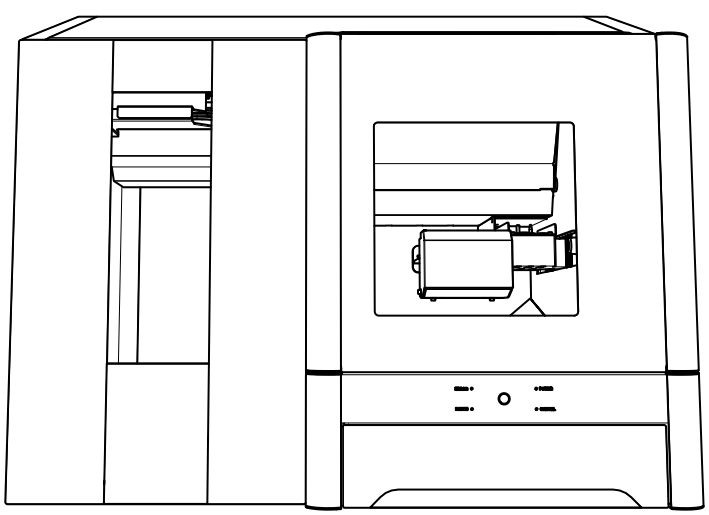
DGSHAPE

DWX-52DCi

User's Manual



For the latest information on this machine (including manuals), see the DGSHAPE Corporation website (http://www.dgshape.com/).

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"1017-0001" The front cover or the magazine cover was opened. 96
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"101E-****" The % milling bur might be broken. 99
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"1030-0000" The dust collector is not working. 105
"103B-0000" The automatic correction is not yet finished. 106
"103D-0000" Milling data error. The milling bur cannot reach the milling position 106
"1047-****" The machine's internal memory cannot be accessed. 107
"1049-****" The adapter with ID number % cannot be released. 107
"104A-****" The adapter with ID number % could not be grasped. 108
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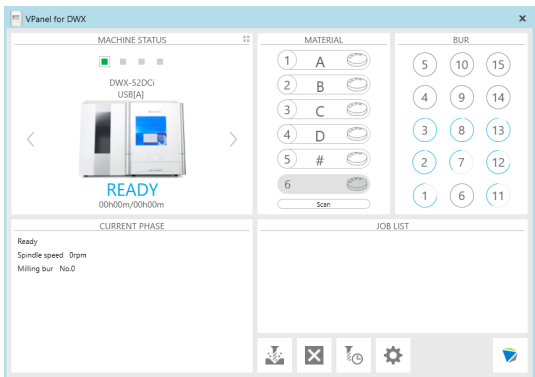
Displaying or Exiting VPanel

What is VPanel?

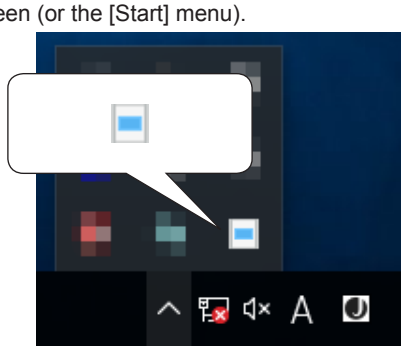
VPanel is an application that can be used to operate this milling machine from a computer screen. It has functions for outputting milling data, performing maintenance, and making various corrections. It also displays information such as the milling machine status and errors.

☞ "Setup Guide" ("Installing the Software")



Displaying VPanel

Click (the VPanel icon) in the task tray on the desktop.
The top window of VPanel will appear. If you cannot find in the task tray, start the program from the Windows [Start] screen (or the [Start] menu).



Starting from the Windows [Start] Screen (or [Start] Menu)

Windows 10 and 7

From the [Start] menu, click [All apps] (or [All Programs]), [VPanel for DWX], and then click [VPanel for DWX].

Windows 8.1

Click on the [Start] screen, and then from the Apps screen, click the [VPanel for DWX] icon under [VPanel for DWX].

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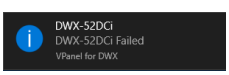
VPanel serves as resident software.

VPanel works as resident software that is constantly working to manage the milling machine, send e-mails*, and so on. It is recommended to configure the settings so that VPanel starts automatically when the computer starts. (☞ P.13 ""Settings" Tab") In addition, clicking × in the upper right of the top window will minimize the window to the task tray. The window will disappear from the screen, but the program will not be exited. While VPanel is running, is constantly displayed in the task tray.

* Emails are sent to notify the user of milling completion or errors that occur. (☞ P.16 ""Mail" Tab")

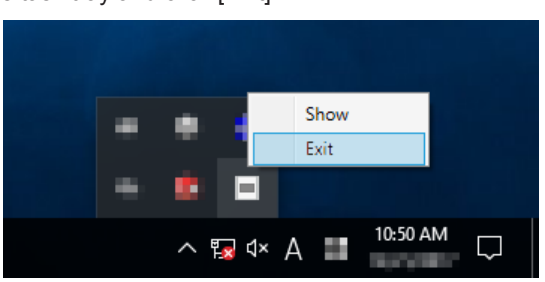
VPanel Display in the Task Tray

When the VPanel icon is displayed in the task tray, the status of the connected milling machine is always monitored. The display of the VPanel icon changes depending on the status of the milling machine. The meanings of the displays are shown below.

	Indicates that at least one of the connected milling machines is on (is online).
	Indicates that all the connected milling machines are off.
	Indicates that an error has occurred on at least one of the connected milling machines. If you hover the mouse pointer over the displayed icons, you can check which machine has the error.
	Messages are displayed automatically if an error occurs, during milling, and in similar situations. Even after the message disappears, if you hover the mouse pointer over the displayed icons, the status of each connected machine (such as Ready, Milling, Finished, Completed, or Offline) will be displayed. Messages prompting you to perform maintenance (such as "Spindle run-in required") will also be displayed. In these situations, perform the maintenance work indicated by the message.

Exiting VPanel

Right-click in the task tray and click [Exit].



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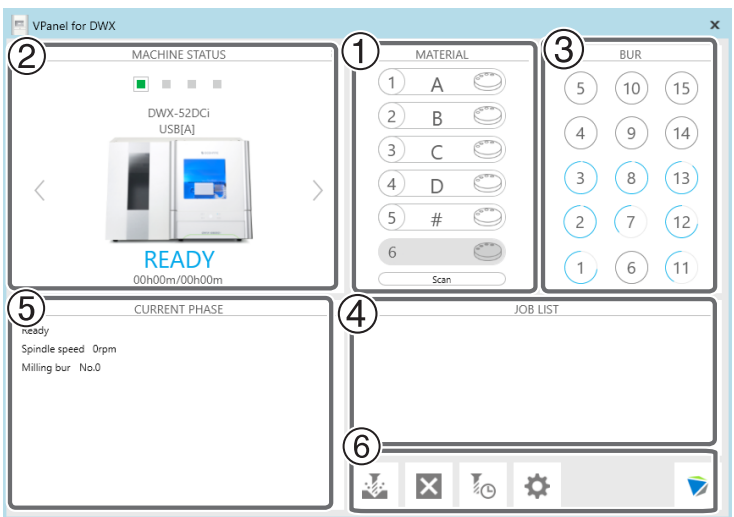
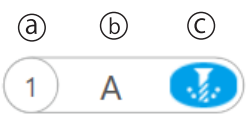
VPanel Window and Functions

Top Window

The top window displays the statuses of connected milling machines and an output list of milling data. When more than one machine is connected, the machine displayed in the MACHINE STATUS window is the target of the operations.



