

iModela

iM-01

MASTER GUIDE

Before You Read This Document

Before you read this document, be sure to read the "First Step Guide" and the "To Ensure Safe Use" to familiarize yourself with the basic operations of this machine and the safe and correct way to operate it.

Assumptions

The explanations and procedures contained in this document assume that you have completed the following operations.

- Hardware setup of this machine (installation, cable connections, etc.)
- Software setup of this machine (the connection between this machine and the PC, the necessary software installations, etc.)

Documentation Included with the Machine

The following documentation is included with the machine.

iModela (iM-01) First Step Guide

This guide describes the procedure from checking the accessories to initial cutting. Be sure to read this manual before you use the machine for the first time.

iModela (iM-01) Master Guide (this guide)

This guide contains detailed explanations of the machine's features, maintenance methods, and troubleshooting information. The manual is in electronic format, and no printed document is included. You can find it on the included Roland Software Package CD-ROM.

NC Code Reference Manual

Read this manual when you want to perform NC code programming. The manual is in electronic format, and no printed document is included. You can find it on the included Roland Software Package CD-ROM.

☞ P. 3, "Viewing the Documentation for the Softwares"

For the latest information on this machine , see the iModela special website (<http://icreate.rolanddg.com/>).

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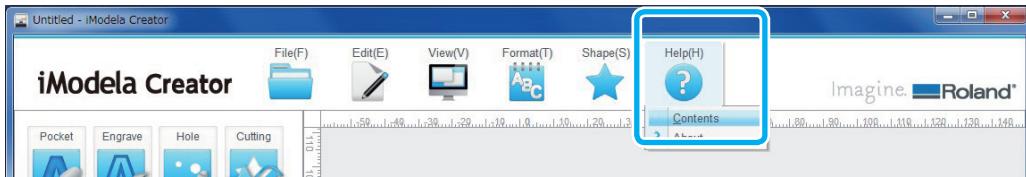
Getting Started

Viewing the Documentation for the Softwares

The documentation for the softwares is in electronic format. Follow the procedure below to view it.

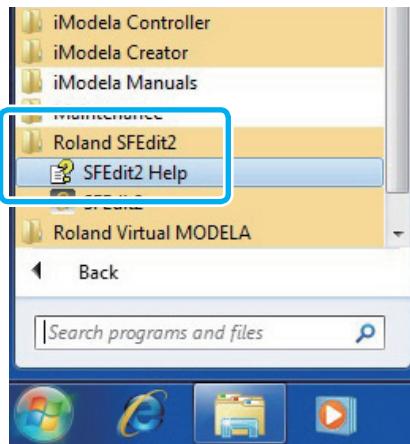
iModela Creator

Start iModela Creator, and then click "Help"- "Contents."



Virtual Modela, SFEdit2

On the taskbar, click [Start] (Windows icon), [All Programs], choose the software you're using, then click [Help].



Start the software, and then click "Help"- "Contents."

Viewing the NC Code Reference MANUAL

On the taskbar, click [Start] (Windows icon), [All Programs], [iModela Manuals], then [NC Code Reference Manual].

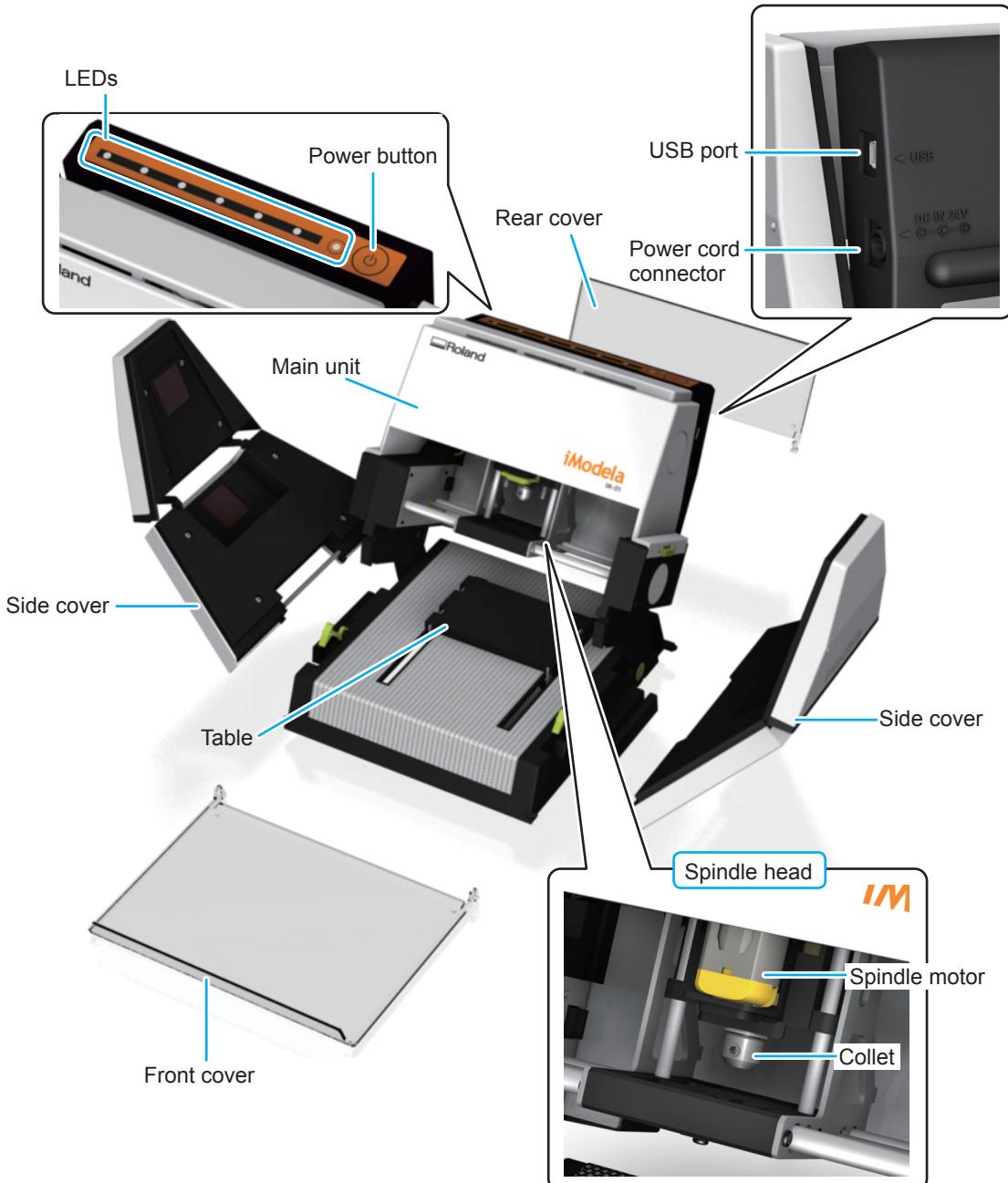
Chapter 1

Basic Operation

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Names of Components

Names of Components



NOTE:

- The side covers are interchangeable. Both can be installed on either the left or right side of the machine.
- In this manual, the mechanisms around the spindle unit, including the spindle motor, are called the "spindle head." The rotary-axis area inside the spindle unit is called the "spindle."

Starting and Shutting Down the Machine

Starting the Machine

Procedure

1



Press the power button.

Initialization begins. When the green LED changes from flashing to on, the initialization has finished.

2



Start the iModela Controller, which is used to control the machine.

On the taskbar, click [Start] (Windows logo), [All Programs], [iModela Controller], then [iModela Controller].

Shutting Down the Machine

Procedure

1 Click  on the iModela Controller.

The iModela Controller closes.

2

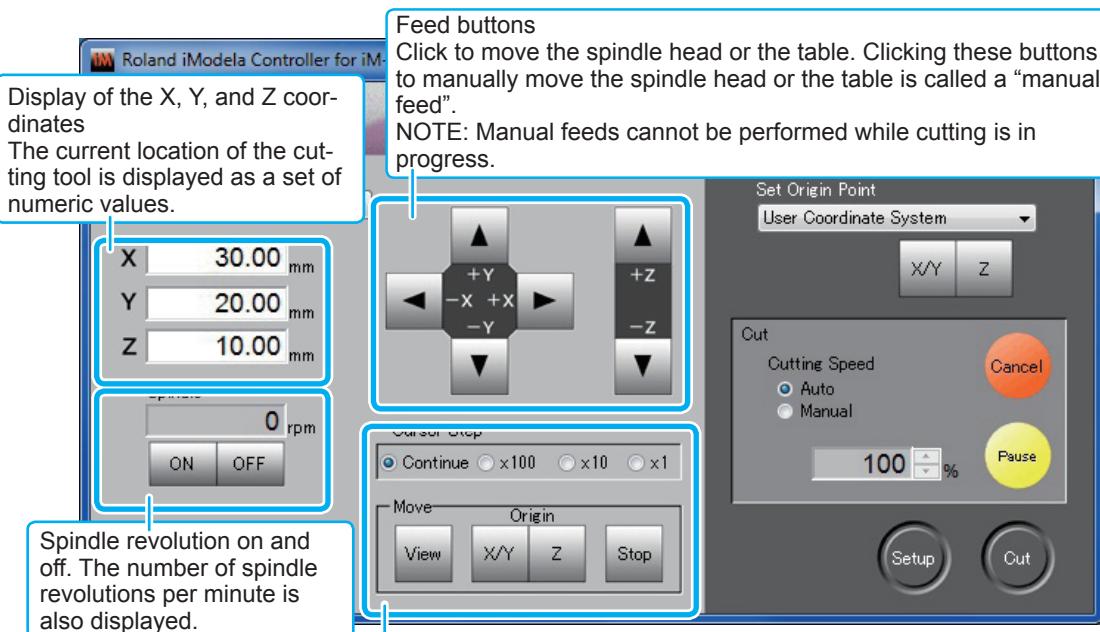


Press the power button.

When the green LED turns off, the machine has shut down.

Basic Operation of the iModela Controller

Operation of the Spindle Unit



These controls are used to select the amount of movement that is performed during manual feeding, and move the spindle head or table to a specific location

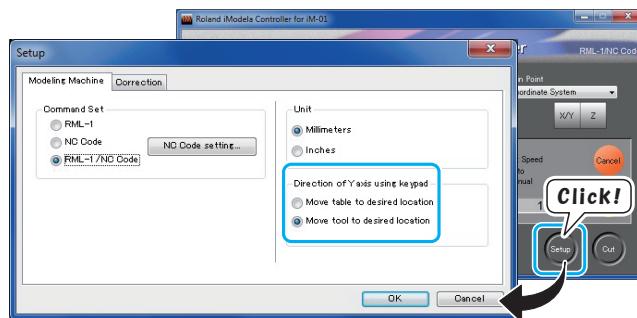
Continue	The spindle head or table moves continuously while you hold down a feed button.
x100 x10 x1	Each click of a feed button moves the spindle head the specified distance. x1 = 0.01 mm x10 = 0.1 mm x100 = 1 mm * For display in inches, the value in mm is converted into inches.
View	The components move to the view position (the spindle head moves to the highest position at the center of the machine, and the table moves to the front of the machine). Use this button when you want to change the cutting tool or the cutting material.
X/Y, Z	Moves to the XY origin and the Z origin of the selected coordinate system. ☞ P. 10, "Selecting the Coordinate System That Is Used to Display the Cutting Tool Location"
Stop	Click this button to stop the movement of the spindle head (as it moves to the view position, the XY origin, or the Z origin).

POINT!

About Y-Axis Movement

Under the factory default settings, Y-axis movement assumes a direction of cutting tool movement relative to the object being cut. This means that clicking a Y-axis feed button makes the table move in the opposite direction from what the arrow indicates.

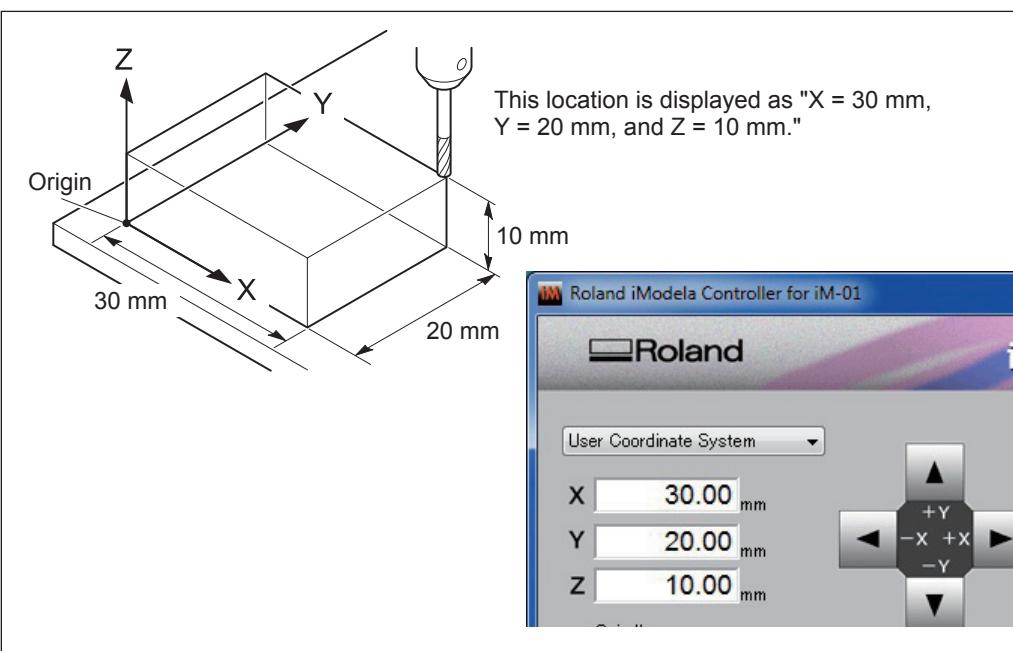
You can use the iModela Controller to set the direction that the table moves when you click a Y-axis feed button.



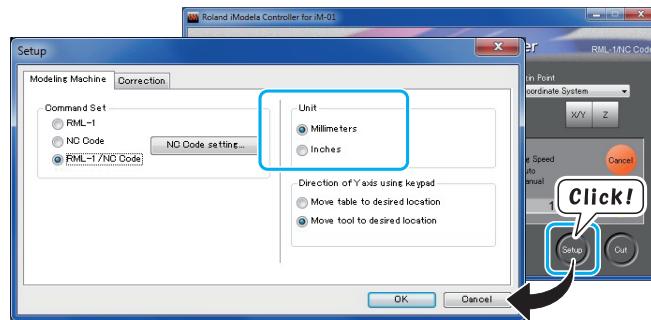
About the Cutting Tool Location Display

Coordinate Display

The iModela Controller displays the current location of the cutting tool as a set of numeric values. The numeric values that indicate the location of the cutting tool are called "coordinates," and the starting point for the coordinates is called the "origin." The following figure shows a location that has been moved from the origin by 30 millimeters along the X axis, 20 millimeters along the Y axis, and 10 millimeters along the Z axis. The X-axis distance is called the "X coordinate." The Y- and Z-axis distances are similarly called the "Y coordinate" and the "Z coordinate." The distances from the origin to the cutting tool along each axis are the coordinate values.



Selecting the Display Unit



Selecting the Coordinate System That Is Used to Display the Cutting Tool Location

You can select the coordinate system that is used to display the cutting tool location from the following options.

- User Coordinate System: This coordinate system enables you to freely change the location of the origin.
- Machine Coordinate System: This is a machine-specific coordinate system in which the location of the origin is fixed.
- G54 to G59: These are workpiece coordinate systems that are used with NC codes. For details, see the "NC Code Reference Manual."
- EXOFS: This is a coordinate system that is used with NC codes. For details, see the "NC Code Reference Manual."

If the command set is RML-1, always select "User Coordinate System." EXOFS and the options from G54 to G59 can only be selected when the command set is "NC Code" or "RML-1/NC Code."

☞ P. 10, "Selecting the Command Set"



Selecting the Command Set

About the Command Sets

You can select one of the following command sets on this machine.

➤ RML-1

Select this command set when you want to use the software that was included with this machine.

➤ NC Code

Select this command set when you want to use NC codes. For details on NC codes, see page 63, "NC Code Specifications" and the "NC Code Reference Manual" that was included with this machine.

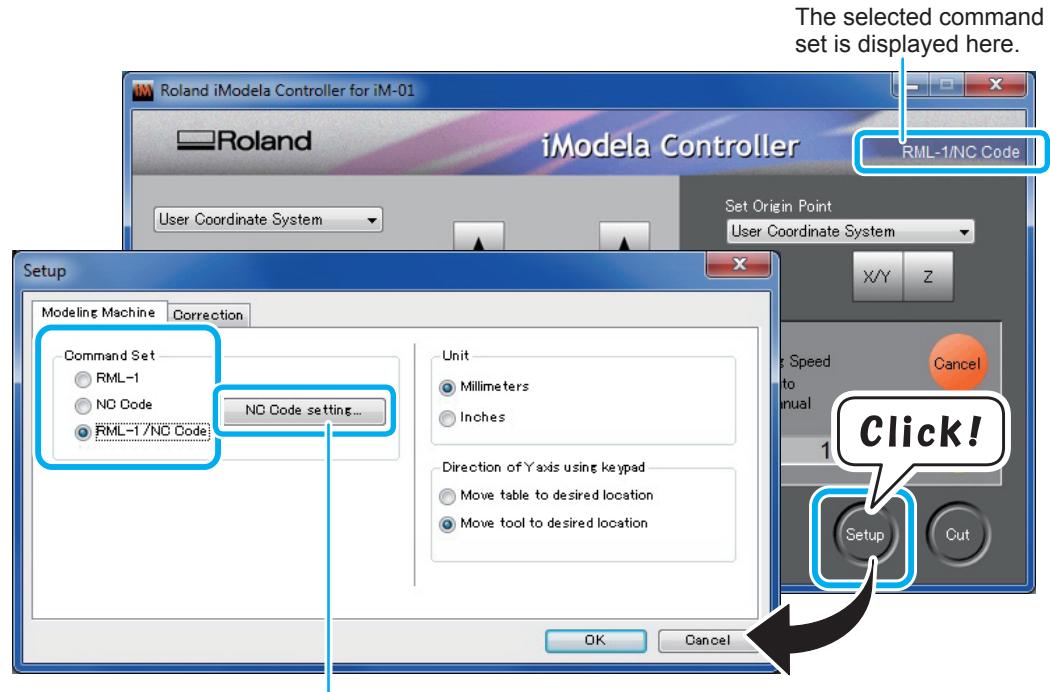
➤ RML-1/NC Code

Select this option to enable the machine to receive cutting programs that use the RML-1 or NC code command sets.

