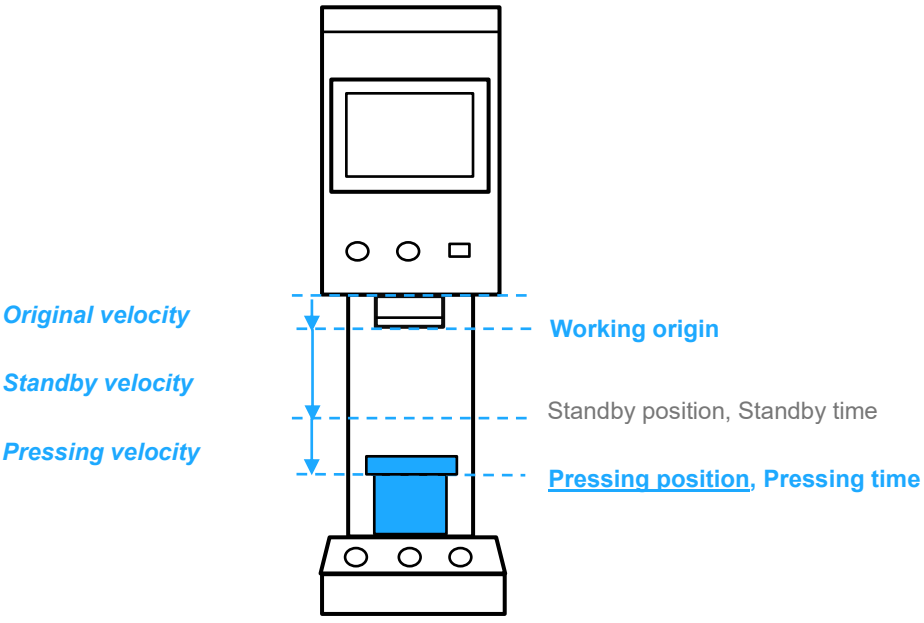


Figure 3-2-5-2-2 Position mode diagram

3.2.5.3 Force Mode

The force mode clearly defines the Pressing Force, and is suitable for where force is strictly regulated.

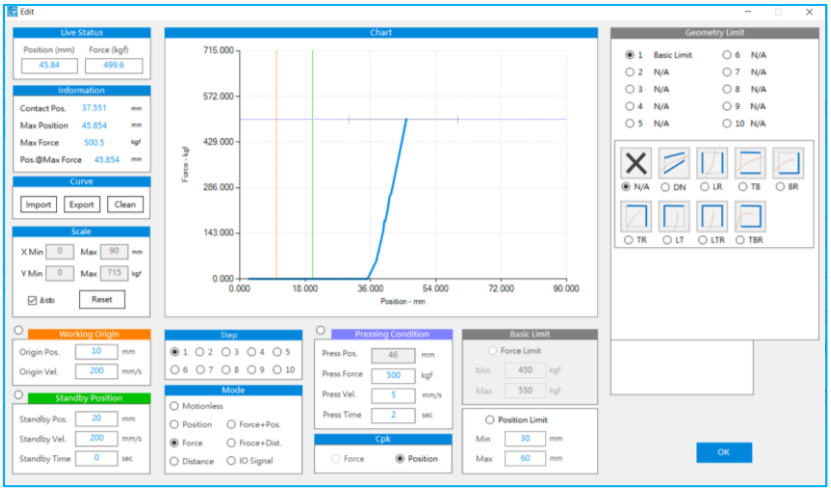


Figure 3-2-5-3-1 Force mode setting window

Pressing conditions: In Force mode, the spindle will refer to the **[Pressing Velocity]** for downward velocity adjustment until the **[Pressing Force]** is detected. Then it will wait for the **[Pressing Time]** and return to the working origin position. If the **[Pressing Force]** is not reached during the process, the spindle will return to the working origin from the **[Max]** position.

Limit conditions: When the spindle has reached the **[Pressing Force]**, the servo press will check if the position is between the **[Max]** and **[Min]** of position limit. If yes, it will be judged OK, if not then NG.

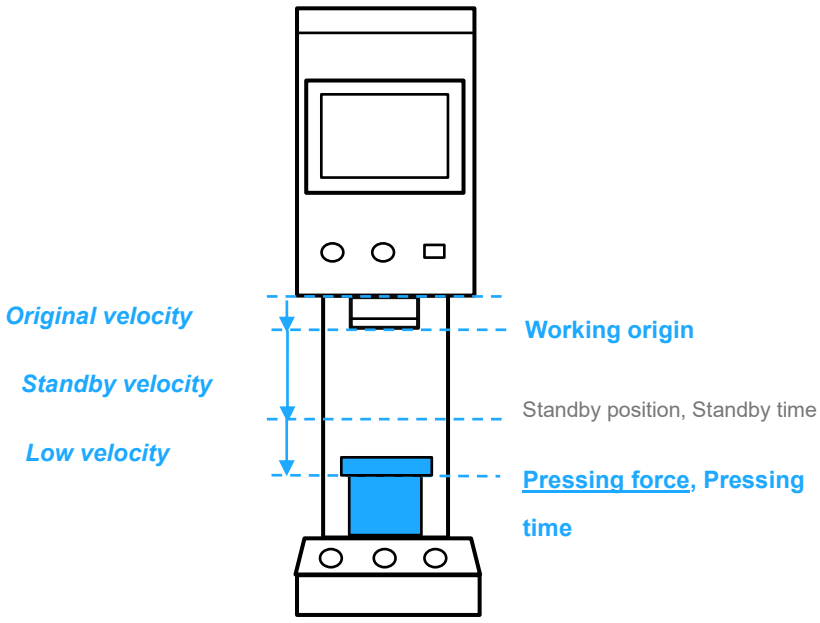


Figure 3-2-5-3-2 Force mode diagram

3.2.5.4 Distance Mode

The distance mode clearly defines the Pressing Distance, pressing at user-defined velocity.

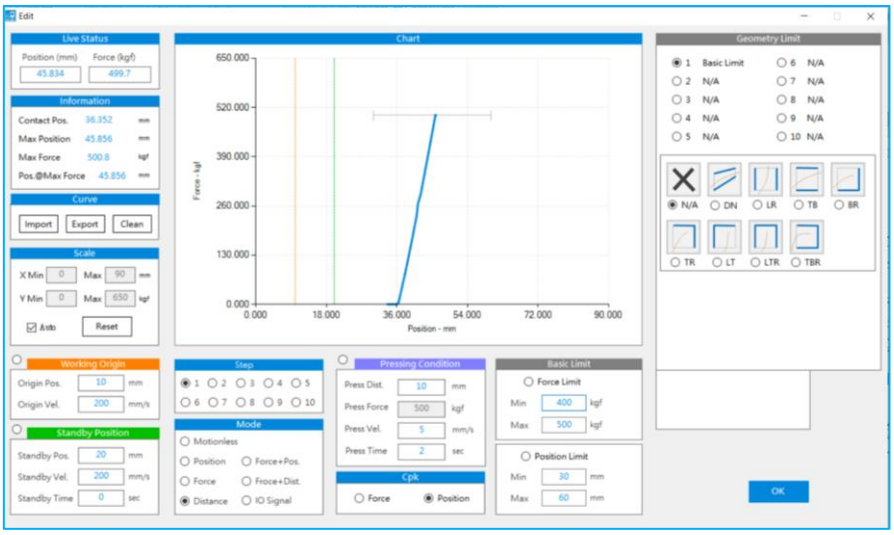


Figure 3-2-5-4-1 Distance mode setting window

Pressing conditions: In distance mode, the spindle will move down at **[Pressing Velocity]** for the **[Pressing Distance]**, and wait for the **[Pressing Time]** before returning to the working origin.

Limit conditions: When the spindle has moved the **[Pressing Distance]**, the servo press will check. If the force is between the **[Max]** and the **[Min]** of force limit, and if the position is between the **[Max]** and **[Min]** of position limit, it will be judged OK, if not then NG. Since the distance mode Limit conditions include maximum and minimum limits for both force and position, please select **[Force]** or **[Position]** as the basis for Cpk calculation according to the production process.

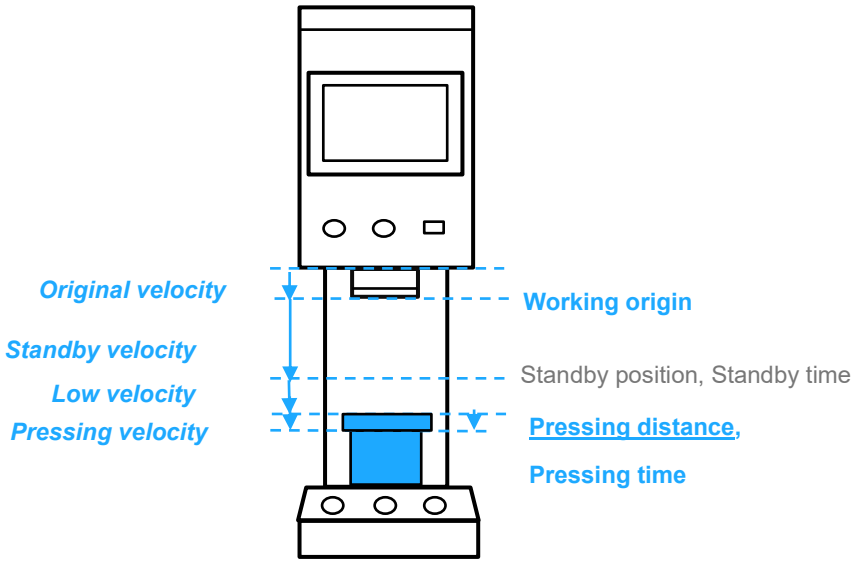


Figure 3-2-5-4-2 Distance mode diagram

3.2.5.5 Force Position Mode

The force position mode defines the Pressing Force and Pressing Position, and is suitable for where force and pressing position are strictly regulated.

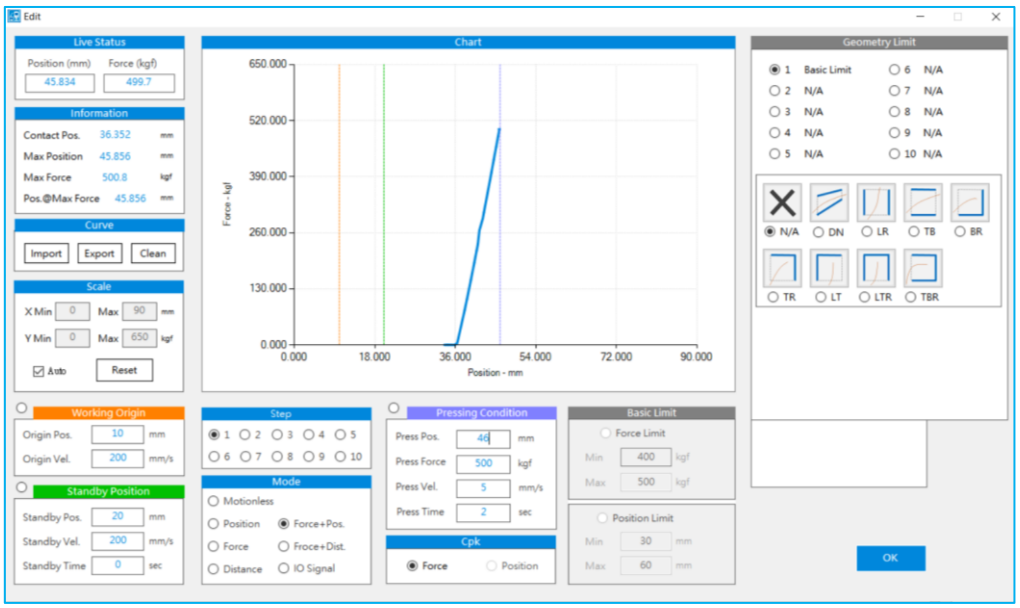


Figure 3-2-5-5-1 Force position mode setting window

Pressing conditions: In force position mode, the spindle will move down to **[Pressing Force]**, then pressing continuously downward the **[Pressing Position]** with **[Pressing Force]**, and wait for the **[Pressing Time]** before returning to the working origin.

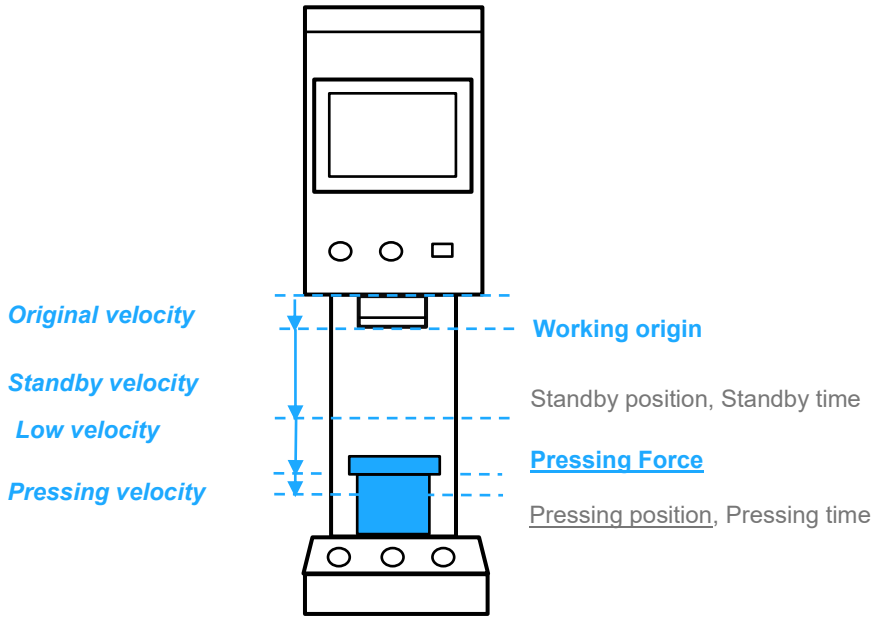


Figure 3-2-5-5-2 Force Position mode diagram

3.2.5.6 Force Distance Mode

The force distance mode defines the Pressing Force and Pressing Distance, and is suitable for where force and pressing distance are strictly regulated.

