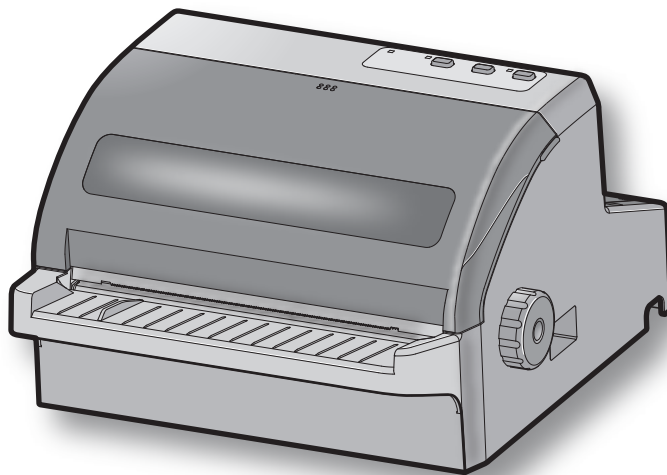
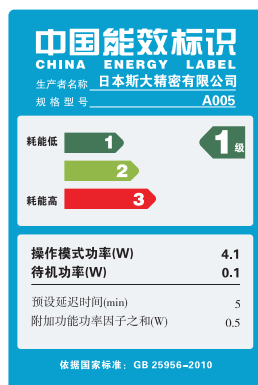


# **DOT MATRIX PRINTER SP6000 SERIES**

## **Hardware Manual**



< Approval: CEL >



### Trademark acknowledgments

SP6000 : Star Micronics Co., Ltd.

### Notice

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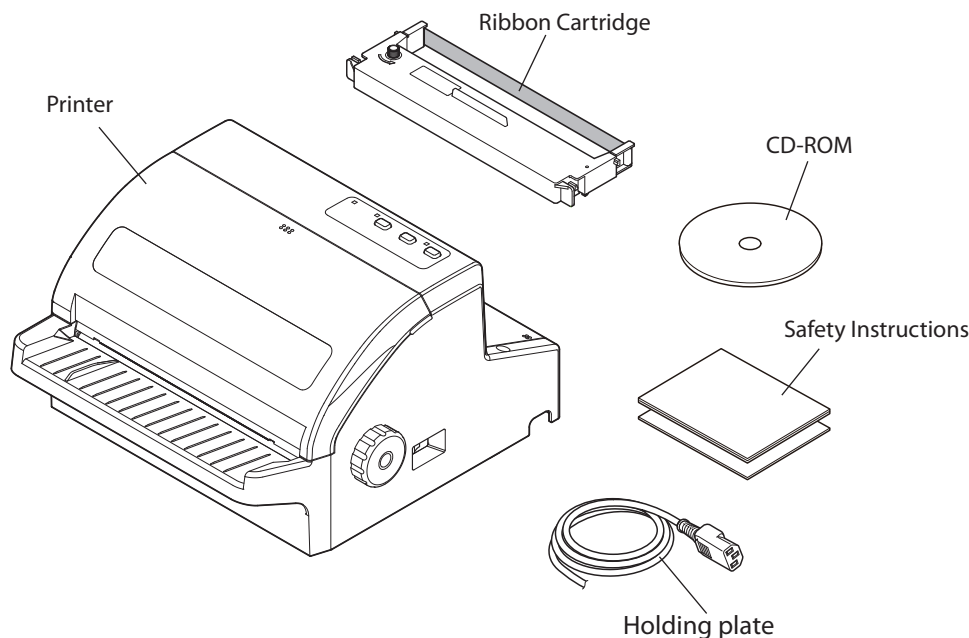
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# 1. Unpacking and Installation

## 1-1. Unpacking

After unpacking the unit, check that all the necessary accessories are included in the package.



\* Accessories vary depending on the model and the region where the printer was purchased.