Selecting the Command Set

Use the iModela Controller's Confirm dialog box to select the command set. Select the appropriate command mode to match the application software to be used. **If a command that is sent to the machine is different from the command set selected on the iModela Controller, an error occurs and the machine will not be able to carry out the cutting command.**

➤ Factory default setting: RML-1



This is enabled when you select "NC Code" or "RML-1/NC Code." For details on the NC code settings, see page 30, "NC Code Setting."

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Cutting

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Before Starting Cutting

Checking Operations

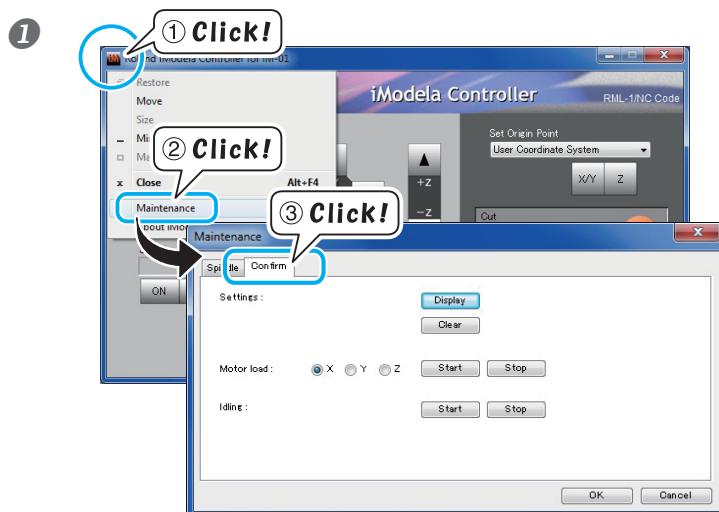
Before you begin cutting, there are situations in which you have to check the spindle run-in (warm-up) and the motor load. Use the following chart to determine whether your situation requires you to check the spindle run-in or the motor load.

Situation	Idling	Motor Load
The first time that you use the machine	Check	
After replacing the spindle unit or the spindle motor	Check	
When using the machine in a low-temperature environment	Check	
After replacing parts (other than the spindle unit or spindle motor)	Check	Check
After application of Grease. ☞ P. 38, "Application of Grease to X, Y, Z Axes"	Check	Check

Note

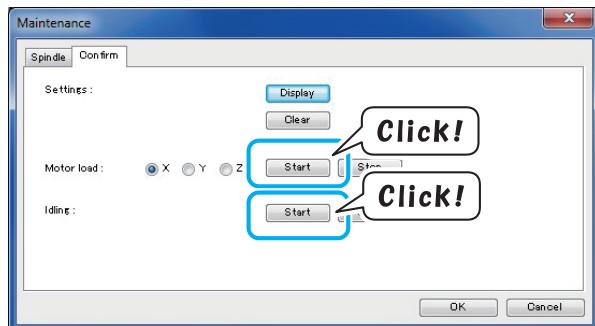
Before checking the operation, make sure that the cutting tool and cutting material have been removed. If the cutting tool and cutting material are mounted, the cutting material may be cut in an undesirable location.

Procedure



- ① Click **M** in the upper left of the iModela Controller.
- ② Click [Maintenance].
- ③ Click the [Confirm] tab.

2

**[Idling]****Click [Start] next to Idling.**

The idling operation begins.

The operation takes approximately 10 minutes.

[Checking the Motor Load]**Select X, Y, or Z, and then click [Start].**

The iModela Controller checks the motor load of the selected axis. Check the loads of all three axes: X, Y, and Z. If you want to finish in the middle, click [Stop].

If noise is generated, the replaced part might not be installed properly. In this case, reinstall the part properly. Then, check [Motor load] again.

Confirming the Command Set

You have to select a command set that is compatible with the application software that you will use.

For details on the different command sets, see page 10, "Selecting the Command Set."

Selecting the Cutting Tool and Cutting Material

Selecting the Cutting Tool

You can use not only the cutting tool that is included as an accessory, but various other cutting tools to meet other needs. It's a good idea to use the cutting tools selectively, according to the work process (such as rough cutting or finish cutting) and the design. Please refer to the iModela special web site.

<http://icreate.rolanddg.com/>

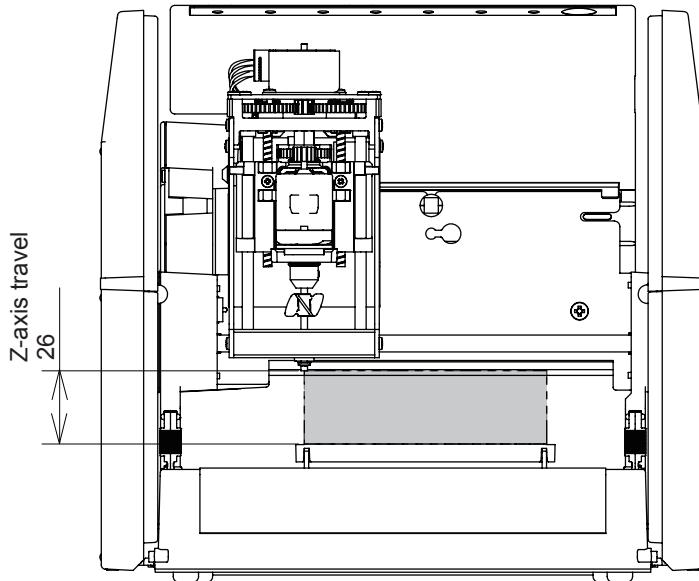
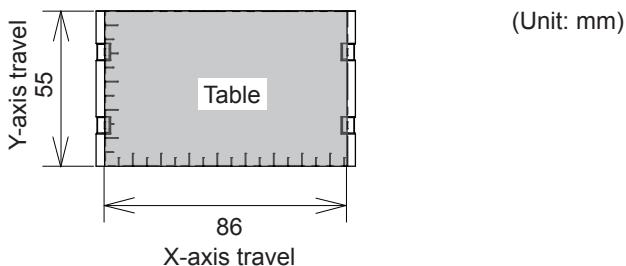
Selecting Cutting Material

Use the material which satisfies the conditions listed below:

- Material: Soft material such as resin (Conductors such as metal and carbon are not applicable.)
- Maximum weight: 200 g
- Maximum size: refer to next page "Range Where the Cutting Material Can Be Mounted"

Range Where the Cutting Material Can Be Mounted

The range where the cutting material can be mounted is shown in gray in the following illustration. When using a jig, such as a scrap plate, it must not extend out of this range. Be sure to observe this precaution since any piece extending from this range may come into contact with moving parts, resulting in damage to the cutting material or jig or causing the machine to malfunction.



POINT!

Actual Size That Can Be Cut

The range in which you can mount the cutting material is shown in the figure above. However, you cannot use a cutting material that fills this entire area. "Clearance" to allow the cutting tool to perform no-load feeding is necessary in the X, Y, and Z directions. You have to use a cutting material that is small enough to provide this clearance. Also, the possible cutting-in depth is generally determined by the length of the cutting tool. If you use a long cutting tool to enable deep cuts, there is little clearance in the Z direction, which means that you must use a small cutting material that provides extra space in the Z direction.

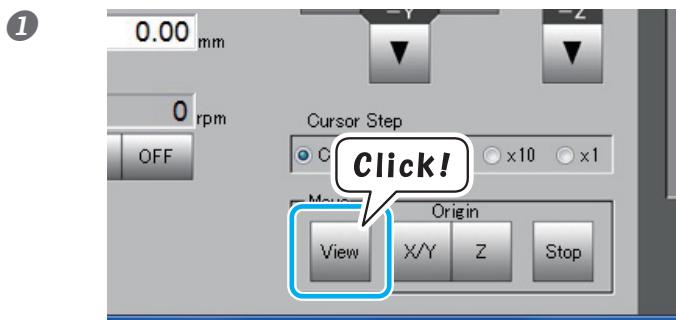
The size of the cutting material that you can cut varies depending on the shape of the object that you want to produce and the cutting tool that you want to use. Be sure to give this issue proper thought before you begin operation.

Installing the Cutting Tool and Loading the Cutting Material

⚠ CAUTION

Be careful not to injure yourself when you handle the blade of the cutting tool.

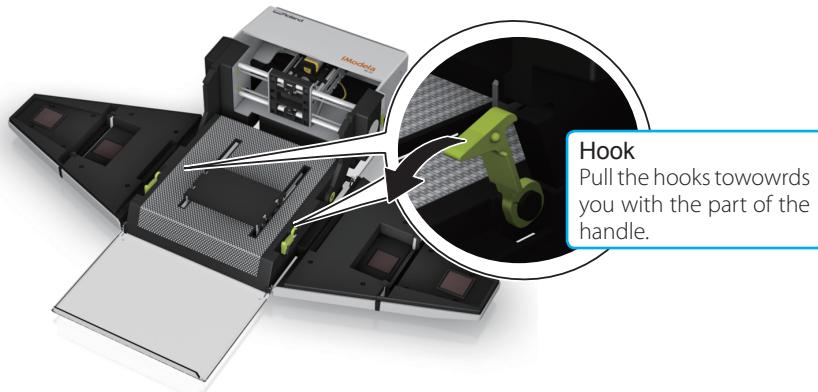
1. Install the cutting tool.



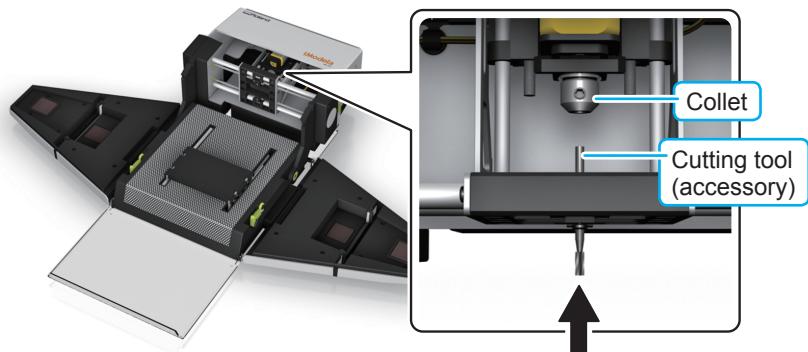
Click [View] on the iModela Controller.

The spindle head moves to the center, and the table moves to the front. This is the view position.

- ② Open the front, rear, and side covers. Slowly push the main unit down onto its back.



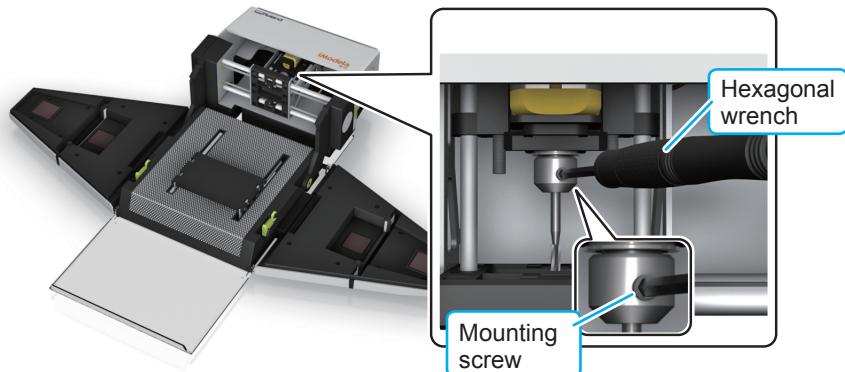
- ③ Fully insert the cutter into the collet.



Before Starting Cutting

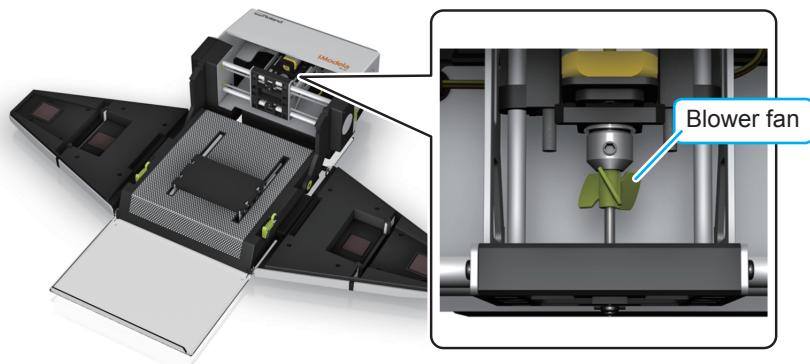
4 Fix the cutting tool in place.

Use a hexagonal wrench to insert the mounting screw, thereby fixing the tool in place. If you cannot see the mounting screw hole, slightly turn the collet by hand.



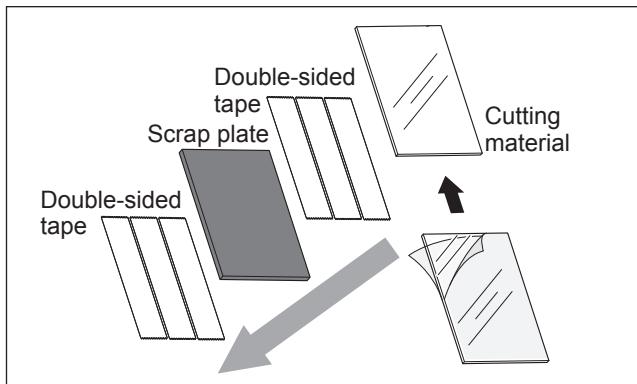
5 Attach the blower fan to the cutter.

Be careful of the blade, and fully insert the blower fan.



2. Affix the cutting material.

1



Affix the double-sided tape.

If the trial cutting material, provided as an accessory, is used, peel the protective film off of both sides. Depending on the cutting method, use a scrap plate.

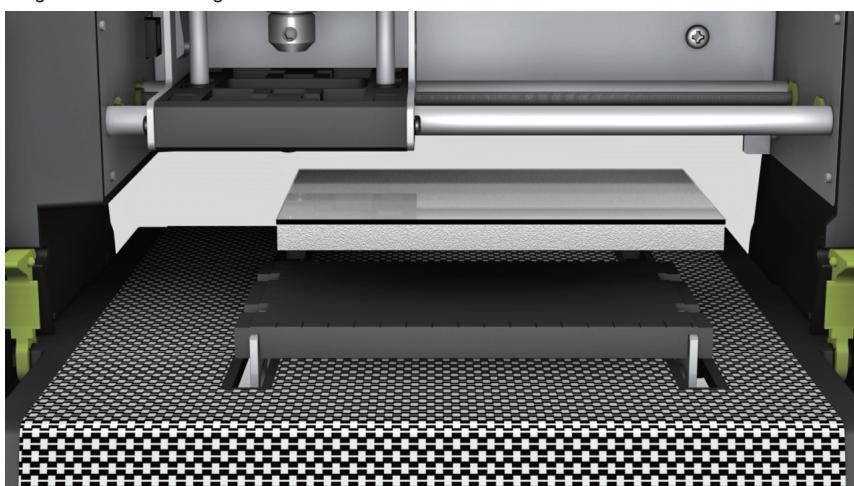
☞ P. 17, "Cutting Requiring a Scrap Plate"

② Affix the cutting material to the table.

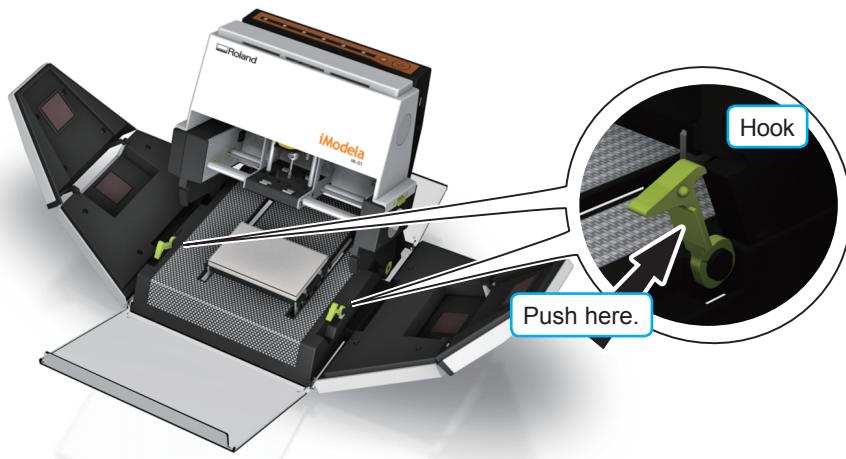
Mount the cutting material so that it does not extend from the table.

After you have affixed the cutting material, check that the cutting material cannot be easily moved from its position.

☞ P. 14, "Range Where the Cutting Material Can Be Mounted"

**③ Return the unit to its original state.**

Raise the main unit back into place, fix it in place with the hooks, and then close the front, rear, and side covers.

**Cutting Requiring a Scrap Plate**

There is a need to place a scrap plate when the cutting data contains the process to make a hole in the cutting material. The thickness of the scrap plate is decided according to depth of the hole.

If the scrap plate does not have the sufficient thickness, not only the table might be scraped, broken, or damaged, but also the cutting tool might be broken and it might cause injury.

Starting Cutting

Setting the Cutting Origin

POINT!

About cutting origin

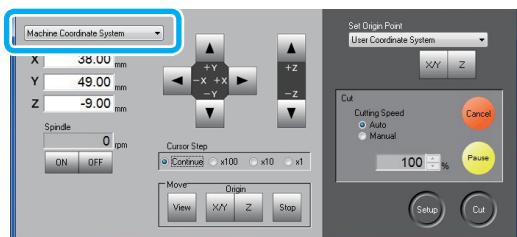
"Before you start cutting, you need to set the cutting origin. The cutting origin is a coordinate reference point, and all the X, Y, and Z coordinates are "0". This cutting origin is also called as the cutting reference position. When you want to perform cutting with this machine, you need to set the X, Y, and Z origins (set the XY origin to set the X and Y origins at the same time). "

"The X and Y origins are determined by the cutting data and the location of the cutting material. (When you use iModela Creator, if the size of the cutting material set in the cutting data and that of the actual cutting material are the same, you can cut almost the same position as the cutting data by setting the X and Y origins at front left of the cutting material.) You normally align the Z origin with the surface of the cutting material."

