# 2010

## S40-2H4C User's manual



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## Chapter. 1 Preface

In Chapter 1, description of the machine and basic information on how to use it is presented.

1-1 Overview
1-2 Specification
1-3 Feature
1-4 Parts Name
1-5 Screen Description

#### 1-1 Overview

S40-2H4C is a machine to attach various Hotfix materials to the transfer paper automatically. S40-2H4C receives the design data worked in PC via network communication or CF memory, and allows the user to execute relevant data editing and work setting through the monitor installed in the machine, for automatic work completion.

The machine offers Auto-Operation/1 Shot Operation/1 Cycle Test/Continue Test/Step Operation, and option for Vacuum On/Off Mode allows various operation methods.

S40-2H4C has 4 Baskets to express various designs in color and size.

Regardless of the material size or color, you can place 4 kinds of materials into individual basket and set up the work appropriate for each nozzle.

GUI is offered for work setting so that the user simply needs to adjust the number while executing step operation in the manual test screen, and basic training is sufficient enough for the user to learn how to use the machine.

#### **1-2 Specification**

Manufacture Area	400 x 400 mm
Table Transmission Speed	30000 mm/min (MAX)
Cylinder Turning Speed	600 rpm (MAX)
Max. Operation Speed	160pcs/min
Colors	4 colors
Nozzles	2~7mm
Internal Memory	1000 (designs) , 65535 pcs/design
External Memory	SD Memory card (MAX 2GB, FAT)
Network	Ethernet Controller
Monitor	6.5" TFT Color LCD
Interface	Touch Screen
Кеу	14 Key
Air Supply Pressure	0.5 Mpa (Vacuum) , 0.35Mpaa(cylinder)
Air Consumption	200 liter/min
Power Supply	AC200V / AC110 , 50/60Hz
Power Consumption	350W

#### 1-3 Feature

3-Step Manual Table Transmission Speed Auto/Manual Basket Change Selection in Auto Operation Screen Zoom In/Out Operation Point Search (Jump Function) (1pc , 10pcs , Color, Design Unit) 1 point 1 shot Offset Position Offset Position Offset Point Auto-Setting Operation Area Preview 1 cycle / Continues cycle test Simulation Work Area Auto-Inspection Edit Design (Reverse, Turn, Enlarge, Reduce, Add/Delete Point, Add/Delete Color) Design Import/Export System Maintenance Screen

#### 1-4 Parts Name

#### 1-5 Screen Description

Monit	or Picture
Ι	Color LCD Monitor
Π	Touch Screen
III	Operation Control Button
IV	Memory Socket ( SD Memory )
V	SD Memory Display Lamp
VI	Memory Reset Button
VII	

## **Chapter. 2 Display Part and Control Part**

In Chapter 2, interface between the machine and the user is presented.

As the keys or functions used in each work screen differ considerably, make sure to understand it before using the machine.

2-1 Overview 2-2 Flow of Display 2-3 Icons in Each Screen 2-3-1. Main Display 2-3-2. Design List 2-3-2. Design List 2-3-3. Basket Color 2-3-4. Design Information and Edit 2-3-5. Test Mode 2-3-6. Control Panel 2-4 Keypad

2-4-1. Buttons and Major Functions

2-4-2. Buttons in Each Screen

#### 2-1 Overview

This machine provides graphic UI to allow users to carry out work fast and easy. With 6 .5" TFT Color LCD monitor, the users can see all works at a glance, and control the machine without outside help, from simple design editing to machine setting. The machine screen and easy instruction allows the users to take simple training to learn how to use the machine. In this Chapter, the screen configuration and operation is described.

This machine has 2 input devices (Touch Screen, Keypad), and each input device offers different menu per screen. This simplifies screen and keypad functions to shorten the time that the users need to learn how to use this machine.

#### 2-2 Flow of Display

The picture below describes the sequence (procedure) of screen changes by major function. The screen change is done by the touch monitor, and icons in different shape are displayed per screen and function. 메인화면 Main Screen 작업리스트 Work List 폴더리스트 Folder List 디자인정보/편집 Design Information/Edit 바스켓색상 Basket Color 수동테스트 Manual Test 제어판 Control Panel



#### 2-3 Icons in Each Screen

This machine offers graphic UI. All work menus are organized in icons, along with the touch function. Icons provided in each screen help the users to understand each function.

#### 2-3-1 Main Screen

It is the first screen that appears when you turn on the power. You can start the autooperation from the Main Screen, and check the work progress.

• Display



• ICON

ICON	Name	Description
	Design List	Select or copy/delete the design saved in internal or external memory.
	Design Information and Edit	Show the currently selected design and edit the design contents.
	Basket Color	Set the color of materials in each basket.
	Manual Test	Operate each part of the machine manually or set the work
	(test mode)	conditions. Set the nozzle setting and vacuum sensor conditions.
	Operation Reset	Reset the current work status and show the work image in the screen.
	1 Shot	Execute 1 Cycle work on the place that the cursor is located in the design image. It is useful when you repair the design.
	Control Panel	Check system and all control device, and edit the relevant parameter.

	Left/Right Reverse	Reverse the work design left/right.
	Up/Down Reverse	Reverse the work design up/down.
ſ	Turn	Turn the design to the point you designate from the starting point as a center.
Q	Zoom In/Out	Enlarge the entire work design to fit the screen.
Q	View All	Show the design in proportion to the work table size.

#### 2-3-2 Design List

It is the screen that appears when the work design is changed. The left side of the picture below shows the designs in each folder. The right side shows the design in the folder that you select.

#### Display

Design List shows 9 designs in one page. Basically, the design image is shown, and you can change the image to 'Text' view form in Control Panel->Machine Parameter.



Folder List



Design List (SD Memory)

<ul> <li>ICO</li> </ul>	N		
ICON	Name	Description	
	External Memory	Show SD memory card contents.	
	Copy Design	Copy the selected design to SD memory card. Internal Memory-> External Memory	
M	Work Design Change	Change the current design to the design that the cursor is located.	
	Preview	Show the design that the cursor is located in the small window on the right.	
	LAN	Receive the design using LAN Port.	
	Communication	Save the design in the selected folder.	
		Only used in 'Folder List' screen.	
	Delete Design	Delete the selected design.	
CIMP		Or delete all design in the folder.	
	List Renewal	Renew SD Memory and show the list.	
	Copy Design	Copy the design selected from SD Memory to internal memory.	
	Close Screen	Return to previous screen.	

#### 2-3-3. Basket Color

Place Rhinestone in 4 baskets installed in the machine and assign a color for each Rhinestone in the basket.

Select the color you want from the color palette in the center of the screen and select the basket at the bottom to change the Basket Color.

• Display



#### 2-3-4. Design Information and Edit

It is the screen that appears when you edit the work design.

Work design edit includes Color Change, Position Change and Design Change. Work Color Setting, Multiple Copy and Zoom In/Out is also available.



Edit Position

Work Color Setting

	+ 		No, 1 1 2 3 1 4 5 6 7 8 9 10	X 60.01 60.01 0.0 0.0 0.0 0.0 0.0 0.0	Y 0.0 150.0 150.0 0.0 0.0 0.0 0.0 0.0 0.0	1
READ	Matrix: 0x0, GAP: Repeat: 1 , Zoom:	0.0 0.0 100.0	Clear	All cle	<b>ar</b> )	X

Edit Matrix (Multiple)

#### ICON ICON Name Description Select or copy/delete the design saved in internal or external Design List memory. Design Cancel all edit contents. Recovery Work Assign the basket number per edit design color. Color Select Basket Change Mode (Auto/Manual) in auto-operation. Change Information Delete the work on the coordinates with the cursor. Delete Information Add new work between the coordinates with the cursor and previous coordinates. Add Color change Add or delete the color change code on the work coordinate Delete/Add with the cursor. Close Screen Return to previous screen. Left/Right Reverse work design left/right. Reverse Reverse work design up/down. Up/Down Reverse Turn Turn the design to the designated angle from the starting point as a center. Set matrix of multi-work, and edit design offset position. Multiple Copy



Enlarge or reduce the position data of the design from the design datum point (0,0) on a certain magnification.

#### 2-3-5. Test Mode

You can set the machine parts test and work conditions. The screen appears when you replace the machine parts, including disk or nozzle, or when you re-set the machine. All work setting is shown.

#### Display



•	ICON	
		т

ICON	Name	Description
	Return to Origin	XY table and loading/unloading nozzle is returned to the Origin
	Program Origin	(0,0).
P	Restore Design	Cancel all data in editing process
	Work Color	Change the currently working design to the design with the
	Change	cursor.
	1 Cycle Test	Test 1 Cycle.
3	Continue Test	Continue testing until 'Stop' switch is clicked.
	Disk Turn	Turn the disk of the selected basket.
	Vacuum On/Off	Turn On/Off Vacuum Mode.
		Cycle test or auto-operation is available without materials in
		vacuum off mode.

S	Blower On/Off	Turn On/Off Blower of Central Nozzle in auto-operation. The user makes a selection according to the material type.
	Basket Change	Change the test basket to the designated number.
2	Close Screen	Return to previous screen.

#### 2-3-6. Control Panel

It is the screen for control system setting and inspection.

In this screen, you can inspect the sensor status, and modify machine and system parameter. You can also upgrade firmware.

Display



• ICON

ICON	Name	Description
	Motion	Set conditions to operate various motors.
	Control	Set mechanical conditions and operational features.
	Link	Execute firmware upgrade.
	Motion I/O	Inspect sensor conditions in each axis.

General I/O	Inspect Solenoid V/V. Inspect input sensor conditions.
Alarm List	Show alarm list.
Close Screen	Return to the previous screen.

#### 2-4 Keypad Name

The keypad attached to the monitor allows fast work for the user and prolongs the lifespan of the touch monitor. Functions displayed on the touch screen or frequently used functions during machine operation are moved to the keypad. Keypad functions may vary according to the screen. Make sure to understand and learn the button type and the function used in each screen.

Туре	Name	Functions
STABI	Start	Start auto-operation.
PAUSE	Stop	Stop auto-operation or finish the test. Move the table following the outline of work design (영역검사)
	Pause	Pause auto-operation temporarily.
	Left	Move the table to the left.
	Right	Move the table to the right.
	Up	Move the table upward.
	Down	Move the table downward.
+	+	Adjust Jog speed. Find the next color.
$\bigcirc$	-	Adjust Jog speed. Fin the previous color.

#### 2-4-1 Buttons and Main Functions

	Prev.	Move to the previous matrix work. Go to the previous page.
V	Next	Move to the next matrix work. Go to the next page.
MODE	Mode	Change 1Shot Mode. Adjust Jog speed. Change Edit Mode.
SET	Set	Set the current setting condition.
HOME	Home	Return all instruments to the Origin.

#### 2-4-2 Button in Each Screen

Туре	Main Screen	Manual Test	Edit Design
START	Auto Operation Start		
STOP	Auto Operation Stop		
PAUSE	Stop – Preview		
	Operation – Pause		
LEFT	JOG Move X+	JOG Move X+	Move Cursor, Previous Page
RIGHT	JOG Move X-	JOG Move X-	Move Cursor, Next Page
UP	JOG Move Y-	JOG Move Y-	Move Cursor
DOWN	JOG Move Y+	JOG Move Y+	Move Cursor
+	JOG Speed Increase	JOG Speed Increase	
-	JOG Speed Decrease	JOG Speed Decrease	
Prev.	Zoom Mode - Move to		Previous Page
	Previous Matrix Work		
	Enlarge Mode – Cancel 1		
	quantity of progress		
	completed		
Next	Zoom Mode - Move to		Next Page
	Previous Matrix Work		
	Enlarge Mode – Add 1		
	quantity of progress		
	completed		
MODE	1Shot Mode Change	JOG Speed Increase/Decrease	
SET			
HOME	Return to Origin	Return to the Origin-Origin	

### **Chapter. 3 Detailed Screen Functions**

To facilitate the work, this machine offers different GUI of key or function per work screen. Make sure to understand and learn it before using the machine.

> 3-1 Main Screen 3-1-1 Operation Seeting Edit 3-1-2 Offset Setting and Position 3-1-3 Jump Mode (Repair and Search) 3-1-4 Display Small window 3-2 Design List 国 3-2-1 Internal Memory 3-2-2 External Memory 3-2-3 Folder List 3-3 Edit Design 3-3-1 Select Work File 3-3-2 Restore Design 3-3-3 Color Setting 3-3-4 Edit Position (Delete/Add/Edit) 3-3-5 Color Edit (Add, Delete) 3-3-6 Up/Down, Left/Right Reverse 3-3-7 Turn 3-3-8 Multiple Copy 3-3-9 Enlarge/Reduce 3-4 Baslet Color 3-5 Test and Setting 3-5-1 Origin Setting 3-5-2 Test Setting 3-5-3 Side Nozzle 3-5-4 Central Nozzle 3-5-5 Nozzle Clearning 3-5-6 Test Operation 3-6 Parameter and Repair 3-6-1 System Parameter

3-6-2 Mechanical Parameter 3-6-3 Firmware Upgrade 3-6-4 Motion I/O 3-6-5 General I/O 3-6-6 Alarm List

#### 3-1 Main Screen

The screen describes how to do auto-operation. It is the most frequently seen screen by the user, in which the user can assign offset movement and work start point for auto-operation, and see various work status.