No.	Display	Explanation			
①	**MATERIAL**	This section displays the statuses of the adapters inserted in the adapter stocker. Click Scan to read the IDs of the adapters installed in the adapter stocker and to update the adapter statuses. 			
		ⓐ	Adapter stocker number		
		ⓑ	Adapter ID ☞ P.31 "Adapter/Adapter ID"		
		ⓒ	Adapter status		Disk type present and planned to be used
					Disk type present and not planned to be used
					No disk type present
					Unknown
					Error
					During milling
					Milling complete and workpiece can be removed

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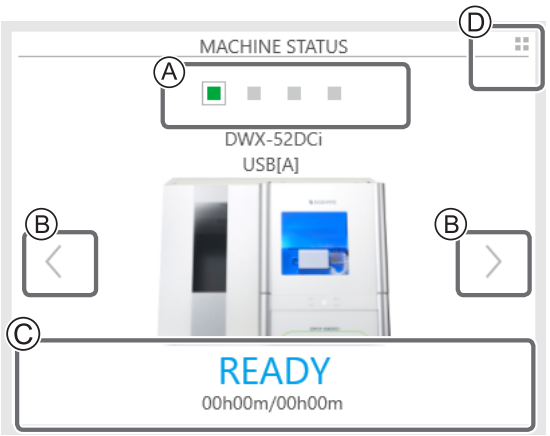
<table>
<tr><td rowspan="11">②</td><td rowspan="11">MACHINE STATUS</td><td colspan="3"> 
</td></tr>
<tr><td rowspan="9">Ⓐ</td><td colspan="2">Displays the connected machines as square icons (■). (In the figure shown above, four machines are connected.) Click ■ to display the machine's ID and name below the icon. The IDs of machines whose power is turned off are shown with [-]. When you have connected multiple machines, you can switch to a different machine to operate by clicking its icon. If you click the icon of a connected milling machine, the status light of the milling machine will flash.</td></tr>
<tr><td>■ (READY)</td><td>Milling data can be received.</td></tr>
<tr><td>□ (BUSY)</td><td>Operation is in progress.</td></tr>
<tr><td>■ (ERROR)</td><td>An error has occurred.</td></tr>
<tr><td>■ (PAUSE)</td><td>Operation is paused.</td></tr>
<tr><td>■ (COVER)</td><td>The front cover or the magazine cover is open.</td></tr>
<tr><td>■ (FINISH)</td><td>Milling is complete.</td></tr>
<tr><td>■ (OFFLINE)</td><td>No milling machines are connected.</td></tr>
<tr><td>■ (OFFLINE)</td><td>The power of the milling machine is off.</td></tr>
<tr><td>Ⓑ</td><td colspan="2">When you have connected multiple machines, you can switch to a different machine to operate by clicking its icon.</td></tr>
<tr><td>Ⓒ</td><td colspan="2">Displays the machine's operation status. A progress bar, the elapsed time, and the estimated time are all displayed.
04h40m/14h07m
Elapsed time
Estimated time</td></tr>
</table>

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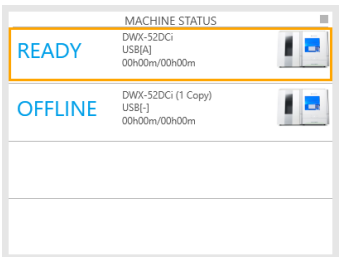
<table>
<tr><td>②</td><td>MACHINE STATUS</td><td>Ⓓ</td><td>Click this to display the operation status of all the connected machines in a list. You can also click the displayed list to select the machine to operate. To return to the original display, click ■ in the upper-right corner.
 
</td></tr>
<tr><td>③</td><td>BUR</td><td colspan="2">Displays the status of the function (Intelligent Tool Control) for automatically switching the current milling bur with the set milling bur. Also, hover the mouse pointer over the displayed number to display the name, work time, and replacement time of the milling bur. The tool's remaining service life is indicated with the length of the arc that surrounds the number. The arc color changes to yellow when the tool is close to the end of its service life and to red when the tool has passed the end of its service life.

Up to 75% remaining (blue)
Example:

Less than 25% remaining (yellow)
Example:
It is nearing time to replace the milling bur.

End of service life passed (red)
Example:
It is past time to replace the milling bur.

☞ P.22 "Intelligent Tool Control (ITC) Function Settings"
☞ P.55 "Automatically Switching Out the Worn Milling Bur (Intelligent Tool Control)"</td></tr>
<tr><td>④</td><td>JOB LIST</td><td colspan="2">Displays the data being milled, the milling data in standby, and the milling progress.</td></tr>
<tr><td>⑤</td><td>CURRENT PHASE</td><td colspan="2">Displays the operation status, spindle rotating speed, milling time, etc.

Ⓐ Milling (Transferring data...)
Ⓑ Spindle speed 6,000rpm
Ⓒ Milling bur No.1 ZCB-50D
13h00m/15h00m
Ⓓ Adapter ID:A A_Zr14</td></tr>
</table>

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⑤	**CURRENT PHASE**	Ⓐ	Displays the status of the connected machine.
		Ⓑ	Displays the spindle rotating speed of the connected machine.
		Ⓒ	Displays the name and work situation of the milling bur currently in use. If “13h00m/15h00m" is shown, "13h00m" is the work time, and "15h00m" is the service life.
		Ⓓ	Displays the adapter ID and disk type name that are currently in use.
⑥		Outputs the milling data. ☞ P.50 "Step 6: Outputting Milling Data and Starting Milling"	
		Cancels output of milling data and other functions.	
		Allows for registration and selection of milling burs. ☞ P.21 ""Milling bur management" Window"	
		Display the settings window. ☞ P.13 ""Settings" Tab" ☞ P.14 ""Maintenance" Tab" ☞ P.16 ""Mail" Tab" ☞ P.18 ""VPanel" Tab" ☞ P.19 ""DWINDEX" Tab"	
		Click this to access the DGSHAPE Corporation website.	

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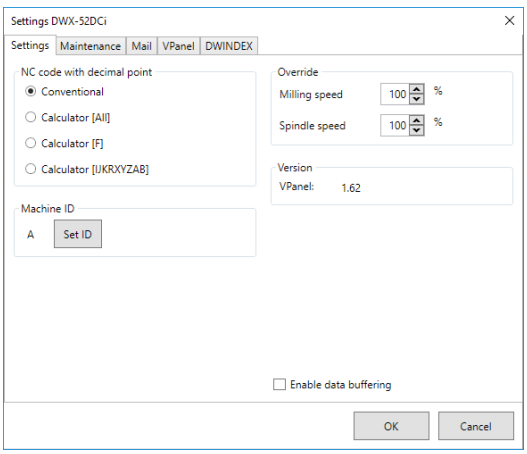
"Settings" Tab

On this tab, you can configure settings related to the machine's ID and NC codes. When more than one machine is connected, the machine selected in the top window becomes the target for the setting.