Take the size of the cutting material and the length of the cutter into consideration when you set the origins. In addition, the locations that you should specify for the origins vary depending on the application software that you are using. Set the origins based on the specifications of the application software that you are using.

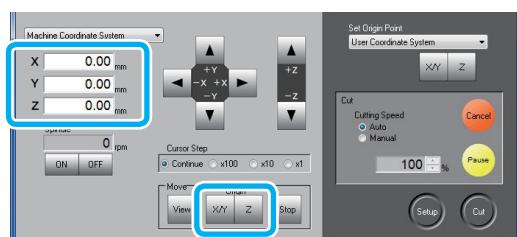
1. Prepare to set the origin point.

1



Select "Machine Coordinate System."

2

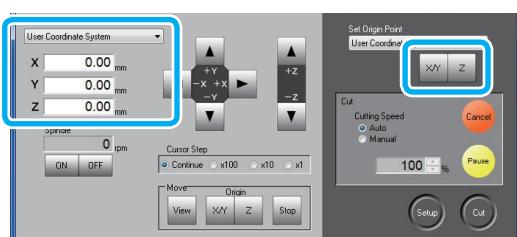


Click [X/Y] under "Origin" of "Move."

The spindle head and table move so that the X, Y and Z coordinates are all "0.00 mm".

Click [X/Y], then [Z] to move the X and Y coordinates to "0.00 mm", then the Z coordinate to "0.00 mm".

3

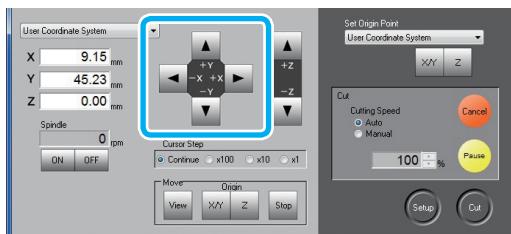


Select "User Coordinate System."

If "0.00 mm" does not appear for X, Y and Z, click [X/Y], then [Z] under Set Origin Point.

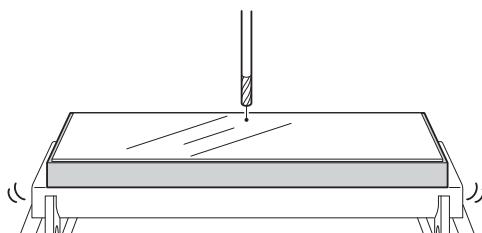
2. Set the Z origin.

1

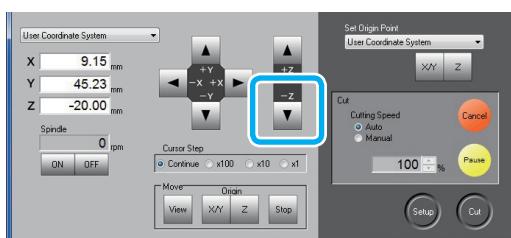


Click the [X] and [Y] cursor buttons to move the cutter above the cutting material.

☞ P. 7, "Operation of the Spindle Unit"

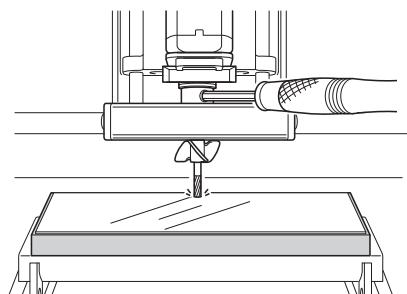


2



Click the [-Z] cursor button to lower the tip of the cutting tool to about 1 mm from the material surface.

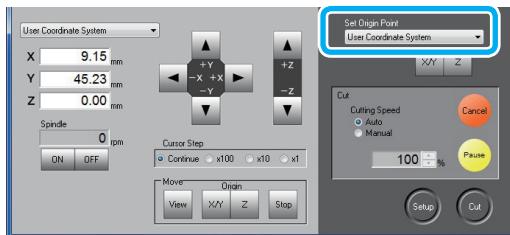
3



Loosen the mounting screw, and then adjust the cutter so that its tip contacts the surface of the cutting material.

When the tip contacts the surface, fix the cutter in place again with the mounting screw.

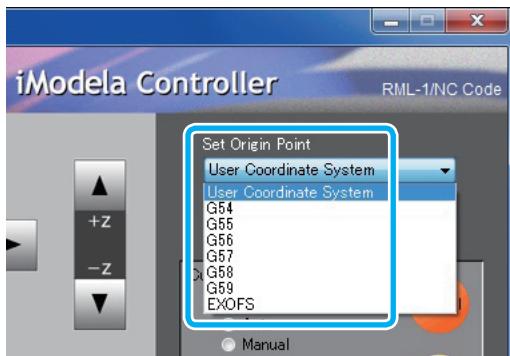
④ In the case of cutting data created with iModela Creator (for RML-1 data)



Check that "User Coordinate System" is selected under Set Origin Point.

If the command set has been set to "RML-1/NC Code," set [Set Origin Point] to "User Coordinate System." If the command set has been set to "RML-1," Set Origin Point can only be set to "User Coordinate System."

If the cutting data is written using NC code



Use Set Origin Point to select the work-piece coordinate system that matches the cutting data.

⑥



Click [Z] under Set Origin Point.
Set the Z origin to display "Z 0.00 mm."

⑦

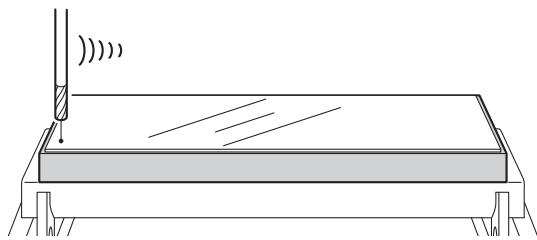
Raise the cutting tool.

Next, you will move the cutting tool in the X and Y directions. Raise the cutting tool to a position where it is not located over the cutting material.

☞ P. 7, "Operation of the Spindle Unit"

3. Set the XY origin.

①



Move the cutting tool to the location that you want to set as the XY origin.

☞ P. 7, "Operation of the Spindle Unit"

If the setting position is difficult to see, remove the top cover for better visibility.



②



Click [X/Y] under Set Origin Point.

Set the X and Y origins to display "X 0.00 mm" and "Y 0.00 mm".

Starting Cutting (for output from iModela Creator)

Procedure

1 Start iModela Creator.

On the taskbar, click [Start] () [All Programs], [iModela Creator], then [iModela Creator].

2 Creating the output file.

For information on how to use iModela Creator such as a drawing method, refer to Help of iModela Creator.

☞ P. 3, "Viewing the Documentation for the Softwares"

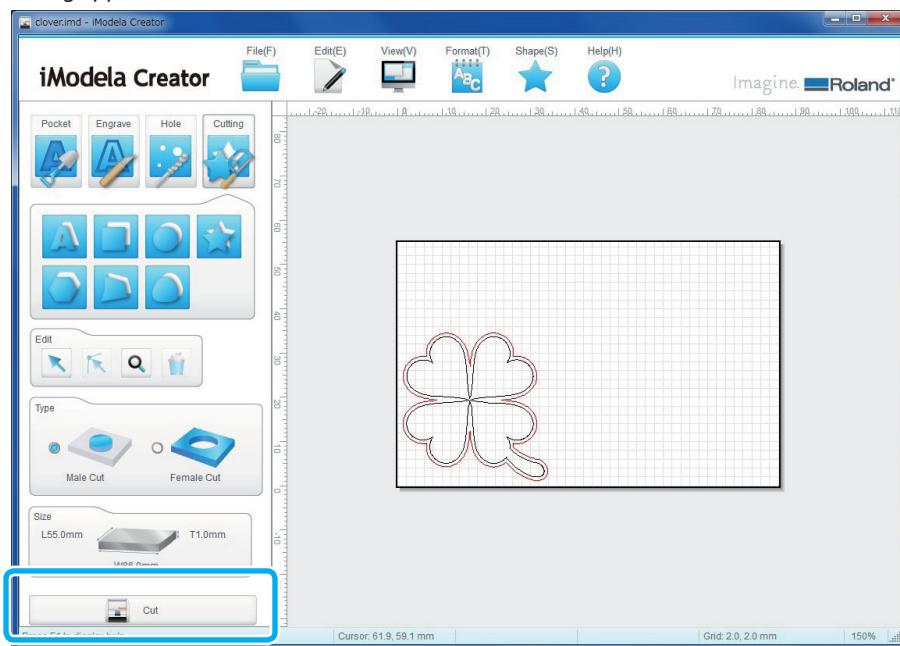
3 Setting the cutting origin.

☞ P. 18, "Setting the Cutting Origin"

Starting Cutting

- ④ Click "Output."

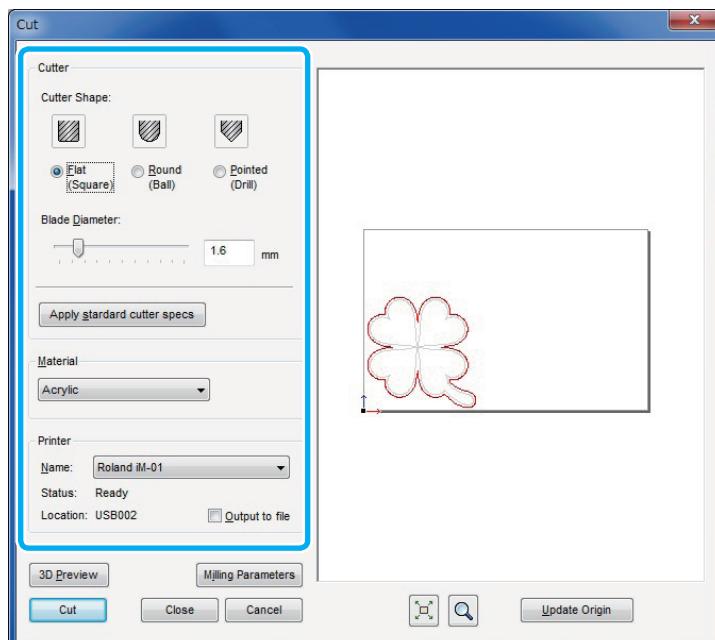
"Cut" dialog appears.



- ⑤ Set the cutting conditions including "Cutter" and "Material."

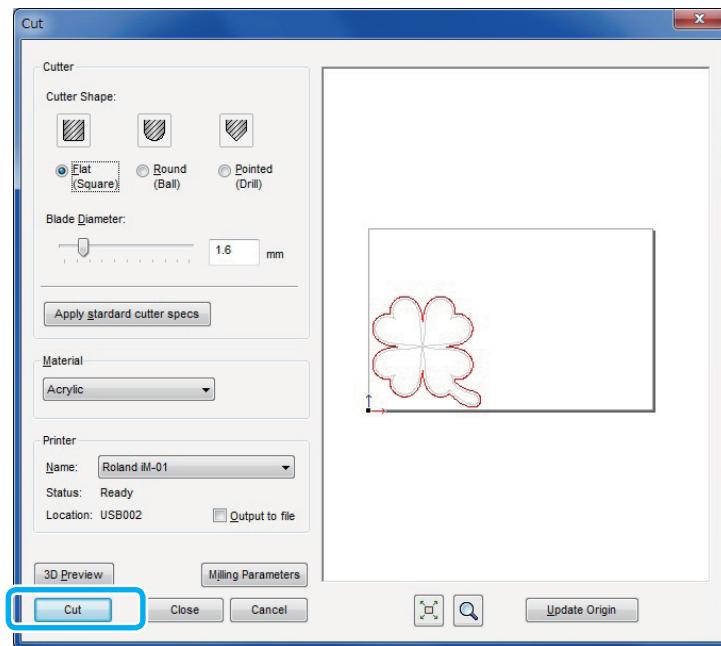
For information on how to use iModela Creator, refer to Help of iModela Creator.

⇒ P. 3, "Viewing the Documentation for the Softwares"



⑥ Click "Cut."

Cutting starts.



* After cutting is finished, be sure to perform maintenance of the cutting tool.

⇒ P. 40 "Maintenance of the Cutting Tool"

Starting Cutting (NC code Data)

Operation Overview

Step 1: Save the output file.

First convert the program to a text file, and save it on your PC. This file is known as the "output file."



Step 2: Register the output file, and then output it.

Register the saved output file in the iModela Controller's output file list, and then output the file. You can also register multiple output files and then output them all consecutively.

Starting Cutting

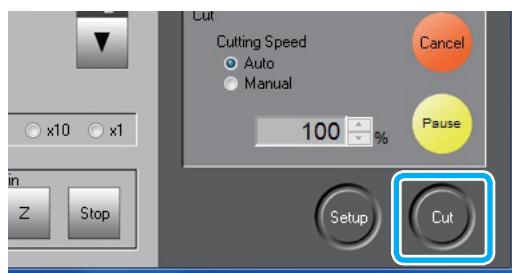
Starting Cutting

Before you start cutting, check the following items. If there are mistakes in any of these items, unintentional operations may be performed, which may cause the cutting material to be wasted, and may cause the machine to malfunction.

- Is the output file correct?
- Are the origin settings correct?
- Do the cutting parameters match the type of cutting material?

Procedure

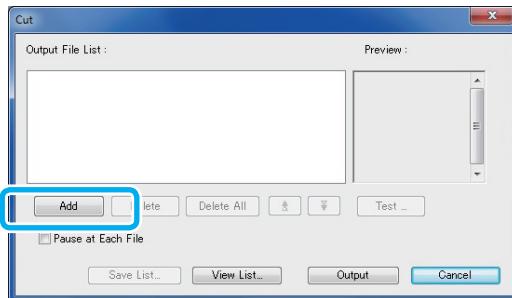
1



Click [Cut] on the iModela Controller.

The Cut dialog is displayed.

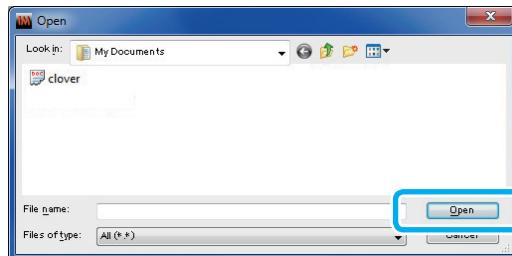
2



Click [Add].

The Open dialog box is displayed.

3

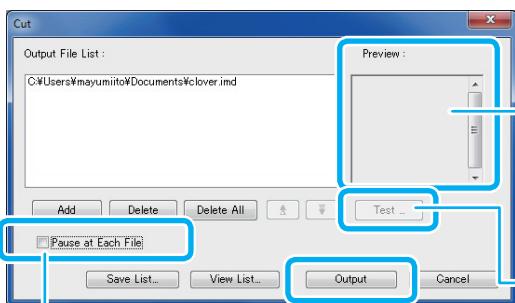


Select the output file, and click [Open].

The selected cutting data file is displayed in the "Cut" dialog's list of output files.

If you want to output cutting data consecutively, repeat steps ② and ③.

④



Select this check box to pause cutting after a single file is output.

Click **出力**.

If the output file is in NC code, the contents of the file are displayed here. This enables you to check the contents of the file.

☞ P. 32, "Displaying and Saving This Machine's Settings"

This can be used when the output file is in NC code.

☞ P. 31, "Testing Output of an NC Code Files"

Tips!

Changing the Order of the Listed Output Files

If you select an output file in the output file list and then click and , you can change the order that the file is output in. Output files are output in the order that they are displayed, starting with the first file in the list.

Deleting Cutting Data from the Output File List

To delete an output file from the output file list, select the output file that you want to delete, and then click [Delete]. If you click [Delete All], all the files in the list will be deleted.

Dragging Cutting Data to the Output File List

You can also add cutting data to the list by dragging output files to the windows that are displayed in step ②.

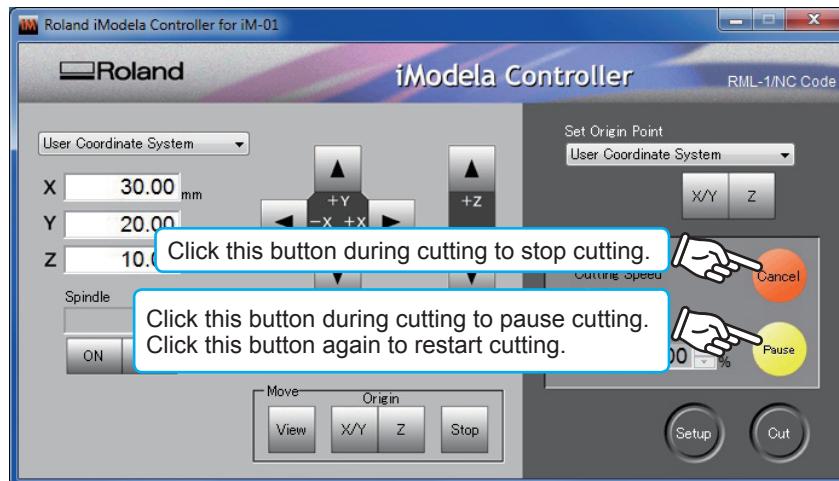
* After cutting is finished, be sure to perform maintenance of the cutting tool.

☞ P. 40 "Maintenance of the Cutting Tool"

Starting Cutting

Pausing/Resuming/Stopping Cutting

Use the iModela Controller to pause, resume, and stop cutting operations.