No.	Item	Description
1	Menu Icon	Menu for other works such as edit/system test.
2	Work Setting Edit Icon	Used to edit the design temporarily without changing the original copy of the design. Reverse/turning work is not saved.
3	Zoom Icon	Used to see the design in detail, or to check the design work area in the table.
4	Offset Position	Mark XY position of the work table that the design origin is located.
5	Work Information Display	Show the design size, color and quantity. Show the current color number and the total work quantity.
6	Design View Small window	Show the work design. The design origin is shown. The part that the work is completed and that the work is to be in progress is masked and displayed in different colors to show the progress status.
7	Jump Mode	Set the mode to assign the work start quantity when you execute partial modification in the completed work or when

		you start the work from an arbitrarily quantity.
		You can find the quantity by the unit of 1/10/color.
8	Basket Color	Show the current basket color.
		No. 1,2,3,4 basket from the left.
9	Current Table Position	Display the current position of work table and Central Nozzle.
		Used for offset setting and work setting.
10	1Shot Mode	Used to determine if you only display the drawing or if you
		move to the actual work position in moving the quantity by
		Jump Mode.
11	Work Progress	Show the current progress. Total quantity, color quantity and
	Information	color number is displayed.

#### 3-1-1 Edit Work Setting

Position and shape of the work design is determined.

This machine attaches the material(Rhinestone) to Transfer Paper. Therefore, left and right side of design is reversed in the course of moving Rhinestone attached to the transfer paper to the fabric. As a results, if you work on the design executed in the design edit system, the final work material (fabric) shows the reversed design. This function is designed to prevent such failure, by reversing the work design for final production. Reverse and Turn Image function is executed on the design origin as a center.



Left/Right Reverse
 Up/Down Reverse
 Left/Right Reverse - Work design is reversed left/right on Y-axis as a basis.
 Up/Down Reverse - Work design is reversed up/down on X-axis as a basis.
 Reverse function is designed to provide convenience to the user as the shown image and the production image in the fabric is reversed.

Even if you use this function in the main screen, the setting is not saved when the power is



OFF->ON. To save the setting, you should execute the function in Edit Mode.

• Rotation 🖺

When you click Turn Icon, a small window to enter the turning angle appears. You can enter the turning angle based on the basis screen. The input angle area is -360 ~ 360 degrees. Even if you use this function in the main screen, the setting is not saved when the power is OFF->ON. To save the setting, you should execute the function in Edit Mode.





• Zoom 🔍 / View All 🔍

It is used to adjust the image size shown in design area.

Zoom - Shows the enlarged design to fit the drawing area size.

When you turn on the power, Zoom Mode is the default mode.

View All – Shows the reduced design to fit the design outline into the table.

It is used to check the design area or view the matrix status. The below picture shows the screen of 2x2 matrix by turning the design by 20 degrees. The red part in the design in the picture is the design size and the gray box(outline) is the table size.



#### 3-1-2 Offset Setting and Offset Position

Offset Position

X:

Y :

1

4

7

0

100.0

80.0

BS

XY

2 3

6

9

5

8

Offset position is the work start position on the table that the design origin is located.

When you click Offset Position on the right side of the screen, the below small window appears. When you click 'YES,' the work table is moved to offset position, and when you click 'NO,' a small window that you can directly edit the offset position appears.



Of	ffset	Move	Small	window	

Offset Position Input

The already assigned offset position is not changed unless you directly make a change in the input small window or start the work in a new position. Therefore, the offset position is not changed even if you stop the work during auto-operation and test another motion or move the table manually or reset the origin. When you stop and restart the work before completion, you automatically moves to the coordinates of the offset position.

For offset position, you can manually enter the number or you can automatically enter it by moving the table and clicking 'START.' The below is how to set up the offset position:

- Offset Position Manual Setting
  - Click Offset Position in the main screen.
  - Select 'NO: Edit' when a popup small window appears.
  - Enter the number when the input small window appears.
  - Click 🔍 'View All' to check the design area.
  - Repeat the above process when the design area is beyond the table.
  - Click Offset Position
  - Select 'Yes: Move' when the popup small window appears.



- Table is moved to offset position.
- Offset Position Auto Setting
  - Click 🥺 'Work Reset' in the main screen.
  - Design image in the design area is all changed to gray. Or work is completed.





Work Reset (work completed quantity '0')

- Work Completed
- Move the work table to arbitrary position.
- Click 📕 'START.'
- Select 'YES: Change' when 'Offset Change' appears.



- Work begins after the current position is changed to offset position.
- When the design area is beyond the table area, the below message appears.
- Repeat the above process from the beginning. 테이블영역 Table Area 디자인영역 Design Area 디자 인원점 Design Reference Point 중앙노즐위치 Central Nozzle Position 옵셋위치 Offset Position 기계원점 Machine Origin



## 3-1-3 Jump Mode (Repair and Search)

Jump Mode is to set up the method to move the work point in order to modify or re-execute the work on the part that Rhinestone is not attached to the transfer paper during auto-operation due to material failure.

When you click the lower left part of the design, '1 -> 10 -> Color' appears in order. When you click  $\bigcirc$   $\bigcirc$  after assigning the mode, the design image is changed. The point that has the same color as the basket means that the work is completed, while the gray indicates work expected points.

- 1 Step Jump
  - Progress or cancel work status by 1 Point.
  - When you click (), the work completion quantity decreases by 1 Point and the work point color is changed to gray.
  - When you click (), the work completion quantity increases by 1 Point, the work point color is changed to the basket color.
- 10 Step Jump
  - Progress or cancel work status by 1 Point..
  - When you click (A), the work completion quantity decreases by 10 Points and the work point color is changed to gray.
  - When you click (A), the work completion quantity increases by 10 Points, the work point color is changed to the basket color.
- Color Step Jump
  - Progress or cancel work status by 1 Point.
  - When you click , the work completion quantity decreases by 1 color unit and the work point color is changed to gray.
  - When you click , the work completion quantity increases by 1 color unit, the work point color is changed to the basket color.

#### 3-1-4 Display Small window

Display small window shows the motion setting in XY table status, work progress quantity and in search motion.

Position :	-0.0	-0.0	-0.0	DRAW	1 /	0	156	659	
------------	------	------	------	------	-----	---	-----	-----	--

• Position

Show the angle of XY table and Central Nozzle.

In normal operation, the position value is displayed in blue, while in alarming situation, it is

displayed in red.

- Search Motion Setting
  - Shows motion status in searching the point using Jump Mode.
  - When 'Mode' is clicked, the setting is displayed as 'DRAW' and '1P1S' in turn.
  - DRAW : Only the design color is changed.
  - 1P1S : The design color is changed and XY table position is moved.
    - When Machine parameter 28 is '1,' 1 Cycle is executed.
- Work Progress Quantity
  - Display the number of design repetition (matrix).
  - Display the number of work completed in the total number of repetition.
  - Display the number of work completed in the current work color quantity (basket).
  - Display the number of work completed in the total design quantity (matrix work excluded).

## 3-2 Design List



In this screen, you can select the design you want to work or manage the memory. Select/Delete/Copy Design functions are provided, along with Preview Small window to check the design in advance.

For Design List, update the list whenever you turn on the power to maintain the memory in the optimum status for always. In addition, when you return to the previous screen after completing the work in 'Design List' screen, the list is renewed.

- Click 🔄 'Design List' in the main screen.
- Or click 🔄 'Design List' in the Edit Design screen.



No.	Item	Description
1	Menu Icon	Menu for Copy/Delete Design or External Memory Read.
2	Design List	Image list of designs saved in memory
3	Design Path	Name and folder path of the currently selected design
4	Preview	Show simple design data.
		Design name/Number of stones/Number of color/Size

#### 3-2-1 Internal Memory

This screen appears when you select Design List icon in the main screen or the edit screen. It shows the contents of the folder that the currently working design is located.

You can save 100 designs in 1 folder, and search the design easily using the arrow keys in the keypad.



• Copy Design 💽

The selected design in the screen is copied to external memory.

- Select the original design that you want to copy.
- Insert SD Memory (or CF memory).
- Click 'Copy' 🔯.
- The below message small window pops up and the progress status is displayed in red on the right.

파일을 분석중입니다.	
잠시만 기다리십시오.	X

- When the progress status number becomes '0,' the message small window disappears automatically.



The current work design is changed to the selected design.

- Select the work design first.
- Select 'Select Design' 🔟.
- Select 'Yes' when the below small window pops up.



Preview

It shows the selected design data in the screen.

- Select the design first.
- Click 'Preview' 🙆.
- The design image is displayed in the preview on the right. Quantity/chromaticity used in the design is displayed.
- The design size is displayed in the work information on the bottom.



Delete the selected design in the screen.

- Select the design that you want to delete.
- Click 'Delete' 📓.
- Select 'Yes' when the below small window pops up.



- The design is deleted and the screen is automatically renewed.

## 3-2-2 External Memory

Max. SD Card available is 2GByte, and it should be formatted in FAT.

Select  $\blacksquare$  in '<u>3-2-1 Internal Memory</u>' in the screen.

Show the folder and file name of SD card (or CF card).

In External Memory screen, you cannot see the design, and the design name is displayed in Text format. If you want to see the design image, select the design and click 'Preview' 2.

In order to work on the design in the external memory, you must copy the design into the internal memory and move to the Internal Memory screen and select the work (You cannot directly work on the design in the external memory).





Re-read and show the memory data.

- Click 'List Renewal' 🙆. \_
- The list data is renewed.





The selected design in the screen is copied to the internal memory.

- Select the original design that you want to copy.
- Click 'Copy Design' 🔯.
- Test the file after the below message small window appears.

파일을 분석중입니다. 잠시만 기다리십시오. X

- An error message appears when an error occurs in the file.
- Number pad appears when no error is found in the file. Input the folder number that you want to save (input area :  $0 \sim 9$ )
- The below message appears when the design with the same name exists in the designated folder.

기존 파일이 있습니다. 덮어쓰겠습니까?	X
YES NO	J

- When you select 'YES,' the file copy begins.
- When the copy is completed, the below message appears.

파일을 성공적으로 복사했습니다.	X
----------------------	---

Preview

> Simple data of the selected design in the screen appears. It is the same function as in '3-2-1 Internal Memory - Preview.'

- \_ Select the design first.
- Click 'Preview' 🔟.
- Design image appears in the Preview on the right. Quantity/chromicity of Rhinestone used in design is displayed.
- Design size is displayed in the work information part on the bottom.

#### 3-2-3 Folder List (Internal Memory)

Folder List is the memory group that the work design is collected.

You can save up to 100 designs per folder. To move to Folder List, click 'Close Screen' 朢 in '3-2-1 Internal Memory.'

					2
 0 1 2 3 4 5 6 7 8	EUp Din ESubDin ESubDin ESubDin ESubDin ESubDin ESubDin ESubDin	e] e] e] e] e] e] e] e] e]	1		
9	[SubDi	e]	Ŧ	작업: W H	성보 성보

- Open External Memory
  - Insert SD card and click 'External Memory' 🔳
  - The screen is changed to '<u>3-2-2 External Memory</u>.'
- Execute Data Server ( Link to PC)

It is used to receive data from PC.

- Designate the folder that you want to save the data.
- When you click 'LAN Communication' 🔄, the below message small window appears.
- After sending all data, click Keypad to close the message small window.



It is used to delete all designs in the folder selected in the screen.

- Select the folder that you want to delete.
- Click 'Delete' 📓
- Select 'Yes' when the below small window appears.



- All designs in the folder are deleted.



In this screen, you can edit the data downloaded from PC or copied from external memory. Some parts of the editing are directly done to the original data, while others are saved in the internal memory without changing the original data.



You can only edit 1 design at a time.

When you click 'Screen Change' 🙆 after completing the edit, the edit contents.

No.	Item	Description
1	Menu and Edit Icon	Used to edit the design change, reset and position and color
2	Edit Icon	Used to execute reverse, turn, align and enlarge functions
3	Design View Small window	Show the design that the edit contents is applied
4	Edit Design Data	Show the design information that the edit contents is applied
5	Design Data	Show the work position of XY table
6	Edit Mode	Show the edit mode to execute the position and color change

## 3-3-1 Select Work File



- Click 'Design List' 🔟

Change the work design by referring to '3-2 Design List.'

## 3-3-2 Restore Design

You can restore position/color editing to the previous stage.

In the edited contents, Reverse/Turn/Enlarge/Align functions are maintained. Restore Design is not available in 'Insert Mode.' Check the lower left of this screen.

- Move to 'Read Mode' READ by clicking 'Mode'
- When you click 'Restore Design' 🙆, the below small window appears.



When you click 'YES,' the position and color data is all restored and the screen is automatically renewed.

## 3-3-3 Color Setting



It is used to set the design work color. Assign the color selected in '3-4 Basket Color' according to the work order. You can change the color up to 30 times in 1 design.