Display	Explanation
NC code with decimal point	Select how to interpret numbers in NC codes. With "Conventional," the unit is interpreted as millimeter (or inch) when there is a decimal point, and as 1/1000 millimeter (or 1/10000 inch) when there is no decimal point. With "Calculator," the unit is always interpreted as millimeter (or inch) regardless of whether there is a decimal point. Select the scope of the application when selecting "Calculator." Select an appropriate setting according to your CAM or NC code. ➢ Initial setting: Conventional
Machine ID	When multiple machines are connected to one computer, it's necessary to set IDs for the machines. Select the machine to use in the VPanel top window. ➢ Initial setting: A ☞ "Setup Guide" ("Connecting Multiple Units") **CAUTION** To change an ID, be sure to follow the procedure explained in the "Setup Guide."
Version	VPanel: VPanel version Firmware: Connected machine's firmware version
Enable data buffering	Select this check box when you want to save milling data in the machine's internal memory and use this saved data to perform milling. When the importing of milling data to the machine is finished, the computer is released from having to process the data transfer and can perform other work. **CAUTION** When you have transferred multiple sets of milling data to the machine's internal memory, you cannot delete individual sets of data that are being milled or that are on standby to be milled. Cancel all the milling operations, and then perform milling again from the beginning.

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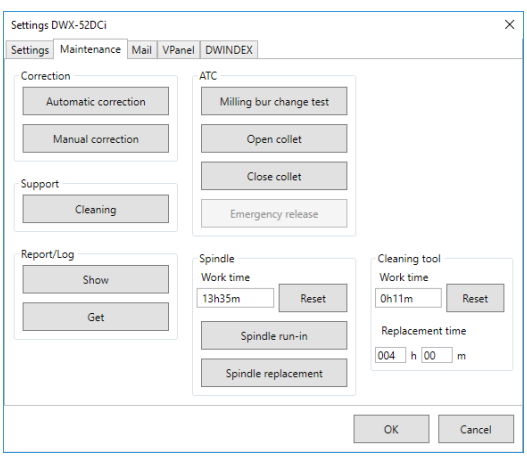
Override	You can adjust the milling speed and the spindle speed. This is useful when you want to change settings such as the milling speed on the fly while monitoring the milling status. Overrides are specified in percentages. For example, if the milling data command sent from the computer is 10,000 rpm, setting the override to 150% will cause the rotation speed to be 15,000 rpm. **Milling speed** Allows adjustment of the milling bur movement speed when milling the workpiece. The speed specified by the command in the milling data is taken to be 100%. Inputting a large value will result in faster speeds. Inputting a small value will result in slower speeds. **Spindle speed** You can adjust the spindle speed during milling. The number of rotations specified by the command in the milling data is taken to be 100%. Inputting a large value will result in increased rotations. Inputting a small value will result in decreased rotations. ➢ The override will return to 100% when the milling machine is turned OFF. ➢ In the top window, the spindle speed is shown as the speed specified by the milling data command and not the speed after the override. ➢ Setting an override does not let you perform operations beyond the machine's maximum or minimum speeds (rotation speeds).

"Maintenance" Tab

On this tab, you can perform operations related to maintenance, including automatic correction of the milling machine and system reporting. When more than one machine is connected, the machine selected in the top window becomes the target for the operations.



Display	Explanation	
Correction	Automatic correction/ Manual correction	Correct the ATC magazine position or the rotary axis position. Normally use [Automatic correction]. ☞ P.65 "Correcting the Milling Machine" ☞ P.20 ""Manual correction" Window"
Support	Cleaning	Click this button to open the "Cleaning" window. ☞ P.24 ""Cleaning" Window"

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ATC	Milling bur change test	Perform tests, maintenance, and other tasks related to operation with the ATC magazine. ☞ P.62 "Situations Requiring Maintenance" ☞ P.61 "Care and Storage of Detection Pin and Automatic Correction Jig"
	Open collet/Close collet	
	Emergency release	This button is enabled when the power is turned on while a cover is open. Use this function if the initial operations cannot be performed because, for example, the milling bur is caught on the workpiece.
Spindle	Reset	"Work time" displays the work time of the spindle. After replacing the spindle unit, click [Reset] to reset the value to 0.
	Spindle run-in	☞ P.63 "Spindle Run-in (Warm-up)"
	Spindle replacement	Click this button to open the "Spindle replacement" window. ☞ P.62 "Situations Requiring Part Replacement"
Report	Show	Display the firmware version, the total operating hours, and the error window.
	Get	Obtain a file in which the information of the various logs is collected.
Cleaning tool	Reset	"Work time" displays the work time of the cleaning tool. After replacing the cleaning tool, click [Reset] to reset the value to 0. You can use "Replacement time" to set the replacement time of the cleaning tool.

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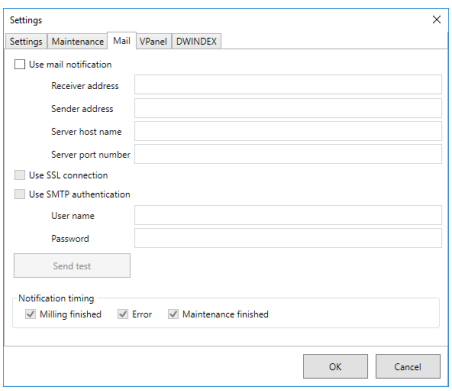
"Mail" Tab

Settings on this tab can be configured so that a notification email is sent when milling finishes, when an error occurs, or when maintenance is complete. When more than one machine is connected, all of the machines become the targets for the settings. Select the "Use mail notification" check box to enter each item.



Display	Explanation
Receiver address	Enter the receiver's email address. You can enter multiple addresses by separating them with commas.
Sender address	Enter the sender's email address. Enter the email address being used on the computer on which VPanel is installed.
Server host name	Enter the name of the outgoing mail server (SMTP server name) for the email address entered for the sender's address.
Server port number	Enter the port number of the outgoing mail server for the email address entered for the sender's address.
Use SSL connection	Select this check box to use a security-protected connection (SSL). Select or clear this check box according to the settings of the outgoing mail server for the email address entered for the sender's address.
Use SMTP authentication User name / Password	Select this check box to perform authentication before sending emails. Input the user name and password for authentication. Select or clear this check box according to the settings of the outgoing mail server for the email address entered for the sender's address.
Send test	Click [Send test] to send a test email. If the following email is received at the address specified with "Receiver address," the configuration of the settings is complete. Subject: <Machine name> Body: Test If the sending of the email fails, the message "The email could not be sent." will be displayed. Check the content in the input fields again.
Notification timing	Notification emails will be sent for the items whose check boxes are selected.

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Important

- It may be impossible to send emails because of the settings of software such as security software. If emails cannot be sent, check the settings of the security software being used as anti-virus software or for a similar purpose.
- For detailed information about the email settings, consult your network administrator.
- VPanel does not support SMTP over SSL (SMTPs).

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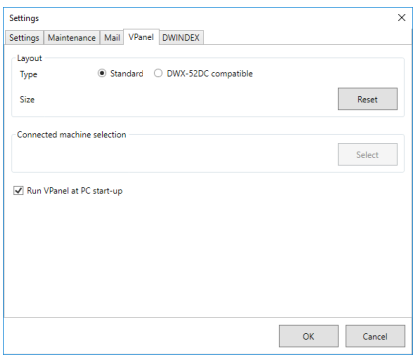
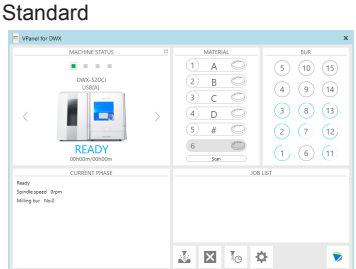
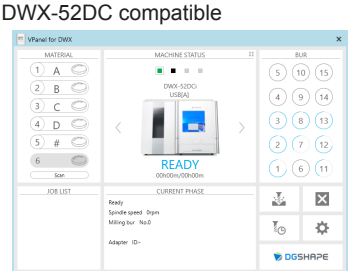
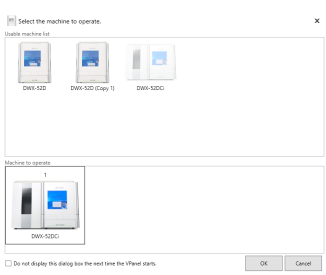
"VPanel" Tab

On this tab, you can set the automatic starting of VPanel and the layout of the top window. When more than one machine is connected, the machine selected in the top window becomes the target for the setting.