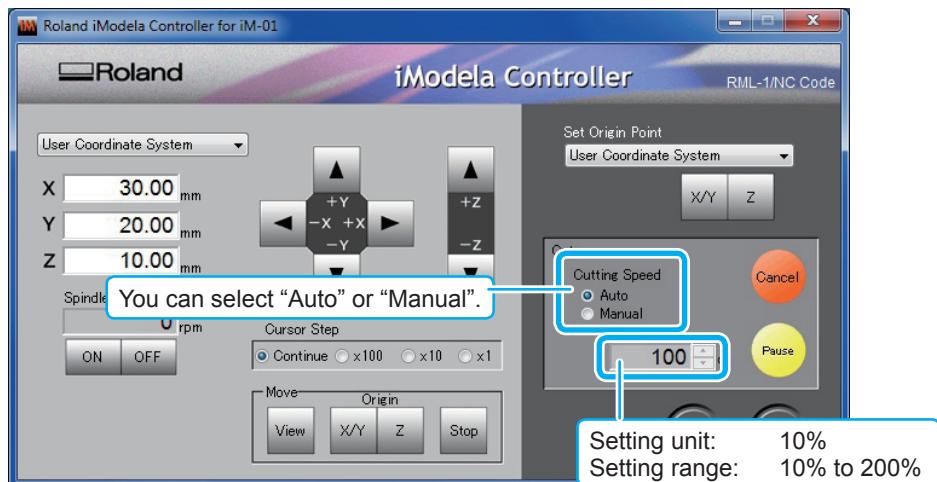
Recovery of Operation from Emergency Stop or Emergency Shutdown

If an emergency stop or an emergency shutdown occurs during cutting, remove the cutting tool and the cutting material from the machine. When the operation resumes, initialization is performed on the cutting machine. Depending on the location that the cutting tool and cutting material were in when cutting stopped, the cutting tool and cutting material may collide while the machine is restarting. This may damage the machine.

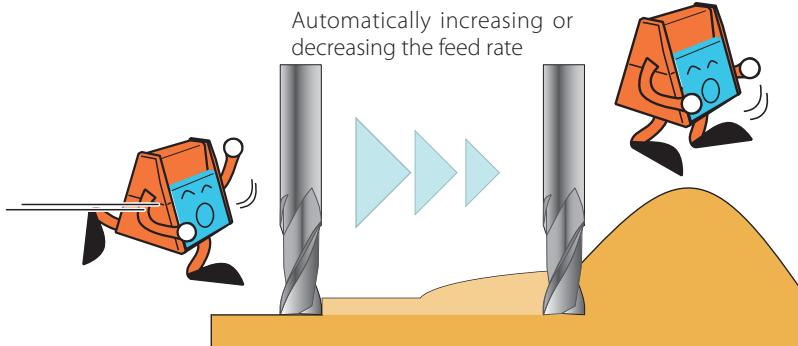
Advanced Operations

Adjusting (Overriding) the Feed Rate during Cutting

You can use iModela Controller to adjust the feed rate during cutting (the speed at which the cutter moves when cutting). The machine can be set for this to be adjusted automatically or manually. This operation is called an "override".



- Auto** Controls by automatically increasing or decreasing the feed rate to maintain a fixed load when the load fluctuates while cutting, due to changes in the cutting-in depth. (The cutting operation is paused if the load being applied exceeds the capabilities of the spindle motor.)



- Manual** The feed rate during cutting can be manually adjusted. A fixed feed rate will be maintained if no operation is performed. A higher product quality can be achieved if cutting can be performed with no accelerations or decelerations. However, the cutting operation is paused if the load being applied exceeds the capabilities of the spindle motor.

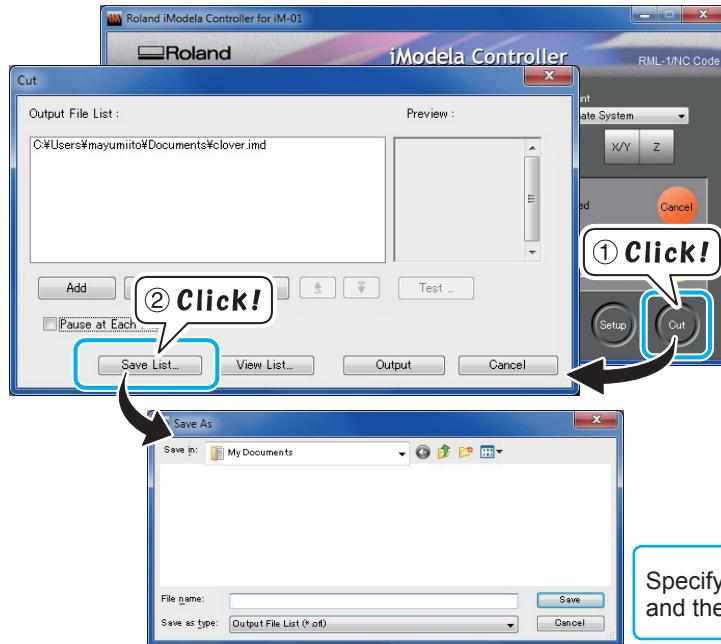
* When the motor pauses, iModela Controller displays an error message.

☞ P. 59, "Responding to Error Messages"

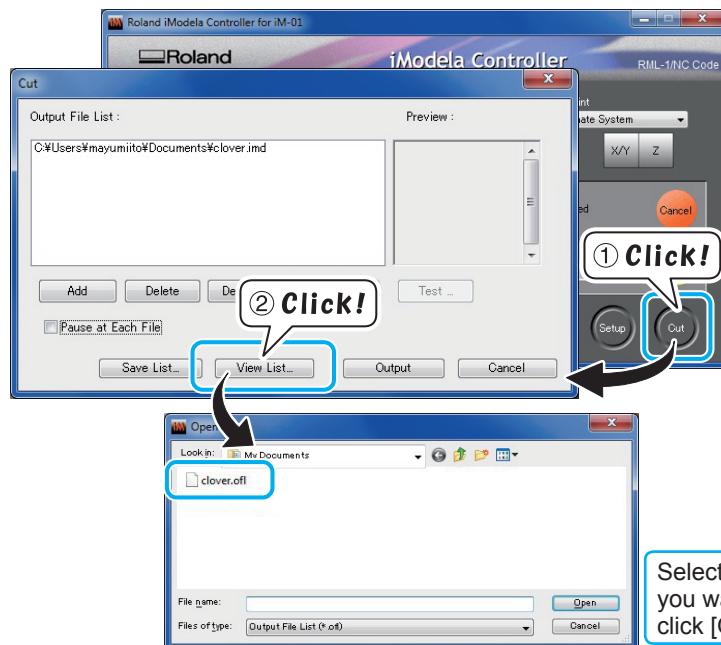
Saving and Reusing Output File Lists

You can save and reuse output file lists. By reusing a file list, you can eliminate the work required to select the files to construct the same cutting order that you want to repeat.

Saving Output File Lists



Reusing Output File Lists



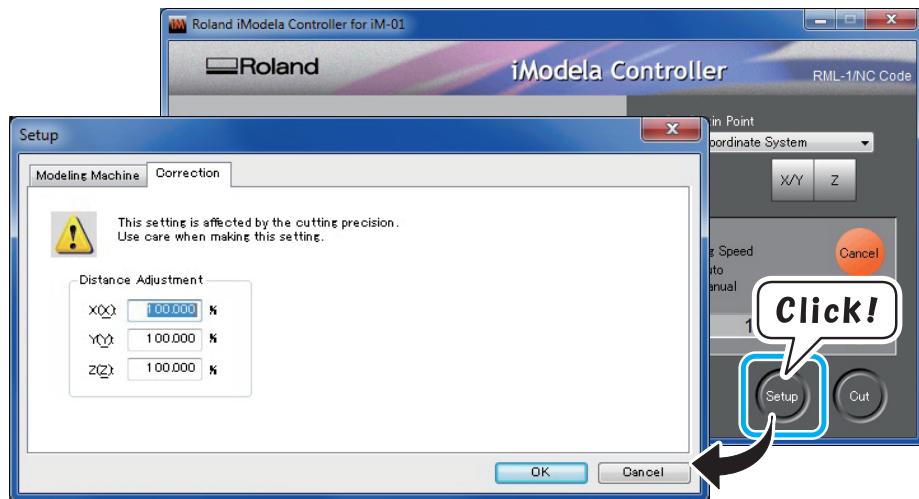
Corrections

Important!

This setting affects the cutting accuracy. Exercise care when you specify this setting. If you are not confident in the value that you want to specify, we recommend that you do not specify this setting.

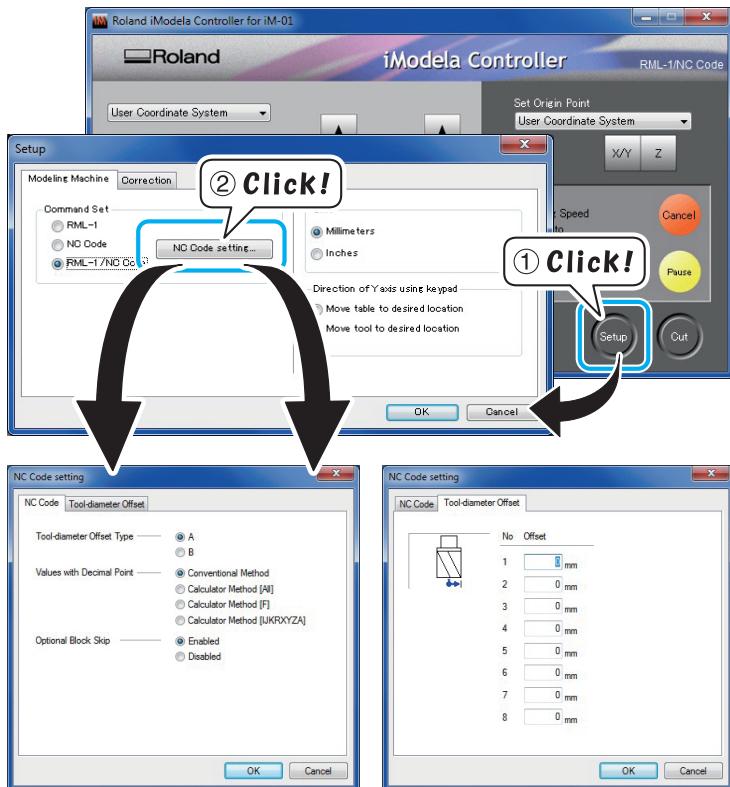
You can make distance corrections for the X, Y, and Z axes.

- Setting range: 99.5 to 100.5%



NC Code Setting

This section describes the setting of the NC code.



[NC code] tab

Tool-diameter Offset Type

This selects the type of correction (offset) for the tool diameter. The locus through which the tool passes differs according to the offset type. For more information, refer to the "NC Code Reference Manual."

☞ P. 3, "Viewing the NC Code Reference Manual"

Values with Decimal Point

This selects the method of interpretation for the numerical values in NC codes.

For the conventional method, values are interpreted as millimeters (or inches) when they contain a decimal point, or as thousandths of a millimeter (or ten-thousandths of an inch) when no decimal point is present.

With the calculator method, values are always interpreted as millimeters (or inches) regardless of whether a decimal point is present.

When calculator-method interpretation is used, you choose the range of application for the method.

Optional Block Skip

This setting determines whether optional blocks are skipped.

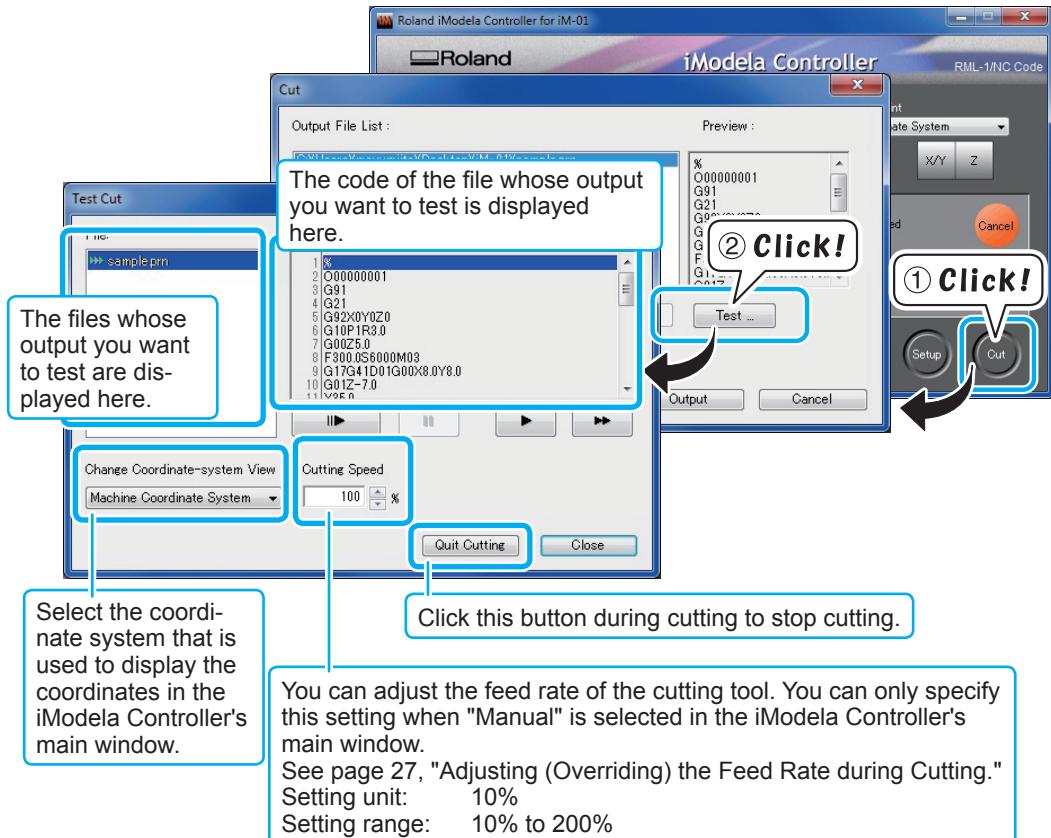
[Tool-diameter Offset] tab

Offset

This sets the tool-diameter offset for NC codes. If the tool-diameter offset is not set by G10, these are used.

Testing Output of NC Code Files

If a cutting data file is written in NC code, you can test the output of the file to check for the presence of mistakes (bugs).

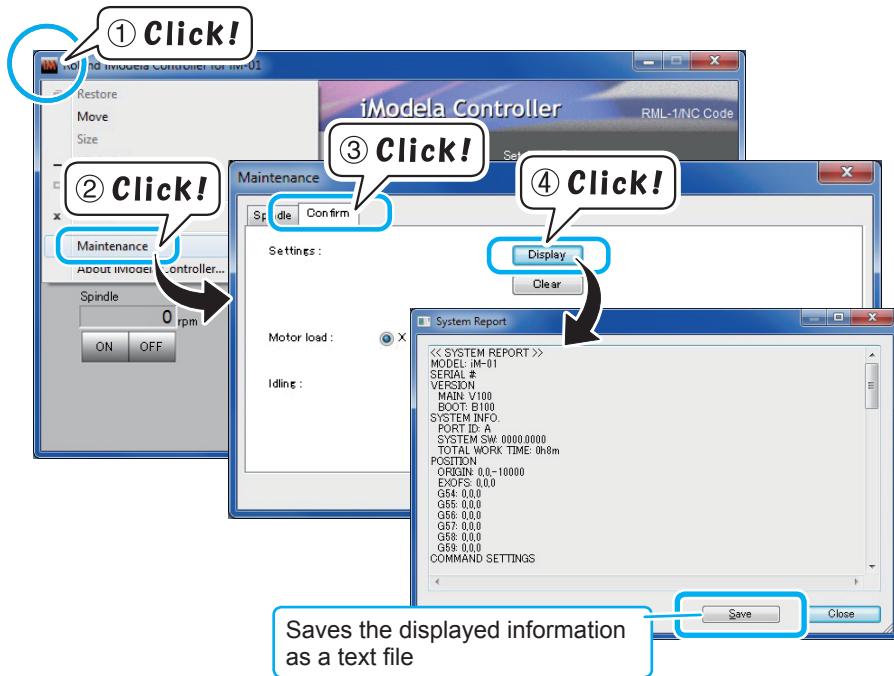


Test output operation buttons

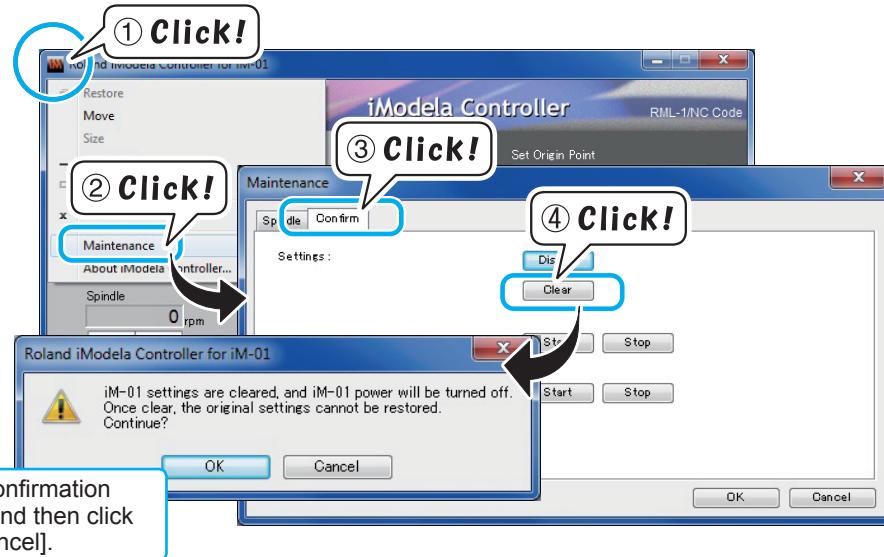
	Click this button to generate test output one block at a time. When you click this button, the next block is executed.
	Click this button to pause the test output. When you click this button while test output is paused, output begins again.
	Click this button to execute output as indicated by the program.
	Click this button to execute test output at the maximum cutting tool feed rate. All operations other than the cutting tool feed rate are executed according to the program.

Displaying and Saving This Machine's Settings

You can use the iModela Controller to display the settings of this cutting machine as text, and also to save the settings as a text file. This feature is useful when you want to share settings between users, when you need to provide setup information when you request repairs for a malfunctioning machine, or under similar circumstances.

