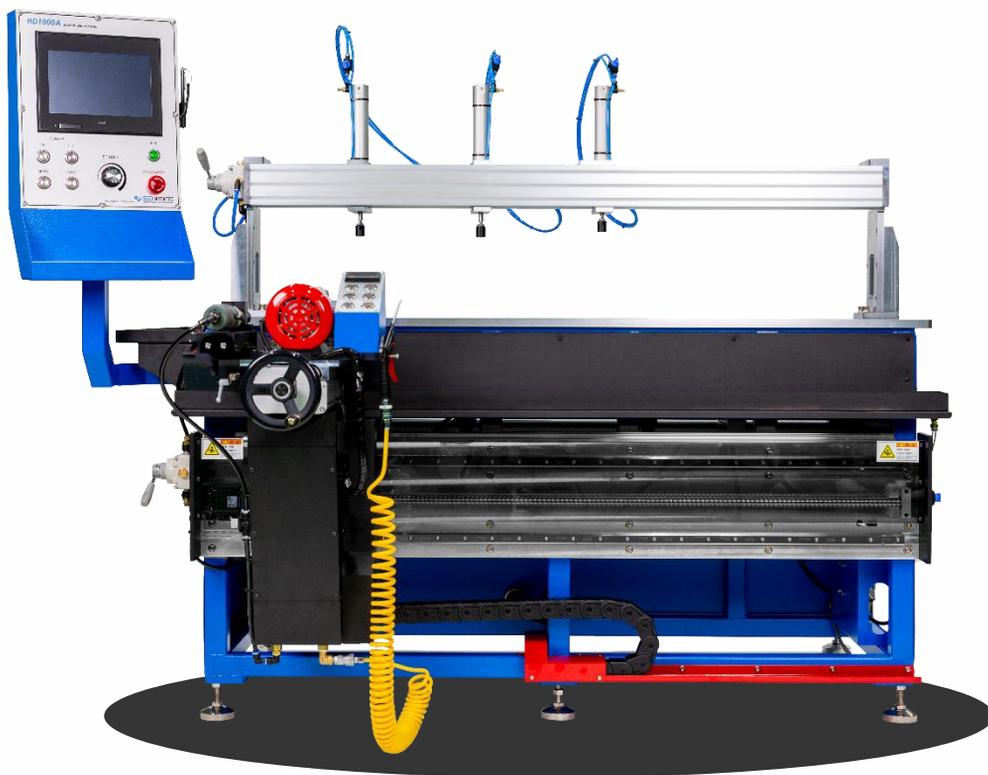


Horizontal Drilling & Tapping Machine

HD1000A

Patent No. 10-1715643 / Design Patent No. 30-0898279 (KR)

Instruction Manual



Control Panel Functions



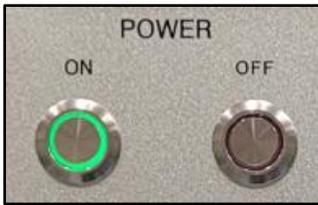
- 1 Main touch panel for inputting machine data.
- 2 Turns the machine's power ON and OFF. To turn t OFF, press the EMERGENCY button first, then press the OFF KEY.
- 3 Initializes the servo motor and PLC of the machine.
- 4 Button to reset the system in case of an error.
- 5 The spindle rotation speed can be adjusted. (Max 2400rpm)
- 6 Emergency stop button for use in case of a hazard. (EMERGENCY KEY)
To protect the servo motor, press the EMERGENCY KEY first before turning the machine OFF
- 7 Indicator lamp showing the machine is ready to operate.
- 8 Displays depth during Y-axis drilling. (Press RESET to reset to zero)
- 9 SPINDLE rotation can be turned ON or OFF.
- 10 Switches to drilling mode.
- 11 Switches to tapping mode. (During this mode, the drill spindle does not operate.)
- 12 The X/Z axis automatically moves sequentially to the positions set on the touch screen.
- 13 Quickly returns to the home position after completing the X-axis operation.

Instructions for touch operation will be provided in a separate manual.

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- Ensure that each operation is fully completed before proceeding to the next.
 - Pressing multiple keys simultaneously may cause the equipment to malfunction.
 - This machine uses Mitsubishi PLCs and servo motors for high performance.
 - Modifying or disassembling the equipment is strictly prohibited to prevent safety hazards.