Display	Explanation
Layout	Select the layout of the top window. The selected layout is displayed in the top window. ➢ Initial setting: "Standard" Standard  DWX-52DC compatible  Click [Reset] to return to the standard window size (the window size used the first time the software starts after installation).
Connected machine selection	Click [Select] to display a window for selecting the machine to operate. The machines that can be operated and that are registered on the computer are displayed in the upper row, and the machine that is being operated by VPanel is displayed in the lower row. Drag the images of the machines in the lower row to the left and right to change the order in which machines are displayed in the top window. 
Run VPanel at PC start-up	Select this check box to automatically start VPanel and display it in the task tray when Windows starts. ➢ Initial setting: Selected

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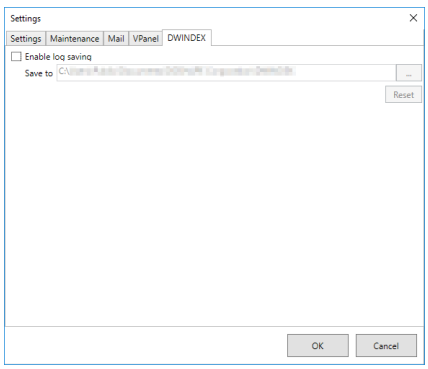
"DWINDEX" Tab

Use this tab to save the logs (containing information such as the machine's operating time, the milling burs used in milling and the milling time, and the milled workpiece and the milling time) of the operating machine.



Display	Explanation
Enable log saving	Select this check box to save machine logs (operation records) in the specified folder. ➢ Initial setting: Cleared You can use DWINDEX to open the saved log files.

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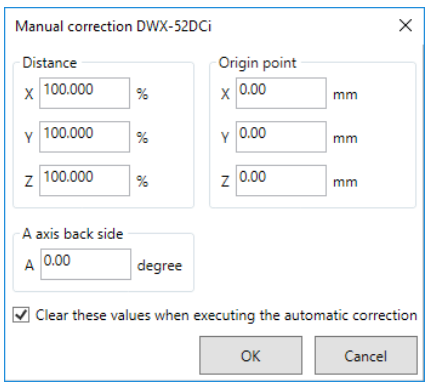
"Manual correction" Window

In this window, you can perform manual correction of the milling machine. Perform correction to precisely adjust accuracy. When more than one machine is connected, the machine selected in the top window becomes the target for correction.

* Perform automatic correction before performing this correction.



Display	Explanation
Distance	Correct moving distances in the X, Y, and Z directions. Set the correction value while considering the initial moving distance as 100.000%. ➢ Initial setting: 100.000%
A axis back side	Correct the angle when the A axis is rotated 180 degrees. Set the correction value while considering the initial setting as 0.00 degrees. ➢ Initial setting: 0.00 degrees
Origin point	Correct the origins of the X, Y, and Z axes. Set the correction value while considering the initial setting as 0.00 mm. ➢ Initial setting: 0.00 mm
Clear these values when executing the automatic correction	Select this check box to reset the values for "Distance," "Origin point," and "A axis back side" when performing automatic correction. ➢ Initial setting: Selected

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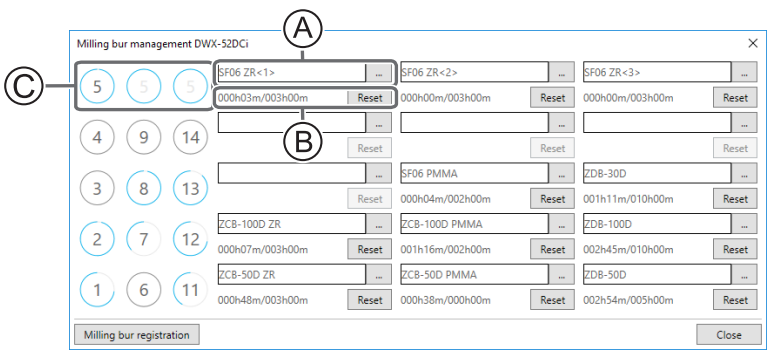
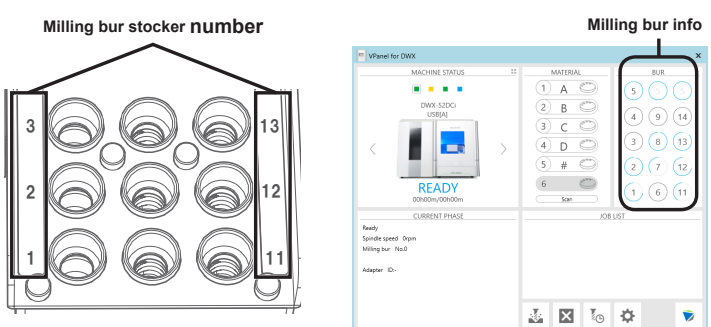
"Milling bur management" Window

By selecting a milling bur to be used, the work time of the selected milling bur will be recorded automatically. In addition, when the bur reaches the preset replacement time, a warning message will be displayed. When more than one machine is connected, the machine selected in the top window is managed.



Symbol or display	Explanation
Ⓐ	Click ▪▪▪ to display the milling burs for which "Milling bur registration" was performed. Numbers ① through ⑮ match the milling bur stocker numbers on the machine's ATC magazine. The name and work situation of the milling bur currently in use will be displayed on the top window. ☞ P.23 ""Milling bur registration" Window" 
Ⓑ	Displays the work time and replacement time of the selected milling bur. When the bur reaches the preset replacement time, a warning message will be displayed. The replacement time can be changed from "Milling bur registration." After replacing the milling bur with a new one, click "Reset" to set the work time to 0.
Ⓒ	By setting multiple milling bur stockers as a single set, you can automatically replace milling burs that reach their replacement time during milling. ☞ P.22 "Intelligent Tool Control (ITC) Function Settings"
Milling bur registration	Here you can register milling burs whose work time you want to manage, or remove burs you no longer want to manage. Click this button to display the "Milling bur registration" window. ☞ P.23 ""Milling bur registration" Window"

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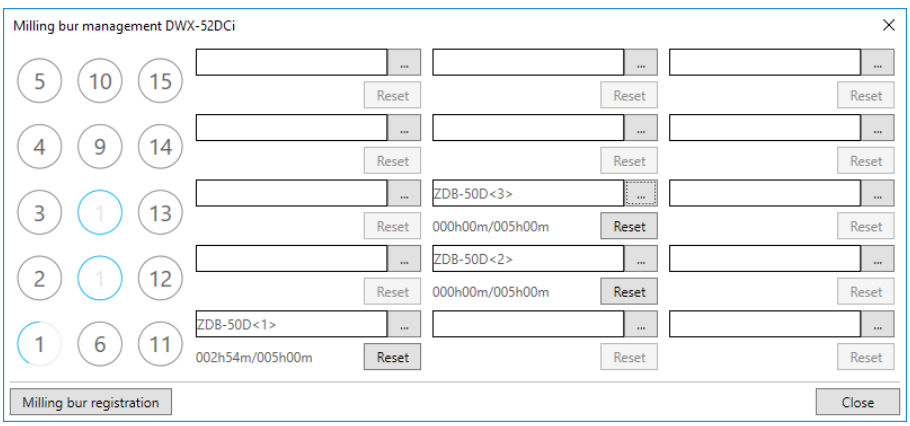
Intelligent Tool Control (ITC) Function Settings

This machine is equipped with the Intelligent Tool Control (ITC) function. By setting the ITC function, you can automatically replace milling burs that reach their replacement time during use with the next milling bur. This makes it possible to continue milling for a long time without any loss in milling quality. You can use this window to set the combinations of milling burs that will be switched automatically.
You can specify milling burs as a single set by registering the milling burs with the same name. In a single set consisting of the same type of milling burs, you can specify a maximum of three milling burs and a minimum of two milling burs.