When you click 'Color Setting,' the color edit screen appears in the 'Position Data.'



- Execute the edit by referring the below 'Color Edit Order ' and 'Basket Change Mode.'
- You can edit the 'Color Edit Order ' and 'Basket Change Mode' in one screen at the same time.
- Click 'Close' 🖾 after completing the edit.
- Color Edit Order

The total 30 color setting appears in the screen on the right. The part that exceeds the total number design color appears in gray and the edit is not available.
Cold	or Se	ettin	g		
1	<del>1</del> 1 2	fi 3	<b>A</b>	<u>fi</u>	fi 6
- 		f) Q	<u>f</u> )	<b>A</b>	12
13	<u>h</u>	<b>h</b>	<u>h</u>	<u>}</u>	12
	<u>f</u> 1	<u>f</u>	<u></u>	fi 222	<u>A</u>
19	20 ft	A	f)	23 A	24 fi
25	26	27	28	29	30
$\bigcirc$	$\bigcirc$	C	) 🤇		

In the lower center of the screen, the size of Rhinestone in use is displayed. For the design manufactured by our design program, '**Rhinestone 2D**,' the size data is also entered per color. However, for DST-type design, 3mm is entered as the size without condition.



- Click No. '1' color.
- Click the basket applied to the No. 1 color in Basket Color
- No '1' color is changed.
- Assign No. '2', '3', '4'....color in the same way as the above.
- Click 'Close' 🖾 when all setting is completed.
- Basket Change Mode

You can select basket change mode: auto-change or manual change.

When you select manual basket change, the below small window appears before the basket change.

#### 계속하려면 START 를 정지하려면 STOP 을 누르세요. X

- Click No. '1' color.
- Click 'Basket Change Mode' 🔼
- Whenever you click 🔼, the letter in No '1' color is displayed 'A' / 'M' in turn ( 'A' Auto-Change , 'M' Manual Change)
- Assign No. '2', '3', '4'....color in the same way as the above.
- Click 'Close' XX when all setting is completed.

## 3-3-4 Edit Position (Delete, Add, Edit) 🔯 🔟



- Move to 'Edit Mode' 🛄 by clicking 'Mode' 🚾.

- Find the data that you want to edit.
- When you click 🔊 Ӯ, the cursor moves 1 step upward and downward. At this time,
  - the cursor in the image area 🤾 moves together.
- When you click 🙆 💟, the cursor moves 1 page(15 space) upward and downward. At this time, the cursor in the image area moves together. 작업번호 Work Number 위치데이 터 Position Data 색상변경정보 Color Change Data



- Move to 'Read Mode' 🛛 🗚 by clicking 'Mode' 🚾.
- Delete Position
  - Move the cursor to the data you want to delete using the arrow key.
  - When you click 'Delete Position' 🔯, the below small window appears.



- When you click 'YES,' the coordinates are deleted and the Position Data is renewed.
- Edit Position
  - Move the cursor to the data you want to edit using the arrow key.
  - The input small window appears when you click the cursor.



- Enter the position that you want to move to. For position data, enter the absolute position, based on the design offset (0,0).
- When you click 'Yes' 🗹, the input small window disappears and the image point is moved.



- Position Add (Insertion)
  - Move the cursor to the data that you want to add using the arrow key.
  - When you click 'Data Add' 🔟, the input small window appears.
  - Enter the position that you want to move to. For position data, enter the absolute position, based on the design offset (0,0).
  - When you click 'Yes' 🗹, the input small window disappears and the image point is moved.

#### 3-3-5 Color Edit (Add, Delete)



It is the screen that the color change quantity or the change time is edited. The cursor moving method is the same as the 'Edit Position.'

- Move to 'Edit Mode' INS by clicking 'Mode'
- Find the data that you want to edit.
- When you click 🔊 🔊, the cursor moves 1 step upward and downward. At this time, the cursor in the image area is also moved.
- When you click 🙆 💽, the cursor moves 1 page (15 spaces) upward and downward. At this time, the cursor in the image area is also moved.
- When you click 🕀 🔄, the cursor is moved to the place where the color data is located.



- The color data is displayed as '1' and '0,' and when it is '1,' the color change is executed.
- Move the cursor to the data that you want to add using the arrow key.
- When you click 'Edit Color' 🔼, the small window appears.
- When the current setting status is '1,' a question of "Do you want to delete the color?" appears.



- When the current setting status is '0,' a question of "Do you want to add the color?"



- When you click 'Yes' in the above 2 cases, the setting condition is changed, and the design image and the color information is renewed.
- Move to 'Read Mode' READ by clicking 'Mode'

# 3-3-6 Up/Down , Left/Right Reverse

Up/Down and Left/Right Reverse function is to change the entire design position data. As the actual design and the final work product is shown in opposite, this function allows the user to reverse the design. It is the same function as Left/Right Reverse and Up/Down Reverse, described in '<u>3-1-1 Edit Work Setting</u>' under '<u>3-1 Main Screen</u>.' However, when you use this function in the main screen, the modification is not saved when the power is OFF/ON. When you edit and save the design in this screen and turn OFF/ON the power, the modification is saved.

# 3-3-7 Turn î

It makes the coordinates turn to the assigned angle based on the design origin.

It is the same function as 'Turn', described in '<u>3-1-1 Edit Work Setting</u>' under '<u>3-1 Main Screen</u>.'

However, when you use this function in the main screen, the modification is not saved when the power is OFF/ON. When you edit and save the design in this screen and turn OFF/ON the power, the modification is saved.

# 3-3-8 Multiple Copy

This function is used to make 1 design into multiple matrices to execute several operation in one work. The number and distance of matrix can be assigned by the user, but when the overall work size is bigger than the work area, operation is not available.

- Move to 'Read Mode' READ by clicking 'Mode'
- Click 'Multiple Copy' 🎹.
- When the input small window appears on the right of the screen, enter the number of vertical and horizontal matrix.
- When the input value is less than '1,' it is recognized as '1.'
- When you click 'Yes' , a new input small window appears. Enter the work distance. The work distance is the distance between the design origin.



테이블영역 Table Area 디자인영역 Design Area 디자인원점 Design Origin 기계원점 Machine Origin X간격 X Distance

- Horizontal/vertical design size is displayed in the design information small window.

For X distance, enter the distance between area + design.

For Y distance, enter the distance between height + design.

When the input value is less than the area or the height, the work results may get damaged.

 When all input is completed, the screen is changed as the below. Right part of the screen shows the distance from the origin of the first design to the origin of each design.

Matrix is basically made from the lower left to the upper right.



- When you change the value manually, you can change the work order.
- The first work number is No. '0' and its origin is (0,0). You can change the position from the second work (No. '1').
- Click  $\bigcirc$  to move the cursor to the place you want to change the position.
- When you click the cursor, an input small window appears.
- Enter the distance from the first design and click 'Yes' 🗹.
- To cancel the matrix, move the cursor and click 'Clear' **Clear**. Then the coordinate value is changed to (0,0) and no operation is made.
- However, the work with the coordinate value of (0,0) in the matrix is not for operation.
- When all settings are completed, click 'Close' 🚨 to go to Edit screen.
- You can check the matrix quantity in information section.



3-3-9 Enlarge/Reduce Design 🔍

It is used to enlarge/reduce the design position data.

Enlarge/reduce each coordinates for the setting value based on the design origin.





You can save the color of materials in individual basket. As the actual work is done by recognizing basket numbers, not colors, Color Setting does not affect the actual work. Only the color of design image seen in Edit Screen or Main Screen is changed.

When you assign the color in '3-3-3 Assign Color' under '3-3 Edit Design,' the actual work is done in the basket with the assigned color.



- Select the color in the color palette.
- Click one place among 4 baskets.
- The color that you clicked is changed to the color in the palette.
- Change the color in each basket by repeating the above process.
- The basket number is 1,2,3,4 from the left.

### 3-5 Test and Setting



You can assign the nozzle position and work condition of each basket.

When you change the nozzle or the disk, you can input the optimum operation condition in accordance with each disk, nozzle and materials to improve work speed and quality.

	<b>1</b>	2
Angle       Vac.       Org.         1       40.0       2.00       2.0         2       40.0       2.00       2.0	Angle L0 1/2 0.0 LD 3/4 0.0	ffset Position X 100.0 Y 80.0
3 40.02.00 2.0 4 40.02.00 2.0 3 5 Mid	UL 1/2 100.0 UL 3/4 100.0 UL Vac. 3.50	Speed Rate
	UL Ang. 0.0	Wheel Speed B.O mm
Position : -0.0 -0.0 -0.0		

No.	Item	Description		
1	Manual Test Icon	Test the machine step-by-step including the origin restoration		
		and 1 administration motion.		
2	Manual Test Icon	Execute air pressure and disk motion		
3	Side Nozzle Setting	Set up the left/right side nozzle and cylinder operation		
	Small window	conditions.		
4	Central Nozzle Setting	Set up the central nozzle and cylinder operation conditions.		
	Small window			
5	Offset Information	Show the offset position of the current design.		
6	Speed	Adjust the cylinder turning speed.		
7	Disk Speed	Adjust the disk turning speed.		
8	Table Speed	Show the manual table speed.		

# 3-5-1 Origin Point Setting 🧕 顾



You can set up the machine origin of the table and turning cylinder.

#### 1) Move Program Origin

When the power is 'ON,' origin setting is automatically executed. If the table or the cylinder is operated afterwards, its position may get away from the origin. This function moves all instruments back to the origin.

- Click 'Move Origin'
- Select the place that the table needs to be moved when the small window appears.



- When you select 'YES: Origin,' the table is moved to the coordinates (0,0).
- When you select 'NO: Standby Position,' the table is moved to the coordinates (200,300).
- 2) Origin Point Setting



When the table and the cylinder is moved by force, or when the position of instrument is moved by exterior force, you can set up the machine reference point again. It is the same process as moving to the origin, when the power is first applied to the machine.

To set up the origin, the machine position should be within a certain range. If the position of each cylinder and table is far way beyond the operation range, malfunction may occur. In such a case, move the instrument within its operation range by force. 동작범위 Operation Range



- Click 'Origin Setting'
- The table and the cylinder move to find the origin sensor.
- When the origin setting is completed, the instrument is moved to standby position (200, 300).

#### 3-5-2 Test Setting

You can select Vacuum On/Off when you operate each instrument or execute test operation.

Vacuum On/Off

OFF : Vacuum operation is not made to suck the material.

- Blower On/Off

ON : The central nozzle sucks the material and attaches it to the transfer paper. When the nozzle moves backward, air is supplied into the nozzle to remove vacuum condition in the nozzle.

- Turn Disk 🞑

When you click the icon, the disk turns or stops.

- Change Basket 🙆

When you click this icon after selecting the basket number, the test basket is changed.

#### 3-5-3 Side Nozzle

You can set up the work condition of side nozzles seen from the front of machine.

Side nozzle sucks the material from the disk and moves it to the central nozzle.

A few conditions should be assigned to suck the material from an accurate position.

There are 4 disks for materials with different sizes and therefore, the nozzle setting value may vary per disk.

The nozzle, located on the left seen from the front of machine, sucks the material from No. 1, 2 disk, while the nozzle, located on the right, sucks the material from No. 3 ,4 disk.

All disks execute 3 kinds of work settings.



**Angle** : It is the angle that the side nozzle turns toward the disk direction in order to suck the material. As shown in the picture below, the rotation angle from the standby position to the suction position is entered without marks.



Side Nozzle Standby Position



Side Nozzle Suction Position

Vac. : It is the sensor input value to check if the side nozzle sucks the material.

In the lower center of the screen, 2 sensor values are displayed at the same time. The value on the left is the nozzle sensor value. It is generally the vacuum value when there is no material on the nozzle.

Org. : It is the angle that turns the disk to make the material on the disk align with the center of

the nozzle, when the side nozzle turns toward the disk direction in order to suck the material. The disk can move the total of 32 materials in one rotation.

The disk, after turning to the sensor, rotates as much as the assigned angle. Enter the rotation angle to make the disk try be located in the center of the nozzle. You can only enter + value for the angle.



Before entering rotation angle After entering rotation angle

#### Order

- Select the disk number you want to assign. The selected number and the background small window color is changed white
- When you click 'Change Basket' A, the basket is changed, and the concerned disk turns.
- After changing the basket, click Step Operation' 🖳 A small window pops up.



- Whenever you click the arrow key, Step Operation is executed.
- When click 'Left' Key, the side nozzle is operated step-by-step. The operation order is as follows:





v) Nozzle Reverse

vi) Turn to Standby Position

vii) Vacuum OFF

- When you click 'Right' D key, the central nozzle is operated step-by-step.
- Check the disk and nozzle position by repeating Step Operation of side nozzle.
- When the center of materials in the nozzle and the disk is not aligned, close the 'small window' and change the setting value as following and re-execute the Step Operation.
- If the suction position is below or above the material center, when the side nozzle turns, change the '**Angle' value**.



- If the material in the suction position is in right or left of the nozzle, when the side nozzle turns, change the '**Org' value**.