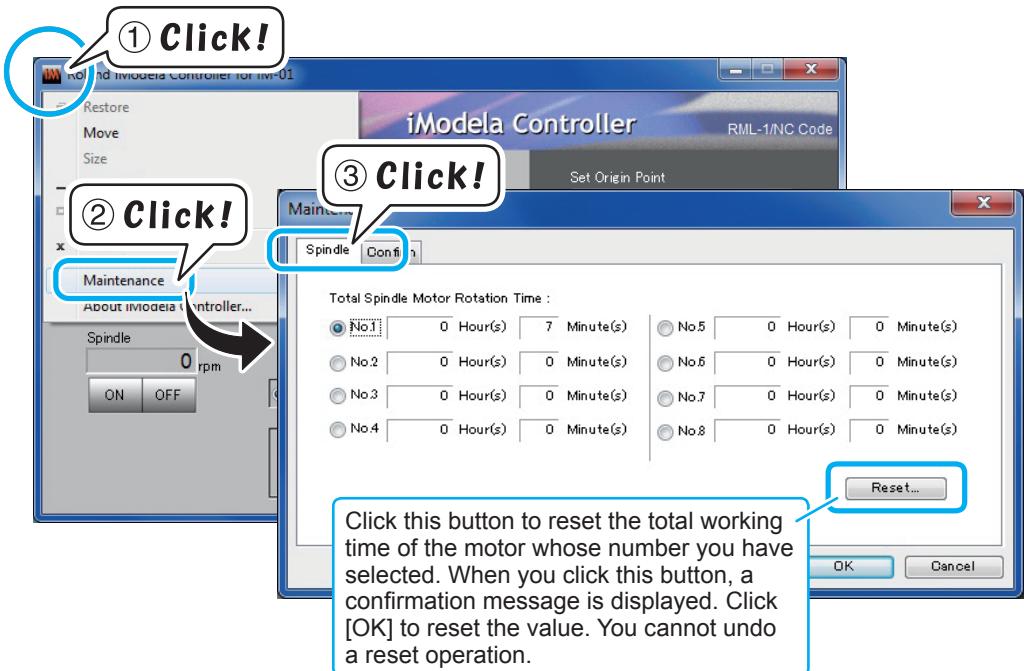


Initializing This Machine's Settings



Spindle Motor Management

You can use the iModela Controller to manage the total working time of the spindle motor. You can use this feature to manage the motor service life.



Using the Feature

For example, assume that we have three spindle motors, and we number them 1 to 3. When you want to use motor number 1, select "No. 1" in the window shown in the above figure. When you switch to motor number 2 or 3, select the appropriate number in this window. When the spindle revolves, the working time for the motor whose number you have selected increases. This enables you to use the iModela Controller to manage the total working time of motors 1 to 3.

If you do not change the selected motor number when you switch motors, the working time of the old motor (that was in use before you switched motors) increases. This makes it impossible to manage the motor working time.

☞ P. 43, "Replacing the Spindle Motor"

Usage Example

➤ Avoiding stoppages during cutting

You can check whether the spindle motor that is currently in use has a long enough work life remaining to complete the cutting operation that you have planned. This enables you to avoid situations in which the spindle motor stops working during cutting.

➤ Economic motor usage

You can check whether there are any spindle motors available that have enough of a work life remaining to efficiently complete the cutting operation that you have planned. This enables you to use spindle motors economically.

Chapter 3

Maintenance

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Replacement Periods for Consumable Parts	41
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Cleaning and Greasing

⚠️WARNING

Never use a pneumatic blower.

This machine is not compatible with a pneumatic blower. Cutting waste may get inside the machine and may lead to fire or electrical shock.

⚠️WARNING

Never use a solvent such as gasoline, alcohol, or thinner to clean the machine.

Doing so may cause fire.

⚠️WARNING

Disconnect the power cord before performing cleaning or maintenance.

Attempting such operations while the machine is connected to a power source may result in injury or electrical shock.

⚠️WARNING

When using a dust collector to collect cutting waste, exercise caution to prevent fire and explosions of dust.

Using an ordinary dust collector to collect fine cuttings may lead to fire or explosions. Contact the dust collector manufacturer to check whether the dust collector can be used to collect cutting waste. If you cannot confirm that it is safe to use the dust collector, use a brush or similar tool to collect cutting waste. Do not use the dust collector.

⚠️CAUTION

Be careful of high temperatures.

During use, the cutting tool and spindle motor become hot. Exercise caution to avoid fire and burns. The mechanisms around the spindle unit remain hot for approximately 10 minutes after you turn the power off, so do not touch these mechanisms until they cool down.

⚠️CAUTION

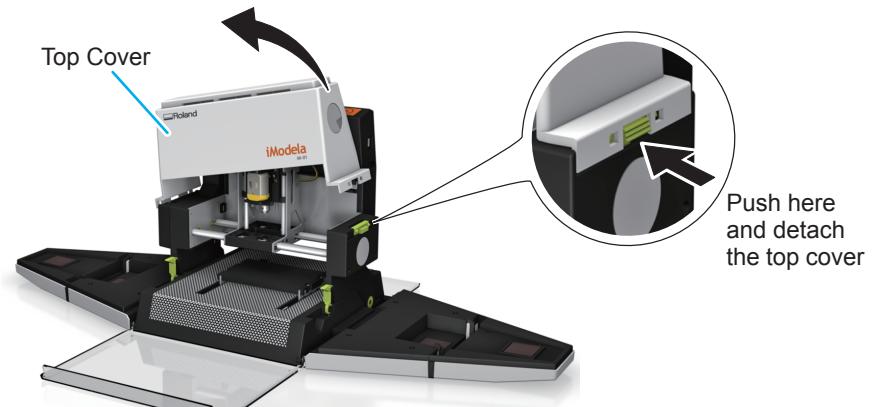
Be sure to remove the cutting tool before you perform maintenance.

Contact with the blade may cause injury.

Cleaning

- This machine is a precision device. Perform routine maintenance on it.
- Diligently clean away cutting waste. Operating the machine with a large amount of cutting waste present may cause malfunctions.
- Regularly disconnect the power supply plug and wipe dirt and dust with a dry cloth.
- Never apply lubrication.

When cleaning is performed, remove the top cover as necessary.



Cleaning the X-, Y-, and Z-Axis Screws

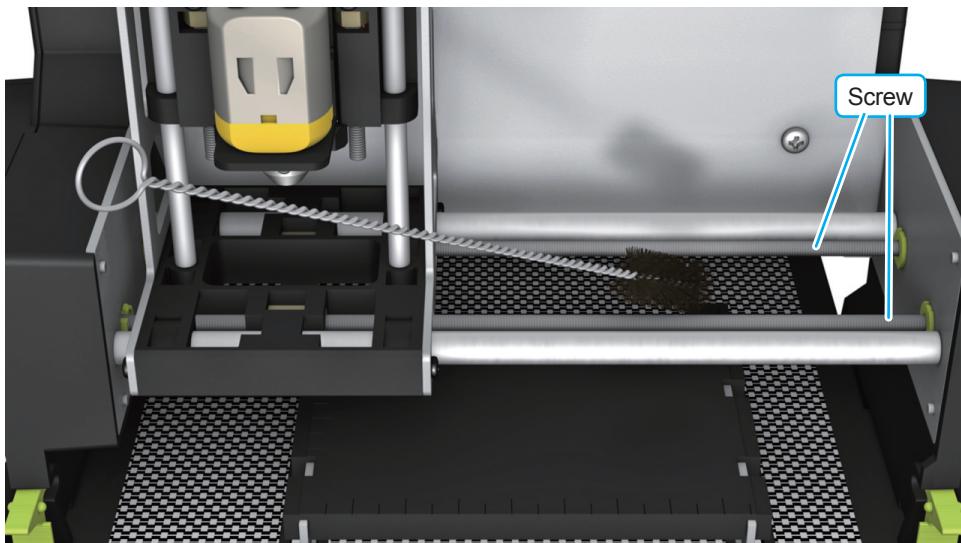
Cleaning After Finished Cutting

After the cutting operation is finished, use the cleaning brush provided as an accessory to clean X-, Y-, and Z-axis screws.

X-Axis

Move the spindle unit to the left or right, and then thoroughly clean the screw.

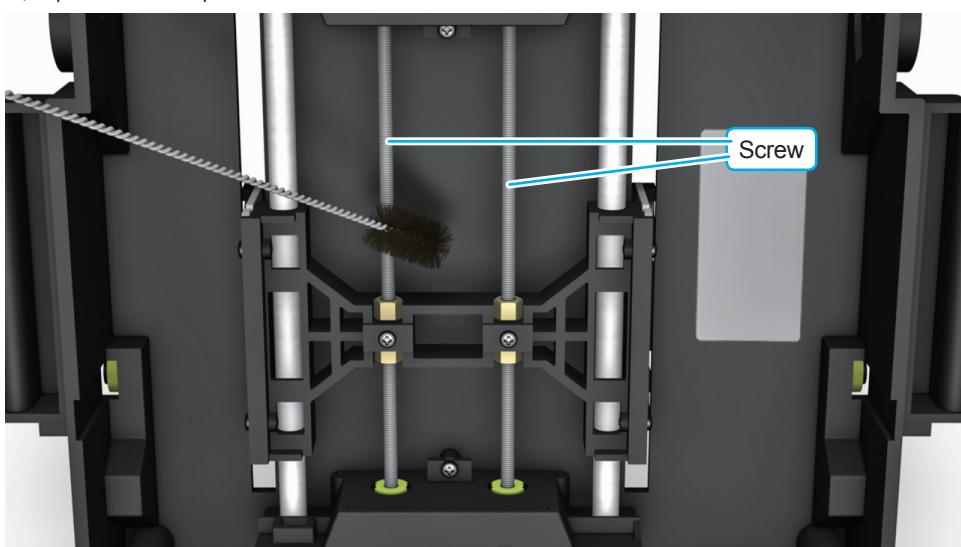
☞ P. 7, "Operation of the Spindle Unit"



Y-Axis

Move the table to the front or back, and then thoroughly clean the screw.

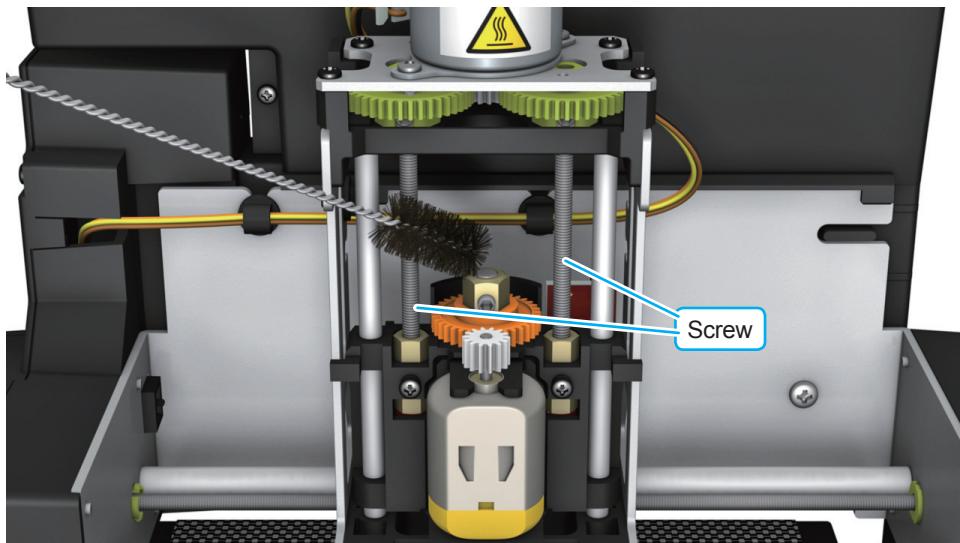
☞ P. 7, "Operation of the Spindle Unit"



Z-Axis

Move the spindle unit to its lowest position, and then thoroughly clean the screw.

☞ P. 7, "Operation of the Spindle Unit"

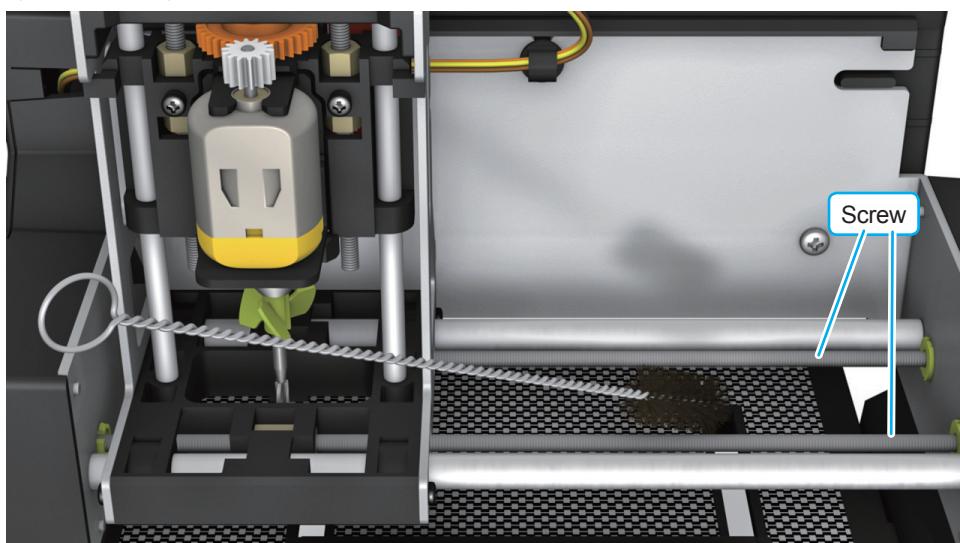


Cleaning During an Extensive Cutting Operation (Only X-axis)

If cutting waste accumulates during an extensive cutting operation, the machine's operation may be hindered, resulting in a product that does not meet expectations. If you see cutting waste accumulating, pause the cutting operation before the machine's operation becomes hindered, and then remove the cutting waste accumulating near the X-axis screw.

☞ P. 26, "Pausing/Resuming/Stopping Cutting"

After pausing the cutting operation, remove the top cover, and then use the cleaning brush provided as an accessory to remove any cutting waste.



Application of Grease to X, Y, Z Axes

When the X-, Y-, or Z-axis screws begin to make an unusual noise during operation, apply grease to the screws.

Grease should be applied after approximately 50 hours of operation.

Procedure

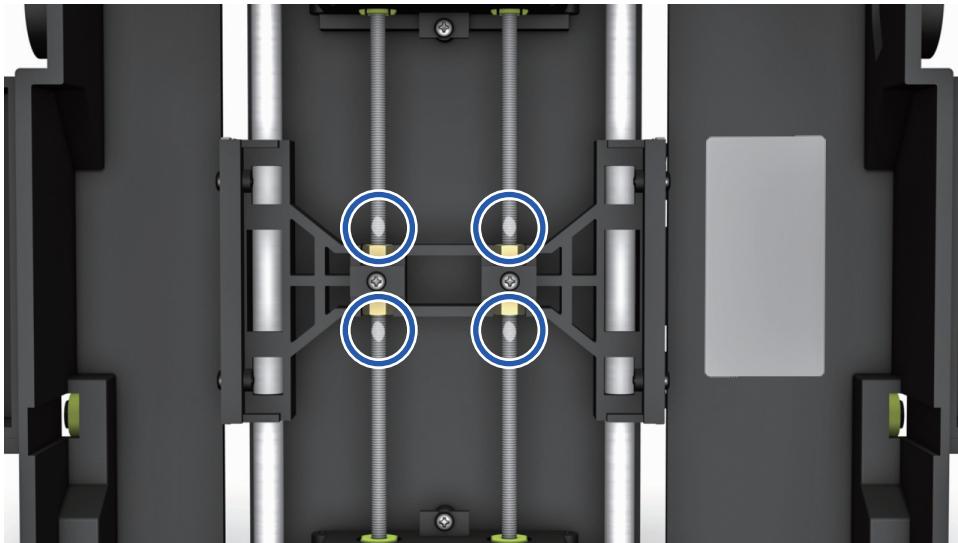
- 1 If a cutting material is mounted, remove it.**
- 2 Click the [X] and [Y] cursor buttons to move the cutter to the center of the operating range.**
(Standard coordinates: "X 43.00 mm," "Y 27.50 mm")
☞ P. 7, "Operation of the Spindle Unit"
- 3 Click the [Z] cursor buttons to move the cutter to its lowest position.**
☞ P. 7, "Operation of the Spindle Unit"
- 4 Turn off the machine, and then apply grease to the X-, Y-, and Z-axis screws.**
Refer to the following illustration and apply grease to the screw for each axis.

Note for Grease Application

- Apply one drop of grease at each location. If too much grease is applied, cutting waste may become attached to the grease, causing the machine to malfunction.
- Be sure to use the supplied grease.

X-Axis, Z-Axis



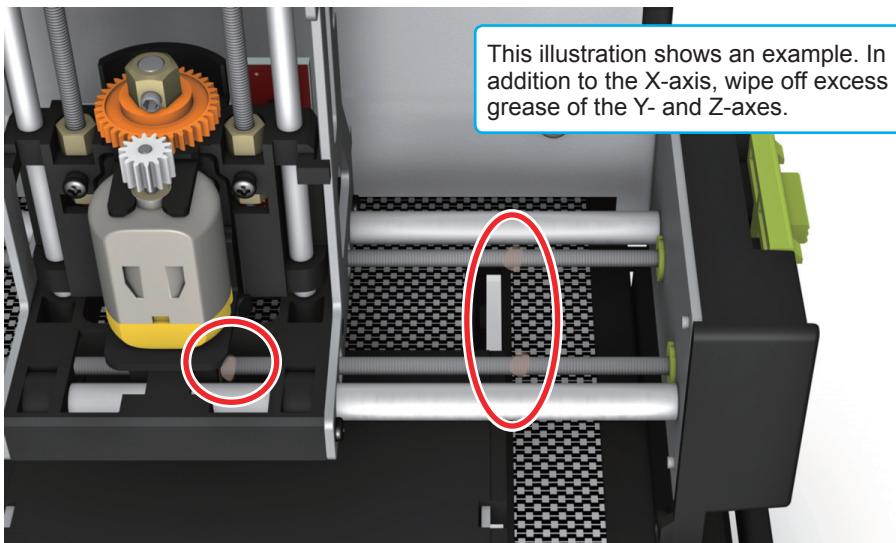
Y-Axis**5 Spread the grease evenly.**

After applying the grease, perform the spindle run-in operation to spread the grease.

☞ P. 12, "Checking Operations"

6 Wipe off any excess grease.

When idling is finished, wipe off excess grease on the screw.

**7 Check the load on the motor.**

☞ P. 12, "Checking Operations"

Maintenance of the Cutting Tool

⚠ CAUTION

Be careful not to injure yourself when you handle the blade of the cutting tool.