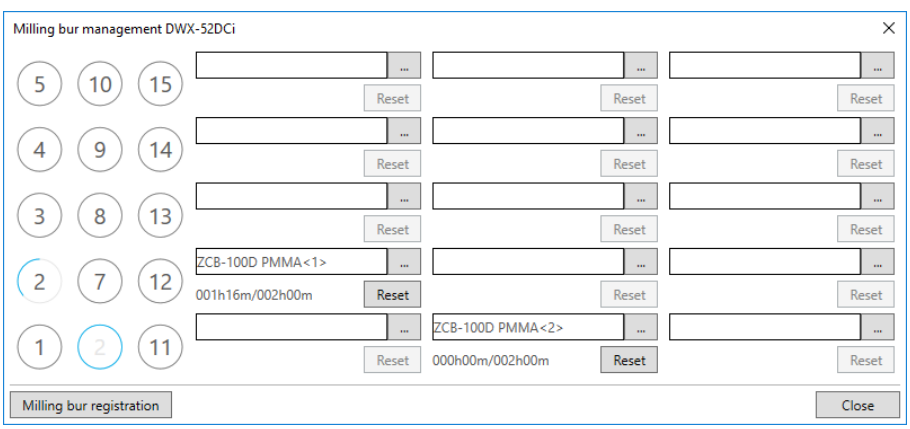
Specifying three milling burs as a single set

Set three milling burs with the same name in the milling bur stocker.



Specifying two milling burs as a single set

Set two milling burs with the same name in the milling bur stocker.



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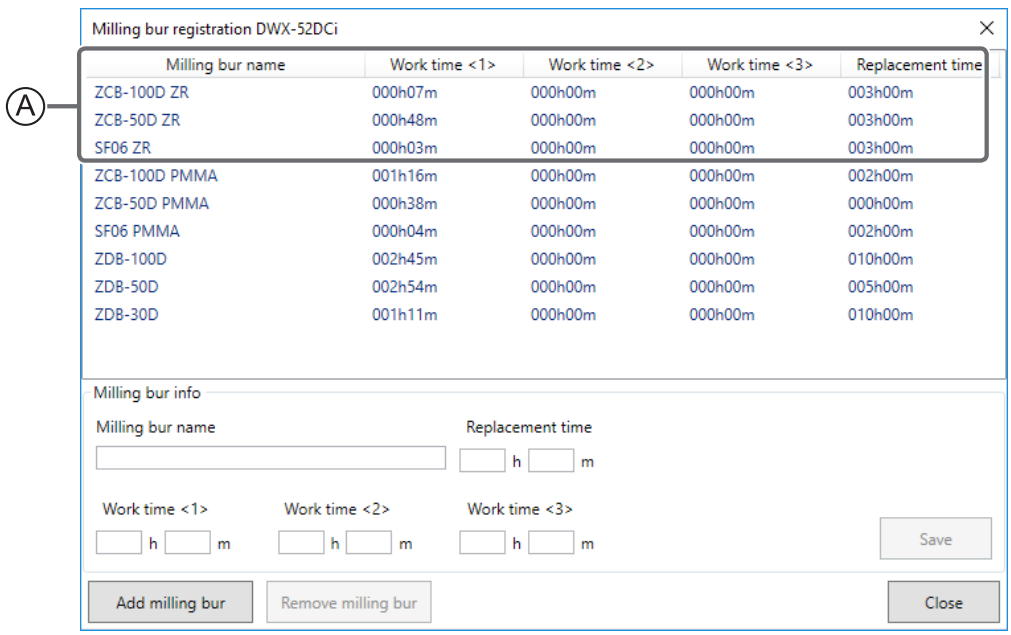
"Milling bur registration" Window

A milling bur's registration information can be changed in order to change the work time or the replacement time. When more than one machine is connected, the milling bur for the machine selected in the top window will be the target.



Display	Explanation	
Ⓐ	Displays the names, work times, and replacement times of the registered milling burs. If you are using the Intelligent Tool Control function, the work time for the milling bur set as the second milling bur is displayed under Work time <2> and the work time for the milling bur set as the third milling bur is displayed under Work time <3>. ☞ P.22 "Intelligent Tool Control (ITC) Function Settings"	
Milling bur info	Allows the milling bur name, work time, and replacement time of the milling bur selected in the list to be edited. Because replacement times depend on the type of milling bur or workpiece as well as the milling conditions, adjust the replacement time value as necessary.	
	Save	Saves the edited content (the existing content is overwritten).
Add milling bur	Registers additional milling burs. You can register up to 20 milling burs.	
Remove milling bur	Removes the milling bur selected in the list.	

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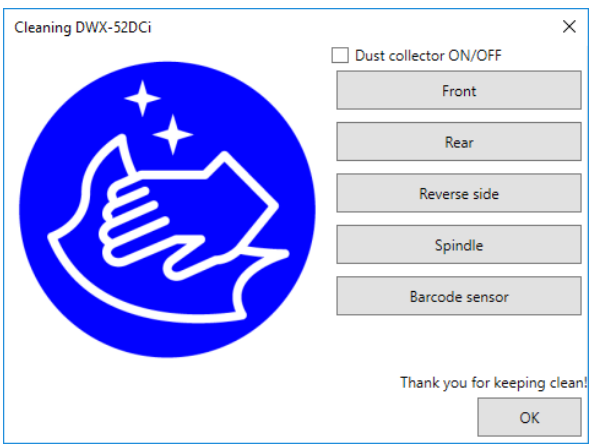
"Cleaning" Window

Use this window when you clean the machine. You can use it to perform operations such as moving the rotary axis unit and the spindle. To verify the operation, place the mouse pointer over the button to switch the VPanel illustration.

☞ P.59 "Cleaning after Milling Finishes"



Display	Explanation
Dust collector ON/OFF	Turns the dust collector ON/OFF. (For dust collectors with a linking function and connected to the expansion port with a linking cable.) For details on the dust collector, see the DWX-52DCi "Setup Guide."
Front	Moves the rotary axis unit to the front. Use this function when cleaning the rotary axis unit.
Rear	Moves the rotary axis unit to the back. Use this function when cleaning the back of the milling area.
Reverse side	Turns the clamp over. Use this function when cleaning the back side of the clamp.
Spindle	Moves the spindle unit to a location where it is visible. Use this function when cleaning around the spindle unit.
Barcode sensor	Lowers the lift. Use this function when cleaning the barcode sensor.