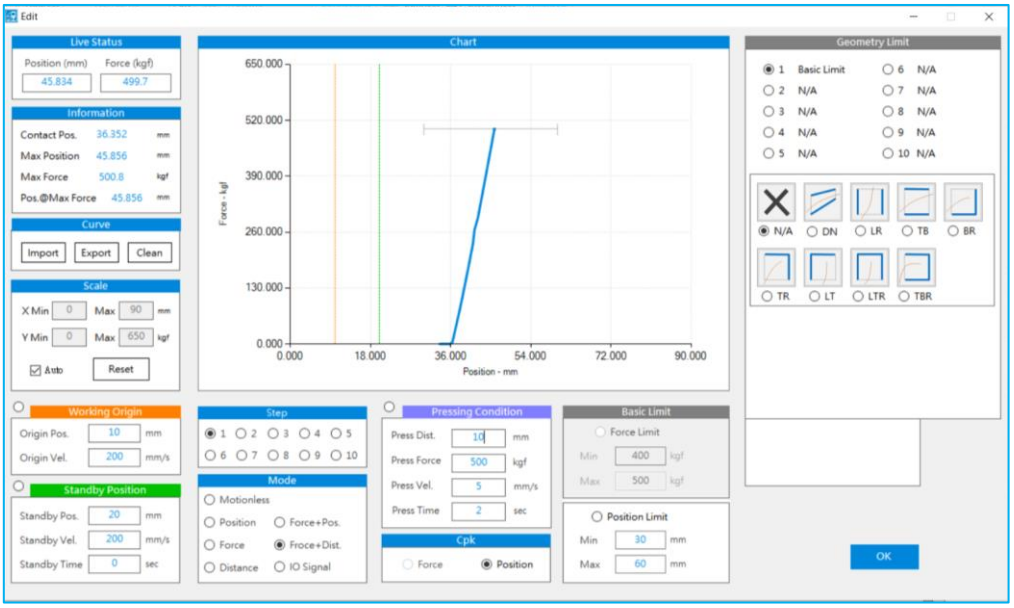


Figure 3-2-5-6-1 Force distance mode setting window

Pressing conditions: In force position mode, the spindle will move down to **[Pressing Force]**, then pressing continuously downward the **[Pressing Distance]** with **[Pressing Force]**, and wait for the **[Pressing Time]** before returning to the working origin.

Limit conditions: When the spindle has moved to the **[Pressing Distance]**, the servo press will check if the position is between the **[Max]** and **[Min]** of position limit. If yes, it will be judged OK, if not then NG.

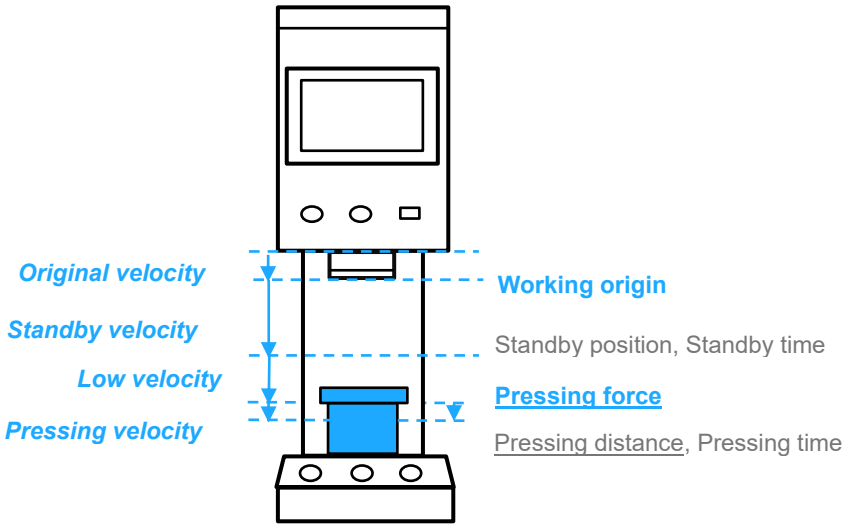


Figure 3-2-5-6-2 Force distance mode diagram

3.2.5.7 IO Signal Mode

I/O Signal can input or output the specific signal in the step. It can be operated with external sensor or electrical cylinder. The table of pins indicated in the Installation and Maintenance Instruction.

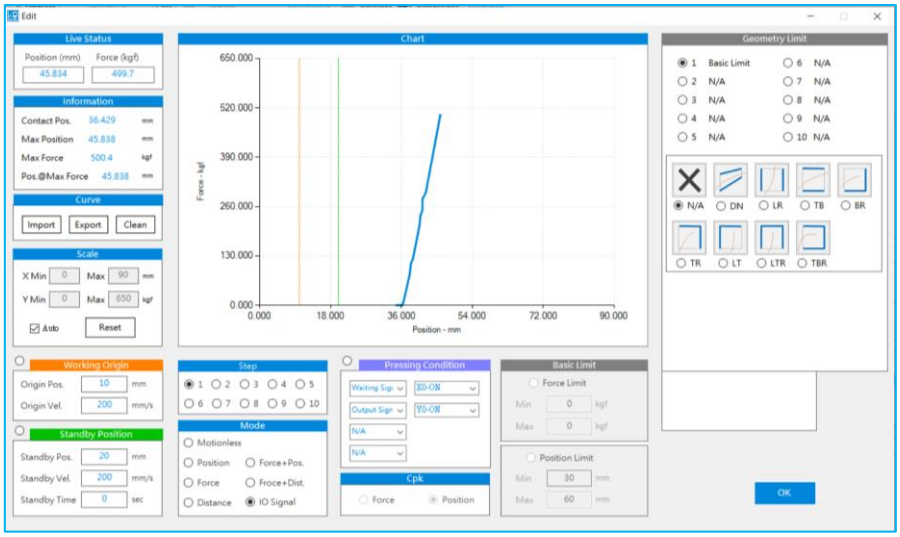


Figure 3-2-5-7-1 I/O Signal mode diagram

Pressing conditions：User can set up to four steps of signal operation or delay time in this mode. If the waiting signal is on, the servo press require to detect the rising edge to go to next step. If the waiting signal is off, the servo press required to detect the falling edge.

When the output signal is on, servo press will output the specific signal and go to next step. If the output signal is off, servo press will turn off the specific signal.

After the pressing process finished, servo press will turn off all the output signal.

Waiting Signal	Output Signal
Y0	X0
Y1	X1
Y2	X2
Y3	X3
Y4	X4
Y5	X5
Y6	X6
Y6	X7

3.2.6 Geometric Limit

Except for the basic limit in the pressing condition, servo press also provide the **[Geometric Limit]** function which can set the quadrilateral boundary for the specific section of pressing curve. Please touch **[Geometric Limit]** and enter the management page. The total steps of geometric limit is up to 10 sets. Suggested applied the frame selection on the curve instead of the manual key in the value. Please check the step first, then choose the type of geometric limit.

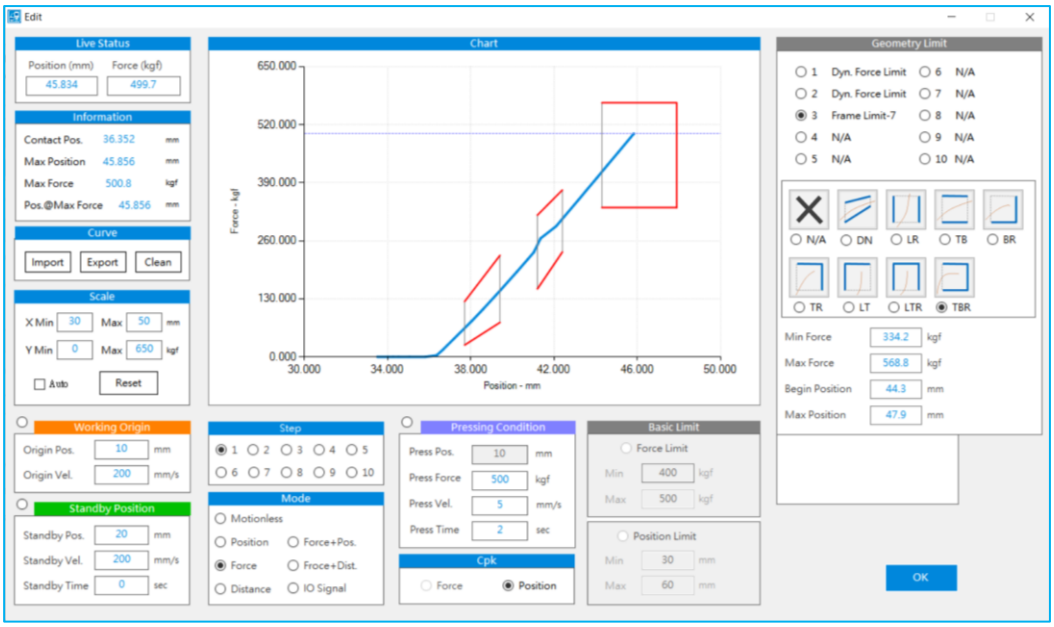


Figure 3-2-6-1 Geometric Limit

If the **[DN]** type had been chosen, the limit composed of quadrilateral. Please click the upper left->upper right->lower right-> lower left 4 points in order on the curve and build the frame.

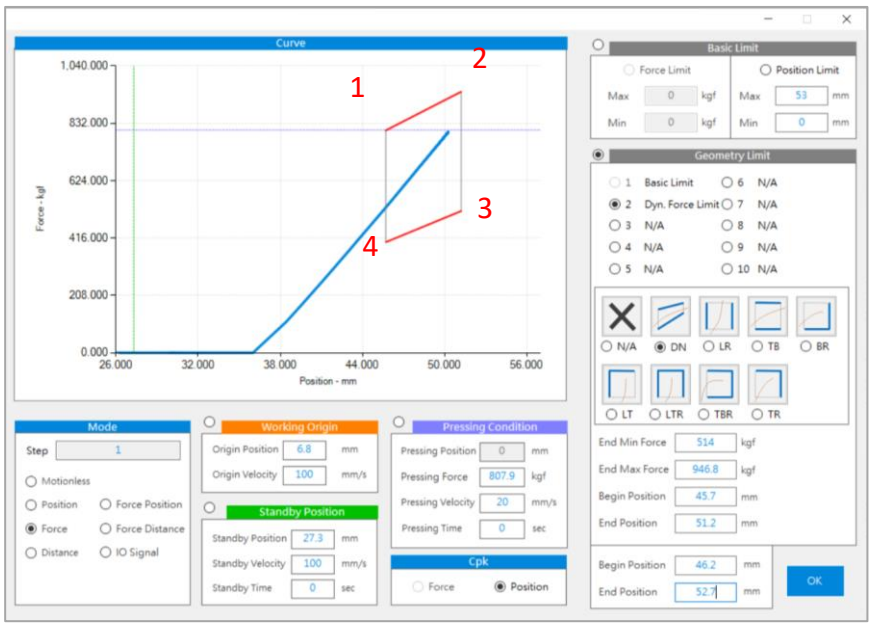


Figure 3-2-6-2 Geometric Limit

If the other type had been chosen, the limit composed of rectangle. Please click the upper left-> lower right 2 points in order on the curve and build the frame.

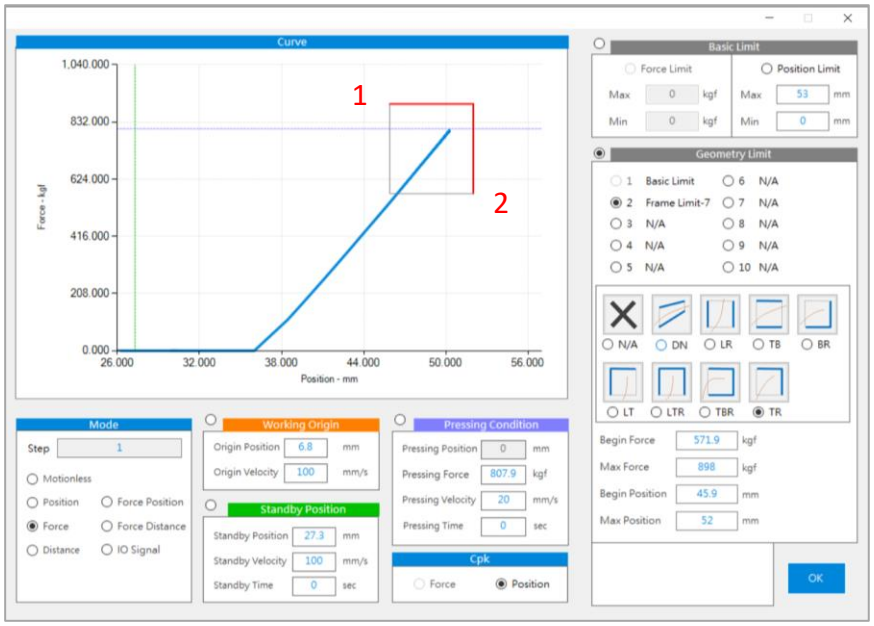
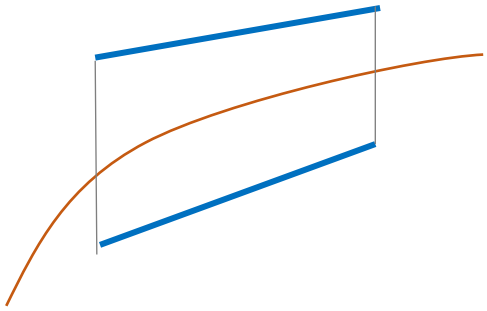
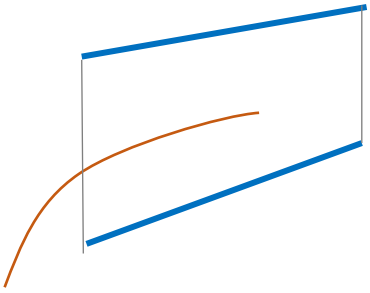
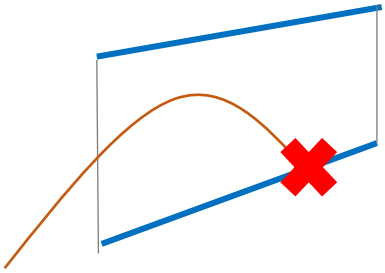
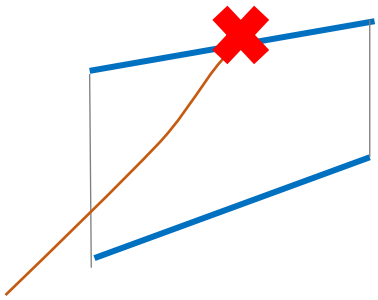
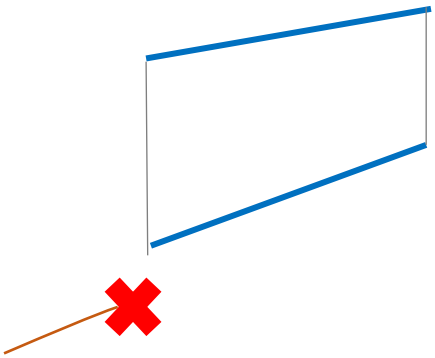
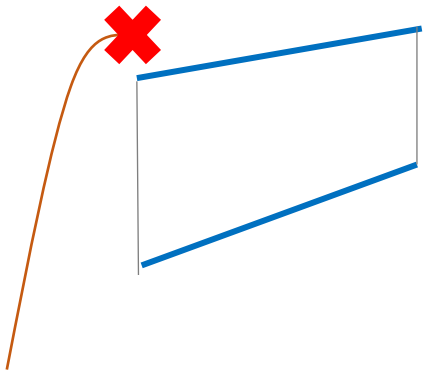
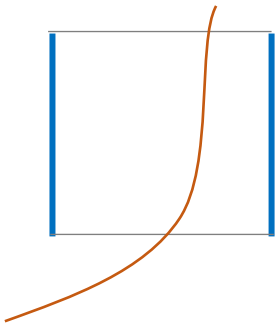
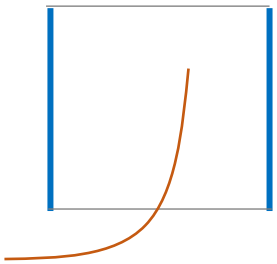
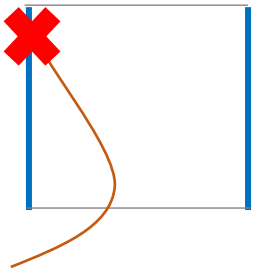
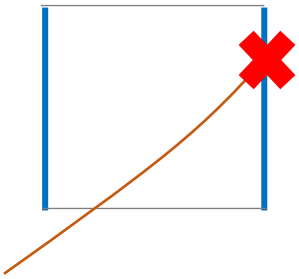
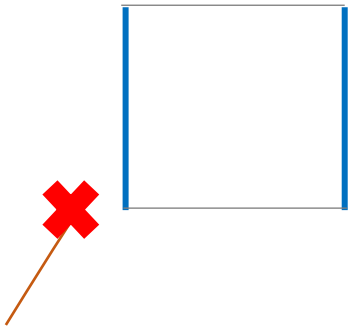
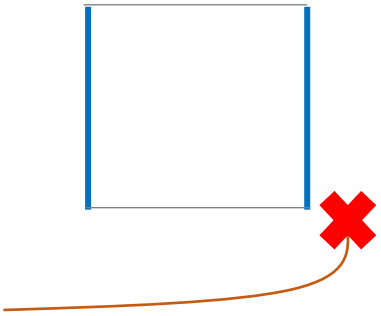