Cleaning of the Blade

Chippings and wastes of double-sided tape used for securing a cutting material attach to the blade of the cutting tool. After cutting is finished, remove the chippings etc. from the blade by using the cleaning brush provided as an accessory or a commercially available cleaner.

Filing of the Securing Section

Periodically grind the section that secures the cutting tool by using a sandpaper etc.

When the cutting tool has been used for a long time, it may not come off easily of the collet. This is because repeated cutting tool removal and installation leave traces of tightening by the securing set screw on the cutting tool, and the traces are caught by the inserting section of the collet. Periodically file the cutting tool; if such a trace is left unattended, the cutting tool may not come off.

Replacement of Consumable Parts

Caution and Note for Replacement of Consumable Parts

- Be sure not to perform any operation other than those given in the operation manual when you replace consumable parts. If you have any questions, refer to the iModela special website (<http://icreate.rolanddg.com/>). If you cannot access the iModela special website, contact your authorized Roland DG Corp. dealer.
- Use the specified consumable parts.

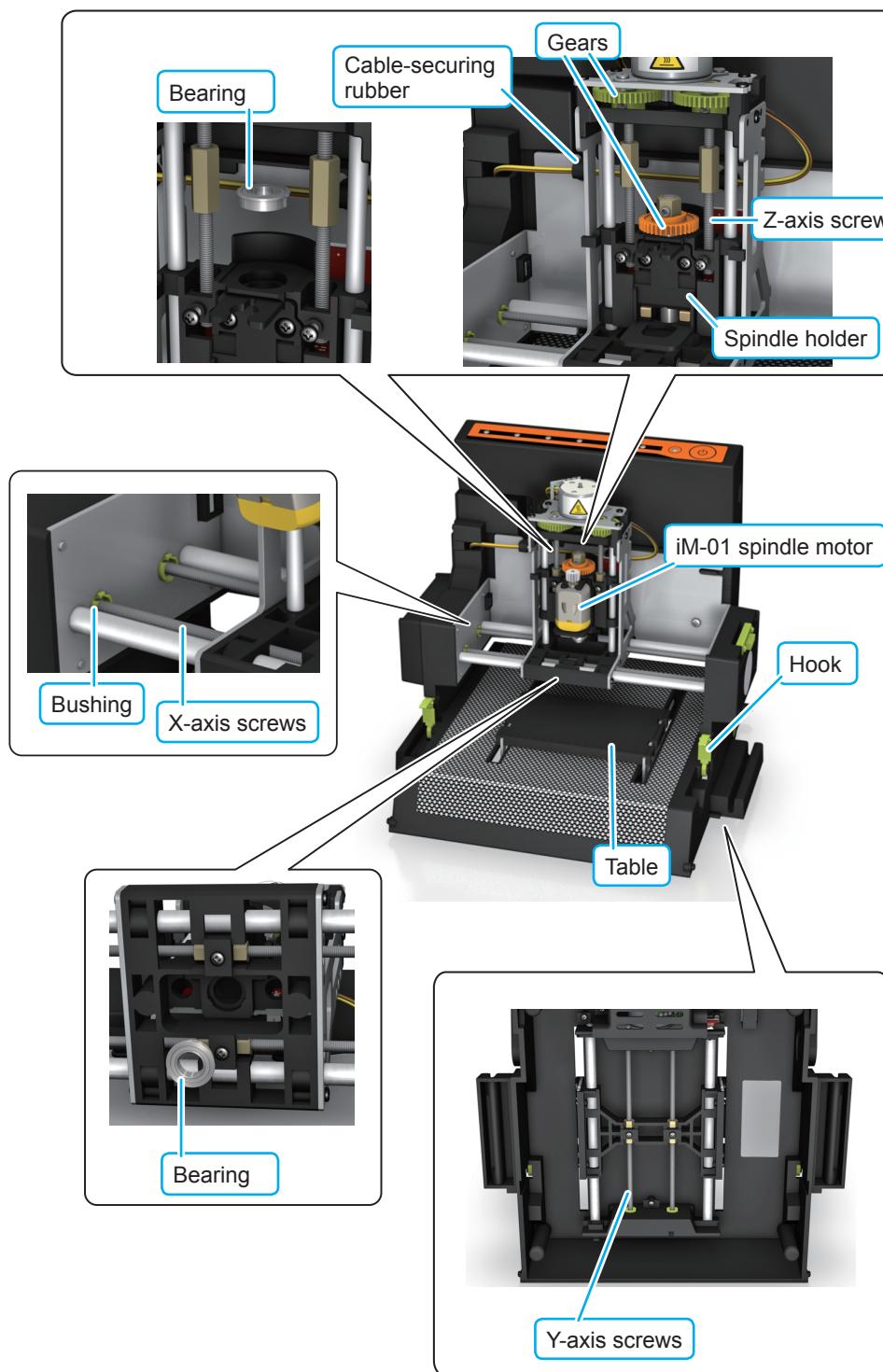
Replacement Periods for Consumable Parts

There are various consumable parts in this machine. The various consumable parts and their replacement periods are listed below.

To request consumable parts, visit the iModela website.
<http://icreate.rolanddg.com/>

Consumable parts	Standard Replacement Periods
iM-01 spindle motor	50 hours
X-, Y-, and Z-axis screws	500 hours
Bushing	500 hours
Bearing	500 hours
Gears	500 hours
Spindle holder	When it is broken
Table	When it is broken
Cable-securing rubber	When it is broken
Hook	When it is broken
Blower fan	When it is broken

Replacement of Consumable Parts



Consumable parts also exist at the locations which are not given in this figure. For more information, refer to the iModela special website.
<http://icreate.rolanddg.com/>

Replacing the Spindle Motor

⚠WARNING

Disconnect the power cord before you perform the part exchange.

Attempting such operations while the machine is connected to a power source may result in injury or electrical shock.

⚠CAUTION

Be careful of high temperatures.

During use, the cutting tool and spindle motor become hot. Exercise caution to avoid fire and burns. The mechanisms around the spindle unit remain hot for approximately 10 minutes after you turn the power off, so do not touch these mechanisms until they cool down.

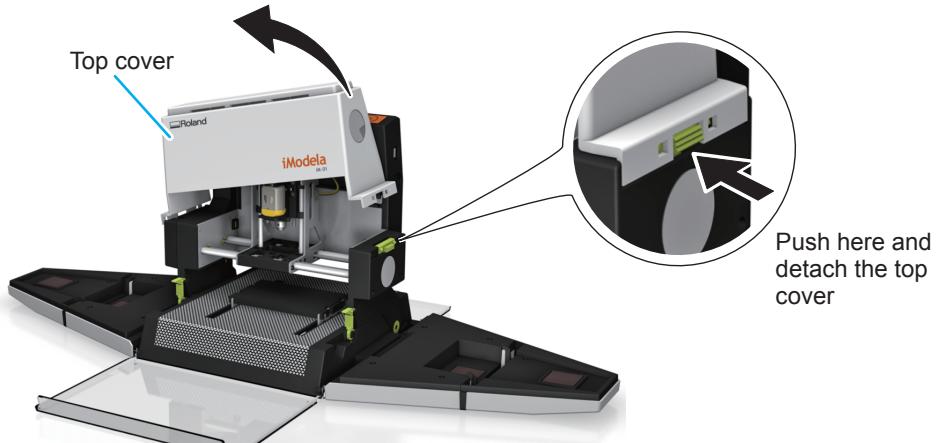
⚠CAUTION

Be sure to remove the cutting tool before you perform the part exchange.

Contact with the blade may cause injury.

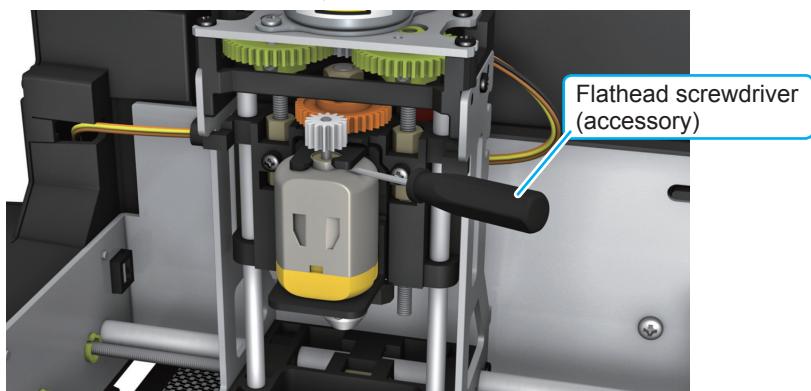
Procedure

- 1 Open the front, rear, and side covers, and then open the top cover.



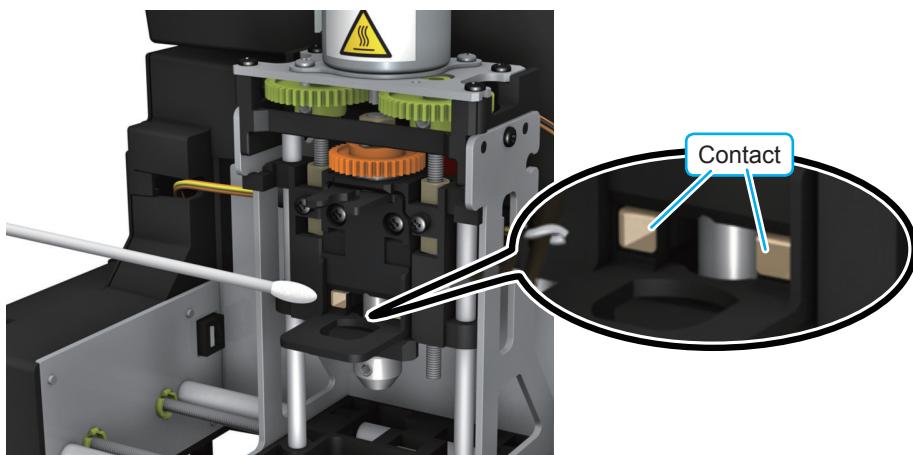
- 2 Replace the spindle motor.

With a flathead screwdriver (accessory), push in at the location shown in the illustration, and then grab the top of the spindle motor and pull it towards you.

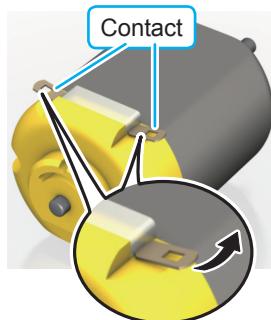


3 Clean the contacts on the motor.

Remove cutting waste and the like using a cotton swab on the market.



4



Prepare the new spindle motor.

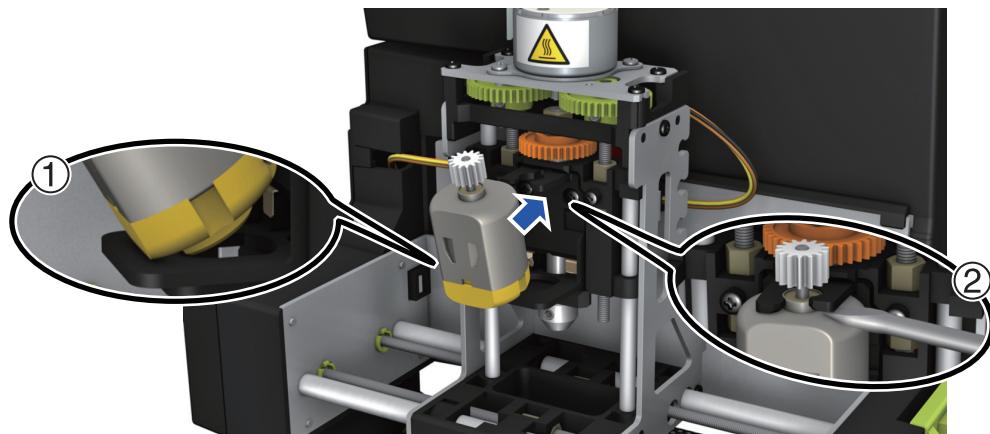
Check that the contacts are not dirty.

With your finger, lift the contacts up 1 mm so the connections can easily be made.

5 Install the new spindle motor.

① With the side without a gear downward, place the spindle motor in the stays from the bottom first.

② Push into place while using a flathead screwdriver (accessory) to push in at the location shown in the illustration.



6 Make sure that the gears are in place.

Make sure that there are no gaps between the gears. If there are gaps, push in the spindle motor.

**7 Perform idling.**

☞ P. 12, "Checking Operations"

Replacing the Hooks

If the hooks securing the main unit break or are lost, replace them with new ones.

⚠WARNING

Disconnect the power cord before you perform the part exchange.

Attempting such operations while the machine is connected to a power source may result in injury or electrical shock.

⚠CAUTION

Be careful of high temperatures.

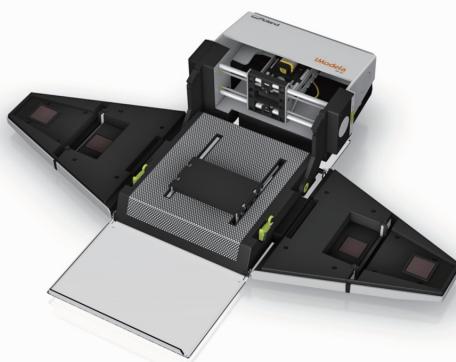
During use, the cutting tool and spindle motor become hot. Exercise caution to avoid fire and burns. The mechanisms around the spindle unit remain hot for approximately 10 minutes after you turn the power off, so do not touch these mechanisms until they cool down.

⚠CAUTION

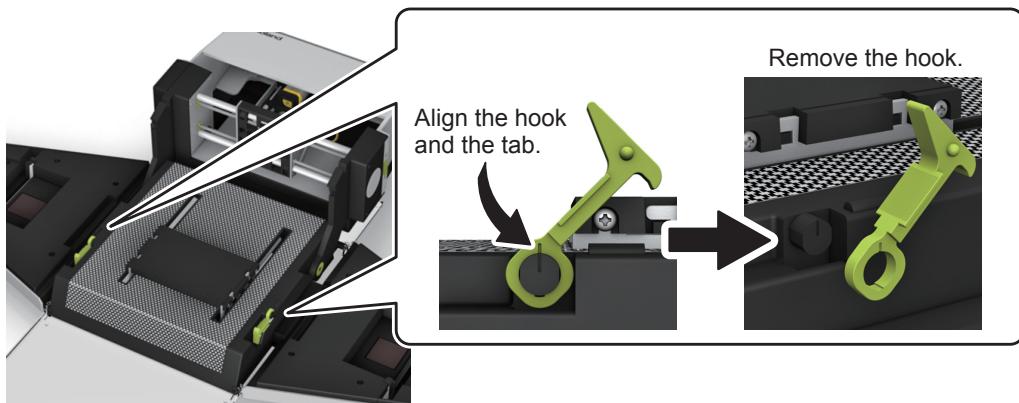
Be sure to remove the cutting tool before you perform the part exchange.

Contact with the blade may cause injury.

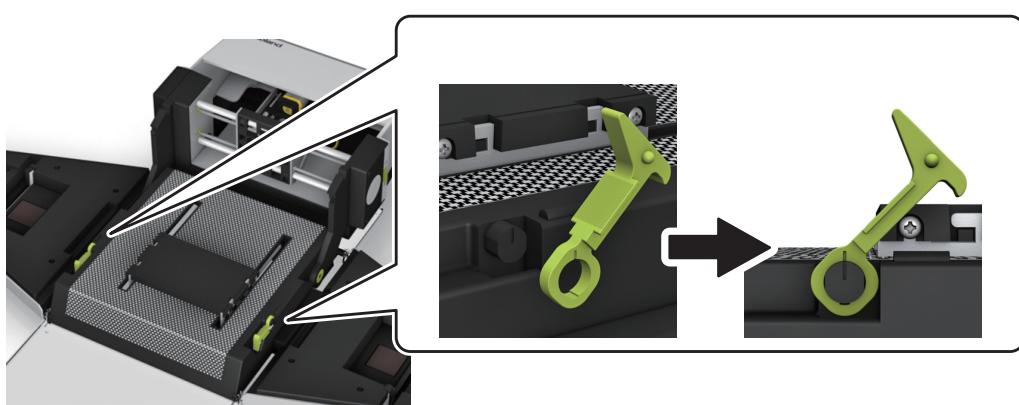
Procedure

1 Open the front, rear, and side covers. Slowly push the main unit down onto its back.


- ② ① Align the hook and the tab on the connector.
② Remove the hooks to the outside.



- ③ Install the new hooks following the reverse of the operation described in step ②.
Position the longer handle toward you.



Chapter 4

Appendix

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What to Do If

Initialization Is Not Performed or Initialization Fails

Is a large amount of cutting waste present?

Clean away any cutting waste. Clean the area around the spindle head especially carefully.

☞ P. 35, "Cleaning and Gleasing"

Is anything caught on the spindle head or table?

Check whether something has become caught and is impeding initialization.

The iModela Controller Does Not Operate Correctly

Has the cutting machine been initialized?

Initialize the cutting machine, and then start the iModela Controller.

☞ P. 6, "Starting the Machine"

Is the machine connected to the PC?

Check whether the cable connecting these devices has come loose.

☞ "First Step Guide"

Is the driver installed correctly?

If the connection to the PC is not made in the sequence described, the driver may not be installed correctly. The iModela Controller does not function normally if the driver is configured incorrectly. Check again to ensure that the connection was made using the correct procedure.

☞ "First Step Guide," p. 56, "The iModela Driver Cannot Be Installed"

Operations Are Ignored

Is anything caught on the spindle head or table?

Check whether something has become caught and is impeding operations.

Is the cable connected?

Connect the cable securely.

☞ "First Step Guide"

Was the machine started according to the correct procedure?

Initialize the cutting machine, and then start the iModela Controller.

☞ P. 6, "Starting the Machine"

Are any of the LEDs on the machine flashing rapidly?

☞ P. 50 "The LED Beside the Power Button Is Flashing"

Is a large amount of cutting waste present?

Clean away any cutting waste. Clean the area around the spindle head especially carefully.

☞ P. 35, "Cleaning and Gleasing"

Is the driver installed correctly?

If the connection to the PC is not made in the sequence described, the driver may not be installed correctly. The iModela Controller does not function normally if the driver is configured incorrectly. Check again to ensure that the connection was made using the correct procedure.

☞ "First Step Guide," p. 56, "The iModela Driver Cannot Be Installed"

Is operation paused?