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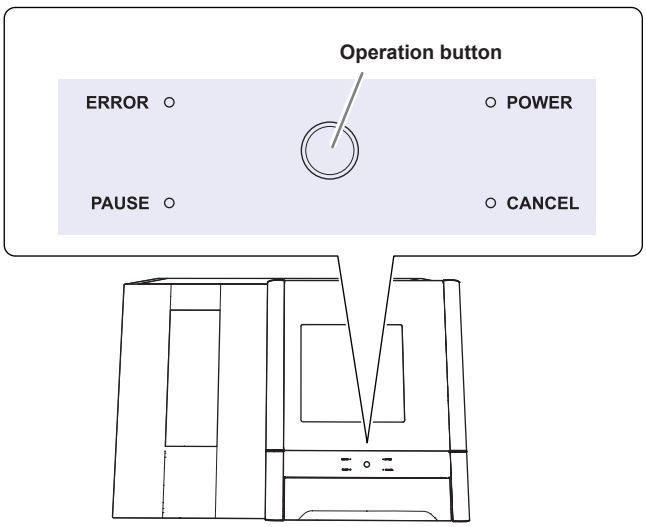
Using/Reading the Built-In Panel



ERROR	Flashes when an error has occurred.		
PAUSE	Lights when operation is paused.		
POWER	Lights when the power is turned on.		
CANCEL	Flashes when data is being cancelled and during the initial operations. Milling data received while this light is flashing will be cancelled.		
Operation button	Flashes during the initial operations, during spindle rotation, and during similar operations. The button will light when the machine is on and in any other status.		
	During milling	Press	Pauses or resumes operation.
		Hold	Aborts milling or clears some errors.
	During standby	Press	Rotates the rotary axis by 180 degrees.
		Hold	Returns the material to the adapter stocker.

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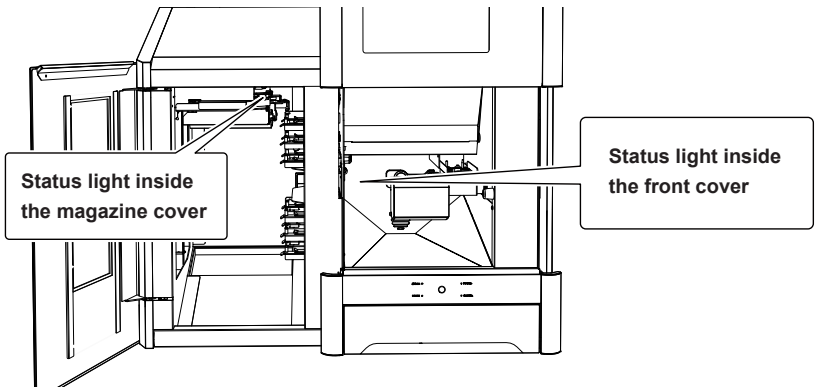
Statuses Indicated by Status Light Color



Status Light Inside the Front Cover

Blue	The machine is in standby or is performing the initial operations. The light will turn off if no operation is performed for 30 seconds when in standby, causing the machine to sleep.	
White	Lit	Milling is being performed or has been paused or the front cover is open.
	Flashing	The dust collector is in standby.
Yellow	When lit in yellow, an error has occurred and the machine has been paused. Check the error details shown on VPanel. Press the operation button on the built-in panel to resume milling.	
Red	When lit or flashing in red, an error has occurred and milling has been stopped. Milling cannot be resumed. Check the error details shown on VPanel. When lit in red, holding down the operation button on the built-in panel will cancel milling and return the machine to the ready status. When flashing in red, turn off the power and start the machine again.	
Off	The light turns off when the machine is in the sleep state or the power is turned off.	

Status Light Inside the Magazine Cover

White	Lit	The front cover or the magazine cover is open.
	Flashing	The disk changer is operating.
Yellow	Lights in yellow when a new adapter is installed in a temporarily opened stocker during milling. When milling is finished, the adapter cannot be returned, so check the adapter's installation position again.	
Red	If an error occurs during adapter replacement, this lights after the machine restarts. Follow the instructions displayed in VPanel to remove the adapter.	
Off	The light turns off when the machine is in the sleep state or the power is turned off.	

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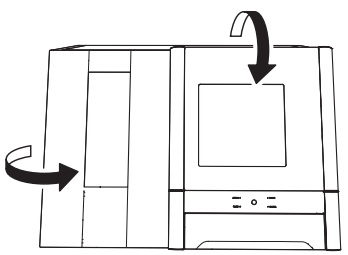
Switching the Power On or Off

Switching the Power On

Procedure

1. **Close the front cover and the magazine cover.**

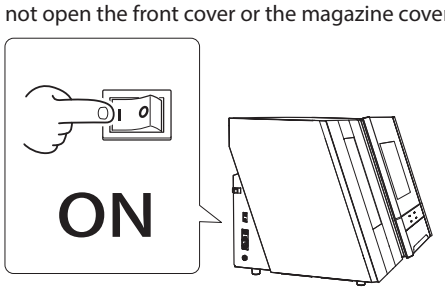


2. **Switch on the machine's power switch.**

   The machine starts the initial operations. When the status light stops flashing and remains steadily lit, the initial operations are complete.

CAUTION

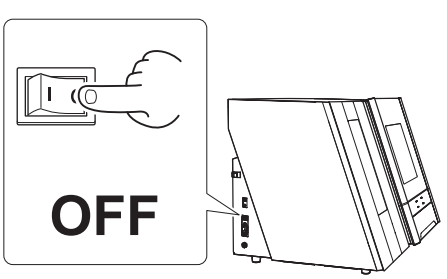
Do not open the front cover or the magazine cover during the initial operations.



Switching the Power Off

Procedure

Switch off the machine's power switch.



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Chapter 2 Milling

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CAM Settings Necessary for Milling

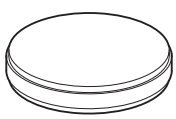
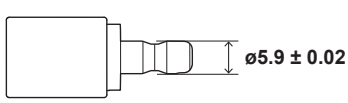
The settings shown below must be included in the milling data used by this machine.

Workpiece	Set the type of workpiece to use in milling. ☞ P.29 "Usable Workpieces and Sizes"
Adapter ID	Set the ID of the adapter to use in milling. ☞ P.31 "Adapter/Adapter ID"
Milling bur	Set all the milling burs to use in milling. ☞ P.30 "Usable Milling Bur Sizes"
Milling bur stocker number	Set the number of the milling bur stocker in which the milling burs will be loaded. ☞ P.45 "Step 3: Setting the Milling Bur"

Workpiece

Usable Workpieces and Sizes

Zirconia, wax, PMMA, composite resin, PEEK, gypsum, glass-fiber-reinforced resin, and CoCr sintered metal

Type		Size
Disk type (with step)		Step section: 98.5 mm (diameter), 10 mm (height) Body section: 95 mm (diameter), 35 mm max. (height)
Pin type		Pin diameter: 6 mm 

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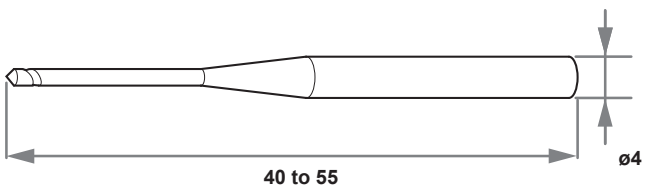
Milling bur

Usable Milling Bur Sizes

* The shape of the milling bur is merely an example. Select the milling bur that matches the application. Contact your authorized DGSHAPE Corporation dealer or visit our website (http://www.dgshape.com/) to purchase items.
Unit: mm



Cleaning tool

You can use the included cleaning tool to clean milling waste away from the machine.
* When using the cleaning tool, you have to configure CAM settings in the same manner as for milling burs.