- When all settings are completed, execute '**1** administration test' **2** or '**Continue Test**' **2** to check the operation status.
- Execute all of the above process by means of chaning the disk from No. 1 disk to No. 4 disk.

#### 3-5-4 Central Nozzle

You can set up the work condition of the central nozzle seen from the front of machine.

The central nozzle sucks the material from the side nozzle and place it on the transfer paper tape. In order to suck the material on an accurate position, you should set up a few conditions.

As the central nozzle receives the material from 2 side nozzles, you should set up conditions by each nozzle.

The nozzle on the left seen from the front of machine sucks the material from No. 1, 2 disk.

The nozzle on the right sucks the material from No. 3, 4 disk.

LD	1/2
	314

UL 1/2

Set up the standby position of left nozzle.

- Set up the standby position of right nozzle.
- Set up the rotation angle that the central nozzle turns in order to receive the material from the left nozzle, when the left nozzle is in standby status.
- UL 3/4

Set up the rotation angle that the central nozzle turns in order to receive the material from the left nozzle, when the right nozzle is in standby status.

It is the sensor input value to check if the central nozzle sucks the material.

- It is the position that the central nozzle attaches the material to the transfer paper. In general, it is adjusted to vertically align with the table.
- **Operation Order** 
  - Select the number of disk on the left (No. 1 or 2 basket). The selected number and the background of the small window is changed white.
  - When you click 'Change Basket' 🔼, the basket is changed and the relevant disk turns.
  - After changing the basket, click 'Step Operation' 🖳 A small window pops up. 실린더를 동작할 수 있습니다. L-Loading , R-Unloading
  - Whenever you click the arrow key, Step Operation is executed.
  - When you click 'Right' 💽 key, the central nozzle is operated step-by-step. Operation order is as follows:



iii)

Nozzle Forward

i) Standby Position

Vacuum ON (Operation available when Vacuum Icon 🔟 is on). When the iv) central nozzle makes suction, the side nozzle should be in Vacuum OFF status.

v) Nozzle Reverse (Material Suction Position)



vi) Material Attachment Position(Standby Position)



- vii) Nozzle Forward
- Vacuum OFF viii)
- Nozzle Reverse (Standby Position) ix)
- Check the nozzle position by repeating Step Operation of the central nozzle.
- If the center of the central nozzle and the side nozzle is not aligned, close the 'Small window' and change the setting value as following and re-execute Step Operation.
- If the tip of the side nozzle and the central nozzle is not aligned, change **LD 1/2** and or 10 3/4 and UL 3/4 values.







- If the central nozzle and the table is not aligned vertically, change VL Ang. value.
- Turn On the vacuum while the central nozzle does not suck the material and check the detected sensor value. Input the result in UL Vac.

#### 3-5-5 Nozzle Cleaning

Depending on the material quality, the nozzle may be clogged or an alien substance may get into the nozzle. If an alien substance is in the nozzle, the degree of a vacuum may change, which may affect the work. Therefore, make sure to clean up the nozzle interior for always.

To clean up the nozzle, you can disassembly the nozzle and shaft and make mechanical cleaning or you can inject high pressure air into the nozzle for cleaning. In this screen, the latter is used for nozzle cleaning.

- When you click 'Nozzle Cleaning' Licon, air is injected to the side nozzle for cleaning.
- Repeat the above process by changing Left (1/2) and Right (3/4) baskets.

#### 3-5-6 Test Drive

After completing the nozzle position and sensor setting, you can test drive the machine. There are 2 ways in test driving.

1 administration test

- Select the disk number on the left (No. 1 or 2 basket). The selected number and the background of the input small window is changed white.
- When you click 'Change Basket' Mathematical, the basket is changed, and the relevant disk turns.
- When you click '1 Cycle' icon, 1 cycle is operated. At this time, if 'Vacuum Mode' icon is not on, actual operation is not executed.
- Continuous Test
  - After completing all settings, you can execute comprehensive test.
  - When you click 'Cont. Cycle' A the number input small window appears. When you enter X distance and Y distance, the table moves in a certain distance from the current position and execute continuous work.



- Work area is X-axis : 10 ~ 390 , Y-axis: 10 ~ 390, and the progress direction for X-axis is + first and Y-axis always increases.



- If (0,0) is entered for work distance, the table does not move and only the nozzle is operated. At this time, if the Vacuum Mode is 'ON,' the material is attached on the same position.

#### 3-6 Parameter and Repair



You can set up the machine and control system parameter or check the system.

When a failure occurs on the machine or control system, you can check the failure status in this screen.



#### 3-6-1 Motion Parameter

You can set up variables in the control system. Modified values may affect machine performances and product quality considerably. To change the value, make sure to contact the manufacturer. To change the system parameter, you should enter a password.

No	ITEM	Description	Unit
0	Pulse rate	Pulse rate to control 1 motor spindle	Pulse
1	Feed rate	Machine moving distance per 1 spindle of driving	mm
		part	
2	Gear ratio	Reduction gear ratio between motor and driving part	
3	Max. Speed	Maximum speed of driving part	mm/min
4	Min. Speed	Minimum speed of driving part	mm/min
5	Type of Acc./Dec.	Acceleration/Deceleration 0-Linear, 1-S-Curve	msec
6	Acc. Time	Acceleration time from min. speed to max. speed	
7	Dec. Time	Deceleration time from max. speed to min. speed	
8	S-Curve area of Acc.	S-Curve acceleration section, Only useful when	mmmin
		No.5=Linear	
9	S-Curve area of Dec.	S-Curve deceleration section, Only useful when	mmmin
		No.5=Linear	
10	Distance of decel	Deceleration distance – Applied in manual	
		acceleration and deceleration mode	

11	Dir. Of Origin Sensor	Machine moving direction in origin restore			
12	Origin Mode	Moving pattern in returning to the origin			
13	Homing Speed	Machine moving speed in origin restore	mm/min		
14	Dir. of Origin escape	Machine moving direction in origin escape			
15	Escape Speed	Machine moving speed in origin escape	mm/min		
16	Base Speed	Deceleration speed in completing origin move/escape	mm/min		
17	Pos. of Org. Sensor	Mechanical position of origin sensor	mm		
18	Counts of Z Phase	Counts of Z phase in Z phase origin restore	Cts		
19	Type of Pulse	Command pulse type			
20	Type of Backlash	Backlash type			
21	Logic of Z Phase	Z phase signal input logic			
22	Counts of Backlash	Backlash counts			
23	Logic of Dec. Sensor	Deceleration sensor input logic			
24	Logic of Org. Sensor	Origin sensor input logic			
25	Logic of Alarm	Alarm signal input logic			
26	Logic of ERC Output	Error clear output logic			
27	Logic of STA	STA signal output logic			
28	Logic Of STP	STP signal output logic			
29	Logic Of INP.	Inposition signal input logic			
30	Logic Of LTC	Latch signal input logic			
31	Logic Of PCS	PCS signal input logic			
32	Logic Of DR	JOG switch polarity			
33	Filter	Filter usage			
34	Soft Limit +	Stops when machine position is bigger than setting	mm		
		value.			
35	Soft Limit -	Stops when machine position is smaller than setting	mm		
		value.			
36	Soft Limit	Soft limit function (No. 34/35) used.			
37	Encoder Resoltion	Machine traveling distance in 1 spindle of encored	mm		
38	Encoder Port	Encored input port			
39	Decel; Mode	Operation available in detecting deceleration sensor			
40	Type of Counter	Position counter type			
41	Idling Pulse	Number of idling pulse			

The picture below shows the standard value entered in factory shipment.

Motior	lotion Parameter (6045)					
No.	ITEM LIST	X Axis	Y Axis	Z Axis	U Axis	
0	펄스 레이트	20,000	20,000	20,000	20,000	
1	전송 레이트	80.000	80.000	360.000	360.000	
Z	기계 감속비	2.000	2.000	2.000	2.000	
3	최고 속도	24,000	24,000	108,000	108,000	
4	최저 속도	100	100	20,000	1,440	
5	가감속 방식	Linear	Linear	Linear	Linear	
6	가속 레이트	200	200	90	100	
7	감속 레이트	200	200	90	100	
8	가속 Scurve	10	10	35	10	
9	감속 Scurve	10	10	35	10	
10	감속 거리	5.0	5.0	1.0	5.0	
11	원점복귀 방향	Decrease	Decrease	Decrease	Decrease	
12	원점복귀 모드	0	0	0	0	
13	원점복귀 속도	1,000	1,000	1,000	600	
14	원점탈출 방향	Increase	Increase	Increase	Increase	
15	원점탈출 속도	100	100	180	180	
16	베이스 속도	100	100	100	180	

lotio	otion Parameter (6045)				
No.	ITEM LIST	X Axis	Y Axis	Z Axis	U Axis
17	기계원점 주소	-5.000	0.000	-65.000	-101.000
18	Z상 카운터 수	Θ	Θ	Θ	0
19	펄스 종류	Type4	Type4	Type4	Type4
20	백래시 종류	Don't Use	Don't Use	Don't Use	Don't Use
21	2상 입력논리	Falling	Falling	Falling	Falling
22	백래시 보정	Θ	0	0	0
23	DLS S₩ 극성	Negative	Negative	Negative	Negative
24	OLS S₩ 극성	Positive	Positive	Positive	Positive
25	ALM S₩ 극성	Positive	Positive	Positive	Positive
26	ERC출력극성	Negative	Negative	Negative	Negative
27	STA SW 논리	Level Trig.	Level Trig.	Level Trig.	Level Trig.
28	STP SW 동작	Decel	Decel	Decel	Decel
29	INP SW 극성	Negative	Negative	Negative	Negative
30	LTC S₩ 극성	Falling	Falling	Falling	Falling
31	PCS S₩ 극성	Negative	Negative	Negative	Negative
32	DR S₩ 극성	Negative	Negative	Negative	Negative
33	Filter 사용	Don't use	Don't use	Don't use	Don't use
	•	۲	•		3

#### Motion Parameter (6045)

_					
No.	ITEM LIST	X Axis	Y Axis	Z Axis	U Axis
25	ALM SW 극성	Positive	Positive	Positive	Positive
26	ERC출력극성	Negative	Negative	Negative	Negative
27	STA SW 논리	Level Trig.	Level Trig.	Level Trig.	Level Trig.
28	STP SW 동작	Decel	Decel	Decel	Decel
29	INP S₩ 극성	Negative	Negative	Negative	Negative
30	LTC S₩ 극성	Falling	Falling	Falling	Falling
31	PCS SW 극성	Negative	Negative	Negative	Negative
32	DR SW 극성	Negative	Negative	Negative	Negative
33	Filter 사용	Don't use	Don't use	Don't use	Don't use
34	Soft 제한 +	392	600	110	110
35	Soft 제한 -	-1	-1	-110	-110
36	Soft 제한	Don't use	Don't use	Don't use	Don't use
37	엔코더 전송량	1,000	1,000	1,000	1,000
38	엔코더 포트	X axis	Y axis	Z axis	U axis
39	감속센서 검출	Decel	Decel	Decel	Decel
40	카운터 입력	Output Pulse	Output Pulse	Output Pulse	Output Pulse
41	IDLING PULSE	0	0	0	0
	())		(-)		) M

#### **3-6-2 Control Parameter**

You can set up the property to control the machine. The modified values may affect the machine performances and product quality considerably. Before changing the value, make sure to contact the manufacturer.