Figure 3-2-6-3 Geometric Limit

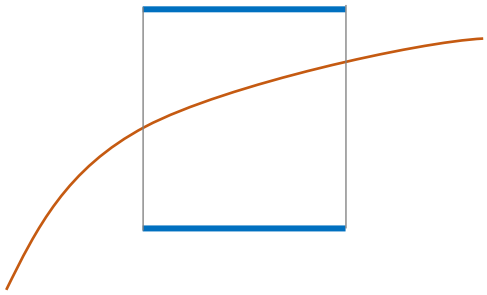
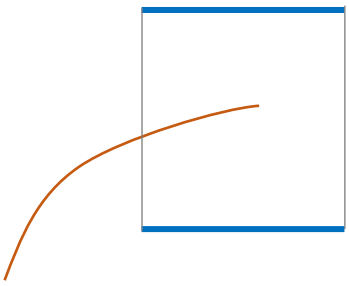
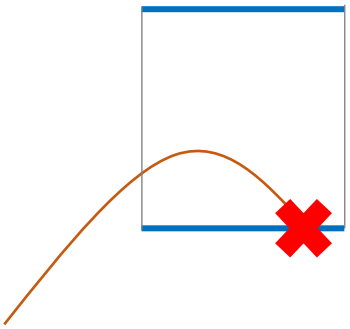
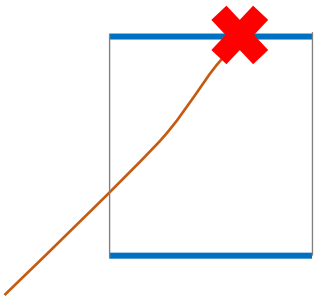
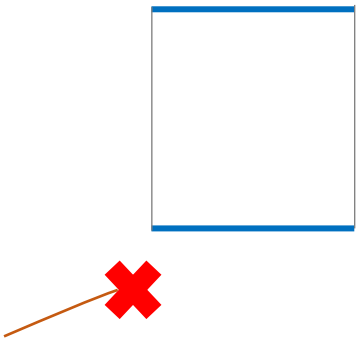
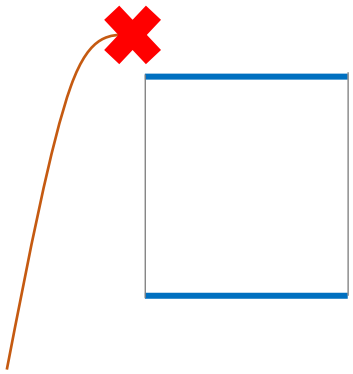
Dynamic Force Limit

OK 	OK 
NG 	NG 
NG 	NG 

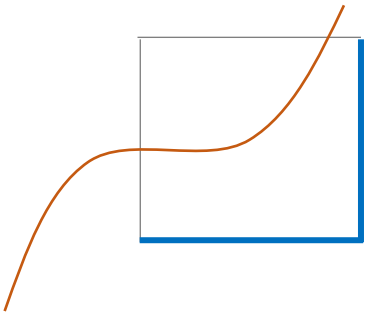
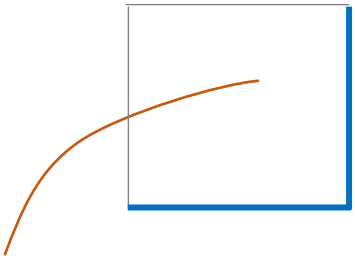
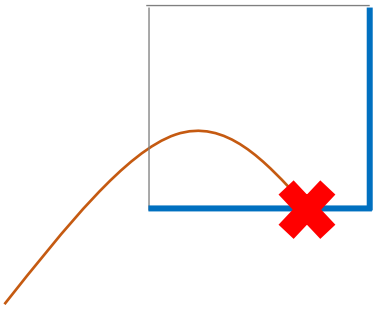
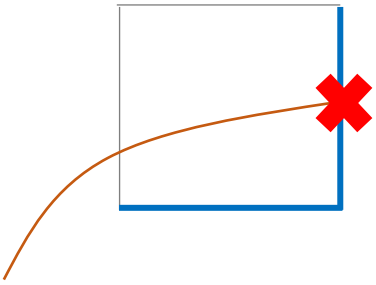
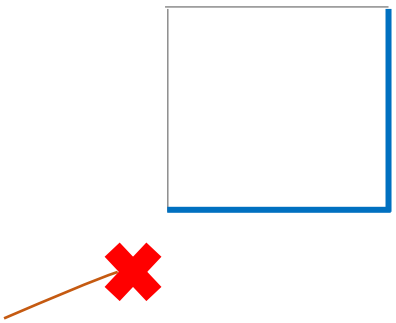
Frame Limit 1

OK 	OK 
NG 	NG 
NG 	NG 

Frame Limit 2

OK 	OK 
NG 	NG 
NG 	NG 

Frame Limit 3

OK 	OK 
NG 	NG 
NG 	

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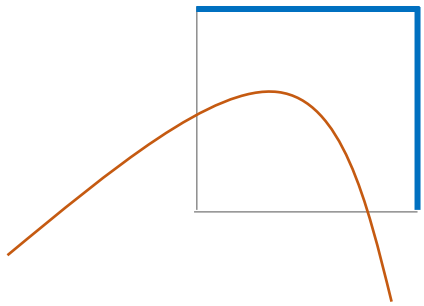
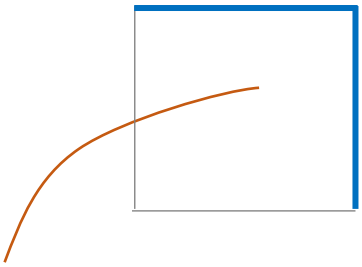
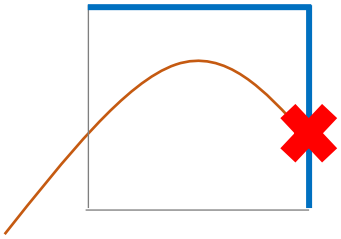
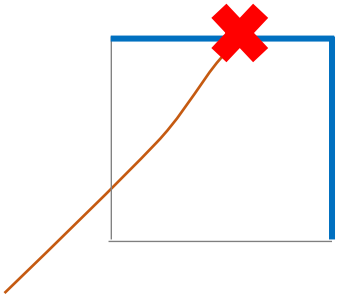
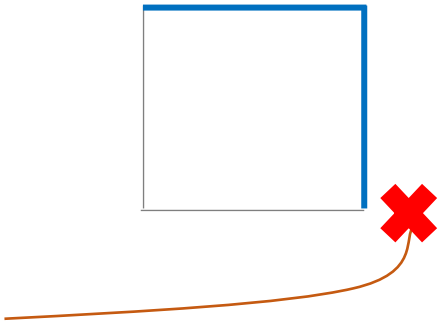
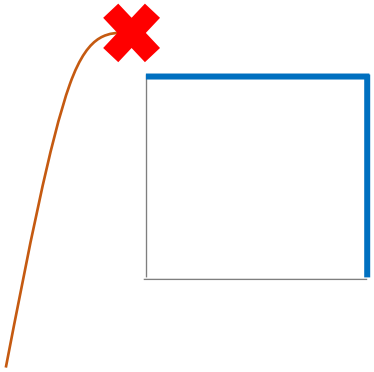
OK 	OK 
NG 	NG 
NG 	NG 

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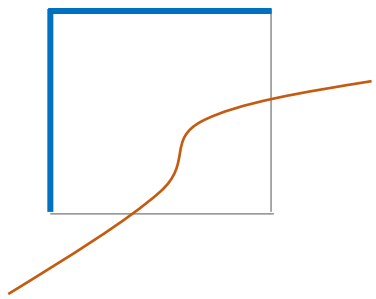
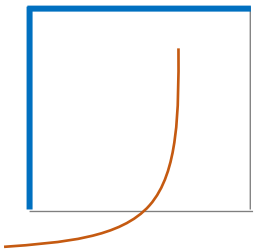
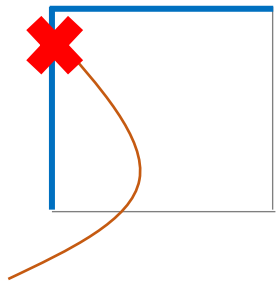
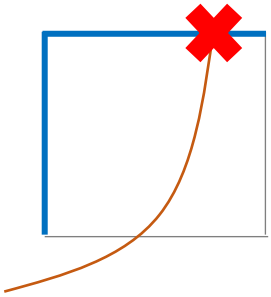
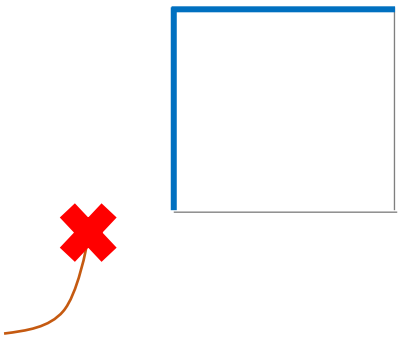
OK 	OK 
NG 	NG 
NG 	