Materials for Which the Cleaning Tool Is Effective

Zirconia, composite resin, and CoCr sintered metal

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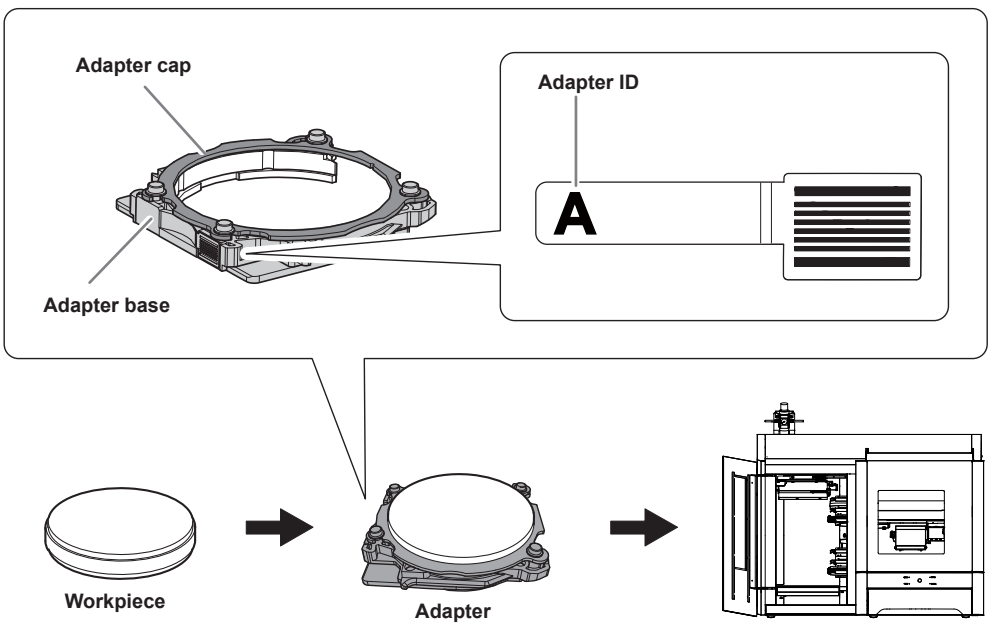
Adapter/Adapter ID

Workpieces are used while set in adapters labeled with adapter IDs. Manage the work situations of workpieces by using CAM to specify the adapter ID. Once you have started using a workpiece, do not remove it from the adapter until you are finished using it. If you remove a workpiece that you have started using from the adapter, you will no longer be able to manage information such as the position information in the CAM data.



When You Want to Use Six or More Adapters

If you want to use six or more adapters, purchase optional products. (Up to 26 adapters [IDs: A to Z] can be managed.)

☞ P.56 "Purchasing Additional Adapters"

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Compressed Air (Setting the Regulator)

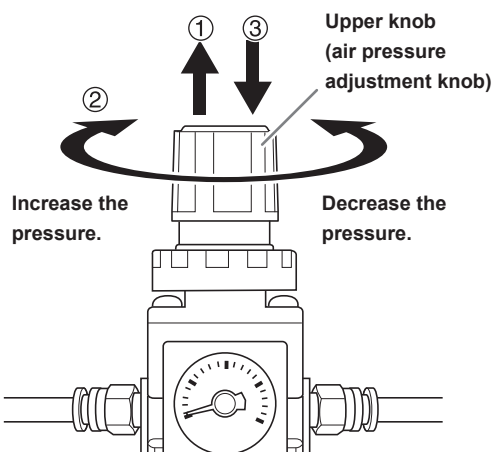
⚠WARNING **Turn the air pressure adjustment knob slowly and carefully.**
Otherwise, the machine may move suddenly, posing a risk of injury.

MEMO

When CAM data is sent to the machine, it automatically adjusts the air pressure to match the workpiece to mill.

Procedure

1. **Pull up on the upper knob (the air pressure adjustment knob).**
2. **Slowly turn the upper knob to adjust the pressure to 0.2 MPa.**
   When the supply of air starts, the air starts to flow and the pressure drops. When the pressure has dropped, adjust the regulator to have an appropriate value again. (Air is supplied when the spindle rotates and when the milling bur is replaced.)
3. **Push down on the upper knob.**



IMPORTANT!

Be sure to configure the regulator to 0.2 MPa. Anything higher may result in a malfunction. If the pressure is too low, the desired results will not be obtained.

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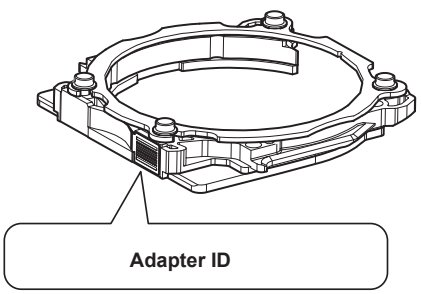
Step 1: Mounting the Workpiece on the Adapter

The mounting method differs depending on the workpiece type and size.

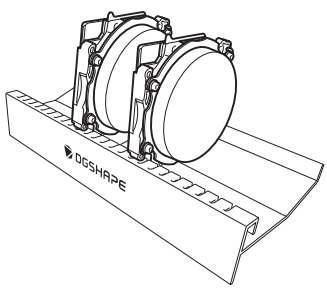
☞ P.33 "For Disk Workpieces"
☞ P.37 "For Pin-type Workpieces"

You can mount workpieces on any of the adapters without any problems, but you have to specify the ID of the used adapter in CAM.



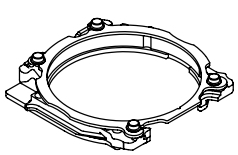
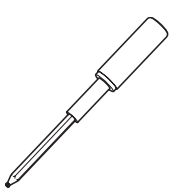
Point

When using multiple adapters, use the included adapter rack.



For Disk Workpieces

Required Items

 adapter	Disk workpiece	 Torque screwdriver

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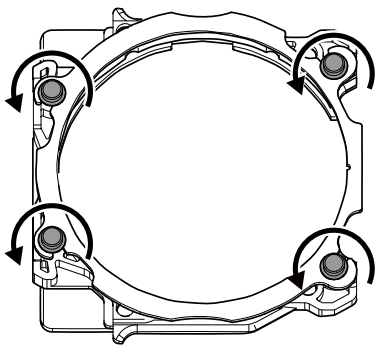
Procedure