No.	ITEM	Description
0	Select Language	Select the language to display alarm message, warning message
		and dialogue small window.
1	Password Setting	Set up the password for 3-6-1 Motion Parameter / 3-6-2 Control
		Parameter.
2	View File	Set up the design list view type in ' $3-2$ Design List'.
		0 : Text, shows the design 'File Name'.
		1 : Image , shows the design itself.
3	DST Type	Set up the position data type in the place where the material is
		located when the file is open from Tajima data.
		0 : SPK , operation made using spangle code.
		1 : JUMP, operation made using jump code.
4		Reserved
5	LD Vacuum Detection	If no sensor value is entered during the assigned time, when the
	Time	central nozzle executes vacuum motion in auto-operation, it is
		estimated that there is no material on the disk.
6	LD Sensor Type	Set up the vacuum sensor detection method.
		0 : Digital , Uses the signal attached to the sensor.
		1 : Analog, Uses the vacuum value assigned in $\frac{3-5}{1}$ Test and
		Setting:
		The sensor value may be changed depending on the material size
		and shape. We recommend Analog method.
7	UNLD Vacuum	If no sensor value is entered during the assigned time, when the
	Detection Time	central nozzle executes vacuum motion in auto-operation, it is
		estimated that there is no material on the side nozzle.
8	UNLD Sensor Type	Set up the vacuum sensor detection method.
		0 : Digital, Uses the signal attached to the sensor.
		1 : Analog , Uses the vacuum value assigned in $\underline{^{\prime}3\text{-}5}$ Test and
		Setting:
		The sensor value may be changed depending on the material size
		and shape. We recommend Analog method.
9	Auto-Backup Quantity	Used to save the work in the case of power blackout during auto-
		operation.
		0,1 : Saves the work every time during auto-operation.
		2~ : Saves the work repeatedly when the assigned number of

		work is completed.
10	10~11	Reserved
20	Table Speed	Table moving speed in auto-operation. Unit: mm/min
21		Reserved
22	Table Speed	Table moving speed in JOG operation – Low speed, Unit: mm/min
23	Table Speed	Table moving speed in JOG operation – Medium speed, Unit: mm/min
24	Table Speed	Table moving speed in JOG operation – High speed, Unit: mm/min
25	LD Rotation Speed	Side nozzle rotation speed – Actual speed is setting value x 100. Unit : rpm
26	UNLD Rotation Speed	Central nozzle rotation speed – Actual speed is setting value x 100. Unit : rpm
27		Reserved
28	1P-1Shot	0 : OFF 1:ON If the setting value is ON in executing <u>3-1-3 Jump Mode (Repair</u> <u>and Search)</u> , the table moves whenever you click O.
29	Basket Pre-work	It is the preliminary motion that rotates the disk before executing color (basket) change command in auto-operation. When the production of the currently working color reaches less than ??, the basket of the next color is rotated in advance for smooth supply of materials.
30		Reserved
31		Reserved
32		Reserved
33	Color Cylinder Operation	If no cylinder sensor signal is entered during the assigned time, when color (basket) change command is executed, the machine stops.
34	Nozzle Cleaning Time	Sets up air discharging time in executing ' <u>3-5-5 Nozzle Cleaning</u> ' command.
35		Reserved
36	Basket Rotation Unit	Input the distance between the materials on the disk by converting it into the angle. In our disk, the total of 20 splitting angles is set up. 360 degrees/20 = 13. Therefore, 13 is an appropriate input value.
37	Frame After Work Completion	Input the position that the table will stand by after work completion.

		0 : Stays in the last work position.
		1 : Produce the work product (parameter No. 56, 57)
		2 : Returns to the origin (0,0).
38		Reserved
39		Reserved
40	40~49	Reserved
50	Table Size	Sets up the work area. X-axis
51	Table Size	Sets up the work area. Y-axis
52	Origin Offset	Moves the origin. X-axis
53	Origin Offset	Moves the origin. Y-axis
54	Standby Position	It is the position that the table will stand-by after returning to the
		origin. X-axis
55	Standby Position	It is the position that the table will stand-by after returning to the
		origin. X-axis
56	Work Production	It is the position of table to produce the work product after
	Position	finishing auto-operation. X-axis
57	Work Production	It is the position of table to produce the work product after
	Position	finishing auto-operation. Y-axis
58		Reserved
59		Reserved

The picture below shows the standard input value in factory shipment.

Controller's Parameter						
	Machine	's parameter #0				
۲	1	Language - (0:Korean , 1:English)				
1	10,000	PASSWORD ( 10000 ~ 99999)				
2	1	View Option (0:Text 1:Image)				
Э	0	Tajima data format (0:SPK , 1:JUMP)				
41	0	Reserved				
5	0.5	Vac.(L)- Run time (0.1 ~ 2.0)				
£	1	Vac.(L)- Sensor type(0:D ~1:A)				
2	1.0					
E	1					
9	1,000	Auto backup(Every : 0 ~ 2000)				
•	<b>()</b>					

Contr	Controller's Parameter							
	RESERVE	0						
1.0	0	Reserved						
11	0	Reserved						
12	0	Reserved						
13	0	Reserved						
14	0	Reserved						
15	0	Reserved						
16	0	Reserved						
17	Θ	Reserved						
1.6	0	Reserved						
19	Θ	Reserved						

Contri	oller's Parame	ter	
	TEST SP	EED	
20	8,000	XY Table (Working speed) (10 ~ 10000)	
21	0	Reserved	
22	1,200	XY Table (Jog Speed - L) (10 ~ 10000)	
23	4,500	XY Table (Jog Speed - M) (10 ~ 10000)	
24	8,000	XY Table (Jog Speed - H) (10 ~ 10000)	
25	5	Speed unit of Loading Cyl. (1 ~ 10 RPM)	
26	5	Speed unit of Unloading Cyl. (1 ~ 10 RPM)	
27	0	Reserved	
28	1	Main work 1P-1Shot (0:OFF , 1:ON)	
29	9	Basket pre-rotating time (0 ~ 10)	
			_

Controller's Parameter								
	LINDV SPEED							
30	10	Reserved						
31	300	Reserved						
32	20	Reserved						
33	2,500	Changing time for color cyl.(1 ~ 2000)						
34	50	Clearing time for Nozzle(1 ~ 2000)						
35	1	Basket rotating time ( $0$ $\sim$ 400 )						
38	11	Motion after finished work(0 ~ 2)						
37	1	Basket pre-rotating time (0 ~ 10)						
38	0	Loading Cyl. 배기동작(0:No ,1:Yes)						
39	5	Loading Cyl. 배기지간(0 ~ 100)						

Contr	oller's Parame	ter		
	RESERVE	D		
40	4	Reserved		
41	4	Reserved		
속온	2	Reserved		
43	2	Reserved		
-1-1	4	Reserved		
45	4	Reserved		
46	4	Reserved		
47	4	Reserved		
4483	4	Reserved		
49	3	Reserved		
۷				

GUIIII	ollers Parani	BIBI
	FRAME I	NFORMATION
50	400.0	) Frame Width (10 ~ 500)
51	400.0	Frame Height (10 ~ 500)
52	0.0	Origin Offset X (0.f ~ 500.f)
53	0.0	Origin Offset y (0.f ~ 500.f)
54	200.0	X:Position after origin move(0 ~ 400)
55	300.0	Y:Pposition after origin move(0 ~ 400)
56	200.0	X:Position after work(0 ~ 400)
57	620.0	Y:Position after work(0 ~ 400)
58	0.0	Reserved
59	0.0	Reserved

#### 3-6-3 LINK (Firmware Upgrade)

This menu is to upgrade the firmware of control system. After executing this menu, use our program (Spooler 1.3) or commercial FTP Client program to upgrade the firmware.

Firmware consists of several files. Some files re-start the system automatically when the file transmission is completed. For more details, refer to [Chapter. 4 Communication]..

#### 3-6-4 Motion I/O

You can test the sensor installed on the machine. As the sensor used differs depending on the type of control device, you do not test all sensors in this screen.

Motion Co	ntroller's IN/OUT	Test				
	Alarm	X Axis	Y Axis	Z Axis	U Axis	
	Servo Alarm	DFF	DPP	DPP	DFF	
	Limit +(+ELS)	DFF	DPP	022	DPP	
	Limit -(-ELS)	DFF	022	D2'2'	DPP	
	Decel Sensor	DPF	DPP	0PP	DPP	
	Origin Sensor	DFF	DPP	022	DPP	
	Inposition	DFF	DPP	022	DPP	
	Z Phase	DFF	DFF	022	DPP	
ON 50			•			

- S40-2H4C
  - X-axis : Origin Point Sensor, Extreme Sensor (+)
  - Y-axis : Origin Point Sensor, Extreme Sensor(+)
  - Central Nozzle: Origin Point Sensor

#### 3-6-5 General I/O

You can test various sensors and output port installed on the machine.

The upper part of the screen shows real-time input port status, while output port in the bottom displays the current system output status. In addition, the user can test the output arbitrarily.

General IN/OUT	Test								
	0 8 0	0 7 0	• 6 0	MPO 0 5 0	RT 4 0	• 3 0	• 2 0	• 1 •	
	0 24	13 () 23	0 22	0 21	0 20	0 19	0 18	0 17	
	0 8 0	0 7 0	0 6 0		0 0 4 0	0 3 0	e Z		
	16	15	14	13	12	11	10	9	LD - VAC. 0.93 UNLD - VAC. 0.91
1. Sol. : Load(Lo	eft) -	Up∕Do	own						
				(			•		

- System In/Out status is displayed.
- When the sensor or the input signal is ON, the input port is displayed in green, while the signal is OFF, it is displayed in white.
- When the output signal is ON, the output port is displayed in red, while the signal is OFF, it is displayed in white.

- You can move the cursor using the arrow key on the monitor or keypad. Whenever you move the cursor, the output port number, along with the signal name, is displayed in the bottom of the screen.
- When you click ON 🖳 / OFF 🖳, the lamp that the cursor is located turns on for signal output or signal OFF. (Note: when the output signal is changed, the machine is operated. Take extra caution for safety.)
- When you click Mode in keypad, the cursor is changed to 'INPORT.' As in the case of output port, whenever you move the cursor, the input port number, along with the signal name, is displayed in the bottom of the screen.
- There is no ON 🖾 / OFF 🖾 function in input port. To turn on the input port signal, you can turn On/Off the sensor by force by referring to the signal name and check the signal status through the monitor.
- Output circuit structure



- Input circuit structure 단자 Terminal 입력단자 Input Terminal



#### 3-6-6 ALARM LIST

Alarm list displays the alarm history occurred during auto-operation. The alarm history is saved from the most recent occurrence to the previous 5 cases.

Alarm 110. :		
DATE:		
Description :		
Information		
File No.: Q'ty:		
Stop POS.: Offset :		
• • •	×	5

Saved alarm data is number/date/description/file number/quantity/stop position/offset position.

- 0 shows the first or the last alarm.
- **O** shows the next or the previous alarm.
- deletes all alarm history.
   When you click the icon, a small window pops up.
   When you click 'YES,' alarm history is deleted.

## **Chapter. 4 Communication**

Control system installed in this equipment uses LAN communication for data transmission and firmware upgrade. In general, you can save a large amount of design in the PC that you use at home or in the office. This allows the user to use PC as the design server for easy design management.

4-1 Communication Setting4-1-1 Direct Connection4-1-2 Network Connection

<u>4-2 File Transmission Program</u> <u>4-2-1 Spooler</u> <u>4-2-2 FileZillar</u>

#### 4-1 Communication Setting

This equipment has the following network setting in factory shipment. You can change the network setting appropriately to fit your network environment.

	-
IP Address	192.168.0.234
Subnet Mask	255.255.255.0
Standard Gateway	192.168.0.1
DNS Server Address	192.168.0.1

Internet	Protocol	(TCP/IP)	Registration	Data

The above data is saved in the system. To change the network setting, make the text file in the below format and send it through the firmware upgrade function.

File Name: ncknet.cfg ip=192.168.0.234 netmask=255.255.255.0 gateway=192.168.0.1

nameserver=192.168.0.1

#### 4-1-1 Direct Connection

LAN cable is directly connected between this equipment and desktop (or laptop) for communication.



- Cross cable : Cross cable is used when the equipment is directly connected to PC.



The pin number of both connectors and the cable connection is different.



- Network Setting

	Desktop	Equipment
IP Address	192.168.0.1	192.168.0.234
Subnet Mask	255.255.255.0	255.255.255.0
Standard Gateway	192.168.0.1	192.168.0.1
DNS Server Address	Auto-Setting/None	192.168.0.1

#### 4-1-2 Network Connection

The equipment is connected to the company (office) or home network for communication. Several equipments can be connected in 1 network. 공유기 Router



- Direct cable: Direct cable is used when the equipment and the desktop is connected through a hub or a router.



PC-side connector

Control-side connector

The pin number of both connectors and the cable color is the same.



- Network configuration is made through IP router.
- Network of IP router is established.

IP : 192.168.0.1 IP forward range : 192.168.0.2 ~ 192.168.0.200

- Network Setting

	Desktop	Equipment 1	Equipment 2
IP Address	Auto-Setting	192.168.0.234	192.168.0.235
Subnet Mask	Auto-Setting	255.255.255.0	255.255.255.0
Standard Gateway	Auto-Setting	192.168.0.1	192.168.0.1
DNS Server Address	Auto-Setting	192.168.0.1	192.168.0.1

#### 4-2 File Transmission Program

To communicate with the equipment, a file transmission program should be used, along with network connection. Install the following program in the user PC and set up property.

#### 4-2-1 Spooler (Provided by the company)

Spooler is a file transmission program provided by the company. Spooler is only available for file transmission. It is not for upload.

- When you execute setup.exe, Spooler is automatically installed.
- When the program installation is completed, execute 'Spooler' in your Desktop.

별정( <u>Y</u> )	oler v1.3 도구( <u>Z</u> )			R	
서버전 Pi 연결실	보 : IP : 192.168.0.234 ort : 21 '태 : 연결이 끊어졌습니	JCH. 🍍	ि अध ि उम्ह र मध्	배연결( <u>C</u> ) 동시작 일추가( <u>A</u> )	작업폴더 설정 출 전송( <u>T</u> )
변호	파일이름	크기	전송횟수	진형(%)	경로
	, III				

- When you click 'Server Connection' after executing Information Server or Link in the equipment, the equipment and the PC is connected.
- When you select the file by clicking 'Add File,' the selected file is added to the list. Or you can select the file and drag to the list box to add the file in the list.
- Click 'Transmission' to send the file.
- In file transmission or the equipment connection, the log is recorded in the lower part of the screen.
- When the equipment and the PC is not connected, click Setting-Server Setting and set up the data as the below picture.