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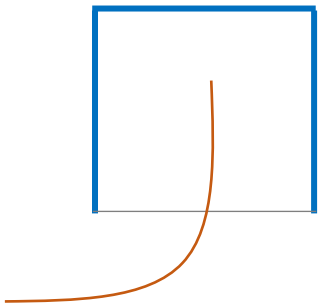
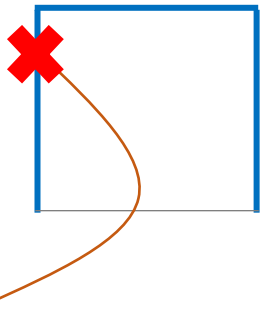
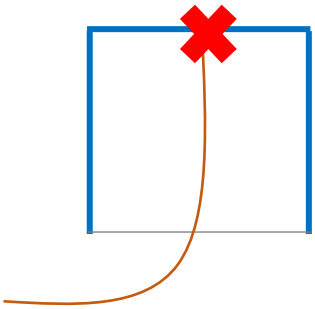
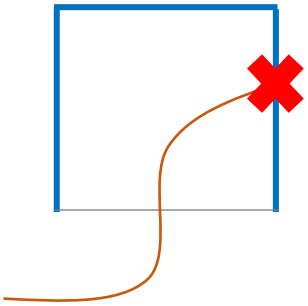
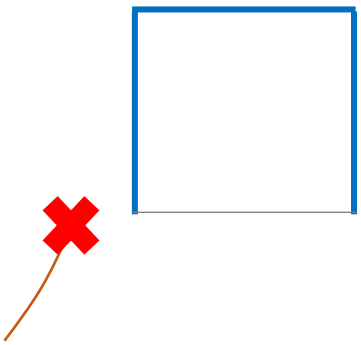
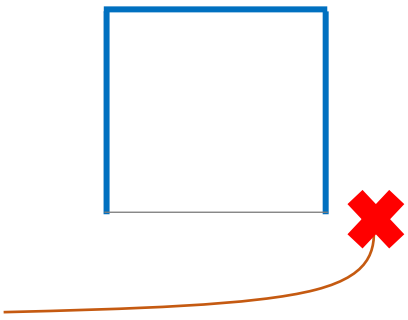
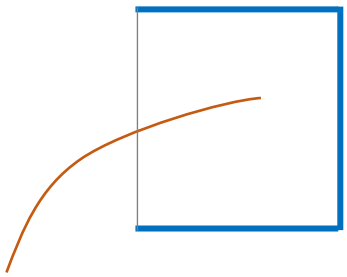
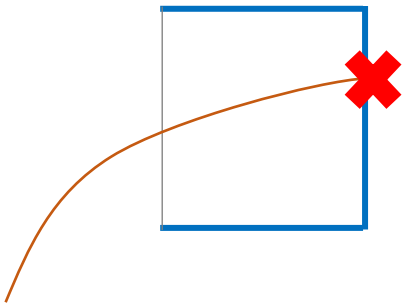
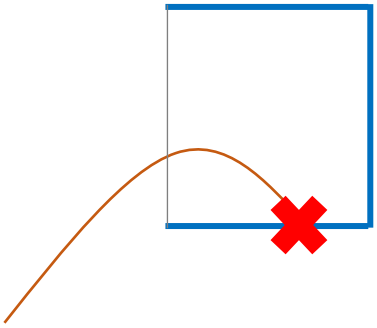
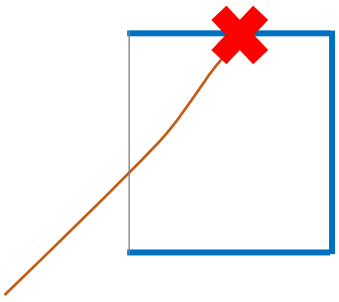
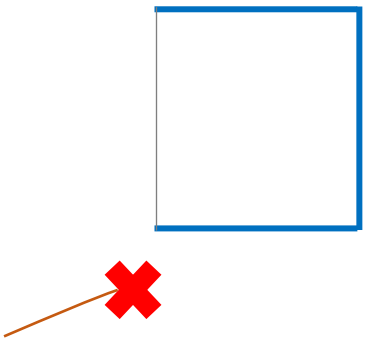
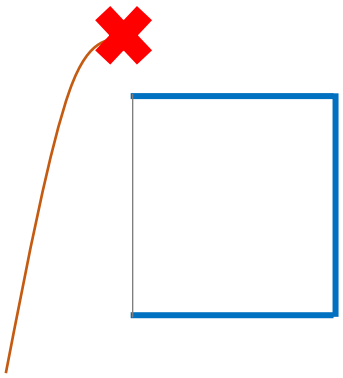
OK 	NG 
NG 	NG 
NG 	NG 

Frame Limit 7

OK 	NG 
NG 	NG 
NG 	NG 

4. Live Monitoring and Results

The DIAServoPress offers live monitoring and batch statistics results. Information such as position, force, production quantity, and curve can be displayed live on the software screen, while each single press information and batch statistical data can be calculated after the batch process ends. The results can be displayed on the software screen simultaneously or exported as an Excel spreadsheet. Curve may also be displayed on-screen or saved as a separate file. Saved files can be opened by the software for future tracking application.

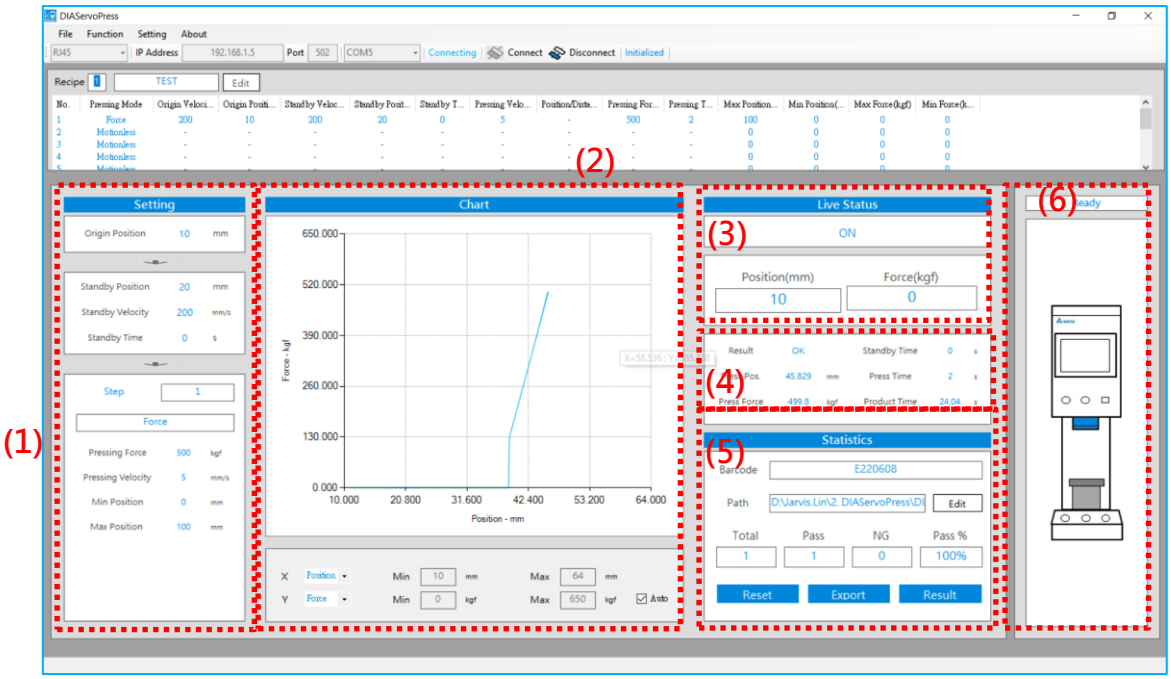


Figure 4-1 Live monitoring window

(1) **Live pressing status:** Divided into three areas, the working origin position, standby position, and pressing position. Displays the current step in real time.

(2) **Live chart:** Displays the current pressing data live during the pressing process. Corresponding parameters for the X-axis and Y-axis can be adjusted individually by the user. See Section 4.1: Live messages for details.

(3) **Main control interface:** Live display of the current position, force information. See Section 4.1: Live messages for details.

(4) **Live pressing data:** Displays pressing data, including pressing result, pressing position, pressing force and production time.

(5) **Statistics display and setting:** Displays current statistics, including total production and pass rate. Information such as work order and statistics path can be set by user. See Section 4.2: Statistical data for details.

(6) **Servo press status:** Live display of the current servo press status. See Section 4.1: Live messages for details.

4.1 Live Messages

4.1.1 Main Control Interface

In automatic control, the software will display live **[Total], [Pass], [NG]**, and **[Pass %]**. The button for statistical data export will become available. Click to view the data, as in Figure 4-1-1-1.

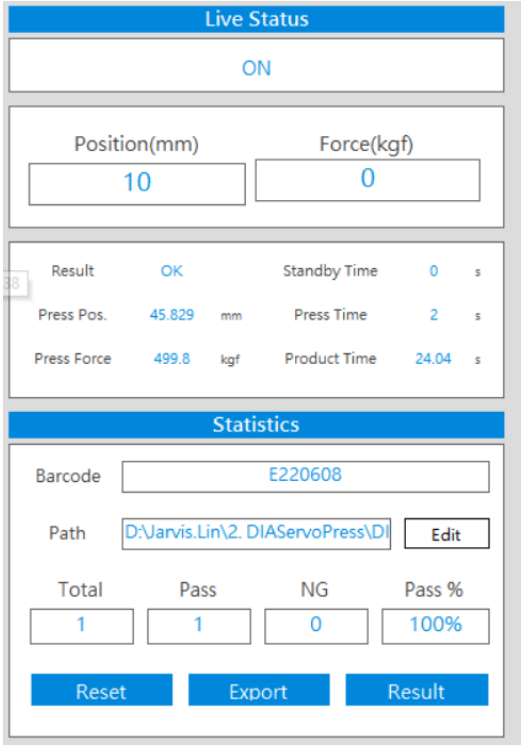


Figure 4-1-1-1 Main Control Interface

4.1.2 Live Chart

The live chart plots information such as position and force during the pressing process, as in Figure 4-1-2-1. As the curve is plotted, the two axes' maximum scale will be adjusted automatically. Alternatively, axis parameter change can be changed as shown in Figure 4-1-2-2.

X-axis and Y-axis scale items can also be changed by the user. The X-axis can be set for position or time. The Y-axis may be set for load, velocity, or position, as per Figure 4-1-2-3.

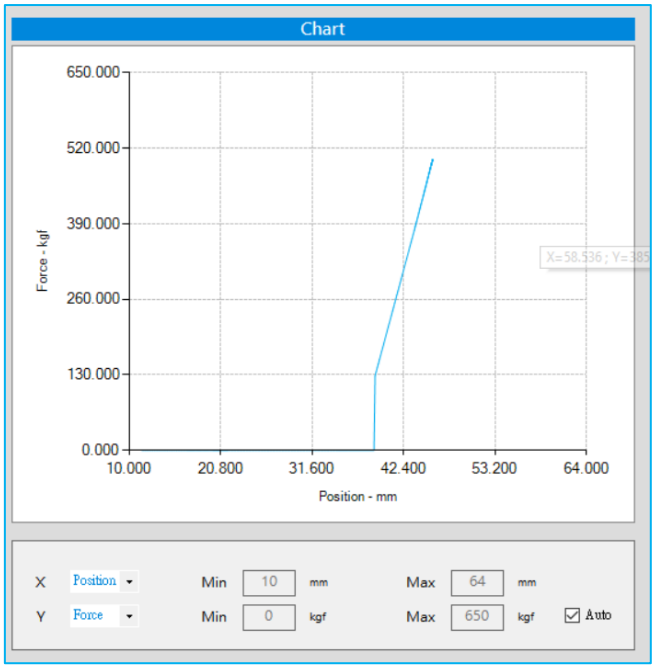


Figure 4-1-2-1 Curve - Position vs. Force

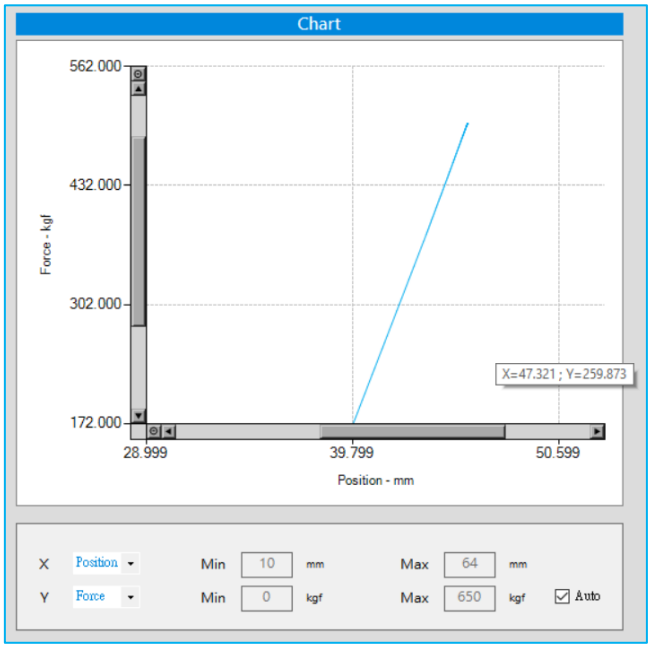


Figure 4-1-2-2 Curve- Zoom In

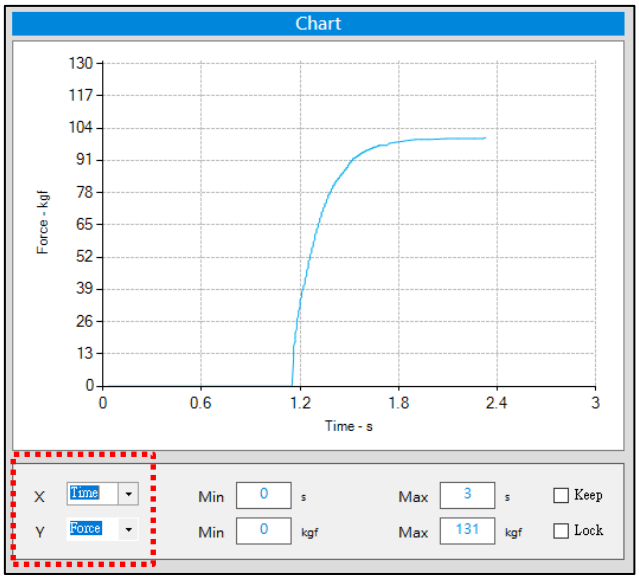


Figure 4-1-2-3 Curve - Force vs. Time

4.1.3 Live Pressing Status

This display is divided into three areas, the working origin position, standby position, and pressing position. It displays the current step in real time, as in Figure 4-1-3-1. The pressing position area will display the current step as well as this step's pressing mode and corresponding parameters, so that the user may have knowledge of the current pressing conditions.

Figure 4-1-3-1 Live pressing status

4.2 Exporting Statistical Data

4.2.1 Setting Barcodes and Paths

Barcodes are the title of exported spreadsheets file for future process records tracking. If the user hadn't entered the barcode, the DIAServoPress will use the current date and time as the default barcode, the program installation path as the default saving path, and the default barcode with the serial number as the spreadsheet file name.

If the barcode is to be changed after a batch is finished, change the barcode text directly and click **[Reset]**, as in Figure 4-2-1-1. If the original barcode already contains pressing records but the batch statistical data has not yet been saved, DIAServoPress will display a warning to confirm whether the barcode is to be reset unsaved, as shown in Figure 4-2-1-2. Once reset, a success message will be shown, as in Figure 4-2-1-3.