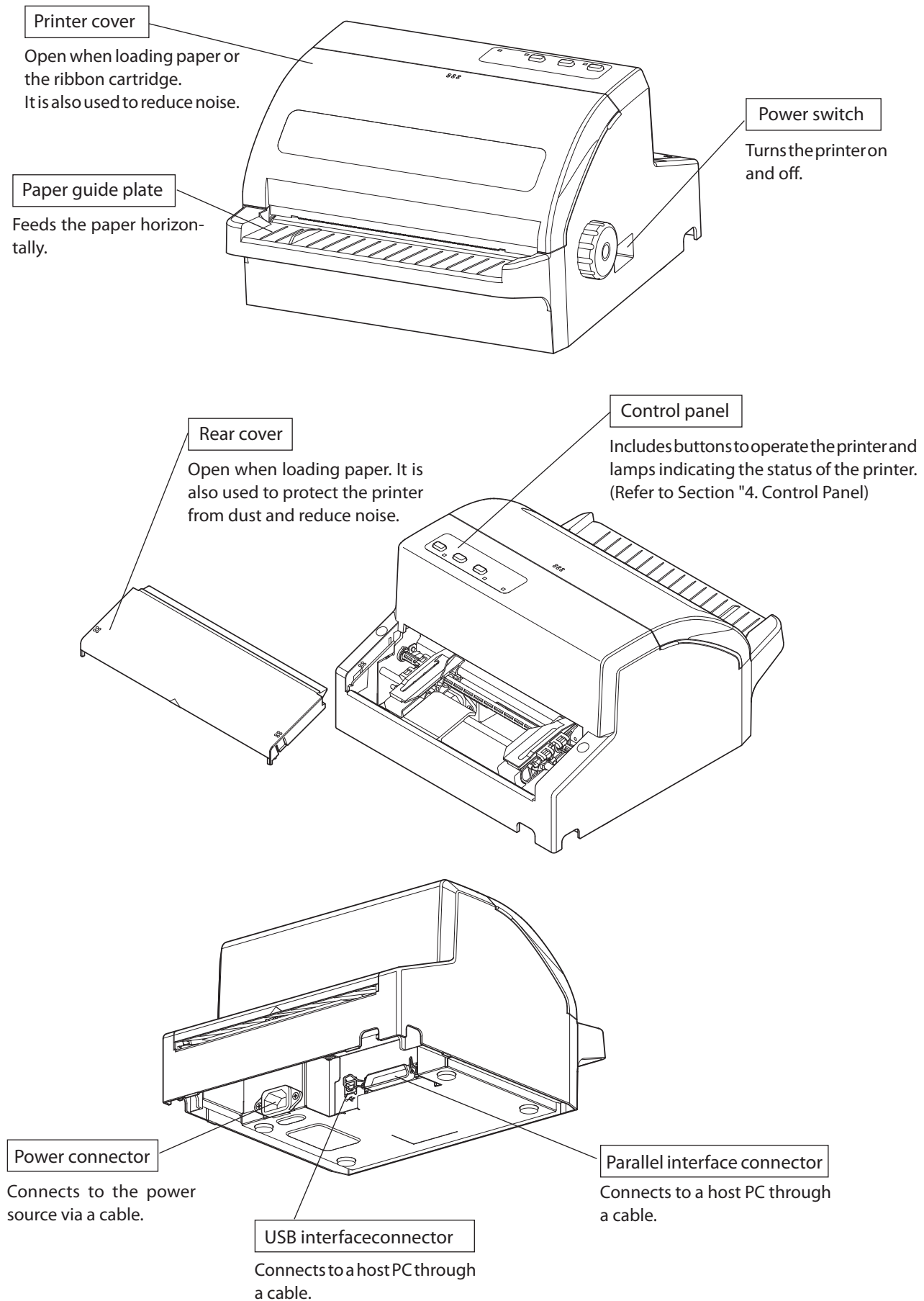
## 1-2. Notes about Installation

1. Choose a firm, level surface where the printer will not be exposed to vibration.
2. Make sure that the printer is connected to a reliable power outlet. It should not be on the same electric circuit as copiers, refrigerators, or other appliances that cause power spikes.
3. The power outlet you plan to connect to for power should be nearby and unobstructed.
4. Make sure that the printer is not exposed to direct sunlight.
5. Make sure that the printer is well away from heaters and other sources of extreme heat.
6. Do not locate the printer in a badly ventilated or dusty environment.
7. Make sure that the room where you are using the printer is not too humid.
8. Use the printer within the boundaries indicated in the environmental requirements. Even when the ambient temperature and humidity are within the specifications, avoid radical changes in environmental conditions. The suitable operating temperature range is as follows:

Temperature	Operating: 0°C to 35°C Stand-by: -30°C to 65°C
Humidity	Operating: 30% to 80% Stand-by: 20% to 90%

9. When disposing of the printer, obey local regulations.

## 2. Parts Identification and Nomenclature

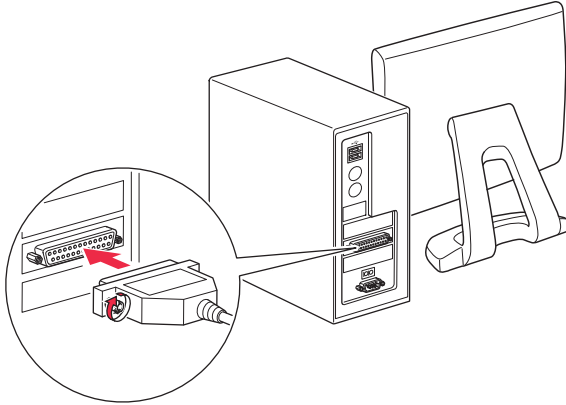


## 3. Setup

### 3-1. Connecting the Interface Cable to the PC

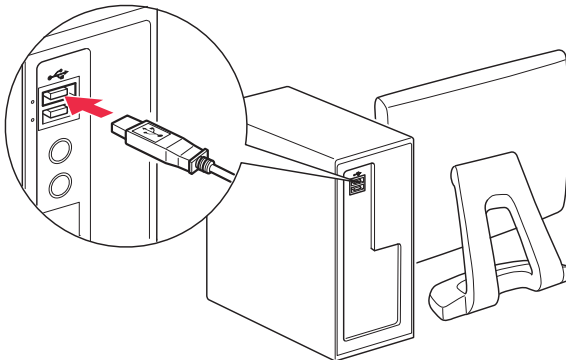
#### 3-1-1. Parallel Interface Cable

Connect the parallel cable to a parallel port on your PC.



#### 3-1-2. USB Interface Cable

Connect the USB cable to a USB port on your PC.



## 3-2. Connecting the Interface Cable to the Printer

Printer cables are not included in the package.

Obtain an appropriate cable that complies with the specifications beforehand.

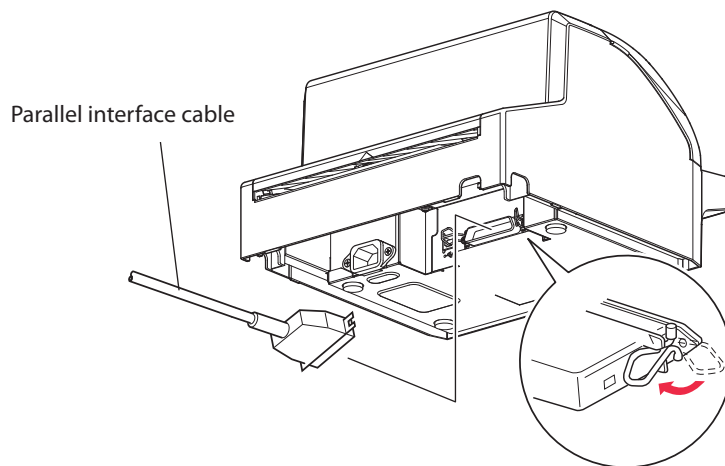
Because the appropriate interface cable differs depending on the system that you are connecting the printer to, contact the dealer that you bought the product from if you are unsure about what cable to use.

**Note:** Before connecting or disconnecting an interface cable, be sure to disconnect the power cable from the outlet.

### 3-2-1. Parallel Interface Cable

To connect a parallel cable, follow the procedure given below.