비생정	4
서버설정	
주소(IP) :	192.168.0.234
포트(Port) :	21
사용자(Username) :	: user
암호(Password) :	****
여격석전	
자동 자연결수 :	: <b>2 </b>
	(Auto Reconn Count)
자동 지연결 간격 :	: 2 🔹 (1~3600초)(sec)
	(Auto Reconn Time)
운영설정	
전송파일크기 설정 :	128 🔷 (0~256MB)
	(File Size Limitation)

- Server address in factory shipment is 192.168.0.234.
- User ID: user
- Password :1111
- File Size: 128 Mbyte

If the file size exceeds 128Mbyte, you cannot send the file.

#### 4-2-2 FileZilla (Freeware)

It is a free FTP client program distributed in the Internet.

You can download the program and information from <u>http://filezilla-project.org</u>. Download and install the program.

- Execute the program when the installation is completed.

E FileZilla								
파일(E) 편집(E) 보기(Y) 전송(I) 서버(S) 북마크(B) 도움말(H)								
M - N								
호스트(H): 사용지	명(U):	UI	밀번호	ž( <u>W</u> ):	포트(P	):	빠른 연결	0.
								2
				-				1
로컬 사이트: #Dos Projects#엔씨코리이	ŀ₩설명서₩R	hineStone₩한글♥	* <b>~</b>	리모트 사이트:				
····································								
파일명	크기	종류 도	^	파일명 /	11	크기 종	5류	마지막 수정
<ul> <li>값</li> <li>%</li> <li>%<td>15,430 3,180,264 19,945,472</td><td>Microsoft Offi Microsoft Offi 파일 폴더 파일 폴더 파일 폴더 파일 폴더 파일 폴더</td><td></td><td></td><td>&lt;刈田0</td><td>에 연결되지</td><td>않음&gt;</td><td></td></li></ul>	15,430 3,180,264 19,945,472	Microsoft Offi Microsoft Offi 파일 폴더 파일 폴더 파일 폴더 파일 폴더 파일 폴더			<刈田0	에 연결되지	않음>	
	100 10015	<u>د</u>	8		101			
이 파글파() 이 니백도디, 중 크기: 23,141.				긴 니맥도디 속복.				
Server/Local file	2	1송   리보트 !	바일		크기	우선	상태	
류 대기 파일 전송 실패 전송 성공								
							큐:비었	8 00



- Select Edit->Setting.
- Select the language.

- For most of setting, use the default.
- Click File ->Site Administrator.

사이트 관리자( <u>S</u> )	CTRL+S
연재의 건설을 사이드 전디자도 독자((	
Cl <u>o</u> se tab	CTRL+W
내보내기(E) 가져오기(I)	
현재 편집 중인 파일 보이기( <u>H</u> )	CTRL+E
종료( <u>X</u> )	CTRL+Q

- When the below page appears, click 'New Site' to add 1 site.

사이트 관리자			
Select Entry:	일반 고급 김	전송 설정 문자셋	
	호스트( <u>H</u> ):	192.168.0.234 王트(P):	
	서버 종류( <u>T</u> )	FTP - File Transfer Protocol	~
	로그온 형식( <u>L</u> ):	보통	~
	사용자( <u>U</u> ):	user	
	비밀변호( <u>W</u> ):	••••	
	계정( <u>A</u> ):		
	주석( <u>M</u> ):		
새 사이트(N) 새 폴더(E)			~
새 북마크(M) 이름 바꾸기(R)			
색제( <u>D</u> ) 복사( <u>Y</u> )			
	<u>확인(O)</u>	취소	

- Host: 192.168.0.234
- User : user
- Password: 1111
- Select 'Advance' in the tab.

사이트 관리자			
Select Entry:	일반 고급 전송 설정 문자셋 서버 종류(T) DOS ♥ □ 프록시 바이패스(Y) 기본 로컬 디렉토리(L): C:₩Program Files₩RhineStone 2D₩( 찾아보기(B) 기본 리모트 디렉토리(E):		
세 사이트(N) 새 풀더(E) 세 북마크(M) 이름 바꾸기(R) 삭제(Q) 복사(Y)	Use synchronized browsing Adjust server timezone offset: 이 \$ 시간, 이 \$ 분		
연결( <u>C</u> )	<u>확인(O)</u> 취소		

- Server Type : DOS
- Standard Local Directory: Set up the standard folder of the local site that will be seen when it is connected to host (Use the folder that contains design).
- For the rest of setting, use the default value.

- Click 'Connect' to make connection with the equipment. When the connection is made, the left side of the screen shows the local site files, while the right side displays the remote site (equipment) files.
- Select the design file from the local site and execute upload.

## Chapter. 6 Malfunction and Troubleshooting

This equipment informs the user of system condition and troubles during operation through a dialogue window. If the operation stops due to system failure, the user can check the dialogue window to diagnose the cause of problems.

<u>6-1 System Loading</u>
<u>6-2 XY Table and Cyliner Rotation</u>
<u>Axis</u>
<u>6-3 Design Management</u>
<u>6-4 Emergency Stop</u>
<u>6-5 SD Card</u>

#### 6-1 System Loading

In system booting, the parameter saved in the memory is read. If the parameter is damaged, the below warning appears. The warning occurred in system loading may prevent normal operation of system. If the system hardware is damaged, contact the dealer for A/S.

No.	Description	Troubleshooting
201	Warning !	
202	Parameter is deleted.	System and machine-related parameter is
	Set it up again.	damaged.
		After booting the system, restore the parameter
		value by referring to '3-6-1 Motion Parameter'
		and '3-6-2 Control Parameter.'
203	Work data is deleted.	Final work status is lost.
	Set it up again.	Open the design again and reset the work
		condition.
204	Warning!	An error occurs in system memory.
	Memory initialization error	Normal operation may not be available.
		Contact the dealer.
205	Warning!	An error occurs in program memory.
	File copy error	Some par of design file is damaged or an error
		occurs in memory.
		Contact the dealer.
206	Warning!	An error occurs in communication port.
	Communication port is not open.	Normal operation may not be available for touch
		screen and SD memory
		Check the cable on central control device.
		Check the cable on the rear of monitor.
		Contact the dealer.
### 6-2 XY Table and Cylinder Rotation Axis

It is a warning message related to instrument operation. The warning message appears when the instrument does not work due to an error in safety sensor installed in the instrument or the motion supervision sensor, or signal failure. In general, it is highly possible that the error occurs because of wiring short circuit or looseness of instrument.

Refer to the troubleshooting and assembly/wiring charts.

No.	Description	Troubleshooting
303	X emergency stop	Emergency stop switch is pressed.
		Turn the switch counter-clockwise.
304	It is beyond X area. +EL	+ End Limit Sensor is detected.
		Check any alien substances on + ELS.
		Check if + ELS works properly.
		Move the table to the right manually (JOG
		Mode).
		Refer to ' <u>3-6-4 Motion I/O</u> .'
305	It is beyond X areaEL	- End Limit Sensor is detected.
		Check any alien substances on - ELS.
		Check if - ELS works properly.
		Move the table to the left manually (JOG Mode).
		Refer to ' <u>3-6-4 Motion I/O</u> .'
306	It is beyond X area. +SL	Current position of X-axis exceeds '+ Soft Limit.'
		Move the table to the right manually (JOG
		Mode).
		Refer to ' <u>3-6-1 Motion Parameter</u> .'
307	It is beyond X areaSL	Current position of X-axis exceeds '- Soft Limit.'
		Move the table to the right manually (JOG
		Mode).
		Refer to ' <u>3-6-1 Motion Parameter</u> .'
308	It is beyond -X work area.	Work area of the current design exceeds -area of
		X-axis. Move the offset position.
		Refer to ' <u>3-1-2 Offset Setting and Moving</u> .'
309	It is beyond +X work area.	Work area of the current design exceeds + area
		of X-axis. Move the offset position.
		Refer to ' <u>3-1-2 Offset Setting and Moving</u> .'
313	Y emergency stop	Emergency stop switch is pressed.
		Turn the switch counter-clockwise.
314	It is beyond Y area. +EL	+ End Limit Sensor is detected.

		Check any alien substances on + ELS.
		Check if + ELS works properly.
		Move the table to the origin point manually
		(JOG Mode).
		Refer to ' <u>3-6-4 Motion I/O</u> .'
315	It is beyond Y areaEL	- End Limit Sensor is detected.
		Check any alien substances on - ELS.
		Check if - ELS works properly.
		Move the table downward manually (JOG Mode).
		Refer to ' <u>3-6-4 Motion I/O</u> .'
316	It is beyond Y area. +SL	Current position of Y-axis exceeds '+ Soft Limit.'
		Move the table to the right manually (JOG
		Mode).
		Refer to ' <u>3-6-1 Motion Parameter</u> .'
317	It is beyond Y area. –SL	Current position of Y-axis exceeds '- Soft Limit.'
		Move the table to the right manually (JOG
		Mode).
		Refer to ' <u>3-6-1 Motion Parameter</u> .'
318	It is beyond -Y work area	Work area of the current design exceeds -area of
		Y-axis. Move the offset position.
		Refer to '3-1-2 Offset Setting and Moving.'
319	It is beyond +Y work area.	Work area of the current design exceeds +area
		of Y-axis. Move the offset position.
		Refer to '3-1-2 Offset Setting and Moving.'
323	Z emergency stop	Emergency stop switch is pressed.
		Turn the switch counter-clockwise.
324	It is beyond Z area. +EL	Unused signals.
		Contact the dealer.
325	It is beyond Z area. –EL	Unused signals.
		Contact the dealer.
326	It is beyond Z area. +SL	Central cylinder exceeds the rotation range
		counter-clockwise. Return to the origin point.
		Refer to ' <u>3-5-1 Origin Point Setting</u> .'
327	It is beyond Z areaSL	Central cylinder exceeds the rotation range
		clockwise. Return to the origin point.
		Refer to ' <u>3-5-1 Origin Point Setting</u> .'
340	Cylinder operation time exceeded	Basket moving cylinder is operated but the
		sensor is not operated.
		Solenoid or cylinder sensor error occurs on

		basket moving cylinder.
		Check the wiring.
		Check the looseness on sensor.
341	Position initialization time exceeded	Basket rotation detection sensor or motor error.
		Rotation sensor is not detected when the basket
		is rotated.
		Check the wiring.
		Check the sensor.
		Check the basket rotation motor.
		Check the driver for basket rotation motor.
342	Cylinder unloading error	Vacuum operation failure in central cylinder.
		No materials on side nozzle. Or central cylinder
		solenoid or vacuum sensor error.
		Check the wiring.
		Check the looseness on sensor.
343	Unloading cylinder descending error	Descending cylinder sensor is not operated
		when the central cylinder is descended.
		Central cylinder up/down solenoid or descent
		sensor error.
		Check the wiring.
		Check the looseness on sensor.
344	Unloading cylinder ascending error	Ascending cylinder sensor is not operated when
		the central cylinder is ascended.
		Central cylinder up/down solenoid or ascent
		sensor error.
		Check the wiring.
		Check the looseness on sensor.

### 6-3 Design Management

It is a warning message generated in reading or creating the design file. For the normal file, no warning occurs, but in the case of internal memory damage or physical damage in system, the warning message is displayed. The warning may be generated when abnormal file is operated. Make sure to delete the failed file.

350	No design found	Work quantity in the work file is $0^{\circ}$
550		Re-set the design file
251	No design file found	
351	No design file found.	File open error.
		No file found or the file is damaged.
		Delete the file and re-enter it
352	File capacity exceeded	File header size is not matched with the
		designated size. ( NCK )
		Delete the file and re-enter it.
354	File creation error	File creation in system memory is failed when
		the design in SD memory is copied to system
		memory.
		Memory is full or the system error occurs.
		Check the system memory.
355	File type error	Incorrect type DST file read.
		Delete the file and re-enter it
356	No work file found.	Design list and work file is not matched.
		Check the system.
357	No design list found.	Design list is damaged.
		Check the system.
358	No design edit data.	No edit data found for the design file.
		Execute work setting in Edit Design.
		Refer to '3-3 Edit Design.'
359	Type not supported.	Incorrect extension in the selected work file.
		File extension should be '.NCK' or '.DST'
		Select the new file.
361	Height, width, and quantity is '0.'	Design size or the work quantity is incorrect.
		Delete the file and re-enter it

### 6-4 Emergency Stop

Emergency stop is generated when the system stops urgently by the user's request during autooperation or when the safety sensor detects problems.

380	Emergency stop is entered.	Emergency stop switch is entered during auto-
		operation.
		Stop all operation.
		Eliminate the cause of emergency stop and
		release the emergency stop switch.
		Return to the origin point and resume operation.
		Refer to '3-5-1 Origin Point Setting.'
381	Door is open.	Front door is open during auto-operation.
		Eliminate the cause of stop and release the
		emergency stop switch.

### 6-5 SD Card

It is the warning generated when the data is read or saved from SD memory.

Max. capacity of SD memory is 2GByte. You should format it in FAT.