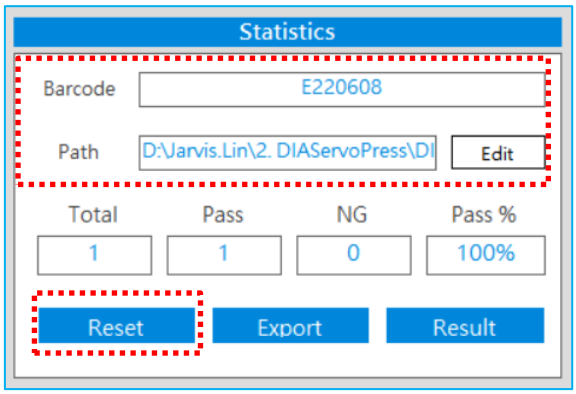


Figure 4-2-1-1 Barcode

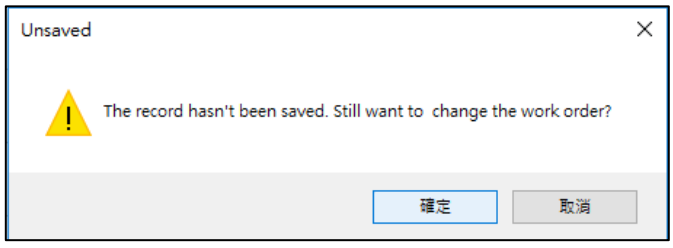


Figure 4-2-1-2 Reset notice window

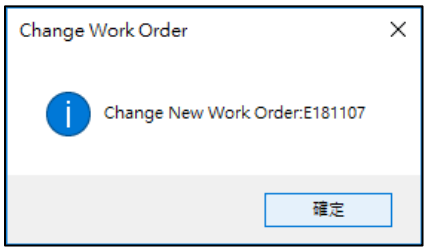


Figure 4-2-1-3 Reset

4.2.2 Results

After batch pressing, The DIAServoPress will conduct batch recording and statistical analysis. Clicking on **[Result]**, as in Figure 4-2-2-1, it will open the **[Result]** window as shown in Figure 4-2-2-2. The contents of each area in the window are described below:

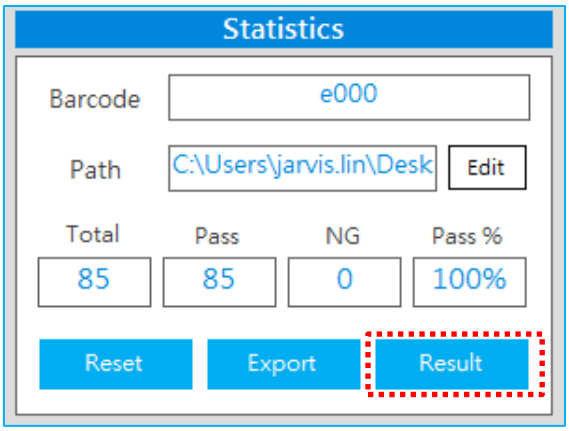


Figure 4-2-2-1 Results

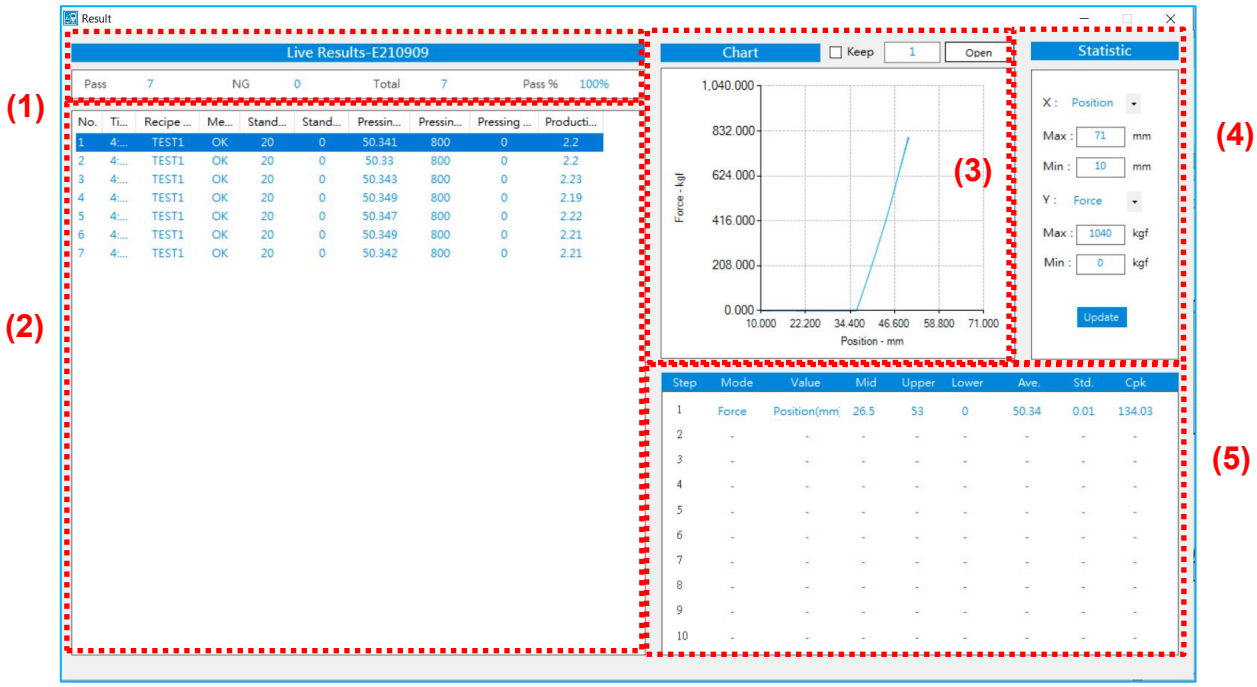


Figure 4-2-2-2 Results

(1) **Overview**

This area will display production information such as the barcode, pass amount, NG amount, pass rate, total amount, and total time.

(2) **Single pressing result list**

This list records each single press result in the batch, including information on measurements, standby position, standby time, pressing position, pressing force, pressing time ,and production time.

(3) **Single pressing curve**

This curve plots the values recorded during pressing. The X and Y axes can be designated by the user's setting, and the window displays graphical data according to the single pressing items selected in (2). Alternatively, click on **[Enlarge]** to open a new window and re-display the corresponding graph, as in Figure 4-2-2-3. Click on **[Save As]** to save the jpg format file, as in Figure 4-2-2-4.

(4) **Graph axis editing**

Graph X and Y axes may be selected by the user, with the maximum and minimum values adjusted for the best viewing conditions. Select determined items and confirm the X and Y axis values, then click **[Update]** to update the graph.

(5) **Quality control statistics**

Quality control statistics calculate statistical parameters such as mean, standard deviation, and Cpk by the **Force** or **position** according to the user-defined Cpk item for each step.

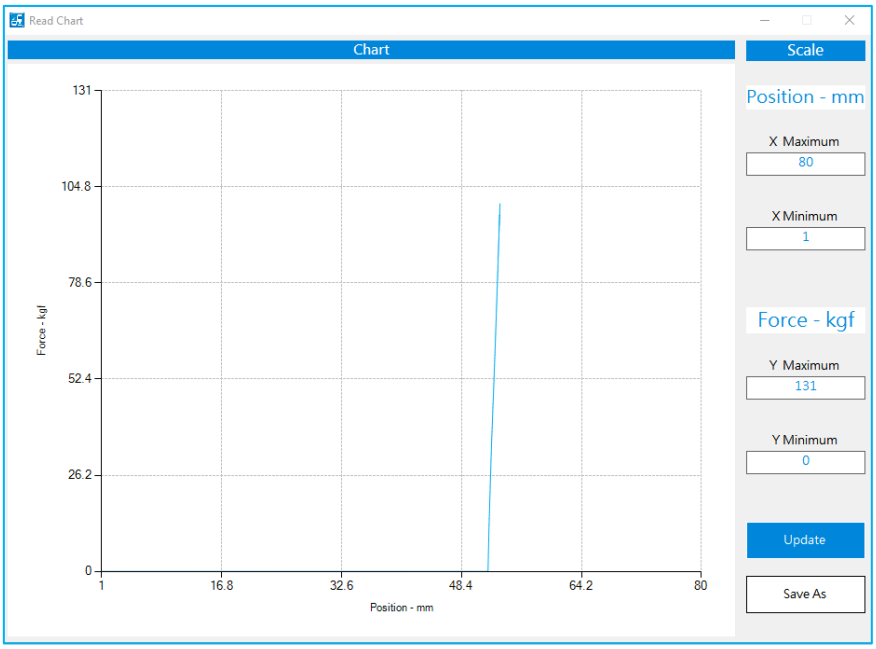


Figure 4-2-2-3 Enlarge

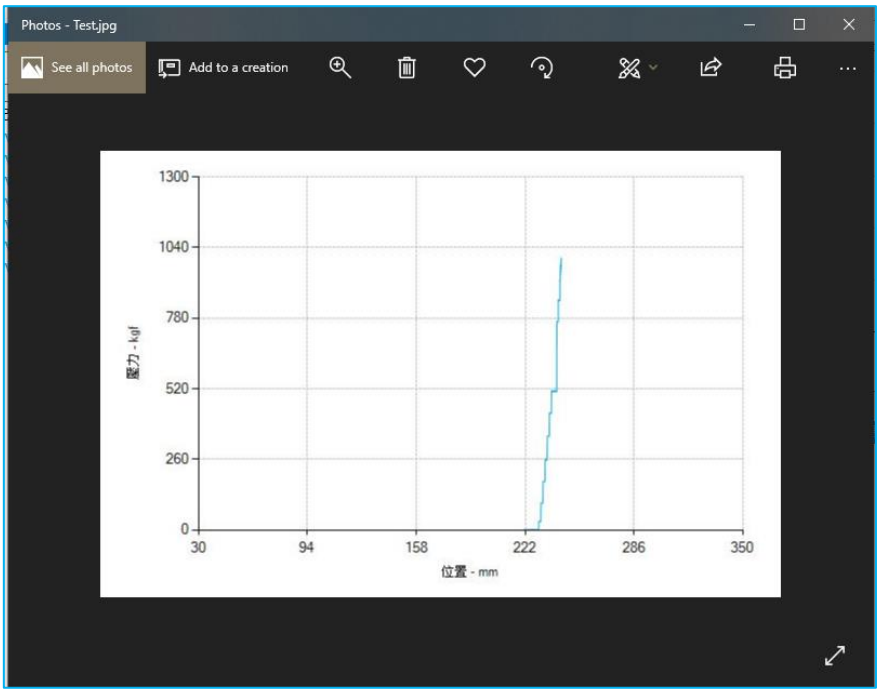


Figure 4-2-2-4 Save as

4.2.3 Save Results as

DIAServoPress offers statistical data report and curve export functions. The statistical data will be exported as Excel spreadsheets, and the curves containing force and position plots for each process will be recorded in an individual file per pressing process. The files can be opened by DIAServoPress for future tracking (refer to Section 4.3). However, if there were no Excel installed in the user's computer, the statistical Excel spreadsheet can't be exported. The substituted format as the csv file can't be opened by the DIAServoPress in the future.

Click **[Export]** for data export, as shown in Figure 4-2-3-1. Files will be saved at the designated **[Path]**, and DIAServoPress will export external Excel files according to the work order statistics, as in Figure 4-2-3-2 Contents of each item in the table are described as below:

(1) **Statistical data**

Batch overview statistical data, including production data such as machine model, production date, barcode, pass amount, NG amount, total yield, and total time.

(2) **Step statistics**

Batch statistics calculated by the user-defined Cpk calculation items for each step.

(3) **Single pressing result list**

This list records each single press result in the batch, including information on measurements, standby position, standby time, pressing position, pressing force, pressing time, and production time.

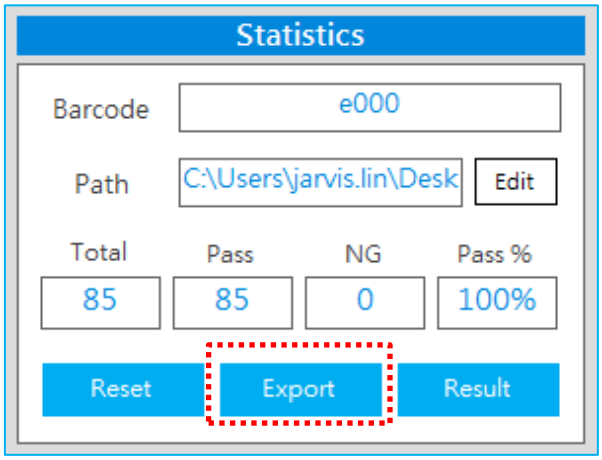


Figure 4-2-3-1 Result file

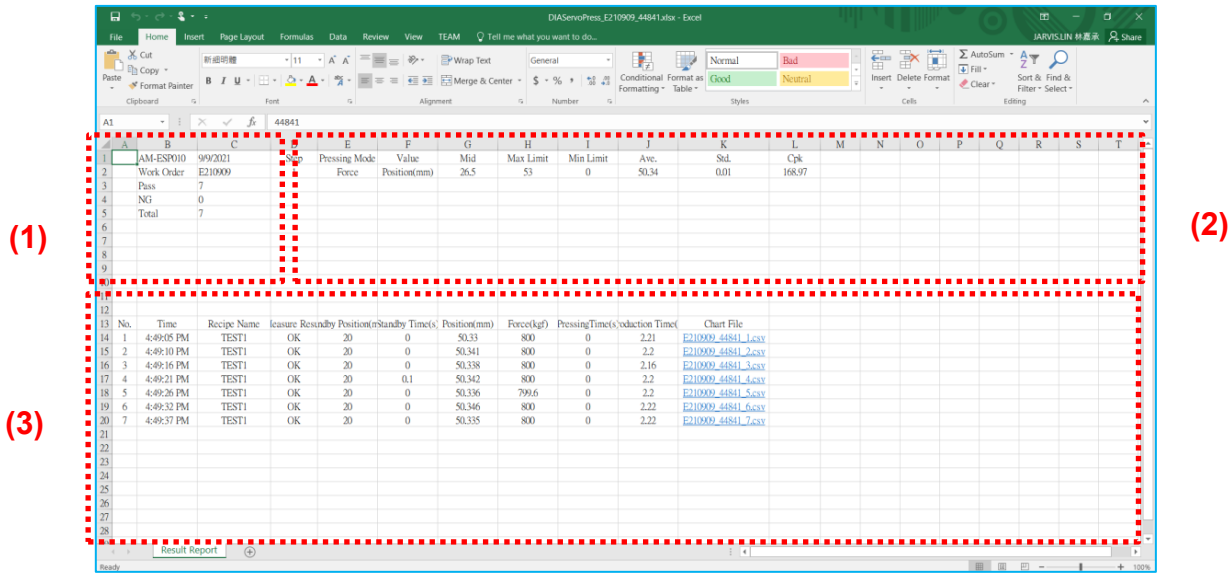


Figure 4-2-3-2 Excel spreadsheet

The Excel file will be saved in the designated directory with the **[Barcode]** with the serial number as the folder name, as in Figure 4-2-3-3 The folder will contain an Excel spreadsheet and a Chart folder with a csv data file for each single pressing process, as in Figure 4-2-3-4 The csv file records position, force, velocity, and time parameters independently, as in Figure 4-2-3-5 To open the designated pressing's csv file, refer to the table in the Excel file, as shown in Figure 4-2-3-6, or re-plot the curve directly through opening the file in DIAServoPress (refer to Section 4.3)