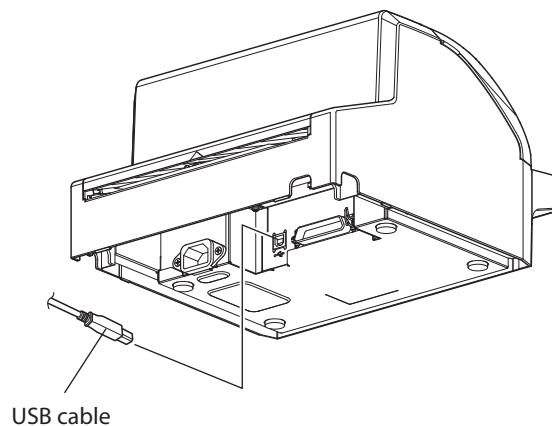
- (1) Make sure that the power cable is not connected to the outlet.
- (2) Connect the interface cable to the connector on the rear panel of the printer.  
Fasten the connector clasps.



### 3-2-2. USB Cable

To connect a USB cable, follow the procedure given below.

- (1) Make sure that the power cable is not connected to the outlet.
- (2) Connect the USB cable to the USB port.



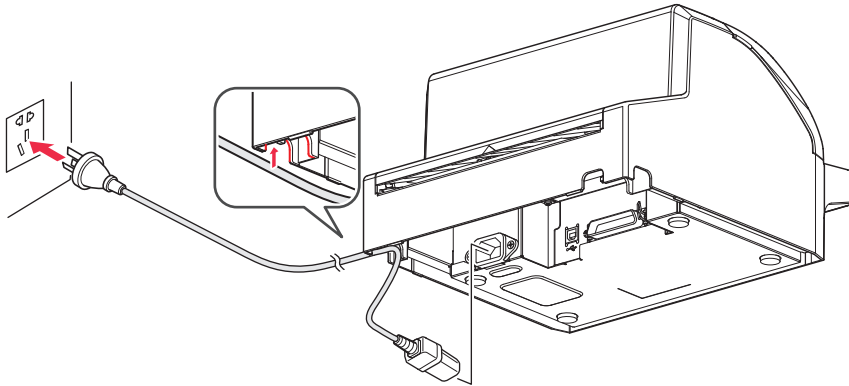
### 3-3. Connecting the Power Cable

**Note:** Before connecting or disconnecting the power cable, make sure that the printer and all the devices connected to it are turned off.

- (1) Connect the power cable to the connector on the printer.

**Note:** Use the power cable included with the printer.

- (2) Insert the power cable plug into the outlet.



**Note:** • The included power cable is for exclusive use with this product.

Rated voltage: 100 – 240 V (Inlet type). Frequency: 50/60 Hz

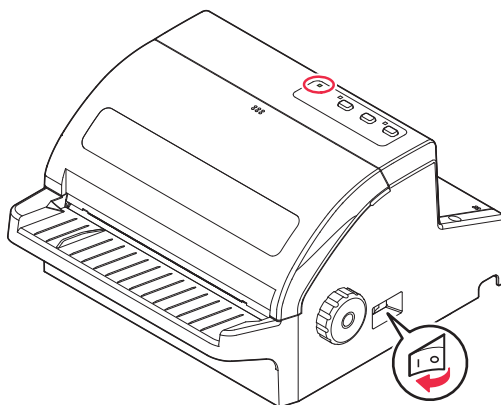
- Take into consideration the noise in the environment that the printer is installed in, and take appropriate measures to protect the printer from static electricity, AC line noise, etc.

### 3-4. Turning the Power On

Connect the power cable according to the procedure in section 3-3, “Connecting the Power Cable”.

Turn on the power switch on the right side of the printer.

The POWER lamp on the control panel will flash. (No paper status)





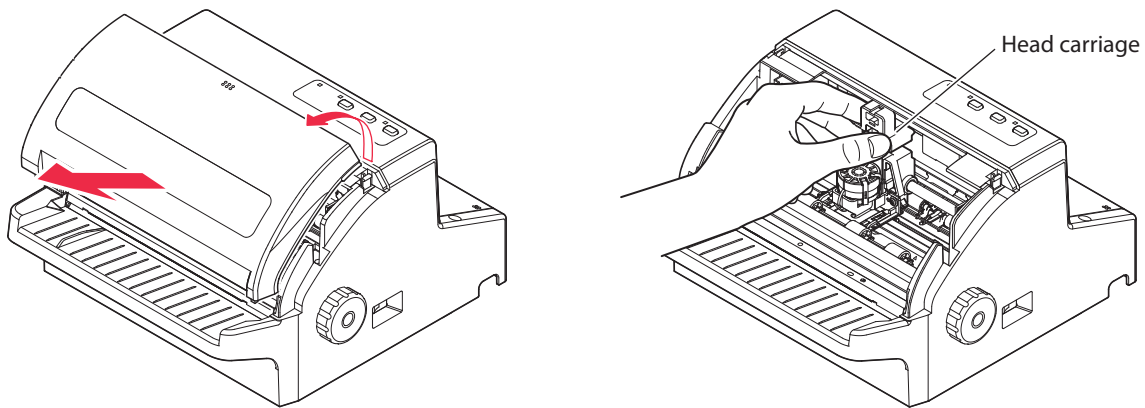
### 3-5. Ribbon Cartridge and Head Gap

When loading the ribbon cartridge or setting the head gap, make sure that the power cable plug is disconnected from the outlet.

#### 3-5-1. Loading the Ribbon Cartridge

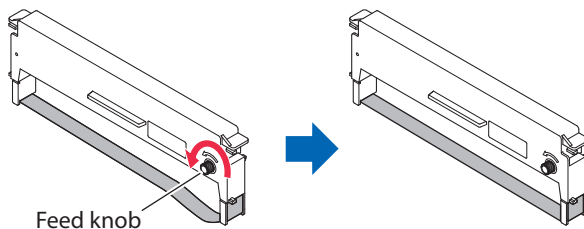
- (1) Make sure that the power cable is not connected to the outlet.
- (2) Remove the printer cover.

Hold the upper part of the head carriage and move it to the middle of the printer.