Response truncated	
Invalid argument	
Timed out at reading from card.	
Failed to read from card	
Failed to write from card	
Card port was not opened	
No Error	
Card not inserted	
Card inserted but not initialized. Reinsert	
File open already	
Baud rate setting error	

## Chapter. 7 Machine Assembly Charts and Parts List

Instrument and parts list of this equipment is provided. For the standard product, the model name designated by the manufacturer is stated, while for other parts and the parts manufactured by the company, a serial number is provided. When you inspect or replace the instrument, refer to the list in this chapter when you contact the dealer.

7-1 Basic Structure ASS'Y 7-2 X-AXIS ASS'Y 7-3 Y-AXIS ASS'Y 7-4 TABLE ASS'Y 7-5 SETTING BASE ASS'Y 7-6 SHAFT BASE ASS'Y 7-7 NOZZEL ASS'Y 7-8 CYLINDER BASE ASS'Y 7-9 DISK & BASKET ASS'Y 7-10 FRONT AIR COMPONENT ASS'Y 7-11 COVER ASS'Y

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NO.	PART NO.	PART NAME	PAGE
-	RS1-11000	AL-PROFILE ASS'Y	2
2	RS1-12000-1	X-AXIS ASS'Y	4
သ	RS1-12000-2	Y-AXIS ASS'Y	7
4	RS1-12000-3	TABLE ASS'Y	6
U	RS1-13000-1	SETTING BASE ASS'Y	П
6	RS1-13000-2	PICK & SETTING ASS'Y	13
7	RS1-14000-1	STONE CHANGE ASS'Y	15
8	RS1-14000-2	HOPPER ASS'Y	17
9	RS1-14000-3	PNEUMATIC ASS'Y	19
10	RS1-15000	PANEL ASS'Y	21
11	RS1-16000	COVER ASS'Y	23

7-1 Basic Structure ASS'Y

2	-	NO.
AC-300F	RS1-11000	PART NO.
CASTERS WITH ADJUSTER	AL-PROFILE ASS'Y	PART NAME
4	Т	QT'Y
		REMARK



NO.	PART NO.	PART NAME	QT'Y	REMARK
2	RS1-12002-01	X-PLATE		
4	LDTC-20-X	LM GUIDE RAIL	2	
5	LTA-20	LM GUIDE BLOCK	4	
6	RS1-12006-01	IDLER BODY-2	2	
7	6901ZZ	BALL BEARING	4	6901
10	S3M-32-150-12	TIMING PULLEY	-	
15	S3M-16-150-6.35	TIMING PULLEY		
16	S3M-15-234	TIMING BELT	-	
17	RS1-12012	COLLAR	4	
19	RS1-12011	IDLER SHAFT-2		
20	S5M-16-150-12	TIMING PULLEY	2	
21	RS1-12013-A-01	MOTOR BRACKET	-	
22	TS3653N3E9	X-AXIS MOTOR	-	2PHASE STEP MOTOR
23	RS1-12014-01	X-MOTOR PLATE	-	
24	S5M-15-1300	TIMING BELT		
25	RS1-12015-01	TABLE BRACKET	2	
31	RS1-12021	TENSION BRACKET		
32	BS5-L2M	PHOTO SENSER	4	
33	RS1-12024-01	SENSOR BRACKET-2	2	
36	RS1-12027-01	X-AXIS DUCT	-	
37	RS1-12028-01	CABLE BRACKET	-	
38	EC550	Energy Chain	-	
40	RS1-12029	SENSOR BRACKET-3	4	
43	S5M-150-54	TIMING BELT BLOCK	1	

44	RS1-12034	X-BELT BRACKET	-
45	RS1-12035	BEARING CASE-1	-
46	RS1-12036	BEARING CASE-2	-
49	RS1-12005-01	IDLER SHAFT-1	-
50	RS1-12038	TENSION PLATE-2	-
51	RS1-12039	SENSOR PLATE	2



48	47	46	45	42	41	39	35	34	31	18	17	16	15	14	13	1	10	9	8	7	6	J	ω	-	NO.
RS1-12037	RS1-12031	RS1-12036	RS1-12035	RS1-12033	S5M-250-54	LDTC-20	RS1-12026-01	RS1-12023-01	RS1-12021	S5M-25-1800	RS1-12012	S3M-15-234	S3M-16-150-6.35	TS3606N4E12	RS1-12042	RS1-12041-A	S3M-32-150-12	S5M-16-250-12	RS1-12032-01	6901ZZ	RS1-12006-01	LTA-20	RS1-12003-01	RS1-12001-01	PART NO.
TENSION PLATE-1	IDLER SHAFT-3	BEARING CASE-2	BEARING CASE-1	Y-BELT BRACKET	TIMING BELT BLOCK	LM GUIDE RAIL-Y	Y-AXIS DUCT	SENSOR BRACKET-1	TENSION BRACKET	TIMING BELT	COLLAR	TIMING BELT	TIMING PULLEY	Y-AXIS MOTOR	Y-MOTOR PLATE	Y-MOTOR BRACKET	TIMING PULLEY	TIMING PULLEY	IDLER SHAFT-4	BALL BEARING	IDLER BODY-2	LM GUIDE BLOCK	TABLE PLATE	Υ-ΡΙΑΤΕ	PART NAME
. <b>—</b>	-	-	-	-	-	2	-	2	-	-	4	-	-	-		-	-	2	4	8	2	2	2		QT'Y
														2PHASE STEP MOTOR											REMARK

### 7-3 Y-AXIS ASS'Y



30	RS1-12040	SPRING PIN	2	Φ4 X 12
29	RS1-12020-01	WORK PAD-2		
28	RS1-12019	WORK PAD-1		
27	RS1-12018-01	WORK BASE	<u> </u>	
26	RS1-12016-01	TABLE BASE		
NO.	PART NO.	PART NAME	QT'Y	REMARK



3 <sup>№</sup> <sup>→</sup> NO.	PART NO. RS1-13001-02 RS1-13010 6901ZZ	PART NAME SETTING BASE SETTING SHAFT-2 BALL BEARING	6 <sup>3</sup> ОТ'Ү	문
	6901ZZ S5M-32-150-10	BALL BEARING TIMING PULLEY		ය ත
99	FUNT12	FING U NUTS		ω
10	RS1-13011-01	SETTING DOG		ω
41	RS1-13012-01	SENSOR BRACKET-1		ယ
42	BS5-T2M	PHOTO SENSOR		ω
43	RS1-13008	SETTING MOTOR BASE		ω
44	103H7126-0740	PICK & SETTING MOTOR		ω
45	RS1-13009	PLATE STOPPER		ω
46	S5M-16-150-6.35	TIMING PULLEY		ы
47	RS1-13049	DISK PLATE		ω
48	RS1-13051-01	DUCT COVER		-
49	RS1-13021-01	SETTING SIDE PLATE		2
50	RS1-13050-01	FITTING COVER		1
51	MPS-33RC-NGAT	DIGITAL PRESSURE SENS	R	DR 2
52	S5M-15-260	TIMING BELT		ω



37	34	33	32	31	30	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	8	6	σı	4	NO
RS1-13044-01	RS1-13020-01	RS1-13053	RS1-13028-01	RS1-13042-01	RS1-13041	RS1-13017	RS1-13043	RS1-13014-01	RS1-13055	RS1-13027-01	RS1-13056	RS1-13054	RS1-13029	RS1-13005	RS1-13052	SC-M5-04	RS1-13045	RS1-13007	FH06-M6	RS1-13025-01	NDMD16 X 5D	RS1-13004	BFLB10-08	RS1-13024-02	PART NO.
PICK HOLDER-R	PICK BRACKET-R	SPRING-A	COLLAR	PICK HOLDER-L	LINK SHAFT-B	SETTING NOZZLE	PICK SHAFT	PICK BRACKET-L	SPRING-C	CUSHION-A	LINK SHAFT-C	SPRING-B	CUSHION-B	HOLDER	SETTING BRACKET-2	SPEED CONTROLLER	PARALLEL PIN-A	SETTING NOZZLE	STRAIGHT FITTING	SETTING HOLDER	AIR CYLINDER-PS	SETTING SHAFT-1	OIL FREE BUSH	SETTING BRACKET	PART NAME
-	-	2	2	-	2	2	2	д	-	ω	-	-	ω	1		6	ω	н	ω	1	ω	г	6	1	QT'Y
																M5 - Φ4			M6 - Φ6						REMARK

### 7-6 SHAFT BASE ASS'Y



NO.	PART NO.	PART NAME	QT'Y	REMARK
-	RS1-14001	PICK PLATE-L	-	
2	RS1-14029	PICK PLATE-R	_	
ω	RS1-14003	GROUND ROUND BAR	4	
4	RS1-14036	BACK PLATE	2	
30	RS1-14022-A	CYLINDER PUSH	2	
32	SH 16UU	BALL BUSH	8	
36	RS1-14040	SIDE PLATE-B	2	
37	RS1-14038	SIDE PLATE-A	2	
38	RS1-14025-01	CYLINDER BRACKET-L	Ť	
39	RS1-14028-01	CYLINDER BRACKET-R	1	
40	TCM2B25 * 150A	AIR CYLINDER-CC	2	
47	TJ-30	JOINT	22	
50	SB1006-2C	SHOCK ABSORBER	4	
54	M6 X 30	HEXAGON HEAD BOLT	4	
68	RS1-14039	BASE PLATE	2	
00	RS1-14042	REAR PLATE	_	



NO.	PART NO.	PART NAME	QT'Y	REMARK
5	RS1-14006-01	PICK BASE	2	
6	6901ZZ	BALL BEARING	8	
7	RS1-14007-01	HOPPER	4	
8	RS1-14008	DISC SHAFT	4	
9	S3M-32-100-8	TIMING PULLEY	4	
10	RS1-14009	DISK 2-3MM	2	
1	FL42STH38-1206B-12	DISK MOTOR	4	
12	S3M-16-100-5	TIMING PULLEY	4	
13	RS1-14035	DISC MOTOR BASE-B	2	
14	BS5-T2M	PHOTO SENSOR	4	
15	RS1-14017	DOG	4	
16	RS1-14018	ADJUST PLATE-A	4	
17	RS1-14016-01	DISC MOTOR BASE-A	22	
20	RS1-14019	HOPPER COVER	4	
21	JLN 10	NUTS FOR BEARING	4	
22	S3M-10-264	TIMING BELT	4	
23	RS1-14023	KNOB	4	
24	Ф3 X 8	PARALLEL PIN	12	
25	RS1-14024	KNOB	8	
26	RS1-14020-01	MOTOR COVER-A	2	
27	RS1-14021-01	MOTOR COVER-B	2	
29	RS1-14010	DISK 4-5MM	2	
33	RS1-14011	DISK 6-7MM	2	
34	RS1-14043	BRUSH BRACKET	4	
35	Brush	BRUSH	4	

### 7-8 CYLINDER BASE ASS'Y



5	)		242	)
NO.	PARI NU.	PARI NAME	Q Y	HEMIAHK
55	RS1-14034	FITTING TABLE		
56	SS3YJ7-42R-02-01	MANIFOLD	-	
57	SYJ714R-5LZ	SOLENOID VALVE	2	
63	FL08-02S	ELBOW FITTING	10	1/4 - Φ8
64	FH08-02S	STRAIGHT FITTING	2	1/4 - Φ8
65	DVM1-40-03-C4	MANIFOLD	<u> </u>	
66	DV1140-5H	SOLENOID VALVE	ω	
73	FL08-01S	ELBOW FITTING	-	1/8 - Φ8
74	SL200-02	SILENCER	2	1/8
75	DVM3-40-02C6	MANIFOLD		
76	DV3240-5H	SOLENOID VALVE	2	
83	SL200-02	SILENCER	ω	1/4
84	CKV330-4E-02	SOLENOID VALVE	2	
85	CV-15HS	VACUUM EJECTOR	2	
86	SC300	SILENCER	2	1/4
87	VF200-06	VACUUM FILTER	ω	
91	FTW08-00	CROSS FITTING	2	Ф8
92	FL06-M5	ELBOW FITTING	<del>ت</del> ــ	M5 - Φ6



10		18	17	16	15	14	13	12	11	10	9	8	7	6	Ϋ́	4	ω	2		NO.
rhuo-uso	EH08-035	FL08-03S	FL08-02S	FE-08-00	PHONE MODULAR JACK	IR-06-22-H	RS1-15010	RS1-15009-01	RS1-15011-01	RS1-15012-01	RS1-15008-01	RS1-15018	RS1-15016	RS1-15017	RS1-15015-01	PR2-02BG	PP3-02BG	CWS-500	RS1-15013	PART NO.
STRAIGHT FITTING	STRAIGHT FITTING	ELBOW FITTING	ELBOW FITTING	판녤취부용	LAN CONNECTOR	POWER CONNECTOR	BRACKET-5	BARACKET-4	CABLE COVER	DOOR PANEL	BACK PANEL	TOP PANEL-R	TOP PANEL-L	SIDE PANEL	BRACKET-6	REGULATOR	FILTER-REGULATOR	AIR FILTER	INNER PANEL	PART NAME
	-	<b></b>	ယ	_	-	_	1	6	-	-	-		_	2	J	-	-	-		QT'Y
σ/σ – Φο	800 - 8/2	3/8 - 08	1/4 - 08	80 - 80	8 PIN	1¢ POWER SOURCE														REMARK

### 7-10 FRONT AIR COMPONENT ASS'Y



NO.	PART NO.	PART NAME	Q'TY	REMARK
1	RS1-16001	COVER BODY ASS'Y	۲	
2	RS1-16002	WINDOW COVER ASS'Y	-	
ယ	RS1-16003	GLASS TOP	T	
4	RS1-16005	GLASS FRONT	1	
J	RS1-16007	GLASS HOLDER	4	
6	BL0303	MAGNETIC SWITCH	-	

7-11 COVER ASS'Y



## **Chapter. 8 Eletric Parts List**

Instrument and parts list of this equipment is provided. For the standard product, the model name designated by the manufacturer is stated, while for other parts and the parts manufactured by the company, a serial number is provided. When you inspect or replace the instrument, refer to the list in this chapter when you contact the dealer.