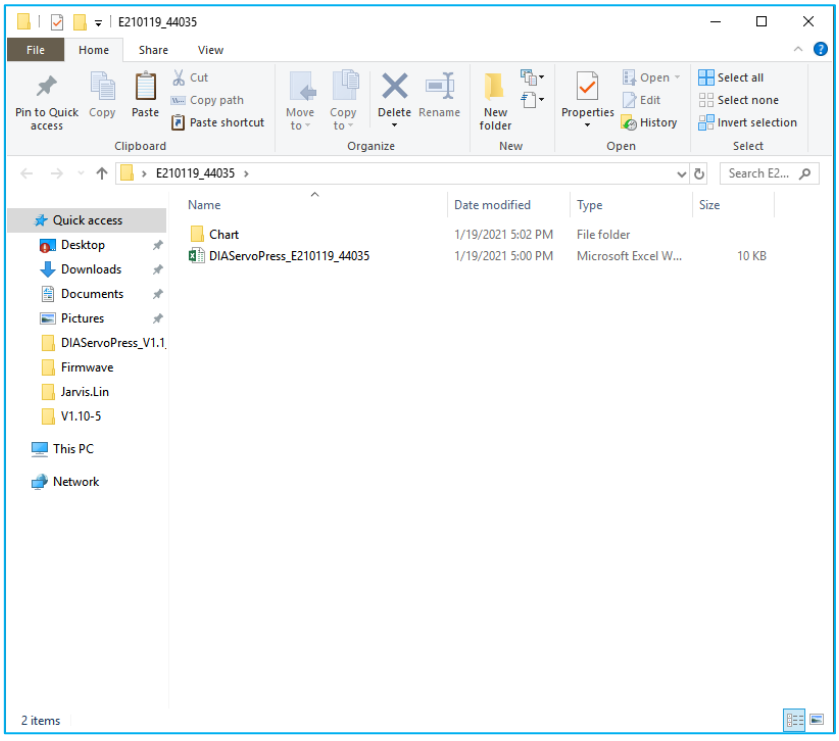


Figure 4-2-3-3 Export file folder

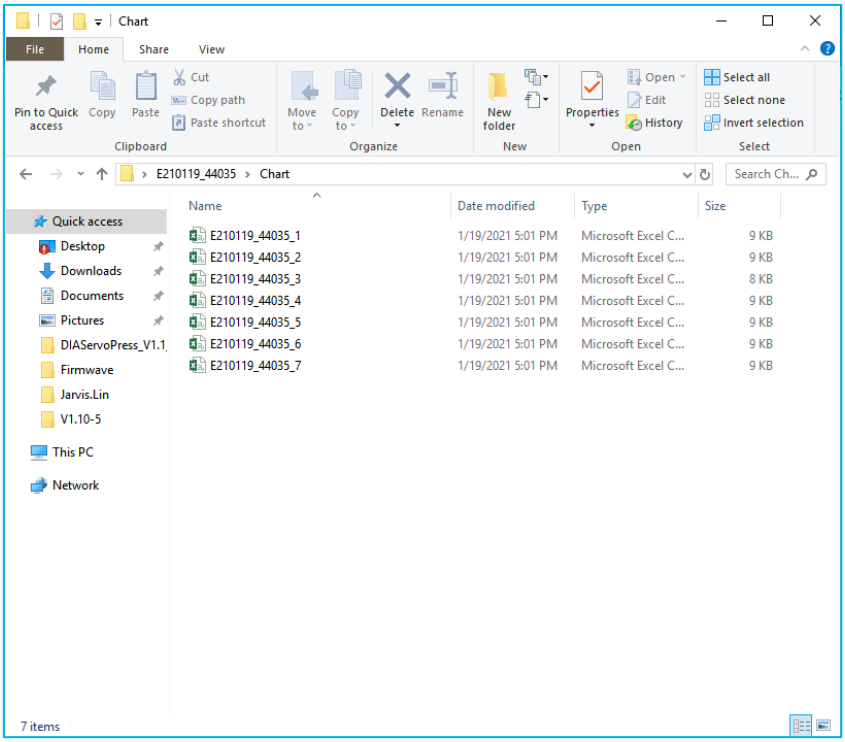


Figure 4-2-3-4 Force position curve csv record files

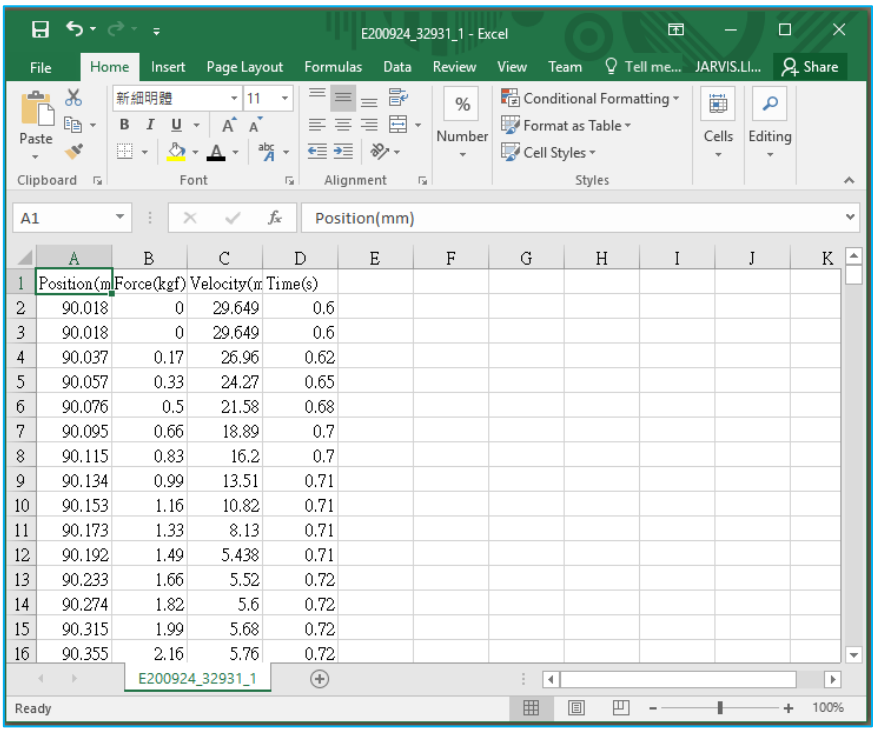
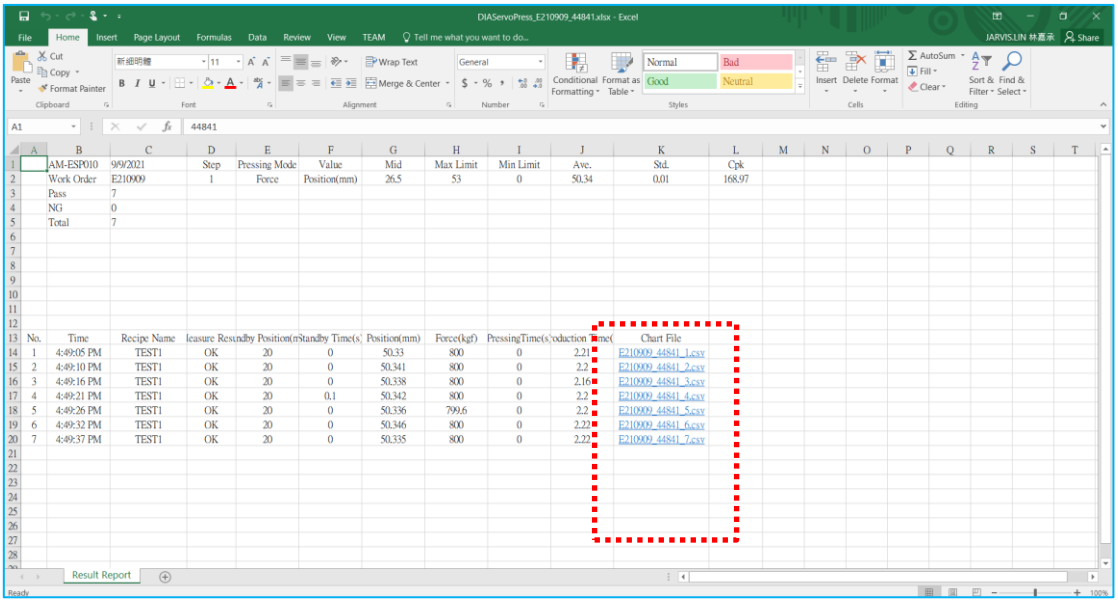


Figure 4-2-3-5 Curve csv record file



	A	B	C	D	E	F	G	H	I	J	K	L
1		AM-ESP010	9/9/2021	Step	Pressing Mode	Value	Mid	Max Limit	Min Limit	Ave.	Std.	Cpk
2		Work Order	E210909	1	Force	Position(mm)	26.5	53	0	50.34	0.01	168.97
3		Pass	7									
4		NG	0									
5		Total	7									

No.	Time	Recipe Name	leasure Result	by Position(m	Standby Time(s	Position(mm)	Force(kgf)	PressingTime(s	oduction Time(	Chart File
1	4:49:05 PM	TEST1	OK	20	0	50.33	800	0	2.21	E210909_44841_1.csv
2	4:49:10 PM	TEST1	OK	20	0	50.341	800	0	2.2	E210909_44841_2.csv
3	4:49:16 PM	TEST1	OK	20	0	50.338	800	0	2.16	E210909_44841_3.csv
4	4:49:21 PM	TEST1	OK	20	0.1	50.342	800	0	2.2	E210909_44841_4.csv
5	4:49:26 PM	TEST1	OK	20	0	50.336	799.6	0	2.2	E210909_44841_5.csv
6	4:49:32 PM	TEST1	OK	20	0	50.346	800	0	2.22	E210909_44841_6.csv
7	4:49:37 PM	TEST1	OK	20	0	50.335	800	0	2.22	E210909_44841_7.csv

Figure 4-2-3-6 Curve file information in Excel

4.3 Opening Record Files

DIAServoPress can open Excel record files and csv curve files that are exported from it. Click **[File] -> [Open Record File]**, as shown in Figure 4-3-1, and select the Excel spreadsheet to be opened, as in Figure 4-3-2. DIAServoPress will open a record window and reading the related data in the Excel spreadsheet and all csv files in the folder, as in Figure 4-3-3.