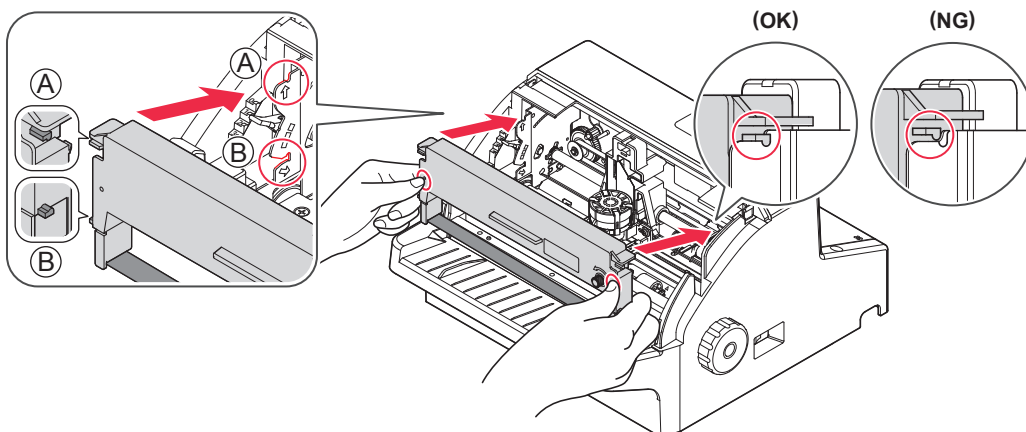


**Do not touch the print head immediately after printing because it may still be hot. When loading the ribbon cartridge, move the head carriage while holding its upper part.**

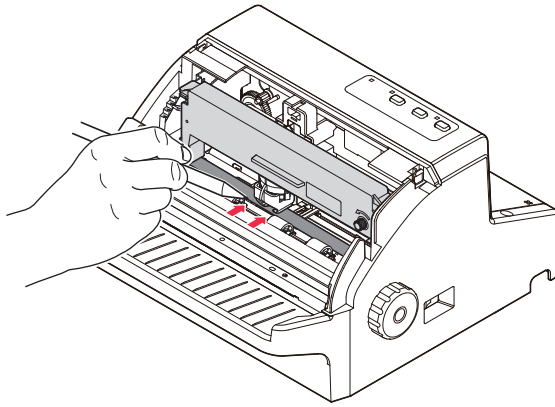
- (3) Rotate the ribbon feed knob in the direction of the arrow until the ink ribbon becomes tight.



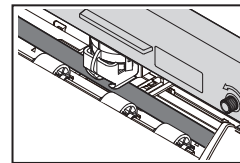
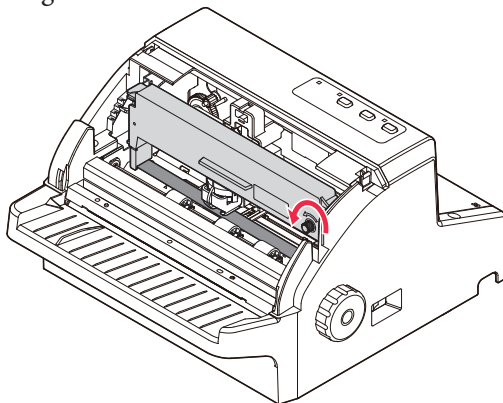
- (4) Please install the ribbon cassette to the printer securely following the illustration shown below.



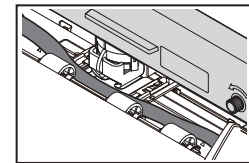
- (5) If the ink ribbon will not pass under the head easily, push in the ink ribbon using a thin object.



- (6) After loading the ribbon cartridge, rotate the ribbon feed knob again in the direction of the arrow until the ink ribbon becomes tight.



(OK)



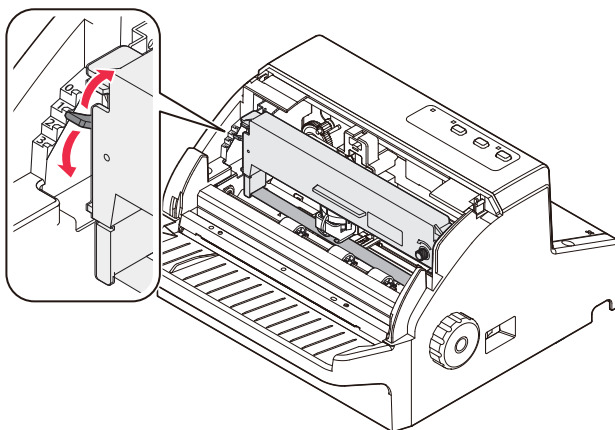
(NG)

### 3-5-2. Setting the Head Gap

Referring to the table below, adjust the head gap according to the paper type and thickness..

Head Gap Position	Paper Thickness (Total Thickness)
0	-
1(*1)	0.06 to 0.12 mm
2	0.12 to 0.16 mm
3	0.16 to 0.20 mm

(\*1: Head gap position 1 is the standard position.



After loading the ribbon cartridge or setting the head gap, attach the printer cover.