Operating Procedure

1 POWER



Turn on the machine by pressing the "ON" button in the POWER section of the control panel.

2 ORIGIN



Initialize the machine by pressing the ORIGIN KEY on the control panel. Once completed, the key will light up, and the green light on the signal tower will turn on.

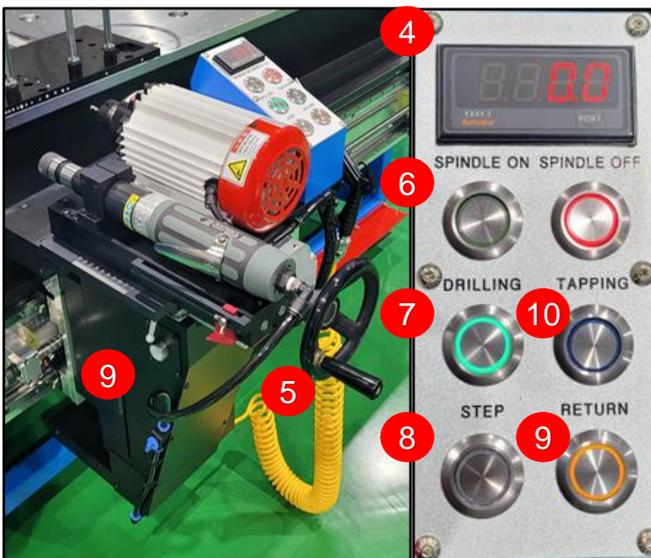
3 TOUCH PANEL



Input the required settings using the touch screen as needed

- Drill Quantity (1~20)
- Position Dimension Values (X-axis, Z-axis)
- Spindle Speed (Max 2400rpm)
- Home Position Setting
- Division Value

CONTROL



4. Displays the machining depth. Pressing the "RESET" button will reset it to zero.

5. During machining, use the handle to determine the machining depth.

6. Turns the spindle motor power ON/OFF.

7. Switches to drilling mode.

8. The X/Z axis automatically moves to the position values or division values set on the touch screen. There are two buttons, located on the left side of the handle and next to the spindle.

9. "RETURN" KEY quickly returns the machine to the home position after machining is completed.

10. Switches to TAPPING mode. The home position will be reset based on the tapping spindle, according to the drilled position.

Basic Operation Guide (Touch Screen)



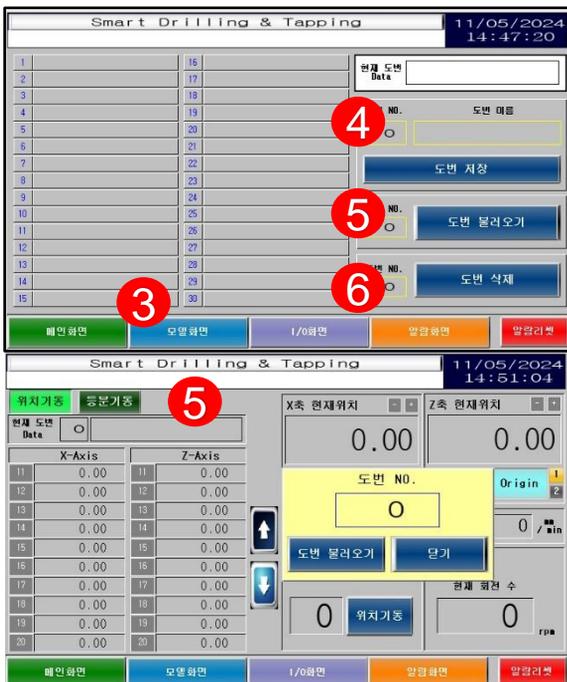
- 1 Positioning Start (위치기동): A method of machining by entering the drill quantity and absolute position values. Division Positioning Start (등분기동): A method where the machine moves to the exact dimensions as the handle movement.
- 2 Displays the current drawing data. Touching will retrieve the saved data.
- 3 X/Z axis values can be directly entered on the touch screen. The X-axis allows values to be entered from 1 to 20, and for the Z-axis, entering value 1 will apply the same dimension to values 1 through 20. (Pressing the RESET key for 3 seconds will initialize the entered data to zero.)
- 4 Displays the current position of the X/Z axis after setting the home position.
- 5 If the colors of the "Servo On" and "Origin" are light blue, it is normal. If not, press the READY KEY.
- 6 Servo Motor travel speeds for X/Z axis. Maximum speed: X-axis 15,000mm/min, Z-axis 8,000mm/min.
- 7 To move to a pre-stored position in one step, input the corresponding number and press the "Position Start (위치기동)" button to initiate travel to the specified coordinates.
- 8 Spindle rotation speed. Maximum speed: 2,400rpm. RPM can be adjusted using the dial on the control panel.