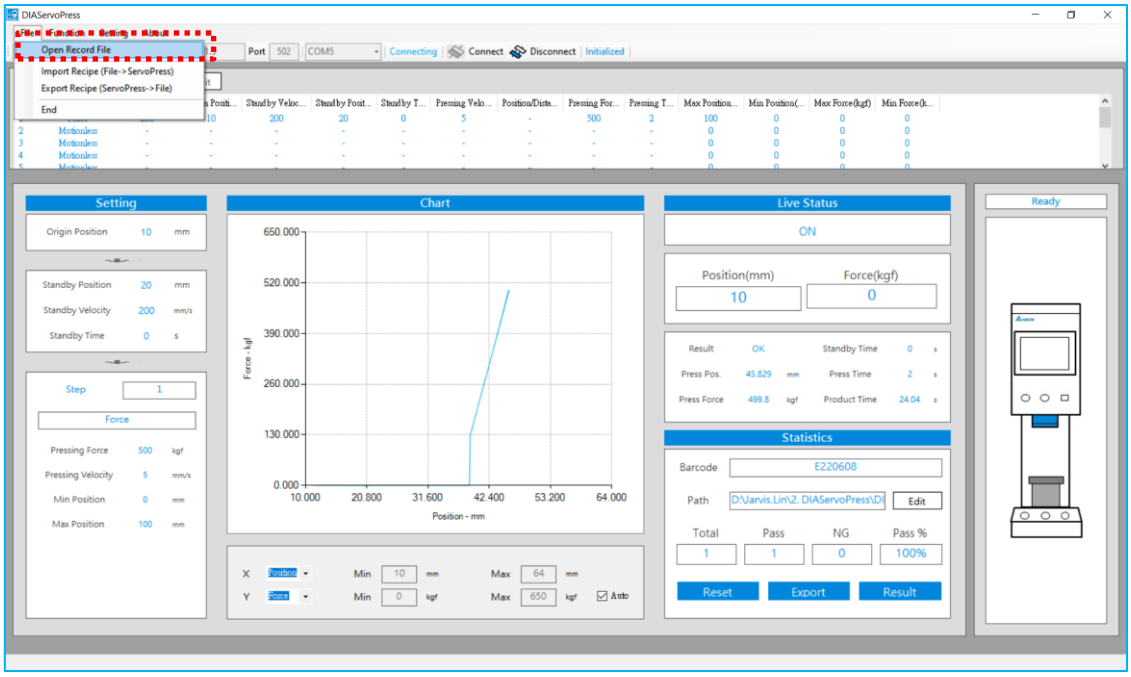


Figure 4-3-1 Opening record files

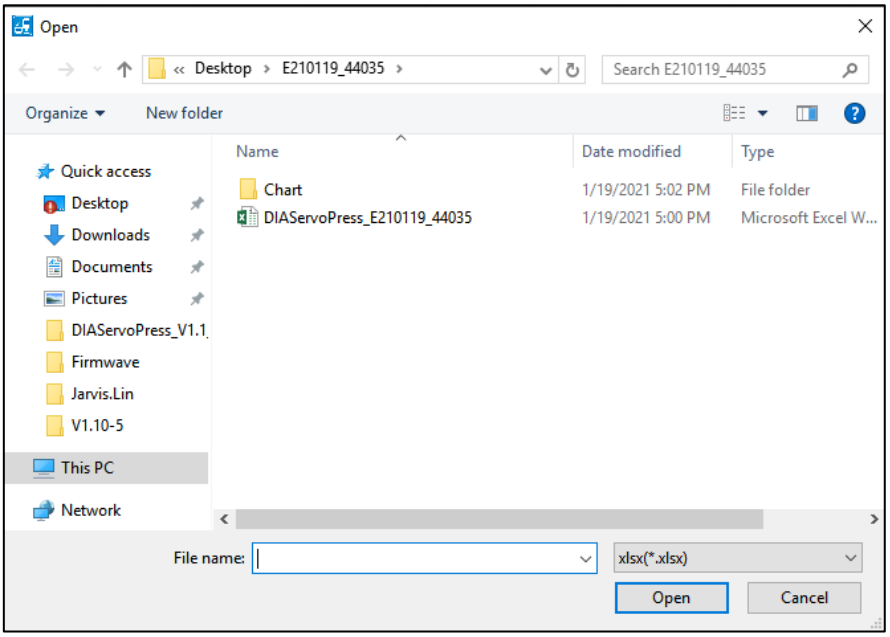


Figure 4-3-2 Excel files path selection

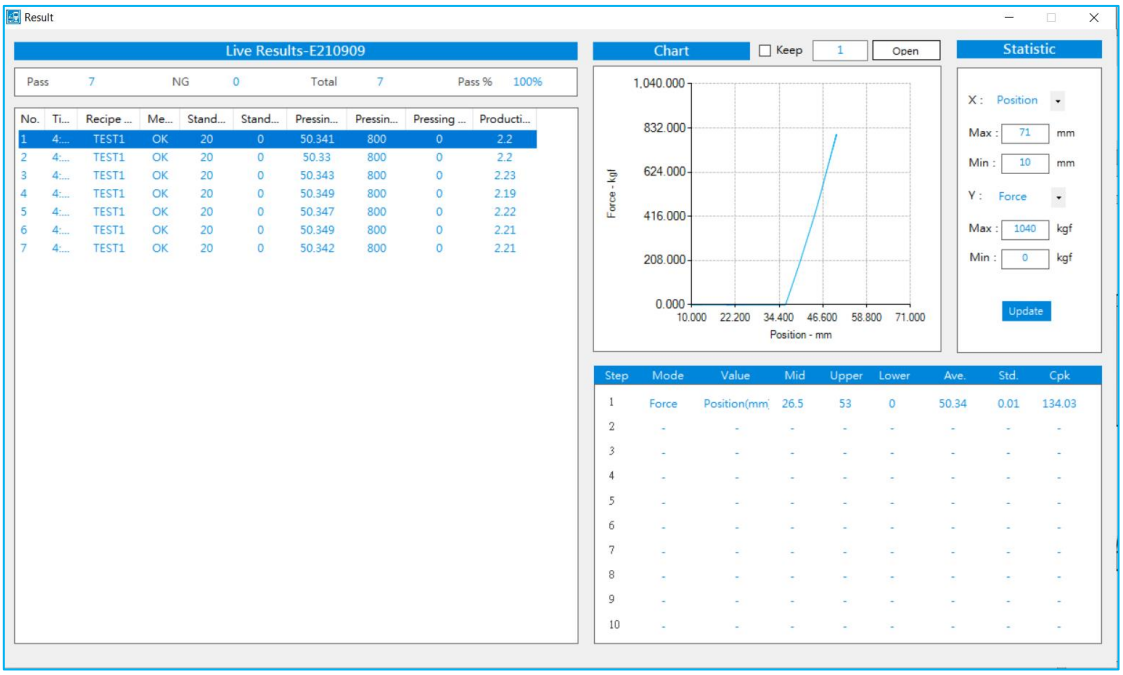


Figure 4-3-3 Opening record files

5. Functions

5.1 Data Uploading

DIAServoPress offers a database upload function for pressing data. Users can upload data to SQL databases for each pressing immediately after the process. Uploaded data includes work order number, time, recipe name, measurement results, standby position, standby time, pressing position, pressing force, pressing time, and production time. Database establishment, as well as server connection, must be performed before operation. Start the function only after checking for proper connection. Select **[Function]** -> **[Data Upload]** to open the **[Data Upload]** window, as shown in Figure 5-1-1.

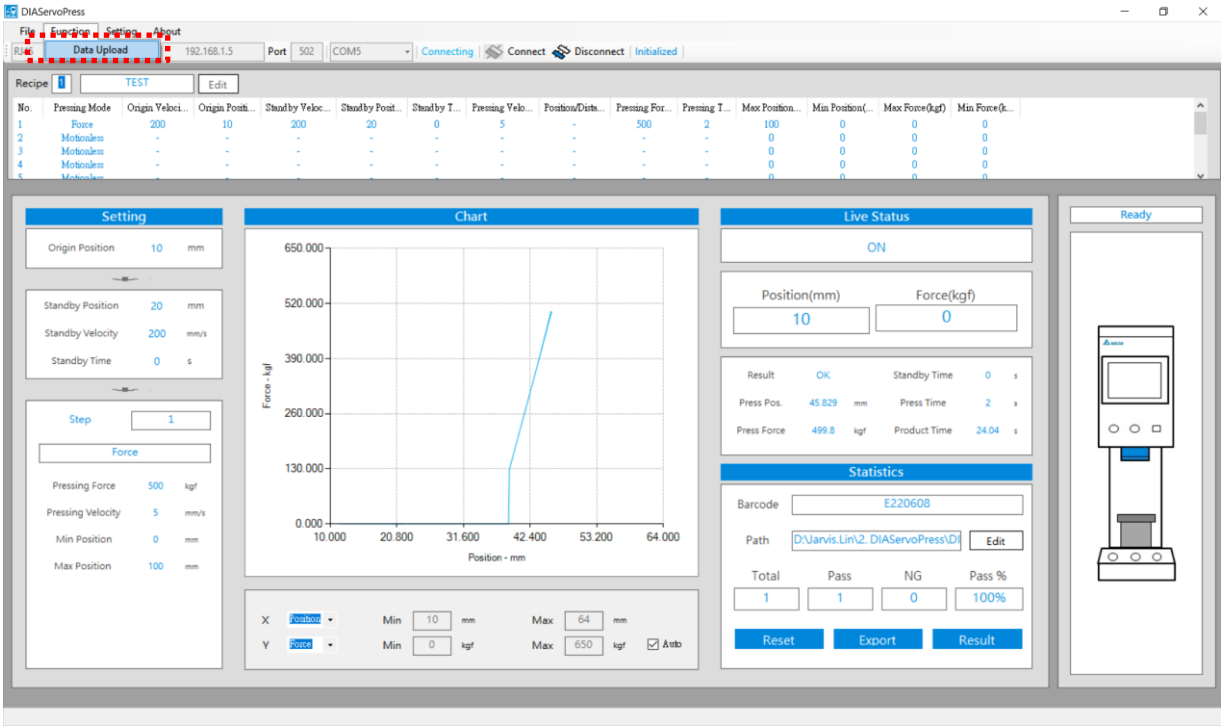


Figure 5-1-1 Open data upload window

The data upload window includes four main sections, as shown in Figure 5-1-2:

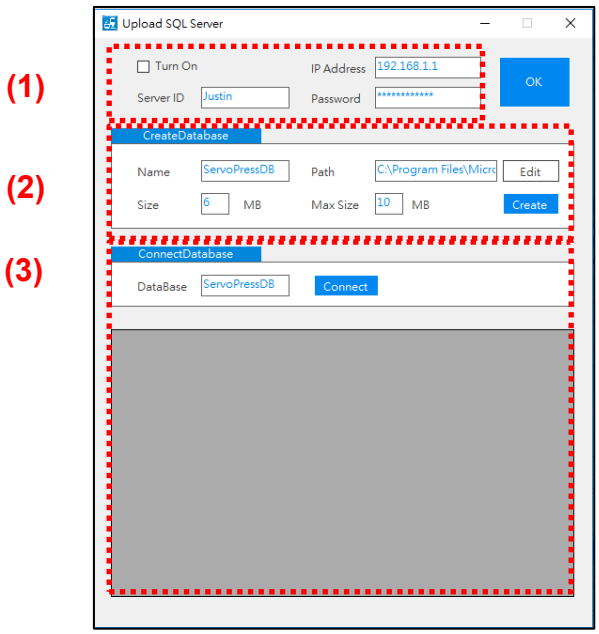


Figure 5-1-2 Open data upload window

(1) **SQL database basic connection setting:** Mainly defines basic SQL server connection parameters, including whether to turn on SQL upload, database IP address, and database account password, as shown in Figure 5-1-3. If **[Turn on]** is checked, DIAServoPress will upload pressing data to the connected SQL server database after each pressing. Server connection data includes the IP address, connection account, and connection password, which are to be used together with **[Create Database]** and **[Connect Database]**. Be sure to complete valid server and database connections before performing uploads.

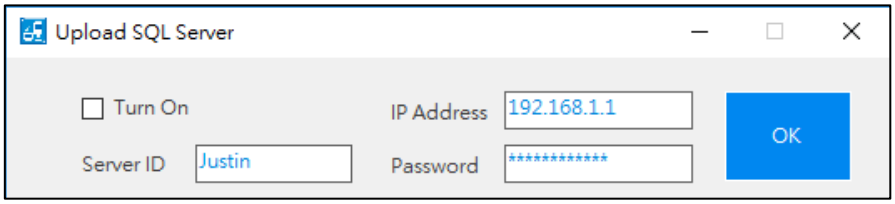


Figure 5-1-3 SQL database basic connection setting

(2) **Create database:** This function creates an assigned database including database name, database path, file size, and max file size for DIAServoPress data uploads in the connectable server, as shown in Figure 5-1-4. The database is named by the user. Once created, subsequent usage through **[Connect Database]** must be connected by this name. The database path is the created database's file access location, as in Figure 5-1-5. The file size is the initial size of the database file. The max file size is the upper limit for database file size after data augmentation. Click **[Create]** after finishing setting. If proper connection is established, DIAServoPress will automatically create fields and display a Creation Successful window on completion, as in Figures 5-1-6.

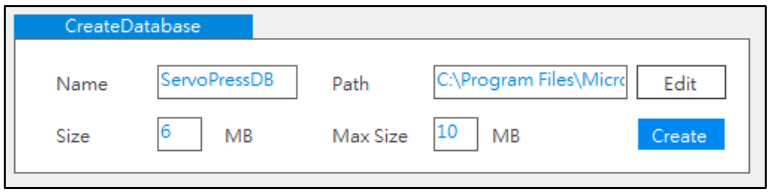


Figure 5-1-4 Create database

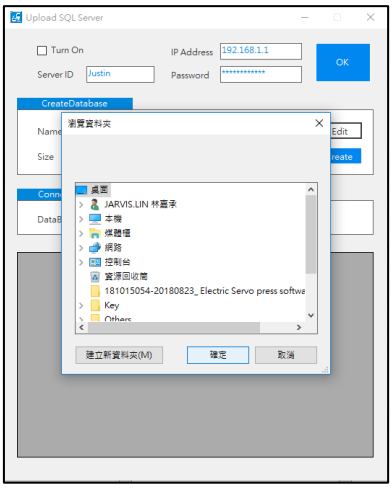


Figure 5-1-5 Change database path

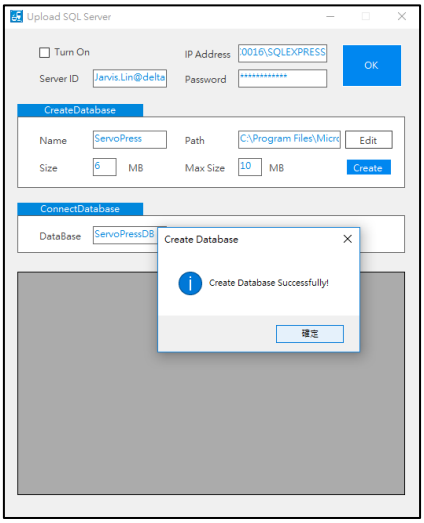


Figure 5-1-6 Database successfully created

(3) **Connect Database:** If the current server contains assigned databases created by DIAServoPress, it can be accessed directly through the Connect function according to the database name, as in Figure 5-1-7 Check **[Turn on]** and click **[Connect]**. The target database fields and existing data will be displayed in the below window, as in Figure 5-1-8. Verify proper connection before turning on the SQL database upload function.

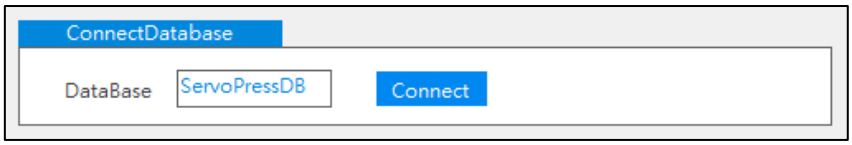


Figure 5-1-7 Connect Database

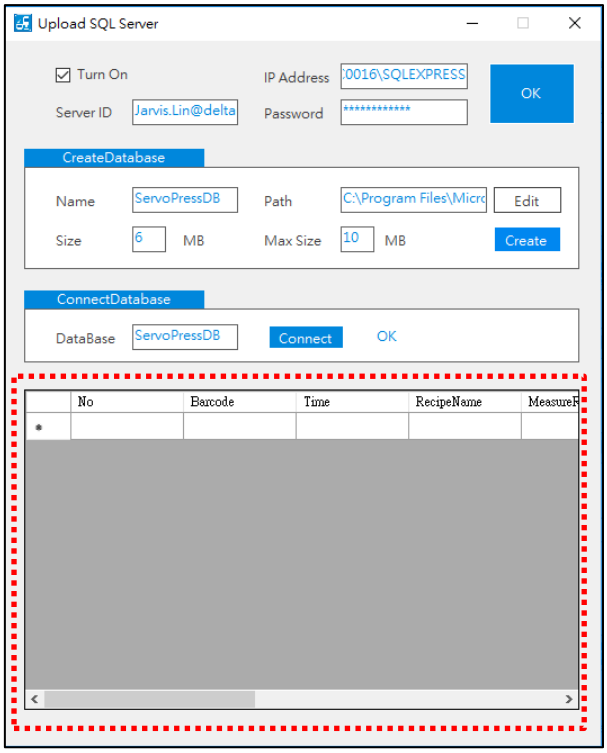


Figure 5-1-8 Database connection test completed

5.2 Language

Servo Press offers users different language options. To change the language currently in use, click **[Setting]** -> **[Language]**, as shown in Figure 5-2-1. The language selection window will display. Select the language to be changed into, as in Figures 5-2-2, and click OK to complete language change. Please restart the software and the change will be saved in the program profile.