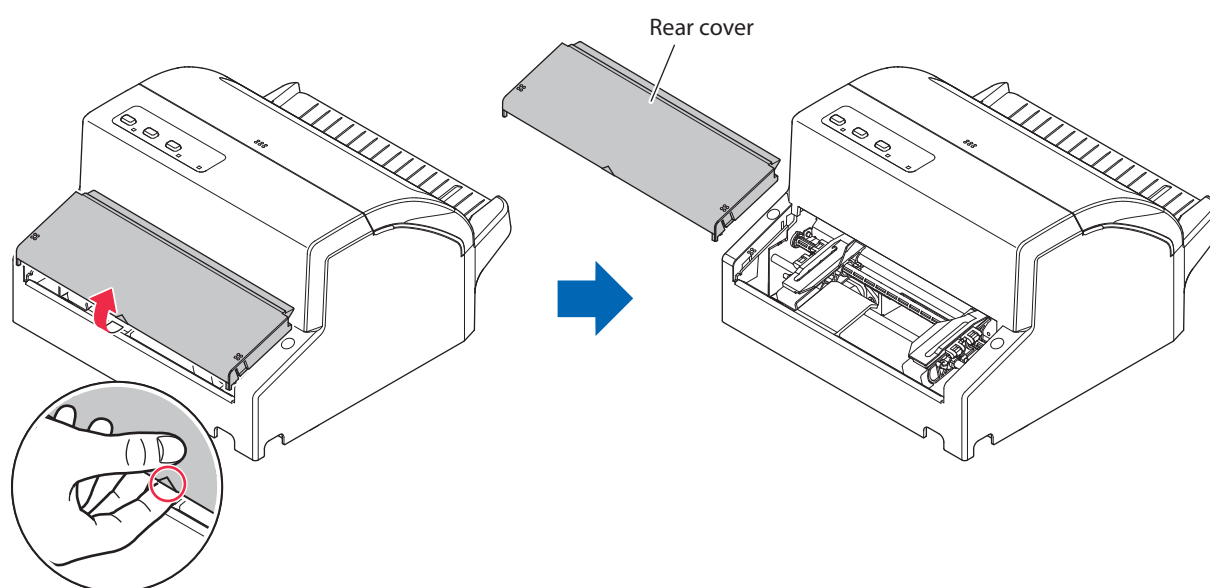
## 3-6. Loading a Fanfold Paper

### 3-6-1. Paper Specifications

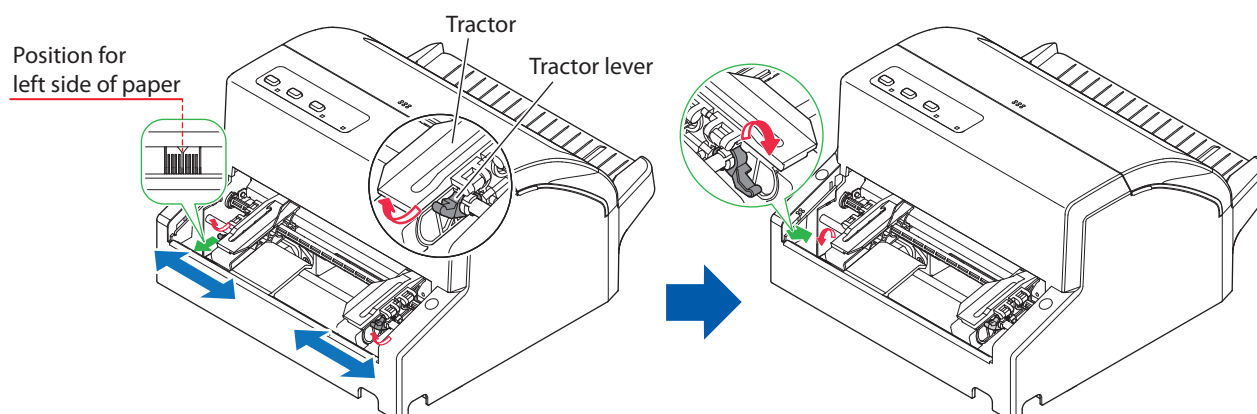
Paper width	88.9 to 152.4 mm (3.5 to 6.0 inches)
Paper Length (One page)	76.2 to 558.8 mm (3.0 to 22 inches)
Paper thickness	0.07 to 0.20 mm (70 to 200 $\mu$ m)
Copy Capability	3 sheets (Original + 2 copies)

### 3-6-2. Procedure

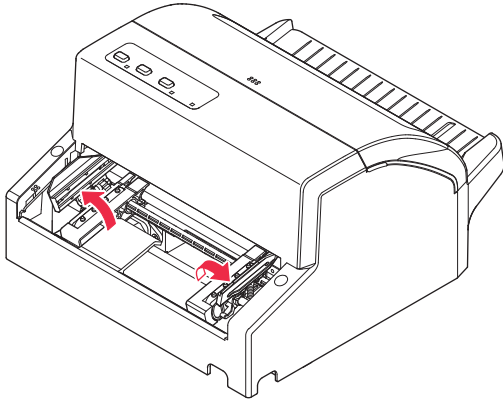
- (1) Turn on the power switch of the printer.
- (2) Referring to the figure below, remove the rear cover.



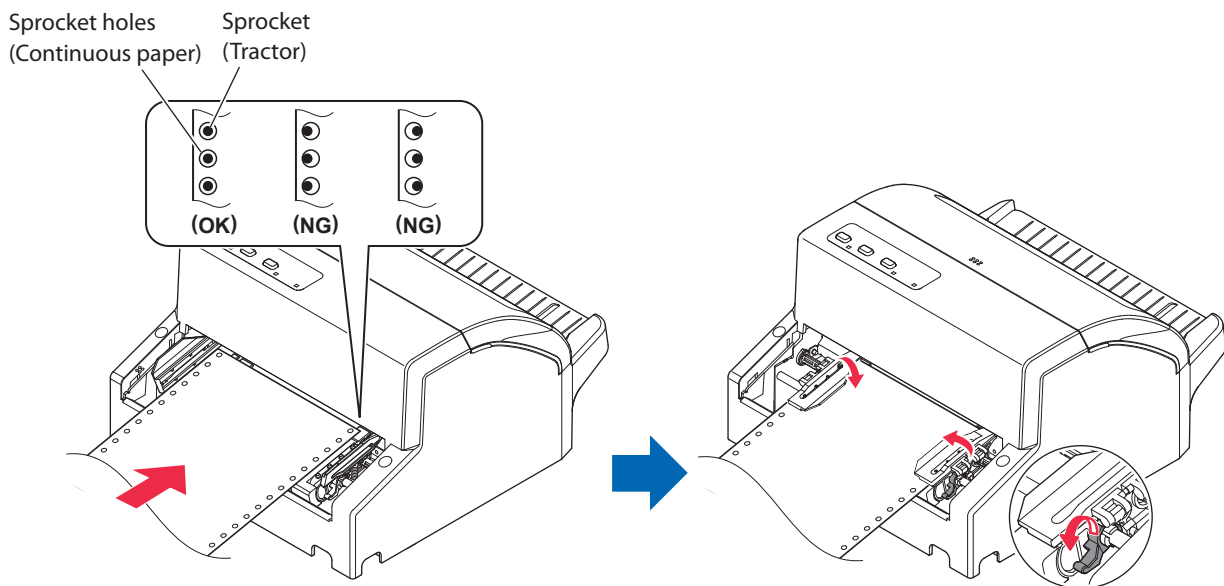
- (3) Raising the tractor lever on the outside of the tractor allows the tractor to be moved.  
If the tractor lever is lowered, the tractor's position is fixed.  
First, move the left side tractor using the scale as a guide, and then lower the tractor lever to secure it.