When operations are paused, the machine's power LED flashes slowly. When operations are paused, the operations that can be performed are limited. Click [Pause] on the iModela Controller to start operations again.

☞ P. 26, "Pausing/Resuming/Stopping Cutting"

Is the iModela Controller displaying an error message?

☞ P. 59, "Responding to Error Messages"

The Spindle Doesn't Revolve

Is a large amount of cutting waste present?

Clean away any cutting waste. Clean the area around the spindle head especially carefully.

☞ P. 35, "Cleaning and Gleasing"

Abnormal Cutting Occurs

Have the origins been set at correct locations?

Check whether the origins have been set correctly. If the origin locations are incorrect, cutting may be performed in unexpected locations and to abnormal depths.

☞ P. 18, "Setting the Cutting Origin"

The Origin Is Off

Has the correct workpiece coordinate system been selected?

In NC programs, there are six coordinate systems. Depending on which coordinate system is used, the locations of the origins differ. For example, if your NC program uses G55, you have to set the origins for workpiece coordinate system G55.

☞ P. 18, "Setting the Cutting Origin"

What to Do If

Has EXOFS been set?

EXOFS in the NC code has a function to shift the origins. Set EXOFS to zero, and then reset the origins. If the origins are still shifted, check the program.

Procedure to set EXOFS to zero

1. Select "Machine Coordinate System" from the display of the coordinate system in the iModela Controller.
2. Move the cutting tool to the following location: "X: 0," "Y: 0," and "Z: 0."
3. Set [Set Origin Point] to "EXOFS."
4. Click [X/Y] and [Z] of [Set Origin Point].

The Feed Rate Is Wrong

Have you adjusted (overridden) the feed rate?

The feed rate adjustment (override) feature has a function to change the feed rate. Check the feed rate adjustment value. Unless you have a special reason for changing it, leave the adjustment value set at 100%.

☞ P. 27, "Adjusting (Overriding) the Feed Rate during Cutting"

The Cutting Results Are Not Clean

Are the cutting parameters optimal?

The optimal cutting parameters are determined by the hardness of the cutting material, the feed rate, the cutting-in depth, and the abilities of the cutting tool. Adjust the parameters little by little as you check the cutting results.

Is the cutting tool firmly secured in place?

Re-tighten the collet's mounting screw to fix the cutting tool in place.

☞ P. 15, "Installing the Cutting Tool and Loading the Cutting Material"

Is the blade of the cutting tool worn?

If the blade of the cutting tool is worn, replace it with a new cutting tool.

The LED Beside the Power Button Is Flashing

Is the computer screen displaying an error message?

If the LED is flashing slowly, the operation is paused. If the LED is flashing fast, an emergency shutdown has occurred. Read the message and P. 59, "Responding to Error Messages" of this guide to take an action.

☞ P. 59, "Responding to Error Messages"

The Deletion of Cutting Data Takes Time

Depending on the condition of your computer, the deletion of cutting data may take time. Try deleting the data with the following method.

1. Click [Devices and Printers] (or [Printers and Faxes]) from the Start menu.
2. Double-click the "Roland iM-01" icon
"Roland iM-01" dialog appears.
3. Select the cutting data you want to delete in "Roland iM-01" dialog, and then click "Document," and "Cancel."

When the cutting data disappears from "Roland iM-01" dialog, the deletion is complete.

To Install iModela Driver Separately

You can install all software at a time in this machine. For information on the method of the collective installation and required PC conditions, refer to iModela First Step Guide.

Procedure

- 1 Log on to Windows as “Administrators.”**
- 2 Insert the Roland Software Package CD-ROM into the computer.**
(Windows Vista/7 only: When the automatic playback window appears, click [Run menu.exe].)
The setup menu appears automatically.
- 3 Uninstall the iModela driver if it has been already installed.**
☞ P. 57, "Uninstalling the iModela driver"
Go to Step **4** if the iModela driver is not installed or it is uninstalled.



Click "Custom Install."

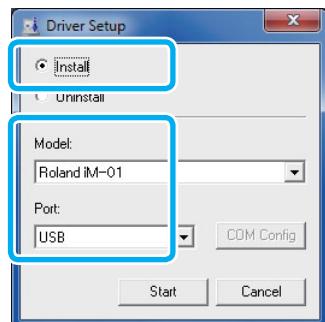
What to Do If

5



Click [Install] of "iModela Driver".

6



"Select [Install], select [Roland iM-01] as the model name, select [USB] as the port, and then click [Start]."

Driver installation starts. Follow the on-screen instructions and continue with the installation.

Windows Vista or 7



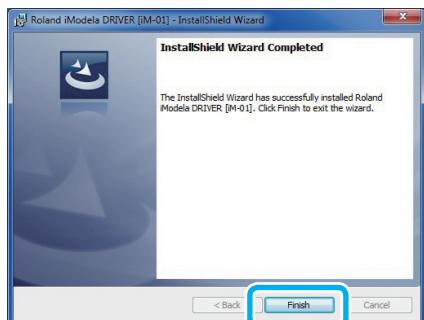
If the screen shown here is displayed, click [Install this driver software anyway].

Windows XP



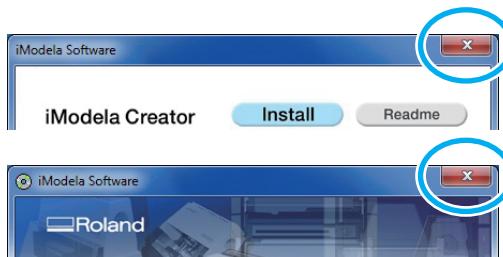
If the screen shown here is displayed, click [Continue Anyway].

7



When the screen shown here is displayed, click [finish].

8

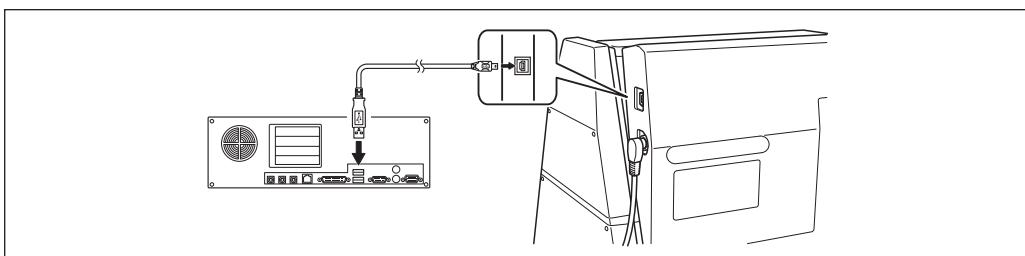


Click of the setup menu.

9 Remove the CD-ROM from the CD-ROM drive.

10 Connect the machine and the computer with a USB cable.

Please use the included USB cable. Do not use a USB hub.



Windows Vista or 7

The driver will be installed automatically.

Windows XP

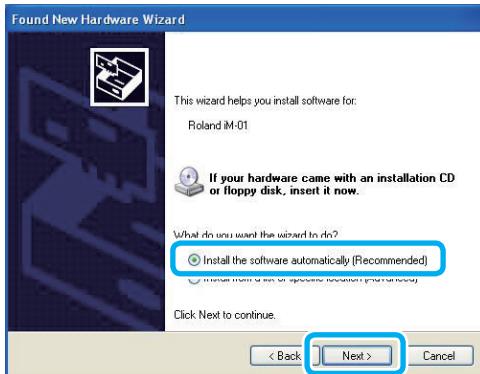
①



Select [No, not this time] and click [Next].

What to Do If

②



Select [Install the software automatically] and click [Next].

③

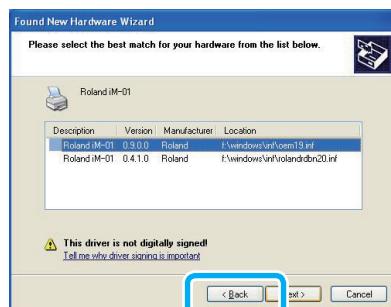


Click [Finish].

If the following screen is displayed during installation



Click [Continue Anyway].



Eject and remove the CD-ROM, and then click [Back] and repeat from the last screen.

To Install Software and Electronic Manual Separately

You can install all software at a time in this machine. For information on the method of the collective installation and required PC conditions, refer to iModela First Step Guide.

Procedure

1 Log on to Windows as “Administrators.”

2 Insert the Roland Software Package CD-ROM into the computer.

(Windows Vista/7 only: When the automatic playback window appears, click [Run menu.exe].) The setup menu appears automatically.

3



Click "Custom Install."

4



"Click [Install] of the program you want to install or "iModela Manuals."

For detailed information about each software, refer to "iModela First Step Guide."

For detailed information about installing iModela driver, refer to page 51 "To Install iModela Driver Separately."

About "Option Software"

When you click this button, the web site from which you can download optional software is displayed. For more information, refer to the web site.

5 Follow the messages to install the softwares.

(Windows Vista/7 only: The [User Account Control] appears, click [Allow], and install the softwares.)

6



"When installation finishes, click X of the setup menu."

7 Remove the CD-ROM from the CD-ROM drive.

The iModela Driver Cannot Be Installed

If the driver installation stops partway through or if the wizard does not appear when you use a USB cable to connect the PC to the machine, follow the appropriate procedure shown below.

Windows 7

1. Use a USB cable to connect the machine and the PC, and then turn the machine on.
2. If the Found New Hardware wizard appears, click [Cancel] to close it. Disconnect any USB cables for printers other than this machine.
3. On the taskbar, click [Start], and then right-click [Computer]. Click [Properties].
4. Click [Device Manager]. When the User Account Control dialog box appears, click [Continue].
The Device Manager window appears.
5. Click [Show hidden devices] on the View menu.
6. Double-click [Printers] or [Other devices] in the list. Click the model name or [Unknown device], whichever appears below the item you selected.
7. Click [Delete] on the Action menu.
8. In the Confirm Device Uninstall dialog box, select the "Delete the driver software for this device." check box, and then click [OK] to close the device manager.
9. Disconnect the USB cable that is connected to the printer, and then restart Windows.
10. Uninstall the iModela driver.
See page 57, "Uninstalling the iModela driver," and follow the procedure for Windows 7 from step 3 to uninstall the iModela driver.
11. Follow the procedure on page 51, "To Install iModela Driver Separately" to install the driver again.

Windows Vista

1. Use a USB cable to connect the machine and the PC, and then turn the machine on.
2. If the Found New Hardware wizard appears, click [Cancel] to close it. Disconnect any USB cables for printers other than this machine.
3. On the taskbar, click [Start], and then right-click [Computer]. Click [Properties].
4. Click [Device Manager]. When the User Account Control dialog box appears, click [Continue].
The Device Manager window appears.
5. Click [Show hidden devices] on the View menu.
6. Double-click [Printers] or [Other devices] in the list. Click the model name or [Unknown device], whichever appears below the item you selected.
7. Click [Delete] on the Action menu.
8. In the Confirm Device Uninstall dialog box, select the "Delete the driver software for this device." check box, and then click [OK] to close the device manager.
9. Disconnect the USB cable that is connected to the printer, and then restart Windows.
10. Uninstall the iModela driver.
See page 57, "Uninstalling the iModela Driver," and follow the procedure for Windows Vista from step 3 to uninstall the iModela driver.
11. Follow the procedure on page 51, "To install iModela driver separately" to install the driver again.

Windows XP

1. Use a USB cable to connect the machine and the PC, and then turn the machine on.
2. If the Found New Hardware Wizard appears, click [Finish] to close it. Disconnect any USB cables for printers other than this machine.
3. On the taskbar, click [Start], and then right-click [My Computer]. Click [Properties].

4. Click the Hardware tab, and then click [Device Manager].
The Device Manager window appears.
5. Click [Show hidden devices] on the View menu.
6. Double-click [Printers] or [Other devices] in the list. Click the model name or [Unknown device], whichever appears below the item you selected.
7. Click [Delete] on the Action menu.
8. In the Confirm Device Uninstall dialog box, click [OK].
9. Close the Device Manager window, and click [OK].
10. Disconnect the USB cable that is connected to the printer, and then restart Windows.
11. Uninstall the iModela driver.
See page 58, "Uninstalling the iModela driver," and follow the procedure for Windows XP from step 3 to uninstall the iModela driver.
12. Follow the procedure on page 51, "To install iModela driver separately" to install the driver again.

Uninstalling the iModela driver

Follow the appropriate procedure below to uninstall the driver.

Windows 7

1. Turn the machine off, and disconnect the USB cable that is connecting the PC and the machine.
2. Log on to Windows as an administrator.
3. On the task bar, click [Start], [iModela Controller], and then [Uninstall a program].
4. Select the machine's driver that you want to uninstall, and then click [Uninstall].
5. When a message prompting you to confirm that you want to uninstall the driver appears, click [Yes].
6. On the task bar, click [Start], [All Programs], [Accessories], [Run], and then [Browse].
7. Choose the name of the drive or folder where the driver is located.*
8. Select "SETUP.EXE," click [Open], and then click [OK].
9. When the User Account Control dialog box appears, click [Allow].
The driver's installer starts.
10. Click [Uninstall]. Select the machine that you want to uninstall, and then click [Start].
11. When a dialog box prompting you to restart the PC appears, click [Yes].
When the computer restarts, the uninstallation is finished.

* When you are using the CD-ROM, specify one of the following folders. (The CD drive is drive D in this example.)

D:\Drivers\WIN7X64 (64-bit version)
D:\Drivers\WIN7X86 (32-bit version)

If you're not using the CD-ROM, go to the Roland DG Corp. website (<http://www.rolanddg.com/>), and download the driver for the machine you want to delete. Then, specify the folder where you extracted the downloaded file to.

Windows Vista

1. Turn the machine off, and disconnect the USB cable that is connecting the PC and the machine.
2. Log on to Windows as an administrator.
3. On the task bar, click [Start], [Control Panel], and then [Uninstall a program].
4. Select the machine's driver that you want to uninstall, and then click [Uninstall].
5. When a message prompting you to confirm that you want to uninstall the driver appears, click [Yes].
6. On the task bar, click [Start], [All Programs], [Accessories], [Run], and then [Browse].

What to Do If

7. Choose the name of the drive or folder where the driver is located.*
8. Select "SETUP.EXE," click [Open], and then click [OK].
9. When the User Account Control dialog box appears, click [Allow].
The driver's setup program starts.
10. Click [Uninstall]. Select the machine that you want to uninstall, and then click [Start].
11. When a dialog box prompting you to restart the PC appears, click [Yes].
When the computer restarts, the uninstallation is finished.

* When you are using the CD-ROM, specify one of the following folders. (The CD drive is drive D in this example.)

D:\Drivers\WINVISTAX64 (64-bit version)

D:\Drivers\WINVISTAX86 (32-bit version)

If you're not using the CD-ROM, go to the Roland DG Corp. website (<http://www.rolanddg.com/>), and download the driver for the machine you want to delete. Then, specify the folder where you extracted the downloaded file to.

Windows XP

1. Turn the machine off, and disconnect the USB cable that is connecting the PC and the machine.
2. Log on to Windows as an administrator or as a member of the Administrators group.
3. On the task bar, click [Start], [Control Panel], and then [Uninstall a program].
4. Select the machine's driver that you want to uninstall, and then click [Uninstall].
5. When a message prompting you to confirm that you want to uninstall the driver appears, click [Yes].
6. On the task bar, click [Start], [All Programs], [Accessories], [Run], and then [Browse].
7. Choose the name of the drive or folder where the driver is located.*
8. Select "SETUP.EXE," click [Open], and then click [OK].
The driver's setup program starts.
9. Click [Uninstall]. Select the machine that you want to uninstall, and then click [Start].
10. When a dialog box prompting you to restart the PC appears, click [Yes].
When the computer restarts, the uninstallation is finished.

* When you are using the CD-ROM, specify one of the following folders. (The CD drive is drive D in this example.)

D:\Drivers\WINXPX64 (64-bit version)

D:\Drivers\WINXPX86 (32-bit version)

If you're not using the CD-ROM, go to the Roland DG Corp. website (<http://www.rolanddg.com/>), and download the driver for the machine you want to delete. Then, specify the folder where you extracted the downloaded file to.

Responding to Error Messages

Responding to Error Messages

No response is returned from machine.

Make sure that the connection cable is connected securely and the machine is switched on.

Click [Stop]. The machine may have accidentally been switched off, or the cable may have come loose. Check these points (and connect the connection cable if it is not connected) and retry to start the machine from the beginning. If the message persists even after you perform the operation from the beginning, visit the iModela special website (<http://icreate.rolanddg.com/>) and check the troubleshooting. If you cannot access the iModela special website and check the troubleshooting, contact your authorized Roland DG Corp. dealer.

☞ P. 6, "Starting and Shutting Down the Machine"

No modeling machine was found.

If the power is off, then switch it on.

If the cable is unconnected, then connect it.

Click [Stop]. The machine may have accidentally been switched off, or the cable may have come loose. Check these points (and connect the connection cable if it is not connected) and retry to start the machine from the beginning. If the message persists even after you perform the operation from the beginning, visit the iModela special website (<http://icreate.rolanddg.com/>) and check the troubleshooting. If you cannot access the iModela special website and check the troubleshooting, contact your authorized Roland DG Corp. dealer.

☞ P. 6, "Starting and Shutting Down the Machine"

The iModela has performed an emergency stop.

*-Limit switch not found.

Switch the equipment off, then back on.

If the symptom persists, a malfunction may have occurred. Switch off the equipment's main power and contact your local vendor or Roland sales center.

An emergency stop occurred because initialization failed. Turn the machine off, remove any cutting waste or other obstructions that are impeding the operation of the spindle head or table, and then redo the operation from the beginning. If the message persists even after you perform the operation from the beginning, visit the iModela special website (<http://icreate.rolanddg.com/>) and check the troubleshooting. If you cannot access the iModela special website and check the troubleshooting, contact your authorized Roland DG Corp. dealer.

In the above figure, "*" represents "X," "Y," or "Z,"

☞ P. 6, "Starting and Shutting Down the Machine"

Responding to the Error Messages

The iModela has performed an emergency stop.
Machine leaned during operation.
Switch the equipment power off.
Make equipment level, then switch the power back on.