Basic Operation Guide (Touch Screen)



- 1 Press the "Division Positioning Start (등분기동)" button to activate the function.
- 2 Touch the numeric field labeled as number 2, input the desired values (X-axis, Z-axis), and press the spindle's STEP KEY. The machine will move to the specified position from its current location.

Model Registration & Loading



- 3 **Model Screen**
Tap the "Model Screen (모형화면)" button at the bottom of the screen to display the screen on the left.
- 4 **Drawing Number Save**
Touch the "Drawing NO. (도면 NO.)" field, input the number and drawing details, then press and hold the "Save Drawing (도면 저장)" button to store the currently entered data.
- 5 **Load Drawing Number**
Method 1) Enter the drawing number to be loaded and press "Load Drawing (도면 불러오기)" to retrieve the entered DATA
Method 2) Tap "Current Drawing DATA (현재 도면 DATA)" on the main screen, input the saved drawing number, and press "Load Drawing Number" to retrieve the saved data.
- 6 **Delete Drawing Number**
Input the drawing number to be deleted, then press and hold "Delete Drawing (도면 삭제)" to remove the saved data.

Origin Setting Method



1 Administrator Mode

Press and hold the number corresponding to the axis you want to set the origin (1 for the X-axis, 2 for the Y-axis) for 3 seconds. A “beep” sound will indicate that the Administrator Mode screen has appeared.

2 Copy Current Position

Move to the origin position using the JOG function, then press “Copy Current Position (현재위치 복사)” button to set the current location as the working origin position.

3 Working Origin Position Adjustment

Tap to adjust the working origin position. To move the origin to the left (more negative than the origin) from the default value of -3, add negative (-) value. To adjust the origin to the right (less negative or positive than the origin), add positive (+) value. Generally, the default value is negative(-), so moving left increases the negative value, while moving right decreases its magnitude.

The working origin can be set in two modes by selecting either 1 or 2, which will be displayed on the main screen. Additionally, the working origin can be individually adjusted for the X/Z axis.



4 TAPPING Offset

Enter the center distance value between the spindle and the air tapping tool using the touch screen. (The X-axis offset value is designed as 150mm.)

5 Interlock Sensor

For safety reasons, the STEP (position movement) key is disabled during drilling operations.

In the event of sensor damage or other issues, you can enable or disable the interlock sensor in the Z-axis Administrator Mode. Press and hold the button for 3 seconds to switch between enabled and disabled. For safety purpose, the sensor is set to “enabled” by default at the time of shipment.



Periodic Inspection Checklist

This machine requires regular inspections to maintain proper functionality.

Category	Location	Inspection Item & Action	Frequency
Drive System	X-axis LM GUIDE	Apply Grease	Every 1 month
	X-axis Ball Screw	Apply Grease	Every 1 month
	Y-axis LM GUIDE	Apply Grease	Every 2 month
	Y-axis Ball Screw	Apply Grease	Every 2 month
	Air Tapping Tool	Apply Spindle Oil	Regular Checks
Dust/Cleaning	X-axis Sensor	Check for contamination or damage caused by cutting fluid of chips	Regular Checks
	Control Box	Check for contamination or damage caused by cutting fluid of chips	Regular Checks

WARNING

- . Ensure the emergency stop button functions properly before starting work.
- . This machine does not have protective covers. Do not arbitrarily increase the operating speed or modify the machine. The manufacturer is not responsible for accidents caused by unauthorized modifications or improper use.
- . Please maintain cleanliness and organization in the surrounding work area.
- . Restrict access to individuals other than the operator during operation to prevent safety accidents.
- . Perform regular maintenance and cleaning as specified in the inspection checklist.



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