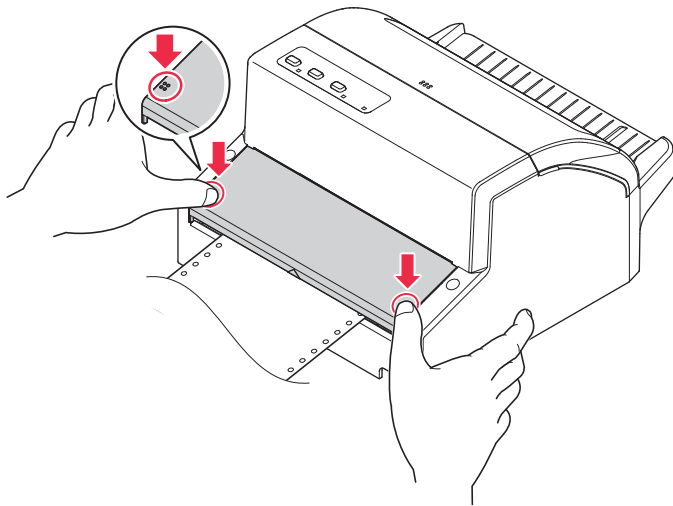
- (4) Open the tractors on the left and right side.



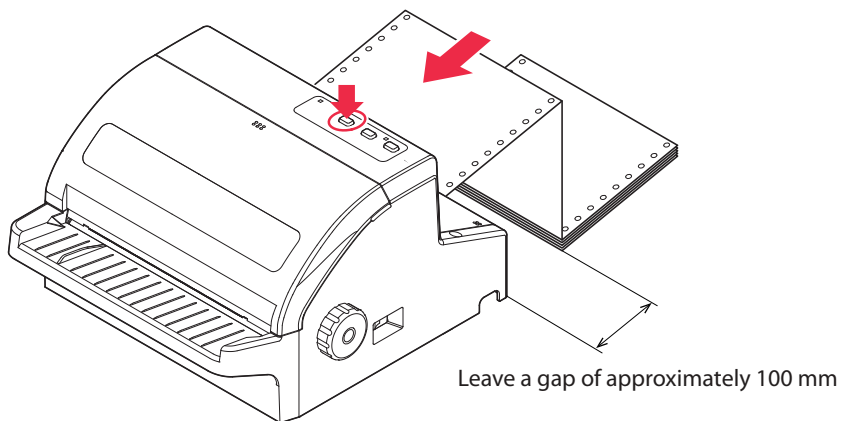
- (5) Set the fanfold paper so that the sprockets match the sprocket holes on the paper, and then close the tractors.
- (6) Adjust the position of the right side tractor, and then secure it.



- (7) Push the red circles in the figure below to attach the rear cover, paying attention to the attaching direction.

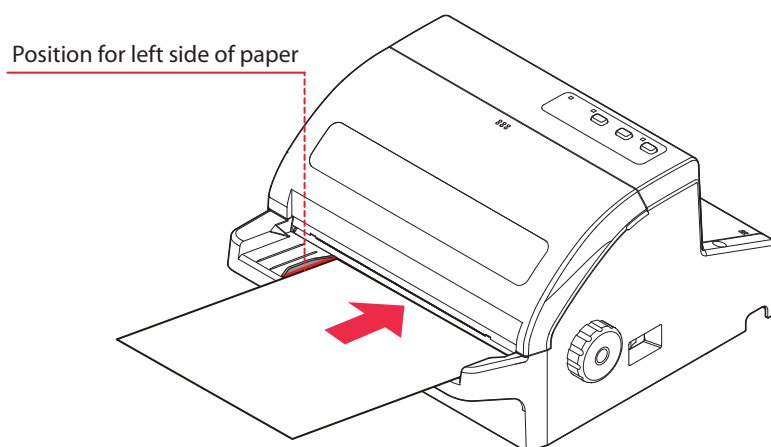


- (8) Press the SET/EJECT button on the control panel to automatically set the paper to the start printing position.  
For smooth feeding, it is recommended to place the continuous paper approximately 100 mm away from the printer.

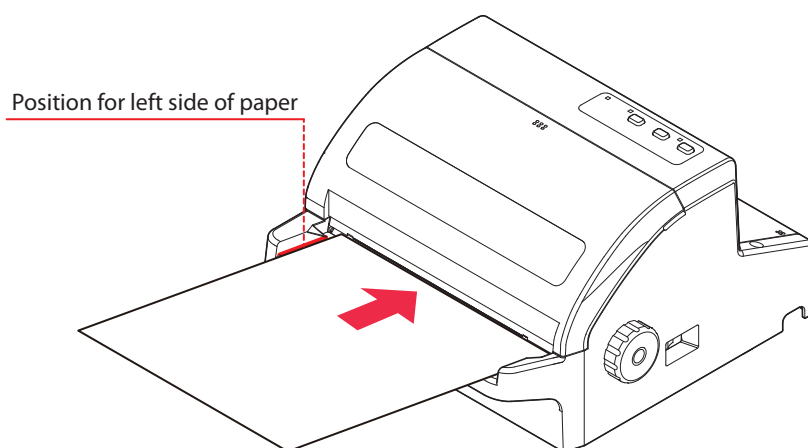



### 3-7. Loading a Cut Sheet

- (1) Turn on the power switch of the printer.
- (2) Set the left side guide to match the size of the paper, and then insert the paper straight in the direction of the arrow until it stops.



[ Supported Paper ] 1 sheet  
Paper width: 101.6 to 148.0 mm  
Paper Length: 101.6 to 210.0 mm  
Paper thickness: 0.07 to 0.18 mm



[ Supported Paper ] 1 sheet  
Paper size:  
A4 Portrait / A5 Landscape  
  
Paper thickness: 0.07 to 0.18 mm

- (3) The paper is automatically set to the start printing position.

**Note:** If cut paper is fed while fanfold paper is set on the tractors, the continuous paper will be released from the tractors. To use fanfold paper again, reset it onto the tractors.

## 3-8. Setup Precautions

### Caution Symbol



These symbols are located near the print head.

Because the thermal print head is hot immediately after printing, do not touch it.



This symbol is located near the screws securing the case or the protective plate, which should not be opened by individuals other than service personnel. Individuals, other than service personnel, should not remove these screws. High voltage areas in the case can be dangerous.