Emergency stop occurred because the machine tilted by 30 degrees or more during operation. Turn the machine off, position the cutting machine so that it is level, and redo the operation from the beginning. If the message persists even after you perform the operation from the beginning, visit the iModela special website (<http://icreate.rolanddg.com/>) and check the troubleshooting. If you cannot access the iModela special website and check the troubleshooting, contact your authorized Roland DG Corp. dealer.

☞ P. 6, "Starting and Shutting Down the Machine"

The iModela has performed an emergency stop.
Controller is not connected.
Switch the equipment power off.
Connect equipment and a controller, then switch the power back on.

An emergency stop occurred because the cutting machine is not connected to the controller. Turn the machine off, connect the machine to the controller, and then redo the operation from the beginning. If the message persists even after you perform the operation from the beginning, visit the iModela special website (<http://icreate.rolanddg.com/>) and check the troubleshooting. If you cannot access the iModela special website and check the troubleshooting, contact your authorized Roland DG Corp. dealer.

☞ P. 6, "Starting and Shutting Down the Machine"



The iModela has performed an emergency stop.
 The NVRAM could not be accessed.
 Switch the equipment off, then back on.
 If the symptom persists, a malfunction may have occurred. Switch off the equipment's main power and contact your local vendor or Roland sales center.

An emergency stop occurred because the machine's memory unit became partially inaccessible. Turn the machine off and redo the operation from the beginning. If the message persists even after you perform the operation from the beginning, visit the iModela special website (<http://icreate.rolanddg.com/>) and check the troubleshooting. If you cannot access the iModela special website and check the troubleshooting, contact your authorized Roland DG Corp. dealer.

☞ P. 6, "Starting and Shutting Down the Machine"

The iModela is paused.
Command Error
 Ignoring this error and continuing cutting is possible,
 but subsequent results are not assured.
 Quitting cutting is strongly recommended.
 If command does not match the machine's command set,
 select correct command set.

Operation was paused because a command error occurred. Click [Quit] to stop cutting. You can resume cutting by clicking [Continue], but doing so is very likely to result in unintended operation and is not recommended. It's possible that the selected command set is incorrect. Check that the command set of the cutting data and the command set that you have selected using the iModela Controller match. If the selected command set is correct, there may be an unknown command in the cutting data. Check the commands in the cutting data. If the command set has been set to "RML-1/NC Code," the name of the command set is not included in the error message.

☞ P. 10, "Selecting the Command Set"

The iModela is paused.
 The spindle motor experienced an excessive load
 or it is not mounted.
 Ignoring this error and continuing cutting is possible,
 but there is recurring fear.
 Confirm whether the spindle motor is mounted.
 After waiting for the temperature of the spindle motor to cool, exchange a spindle motor.
 When recurring even if it exchanges a spindle motor,
 revise the cutting parameters.

The machine is suspended for any of the reasons given below:

- High motor load state continued, or instant excessive torque was applied.
- The spindle motor is not installed.

Follow the on-screen message to check the spindle motor condition.

If the symptoms arise again even after you have replaced or installed the spindle motor, the cutting operation

What to Do If

that you have specified may exceed the capabilities of the machine. Check the cutting parameters.

☞ P. 6, "Starting and Shutting Down the Machine," p. 43, "Replacing the Spindle Motor"

The spindle rotation is stopped.
The spindle motor experienced an excessive load
or it is not mounted.
Confirm whether the spindle motor is mounted.
Revise the cutting method.

The spindle rotation was stopped for either of the following reasons.

- High motor load state continued, or instant excessive torque was applied.
- The spindle motor is not installed.

Follow the on-screen message to check the spindle motor condition.

If the symptoms arise again even after you have replaced or installed the spindle motor, the cutting operation that you have specified may exceed the capabilities of the machine. Check the cutting parameters.

☞ P. 28, "Saving and Reusing Output File Lists"

@@@@@@@ not found.

This is displayed in the following cases.

- When a file in an output file list was opened, the specified file did not exist.
- When a file in an output file list was selected, the specified file did not exist.
- When the [Output] button was clicked, the files in the list did not exist.

Check the files in the output file list.

☞ P. 28, "Saving and Reusing Output File Lists"

NC Code Specifications

List of Settings Related to NC Code

The following list contains the settings related to interpreting and executing NC code that can be performed on the machine. Use NC programs to perform all other settings.

☞ See the "NC Code Reference Manual."

NOTE: If you want to make settings related to NC code, set the command set to "NC Code" or "RML-1/NC Code."

☞ P. 10, "Selecting the Command Set"

Numeric Value Interpretation Method

Select the interpretation method for numeric values with a decimal point and the calculator interpretation range. On the iModela Controller, click [Setup] and then [NC Code setting]. Then set these values on the NC Code tab.

For details on these settings, see the iModela Controller's Help.

☞ P. 3, "Viewing the Documentation for the Software"

Workpiece Origin Offset (G54 to G59)

This setting is related to the location of the origin of the workpiece coordinate system. Select the coordinate system that you want to set under Set Origin Point on the iModela Controller, and then set the origin. You can also use NC programs to set the G10 and G92 coordinate systems.

EXOFS

Follow the setting method described below.

1. Set the display of the coordinate system on the iModela Controller to "Machine Coordinate System."
2. Click the feed buttons on the iModela Controller to set the X, Y, and Z coordinates.
3. Set the coordinate system under Set Origin Point to "EXOFS."
4. Set the X/Y origin and the Z origin.

You can also use NC programs to set the G10 coordinate system.

Cutter Diameter Compensation Value

On the iModela Controller, click [Setup] and then [NC Code setting]. Then set this value on the Tool-diameter Offset tab. You can also use NC programs to set the G10 coordinate system.

Cutter Diameter Compensation Type (G41, G42)

Select type A or type B. On the iModela Controller, click [Setup] and then [NC Code setting]. Then set this value on the NC Code tab.

Optional Block Skip (/)

Enable or disable the optional block skip feature. On the iModela Controller, click [Operation Settings] and then [NC Code setting]. Then set this value on the NC Code tab.

Items Related to the Mechanical Specifications

This section describes the NC codes that are dependent on the machine's mechanical specifications.

☞ "NC Code Reference Manual."

Dimension Word

Of the four dimension words—X, Y, Z, and A—only X, Y, and Z are supported.

Data Settings (G10)

The ranges of the G10 parameters are as follows.

Parameter: Number

Function: Compensation number

Acceptable range: 1 to 8

Valid range: 1 to 8

Parameter: Radius

Function: Cutter diameter compensation value

Acceptable range: Range 1

Valid range: 0 to 10 mm (0 to 0.3937 inches)

Cutter Diameter Compensation (G41, G42)

The ranges of the G41 and G42 parameters are as follows.

Parameter: Number

Function: Compensation number

Acceptable range: 0 to 8

Valid range: 0 to 8

Feed Rate (F)

The range of the F parameter is as follows.

Parameter: Feed rate

Function: Feed rate

Acceptable range: Range 1

Valid range:

X and Y axes: 6 to 240 mm/min (0.24 to 9.45 inches/min)

Z axis: 6 to 180 mm/min (0.24 to 7.09 inches/min)

Interpretations of NC Code Omissions

When NC codes are omitted, the machine performs the following interpretations. The machine performs interpretations when NC codes are omitted in a characteristic manner. If you want to write general-purpose programs, do not omit NC codes.

☞ "NC Code Reference Manual."

Unit Setting (G20, G21)

If these codes are omitted, the machine assumes millimeter input (G21) at all times.

Cutter Diameter Compensation (G41, G42)

If these codes are omitted, the value that was set on the Cutter Diameter Compensation tab, which is accessed by clicking [Setup] and then [NC Code setting] on the iModela Controller, is used.

Workpiece Coordinate System (G54 to G59)

If these codes are omitted, the machine assumes workpiece coordinate system 1 (G54) at all times.

Dimension (G90, G91)

If these codes are omitted, the machine assumes absolute (G90) at all times.

Feed Rate (F)

If the F code is omitted, the feed rate is set to 120 mm/min (4.72 inches/min).

Word List

The words supported by this machine are listed in the following chart. For details on each word, see the "NC Code Reference Manual."

Preparation Feature (G feature)

Group Name	Word	Function	Continuation Function
Positioning and interpolation	G00	Positioning	Modal
	G01	Linear interpolation	
	G02	Clockwise circular interpolation	
	G03	Counterclockwise circular interpolation	
	G04	Dwell	One-shot
	G10	Data setting	One-shot
Plane selection	G17	XY plane selection	Modal
	G18	ZX plane selection	
	G19	YZ plane selection	
Unit setting	G20	Inch input	Modal
	G21	Millimeter input	
	G28	Return to reference point	One-shot
	G39	Corner offset circular interpolation	One-shot
Cutter diameter compensation	G40	Cutter diameter compensation cancel	Modal
	G41	Cutter diameter compensation to the left of the programmed path	
	G42	Cutter diameter compensation to the right of the programmed path	
Workpiece coordinate system	G53	Movement under machine coordinate system	One-shot
	G54	Workpiece coordinate system 1 selection	Modal
	G55	Workpiece coordinate system 2 selection	
	G56	Workpiece coordinate system 3 selection	
	G57	Workpiece coordinate system 4 selection	
	G58	Workpiece coordinate system 5 selection	
Fixed cycle	G59	Workpiece coordinate system 6 selection	
	G80	Fixed cycle cancel	Modal
	G81	Fixed cycle	
	G82	Fixed cycle	
	G83	Fixed cycle	
	G85	Fixed cycle	
	G86	Fixed cycle	
	G89	Fixed cycle	

Group Name	Word	Function	Continuation Function
Dimension	G90	Absolute	Modal
	G91	Incremental	
	G92	Coordinate system setting	One-shot
Return point	G98	Return to initial level	Modal
	G99	Return to R-point level	

Support Features (M feature), Feed Feature (F feature), and Spindle Feature (S feature)

Word	Function	Function Start		Function Continuation	
		Same Time as the Operation Specified by the Command in the Block	After the Operation Specified by the Command in the Block Is Complete	Held until the Command Is Canceled or Changed	Only Valid in the Block Specified by the Command
M02	End of program	Yes			Yes
M03	Spindle revolution	Yes		Yes	
M05	Spindle stop	Yes		Yes	
M30	End of program	Yes			Yes
F	Feed rate	Yes		Yes	

Other Words

Word	Function
A	Dimension word
I	Dimension word
J	Dimension word
K	Dimension word
N	Sequence number
O	Program number
R	Dimension word
X	Dimension word
Y	Dimension word
Z	Dimension word
/	Optional block skip
%	Data start/data end
<EOB>	End of block
()	Comment

How to Store in the Dedicated Case

You can store iModela in the dedicated case as follows.

- Detach the cutting tool and cutting material.
- Move the spindle unit to the VIEW position.

☞ P. 7, "Operation of the Spindle Unit"

①

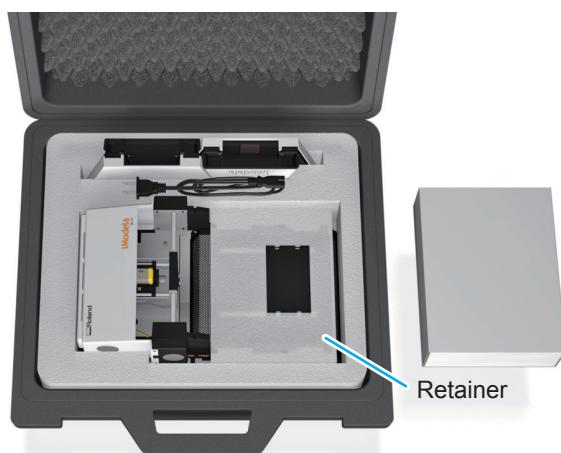


Side covers

Power cord

Rear cover
Front cover
USB cable
AC adapter
Other accessories

②

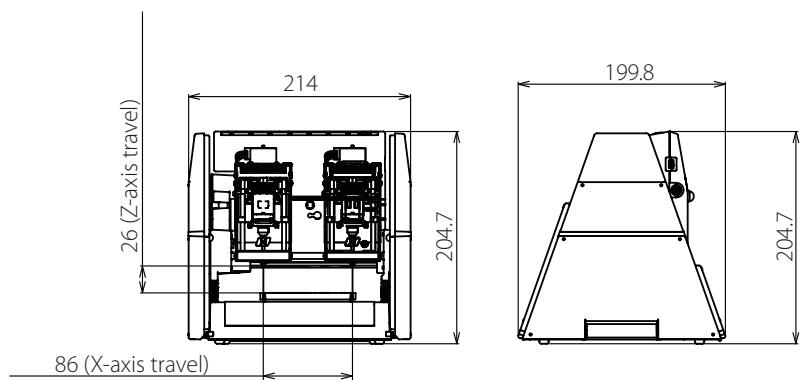
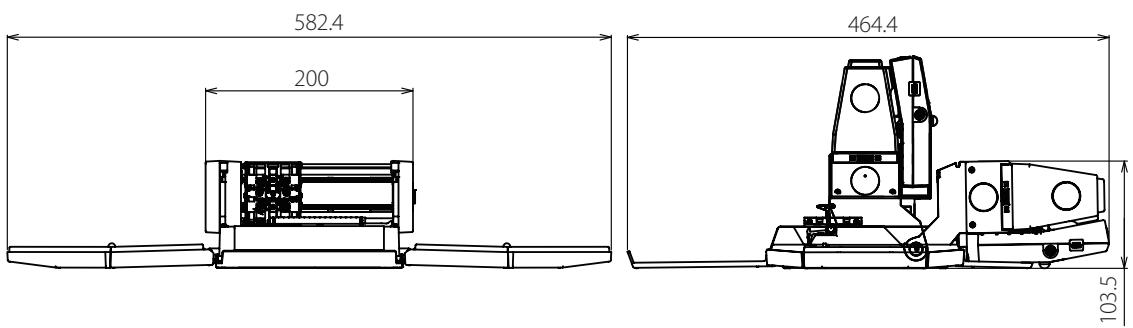
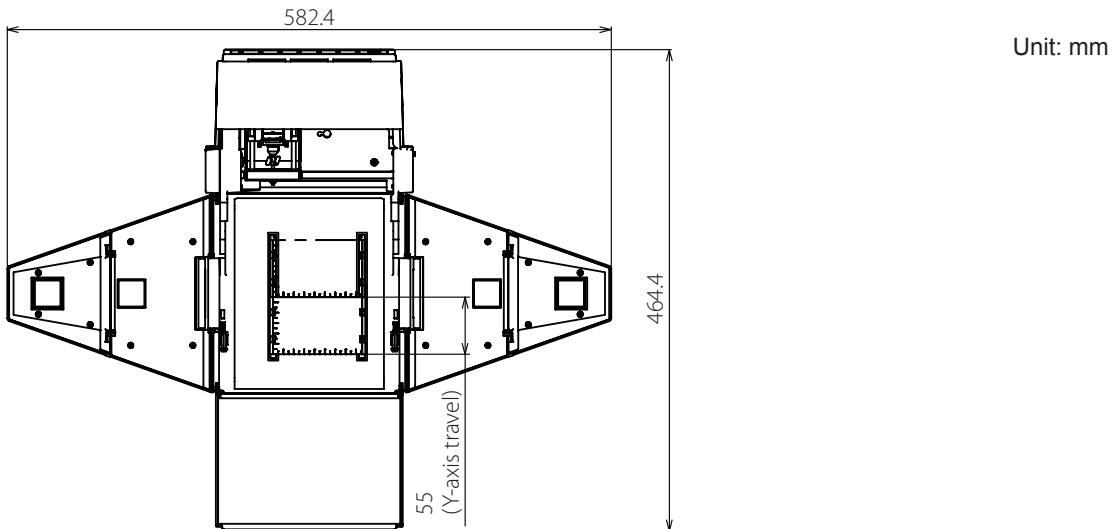


③



Main Unit Specifications

External Dimensions/Table Dimensions



Location of Power Rating and Serial Number Label



Rear



AC adapter

Main Specifications

iM-01

Material that can be cut	Soft material such as resins (conductors such as the metals and the carbons are off the subject).	
X, Y, and Z operation strokes	X, Y, and Z: 86 × 55 × 26 mm (3.39 × 2.17 × 1.02 inches)	
Distance from collet tip to table	Maximum 55 mm (2.17 inches)	
Table size	Width × depth: 86 × 55 mm (3.39 × 2.17 inches)	
Mountable cutting material weight	200 g (0.4 lb)	
X-, Y-, and Z-axis drive system	Stepping motor	
Operating speed	X and Y axes: 6 to 240 mm/min (0.24 to 9.45 inches/min) Z axis: 6 to 180 mm/min (0.24 to 7.09 inches/min)	
Software resolution	0.01 mm/step (0.00039 inches/step; RML-1), 0.001 mm/step (0.000039 inches/step; NC code)	
Mechanical resolution	0.000186 mm/step (0.00000732 inches/step; micro steps)	
Spindle motor	iM-01 spindle motor	
Interface	USB (compliant with Universal Serial Bus Specification Revision 2.0 Full Speed)	
Control command set	RML-1, NC code	
Power supply conditions	Dedicated AC adapter	AC 100 to 240 V ±10%, 50/60 Hz
	Machine	DC 24 V, 0.7A
Power consumption	Approximately 14 W	
Operating noise	During operation: 57 dB (A) or less (when not cutting), during standby: 39 dB (A) or less	
External dimensions	Width × depth × height: 214 × 200 × 205 mm (8.43 × 7.87 × 8.07 inches)	
Weight	1.7 kg (3.7 lb)	
Installation environment	Operating environment: Temperature of 5 to 35°C (41 to 95 °F), 35 to 80% relative humidity (no condensation) Ambient pollution degree: 2 (as specified by IEC 60664-1)	
Included items	Power cord, AC adapter, USB cable, cutting tool (axis diameter: 2.35 mm, Tip of the blade diameter: 1.6 mm), mounting screws (for fixing the cutting tool in place), hexagonal wrench (for fixing the cutting tool in place), spare hooks, replacement spindle motor, blower fan, maintenance grease, cleaning brush, double-sided tape, trial cutting materials, trial scrap plate, flathead screwdriver, Roland Software Package, setting board, and user's manuals	

System Requirements for USB Connection

PC	A model preinstalled with the 32-bit or 64-bit version of Windows XP, Vista, or 7, or a PC preinstalled with Windows XP or later that has been upgraded to a later version of Windows.
USB cable	Use the included USB cable.



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