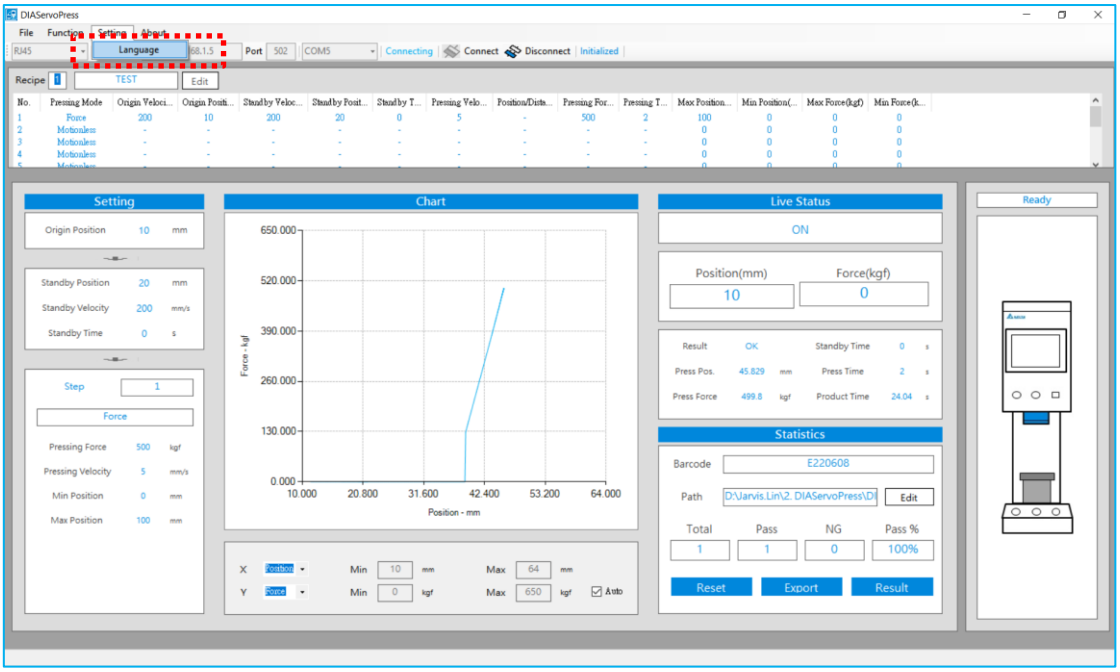


Figure 5-2-1 Language

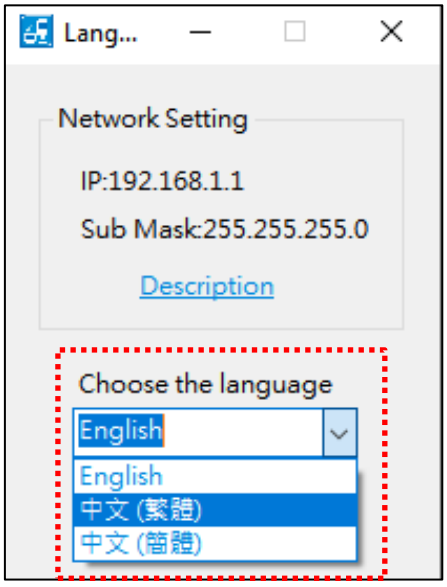


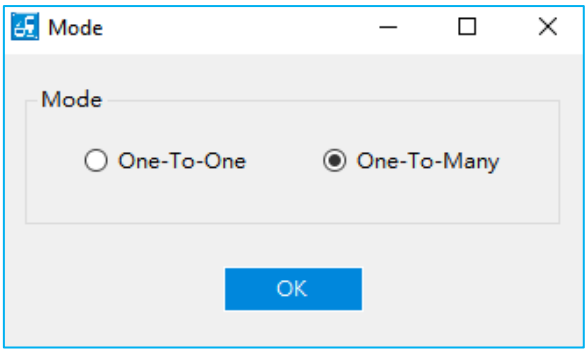
Figure 5-2-2 Language

6. One to Many

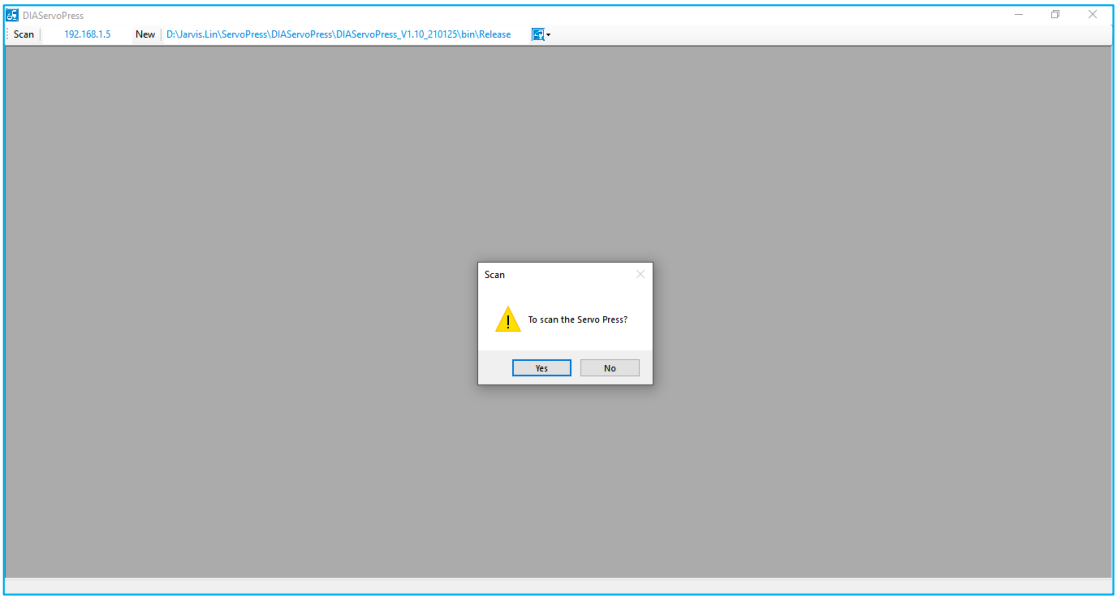
6.1 Scan

The DIAServoPress can scan the servo press in the local network which are set in distinct IP address. Please ensure all servo press are already assigned the IP, the follow the below steps:

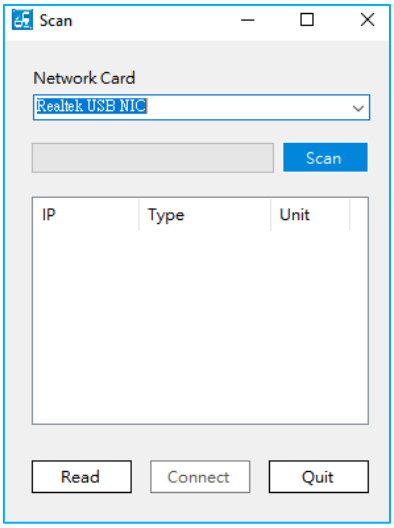
(1) When open DIAServoPress, please choose the **[One-To-Many]**.



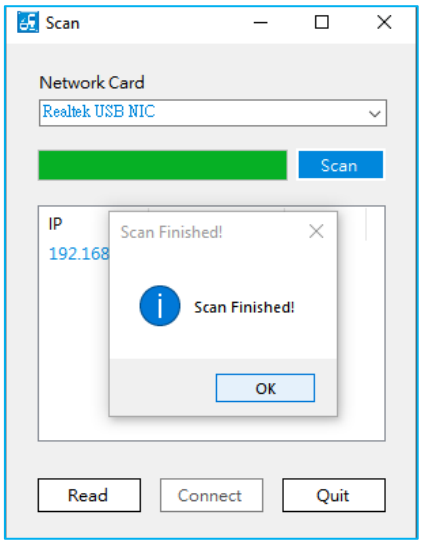
(2) The dialog windows will show and check whether or not to make the automatic scan. Please click **[Yes]**.



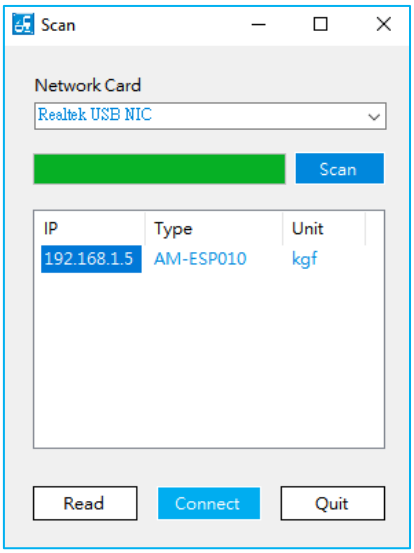
(3) Choose the designed Ethernet network card, then click the **[Scan]**



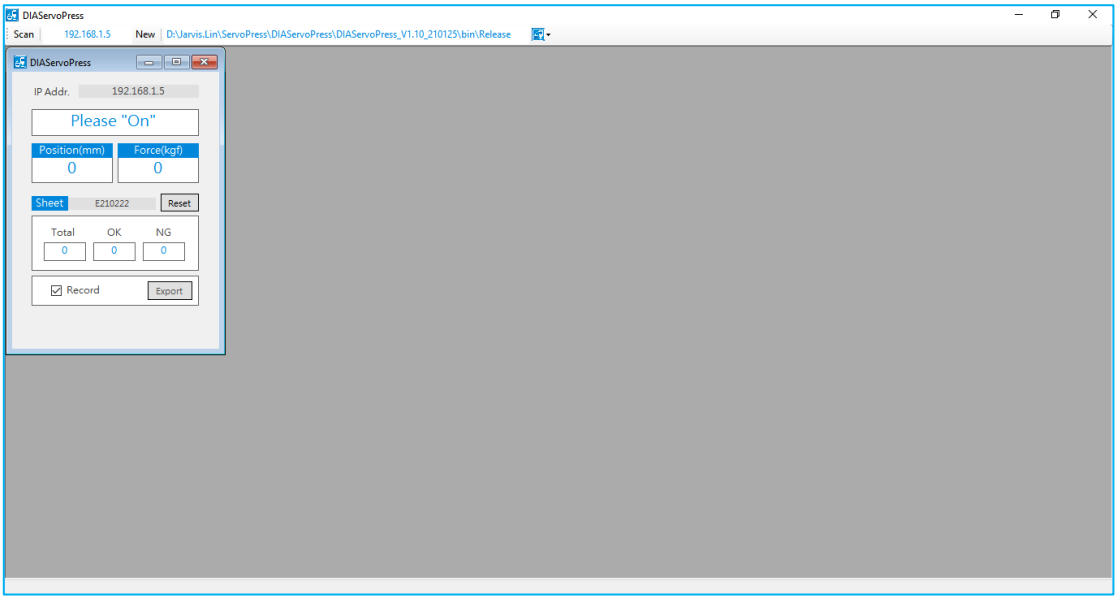
(4) After scanning finished, it will show the completed window.



(5) It will show the IP of each servo press during the scanning, please click the **[Connect]** to connect the servo press on the local network.



(6) After connecting successful, the monitor windows will show on the screen. Click **[Export]** can export the pressing report and curve.



6.2 Manual Connect

If the one to many mode had been operated, click **[Scan]** can to re-scan. Or to enter the designed IP address to connect the servo press manually.

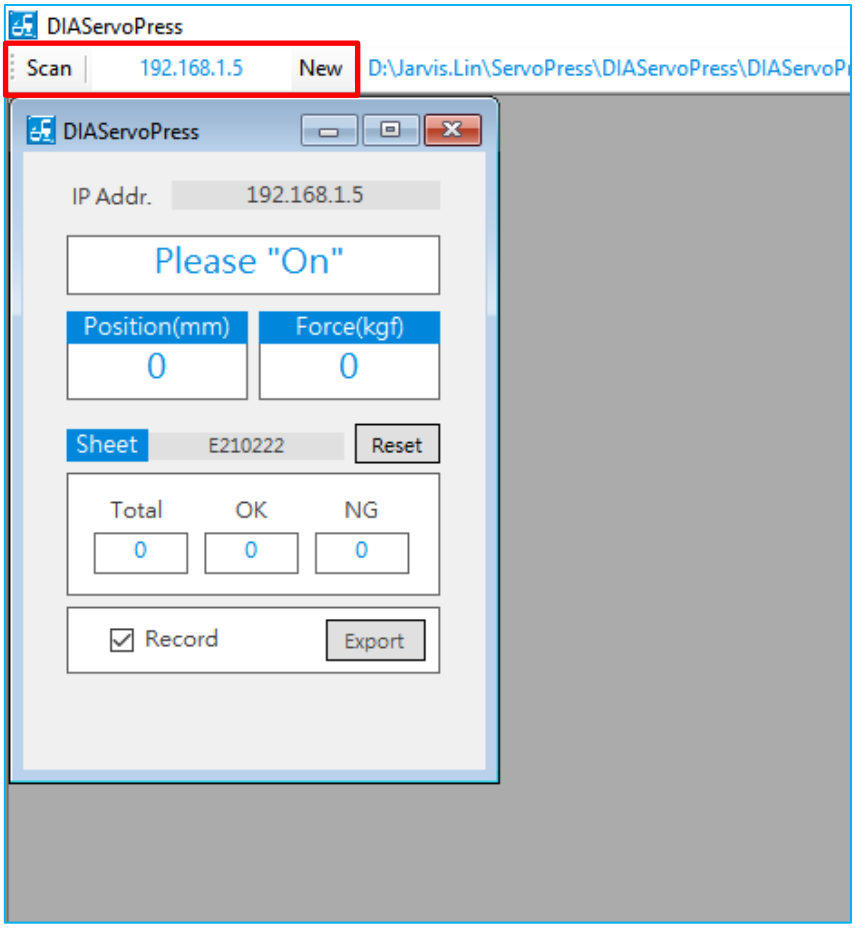


Figure 6-2-1 Manual Connect

Smarter. Greener. Together.

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