### **WARNING**

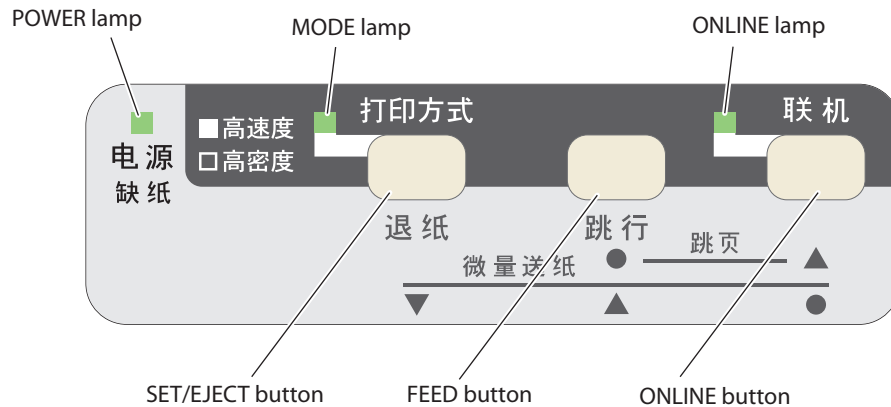
- If you notice smoke or strange odors coming from this product, turn the power switch off immediately, and remove the power cord from the AC outlet. For repairs, contact the dealer that you bought the product from.
- Never attempt to repair the product yourself. Doing so can be dangerous.
- Never disassemble or modify the product. Doing so may result in injury, fire, or electric shock.
- During and immediately after printing, the area around the print head is very hot. Don't touch it because you could be burned.

### **CAUTION**

- We recommend that you unplug the printer from the power outlet whenever you do not plan to use the printer for long periods.  
Because of this, you should locate the printer so that the power outlet it is plugged into is nearby and easy to access.
- If an AC cord set is supplied with the product, the power cord that is included has been specially designed for the product.
- Make sure that the printer and the PC are turned off and unplugged from their AC outlets before you make connections.
- Do not open the printer covers while the printer is printing or cutting.
- If liquid or foreign objects (such as coins and paper) enter the inside of the printer, turn the power switch off, disconnect the power cord from the AC outlet, and consult the dealer that you bought the product from. Continuing to use the printer may lead to a short-circuit, which may cause electric shock or fire.
- Do not operate the printer if there is moisture (which has been caused by condensation or another factor) on the front surface of the head.

## 4. Control Panel

### 4-1. Name of each part



### 4-2. Features according to Panel Buttons

Refer to the following table.

The meanings of the symbols are as follows, ○: press the button, ●: hold down the button. When both symbols are shown, press the ○ button while the ● button is held down.

Printer status	SET/EJECT button	FEED button	ONLINE button	Functions
ON-LINE			○	Switches to off-line.
		○		Feeds paper to the cut position after printing with continuous paper is complete.
	○			Switches between high-speed and high-precision.
OFF-LINE			○	Switches to on-line.
		○		Performs a line feed.
	○			Inserts/ejects continuous paper or ejects cut paper.
		●	○	Feeds paper (page break).
		○	●	Feeds paper slightly in the feeding direction.
	○		●	Feeds paper slightly in the reverse direction.
	○	●		Changes the auto loading position (see table below).
	●	○		Sets the current paper position as the feeding position.
Power is turned on while pressed			●	Self-printing (Firmware version, Memory switch setting status)
		●		Self-printing (Firmware version, Rolling ASCII <7 lines>, All ASCII <Draft/Courier: 10 cpi, 12 cpi, proportional>, All kanji)
	●			Hex dump mode: All signals sent from the host computer to the printer are printed in hexadecimal code.

#### < During Auto Loading Position Change Mode >

SET/EJECT button	FEED button	ONLINE button	Functions
	○	●	Resets the feeding position to its factory default position, and then exits.
○		●	Saves the new feeding position, and then exits.



## 4-3. LED Indications

### 4-3-1. Normal status

If an error is detected, check the recovery conditions. Recovery is possible without changing the status of the printer.

Status	POWER	MODE	ONLINE	Recovery condition
Status	ON	–	ON	–
Offline	ON	–	OFF	–
High Quality Mode	ON	OFF	–	–
High Speed Mode	ON	ON	–	–
Paper Out	Flashing 1 Sec.	–	OFF	The printer recovers when you set a new paper roll and close the cover.
Head high temperature detection	ON	–	Flashing 1 Sec.	The printer recovers automatically when the thermal head cools.

### 4-3-2. Error Indications

Turn off the printer, check the recovery conditions, and then turn on the printer again.

If the same error occurs after restarting the printer, repairs are necessary.

Error description	POWER	MODE	ONLINE	Cause
Watchdog Timer	Flashing 0.5 Sec.	OFF	OFF	Watchdog Timer time up
Mechanical Error	Flashing 0.5 Sec.	ON	OFF	Mechanical failure
Head Thermistor error	Flashing 0.5 Sec.	OFF	ON	Head Thermistor Detected Erroneous Value
PCB Thermistor error	Flashing 0.5 Sec.	OFF	Flashing 0.5 Sec.	PCB Thermistor Detected Erroneous Value
Power voltage down	Flashing 0.5 Sec.	Flashing 0.5 Sec.	OFF	Power Voltage Error Value Detected
FLASH Access Error	Flashing 0.5 Sec.	Flashing 0.5 Sec.	Flashing 0.5 Sec.	FLASH ROM Access Problem
RAM Access Error	Flashing 0.5 Sec.	Flashing 1 Sec.	OFF	RAM Access Problem
Firmware Error	Flashing 0.5 Sec.	Flashing 1 Sec.	Flashing 1 Sec.	–

**Note 1:** If an unrecoverable error occurs, turn off the printer as quickly as possible.

**2:** If a power supply voltage error occurs, a power supply fault may be the cause of the error.

**3:** If paper is jammed, turn off the printer, remove the jammed paper, and then turn on the printer again.

If another type of unrecoverable error occurs, consult your dealer for repairs.