8-1 X-AXIS ASS'Y
8-2 Y-AXIS ASS'Y
8-3 PICK & SETTING MOTOR ASS'Y
8-4 PICK & SETTING MODULE ASS'Y
8-5 STONE CHANGE ASS'Y
8-6 PNEUMATIC ASS'Y
8-6 PNEUMATIC ASS'Y
8-7 PANEL ASS'Y
8-8 CONTROL BOX ASS'Y
8-9 POWER CONNECTER ASS'Y
8-10 CONTROL BOX ASS'Y

## X-AXIS ASS'Y RS1-12000-1

NO			CABLE NO.	
Ч	PHOTO SENSOR	X+ELS	18	BS5-L2M(AUTONICS)5102-03(F)_MOLEX
2	PHOTO SENSOR	Y+ELS	20	BS5-L2M( AUTONICS )5102-03(F)_MOLEX
ω	MOTOR	×	л	TS3653N3E9(TAMAKAWA)5557-06(F)_MOLEX
4	PHOTO SENSOR	Yols	19	BS5-L2M( AUTONICS )5102-03(F)_MOLEX
л	PHOTO SENSOR	Xols	17	BS5-L2M( AUTONICS )5102-03(F)_MOLEX

### 8-1 X-AXIS ASS'Y



# Y-AXIS ASS'Y RS1-12000-2

5	
	MOTOR

8-2 Y-AXIS ASS'Y


# PICK & SETTING MOTOR ASS'Y RS1-13000-1

NO			CABLE NO.	
ч	MOTOR	LOAD-RIGHT (B)	9	BS5-L2M(AUTONICS)5102-03(F)_MOLEX
2	MOTOR	LOAD-LEFT (A)	8	BS5-L2M( AUTONICS )5102-03(F)_MOLEX
ω	MOTOR	UNLOAD (Z)	7	TS3653N3E9(TAMAKAWA)5557-06(F)_MOLEX
4	VACUUM SENSOR	UNLOAD VACUUM .	67	BS5-L2M( AUTONICS )5102-03(F)_MOLEX
ы	VACUUM SENSOR	LOAD VACUUM	68	BS5-L2M( AUTONICS )5102-03(F)_MOLEX
თ	PHOTO SENSOR	LOAD-RIGHT(B) OLS	15	BS5-T2M(AUTONICS)5102-03(F)_MOLEX
7	PHOTO SENSOR	LOAD-LEFT(A) OLS	14	BS5-T2M(AUTONICS)5102-03(F)_MOLEX
∞	PHOTO SENSOR	UNLOAD (Z)OLS	16	BS5-T2M(AUTONICS)5102-03(F)_MOLEX



## PICK & SETTING RS1-13000-2

NO			CABLE NO.	
1	CYLENDER SENSOR	load-left down(A)	25	W8H(TPC)5102-03(F)_MOLEX
2	CYLENDER SENSOR	LOAD-RIGHT DOWN(B)	26	W8H(TPC)5102-03(F)_MOLEX
ω	CYLENDER SENSOR	UNLOAD UP(Z)	28	W8H(TPC)5102-03(F)_MOLEX
4	CYLENDER SENSOR	UNLOAD DOWN(B TYPE)	27	W8H(TPC)5102-03(F)_MOLEX

## 8-4 PICK & SETTING MODULE ASS'Y



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CYLENDER SENSOR	CYLENDER SENSOR	CYLENDER SENSOR	CYLENDER SENSOR	MOTOR	PHOTO SENSOR	MOTOR	PHOTO SENSOR	MOTOR	PHOTO SENSOR	MOTOR	PHOTO SENSOR	
#3,4 R	#3,4 F	#1,2 R	#1,2 F	#4 BASKET	#4 BASKET OLS	#3 BASKET	#3 BASKET OLS	#2 BASKET	#2 BASKET OLS	#1 BASKET	#1 BASKET OLS	
24	22	23	21	4	13	ω	12	2	11	Ч	10	CABLE NO.
D-C73K(TPC)5102-03(F)_MOLEX	D-C73K(TPC)5102-03(F)_MOLEX	D-C73K(TPC)5102-03(F)_MOLEX	D-C73K(TPC)5102-03(F)_MOLEX	FL42STH38-1206B-12JST-06P(M)JST	BS5-T2M(AUTONICS)5102-03(F)_MOLEX	FL42STH38-1206B-12JST-06P(M)JST	BS5-T2M(AUTONICS)5102-03(F)_MOLEX	FL42STH38-1206B-12JST-06P(M)JST	BS5-T2M(AUTONICS)5102-03(F)_MOLEX	FL42STH38-1206B-12JST-06P(M)JST	BS5-T2M(AUTONICS)5102-03(F)_MOLEX	



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$\geq$	1
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N	
1	-

NO			CABLE NO.	
1	SOLENOIDE	LOAD VACUUM	53	SOLENOIDEI/O board
2	SOLENOIDE	load des.	54	SOLENOIDEI/O board
З	SOLENOIDE	UNLOAD VACUUM	53	SOLENOIDEI/O board
4	SOLENOIDE	UNLOAD DES	54	SOLENOIDEI/O board
м	SOLENOIDE	LEFT BYPASS	55	SOLENOIDEI/O board
<u>б</u>	SOLENOIDE	RIGHT BYPASS	55	SOLENOIDEI/O board
7	SOLENOIDE	RIGHT DOWN	56	SOLENOIDEI/O board
∞	SOLENOIDE	UNLOAD DOWN	56	SOLENOIDEI/O board
9	SOLENOIDE	LEFT DOWN	56	SOLENOIDEI/O board
10	SOLENOIDE	#1,2 CYL F	58	SOLENOIDEI/O board
	SOLENOIDE	#3,4 CYL F	58	SOLENOIDEI/O board
12	SOLENOIDE	#1.2 CYL R	57	SOLENOIDEI/O board
13	SOLENOIDE	#3,4 CYL R	57	SOLENOIDEI/O board
14	TERMINAL BOARD	IO BOARD		



## PANEL ASS'Y RS1-15000

	CONTROL BOX	terminal board	SMPS	TERMINAL BLOCK	STEP DRIVE							
			300W 24V		HU	ΗZ	ΗΥ	HX	Z	A,B	X,Y	
			PW-NC300		NCK-303	NCK-303	NCK-303	NCK-303	IST-302	MRCF-2022	MRCF-2022	



# CONTROL BOX ASS'Y RS1-15000-2

NO				
4	CONTROL BOX	CONTROLLER		
NO				
	ADC		69	CONTROL BOXIO TERMINAL BOARD
	PLS_AB		34	CONTROL BOXPULSE TERMINAL BOARD
	PLS_XY		33	CONTROL BOXPULSE TERMINAL BOARD
	OUTP		30	CONTROL BOXIO TERMINAL BOARD
	PLS		32	CONTROL BOXPULSE TERMINAL BOARD
	ENC			N.C
	FLAG		29	CONTROL BOXIO TERMINAL BOARD
	INP		31	CONTROL BOXIO TERMINAL BOARD
	PS2			EXTERNAL KEYBOARD
	USB			USE UPDATE
	LAN			LAN
	OP		35	CONTROL BOXOP PANEL
	VGA			CONTROL BOXVGA MONITOR

## 8-8 CONTROL BOX ASS'Y



РО	WER CONNECT	RS1-15001-3		
NO			CABLE NO.	
1	CONNECTOR	POWER		
2	CONNECTOR	LAN		

## 8-9 POWER CONNECTER ASS'Y



# CONTROL BOX ASS'Y RS1-15000-2

NO			CABLE NO.	
4	LED			
2	LED CABLE			
З	LED			
4	LED CABLE			
ы	PUSH LOCK S/W	EMERGENCY SWITCH		
თ	KEY SWITCH	POWER SWITCH		
7	LCD MONITOR	6.5″		
∞	MONITOR CABLE			

## 8-10 CONTROL BOX ASS'Y



## Appendix A: Vacuum Sensor and Nozzle Setting

This equipment uses the vacuum to suck the materials. The vacuum makes the inside of the nozzle a vacuum status to suck the materials. Therefore, if the vacuuming status is not uniformed, it may take long time to suck the materials or operation may not be available. The following explains how to set up vacuum for smooth operation.

<u>A-1 Main Regulator</u> <u>A-2 Vacuum Value per Nozzle</u>

## A-1 Main Regulator

When you open the front door in the lower part of this equipment, an electronic panel appears. On the left side of the electronic panel, 2 regulators are installed to maintain the air pressure in a constant level. 1 regulator is for vacuum and the other is for nozzle up/down function.



1	Air Pressure Control Lever – Vacuum
2	Air Pressure Gauge – Vacuum
3	Air Pressure Control Lever – Cylinder
4	Air Pressure Gauge – Cylinder



1	Central Nozzle Vacuum Sensor Monitor
2	Side Nozzle Vacuum Sensor Monitor
3	Central Nozzle Block
4	Side Nozzle Block (Right)

- Cylinder Air Pressure Setting
- When you pull the air pressure control lever for cylinder upward, you can turn the lever.
- Adjust the lever to make the gauge gradation meet 0.3MPa. -
- Press the lever for fixing.
- Vacuum Air Pressure Setting
- Turn 'ON' the equipment power. -
- After booting the system, move to 'General I/O' screen in 'Control Panel' (Refer to 3-6-5 General I/O)

General IN/OUT Test									
	0	~	~	INPO	RT	~	~	~	
	<u> </u>	2	6	5	4	~	2	4	
	ŏ	6	ŏ	0	<b>0</b>	0	Ó	<u> </u>	
	16	15	14	13	12	11	10	9	
	0	0	0	0	0	0	0	Ō	
	24	23	22	21	20	19	18	17	
	0	0	0	UUTP	UKT	0			
		,	6	5	4	3	~		
	ŏ	0	ŏ	Ő	0	0	៍	0	
	16	15	14	13	12	11	10	9	LD – VAC.
									0.93
									UNLD - VAC.
0.91									
1. Sol. : Load(Left) - Up/Down									
	\$		-			6		/	
ON OFF				6					$\bigcirc$ $\bigcirc$

- Move the cursor to No. 6 in OUTPORT and touch 'ON.' \_
- The central nozzle becomes vacuumed and the value in the displayer is changed.
- When you pull the air pressure control lever for vacuum upward, you can turn the lever. -
- Adjust the <u>AIR PRESSURE CONTROL LEVER</u> in \*A-1 to make the central sensor monitor gradation<sup>2</sup> meet -62.5. At this time, the gauge gradation points to about 0.55MPa.
- Press the lever for fixing.
- When you touch 'Off' in Controller, the vacuum turns OFF.

## CAUTION BEFORE USAGE MACHINE

Operater have to meet air pressure data to -62.5 in order to proper run.



## A-2 Vacuum Sensor and Setting Value per Nozzle

When you purchase this machine, the total of 6 kinds of nozzles, including the nozzle installed on the machine, is provided. Each nozzle can be used in a different way, depending on its material types and sizes.

The below table is the test condition in the factory. Depending on the user or the type of materials, the setting value may vary slightly.

For vacuum sensor input value and setting value input method, refer to '3-5 Test and Setting.'



1	Vacuum Sensor Monitor	Side Nozzle
2	Vacuum Sensor Monitor	Central Nozzle
3	Vacuum Sensor Input Value	Side Nozzle
4	Vacuum Sensor Input Value	Central Nozzle
5	Vacuum Sensor Output	Side Nozzle/Central Nozzle
	(Setting) Value	

## • Rhinestone

Nozzle	Material	Vacuum Sensor	Controller	Controller	Installation Place
	Size(mm)	Monitor Output	Screen Output	Setting Value	
		Value	Value		
А					
В					
С					
D					
2					
3					

## • Rhinestud

Nozzle	Material	Size	Vacuum Sensor	Controller	Controller	Installation Place
	(mm)		Monitor Output	Screen Output	Setting Value	
			Value	Value		
А						
В						
С						
D						
2						
3						