## 5. Maintenance

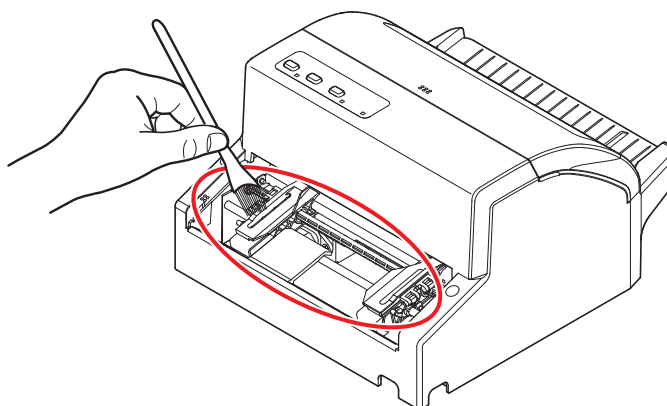
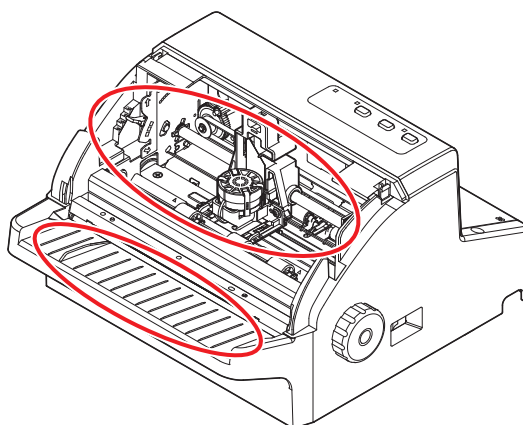
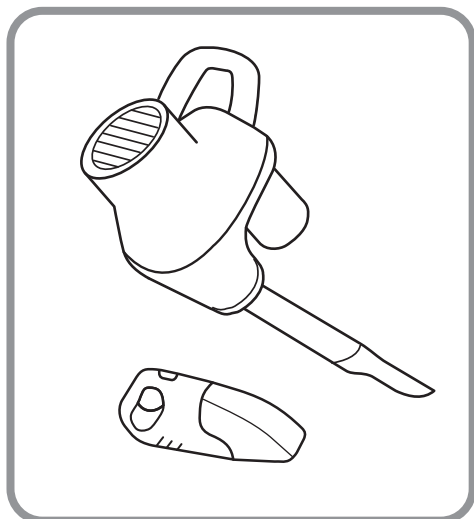
The printer may be adversely affected by paper dust or other types of dust.

To avoid trouble caused by dust, remove dust from inside the printer and keep each part well maintained.

**Note: Make sure that the printer's power switch is turned off when performing maintenance.**

Clean the printer approximately once every 6 months or more often when dust is visible.

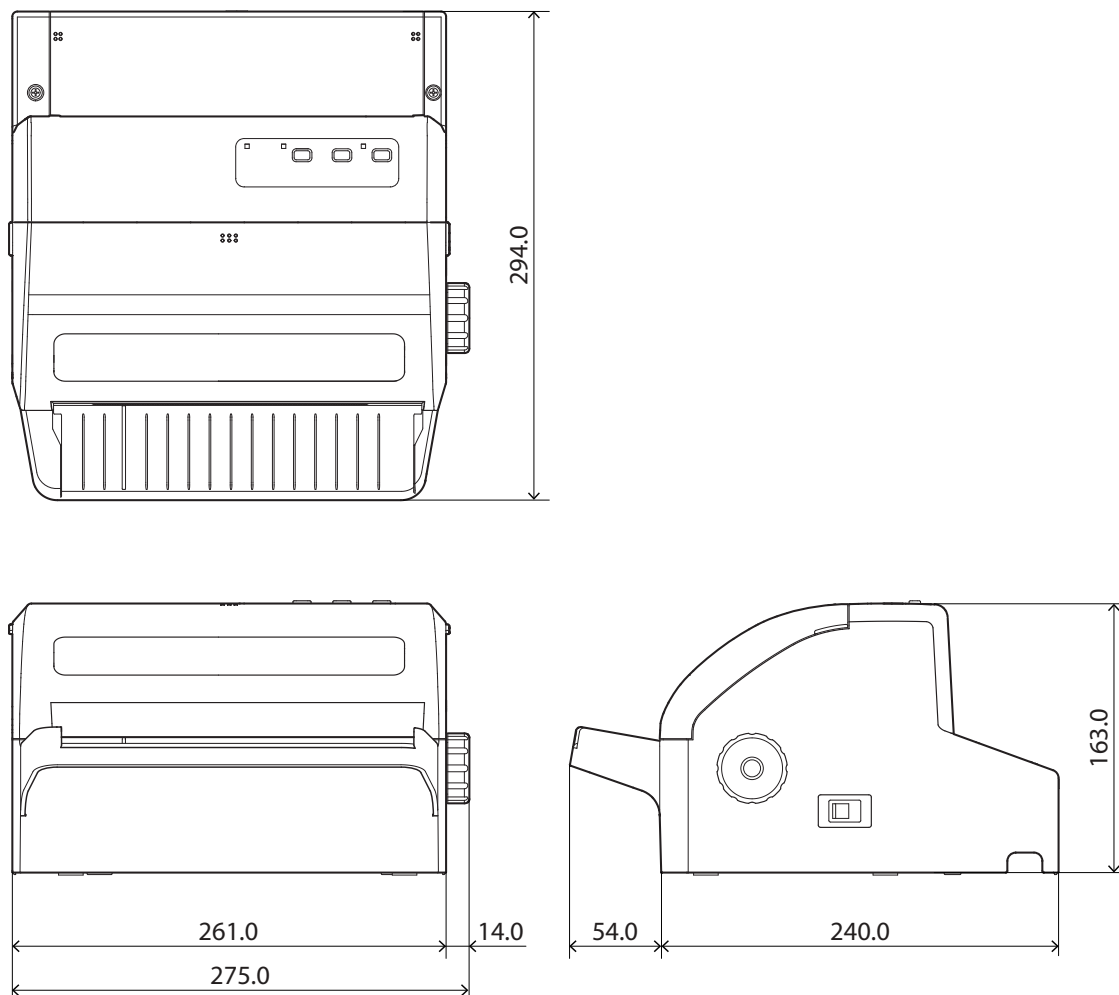
Use a brush or small vacuum cleaner to remove the dust.



## 6. External Specifications

External Dimensions: 275.0 mm (W) × 294.0 mm (D) × 163.0 mm(H)

Weight: Approx. 3.4 kg



unit: mm



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