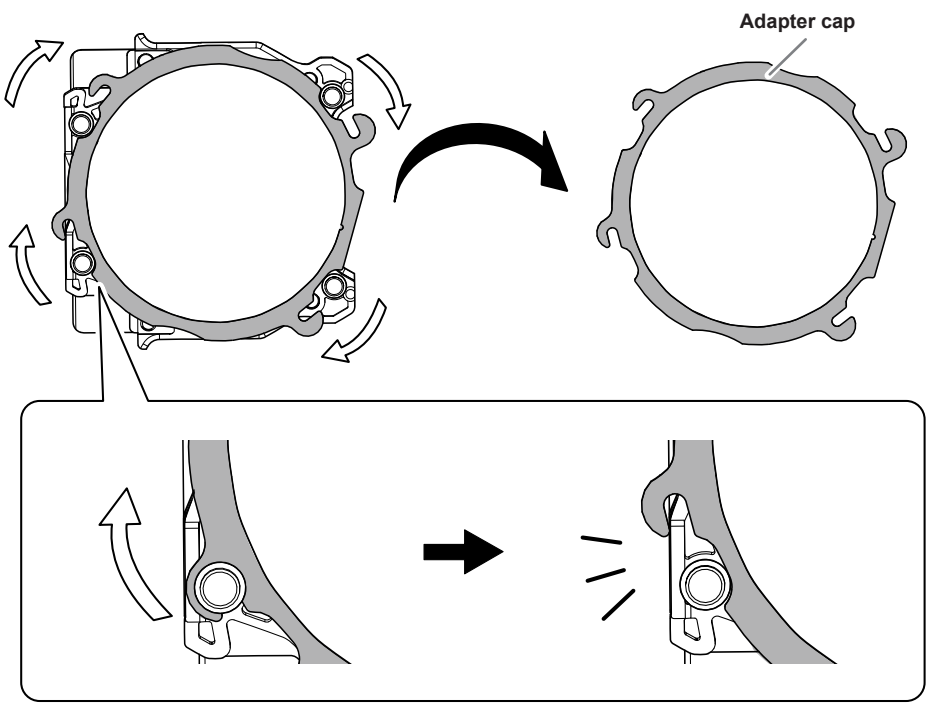
1 Use a torque screwdriver to loosen the adapter screws, turning them approximately 4 times (4 locations).



Use the included spare screws when a screw is lost or worn.

2 Remove the adapter cap.

Turn the adapter cap in the direction of the arrows to remove it.



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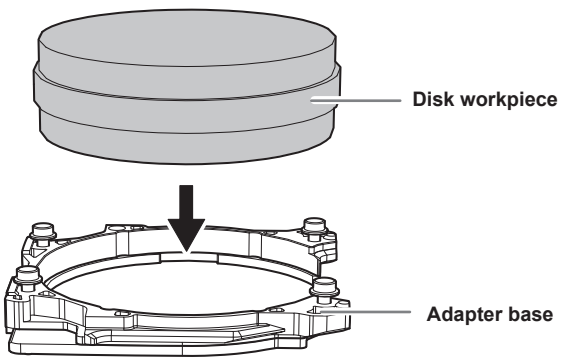
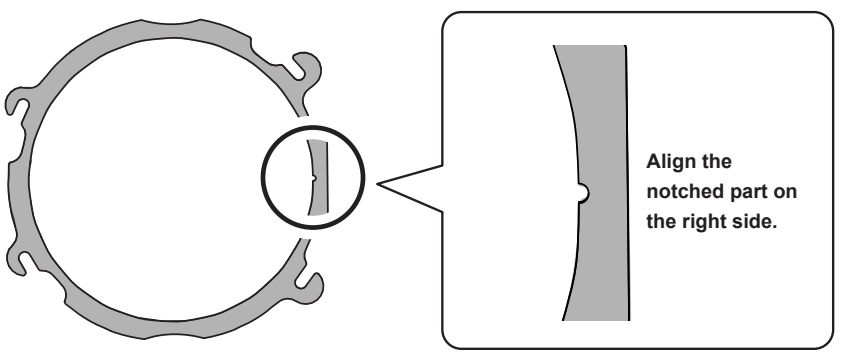
❸ **Set the disk workpiece into the adapter base.**



❹ **Attach the adapter cap.**

① **Orient the adapter cap removed in step ❷ as shown in the following figure.**



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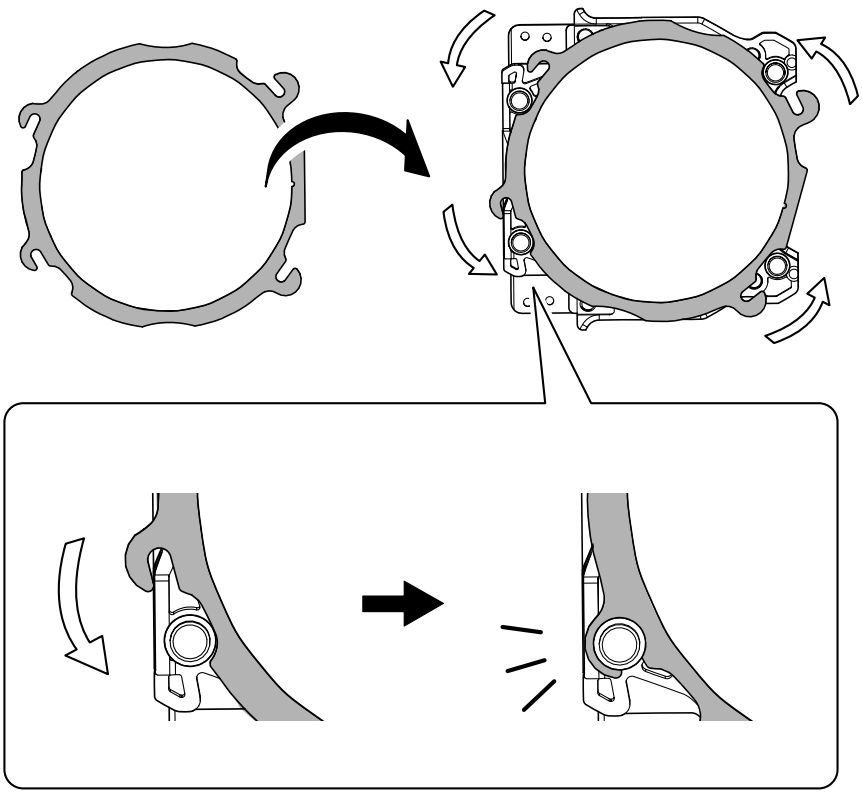
② **Turn the adapter cap in the direction of the arrows to attach it to the screws.**

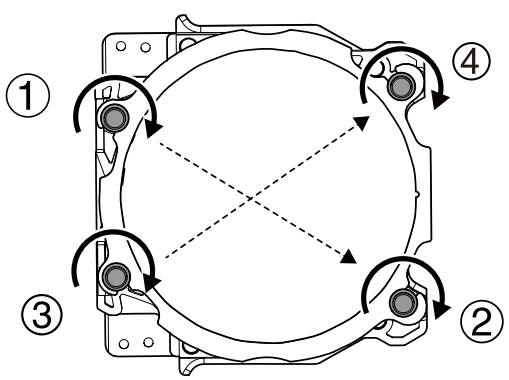


5 **Use a torque screwdriver to tighten the screws in the locations shown in the figure (4 locations).**

Tighten the screws until they click into place.

CAUTION

To prevent workpiece damage, tighten the screws in order across the diagonals.



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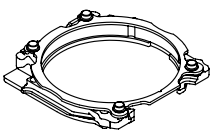
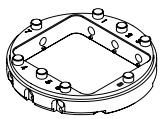
6 **Attach the adapter to the machine.**

☞ P.43 "Step 2: Attaching the Adapter to the Machine"

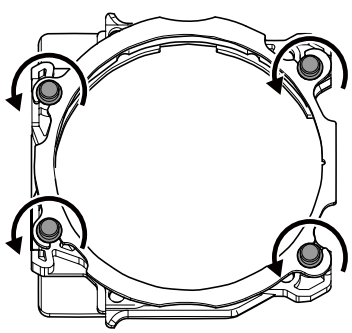
For Pin-type Workpieces

Required Items

			
Adapter	Pin-type workpiece	Pin-type workpiece adapter	Torque screwdriver

1. Mount the pin-type workpiece adapter on the adapter.

1 **Use a torque screwdriver to loosen the adapter screws, turning them approximately 4 times (4 locations).**



Use the included spare screws when a screw is lost or worn.

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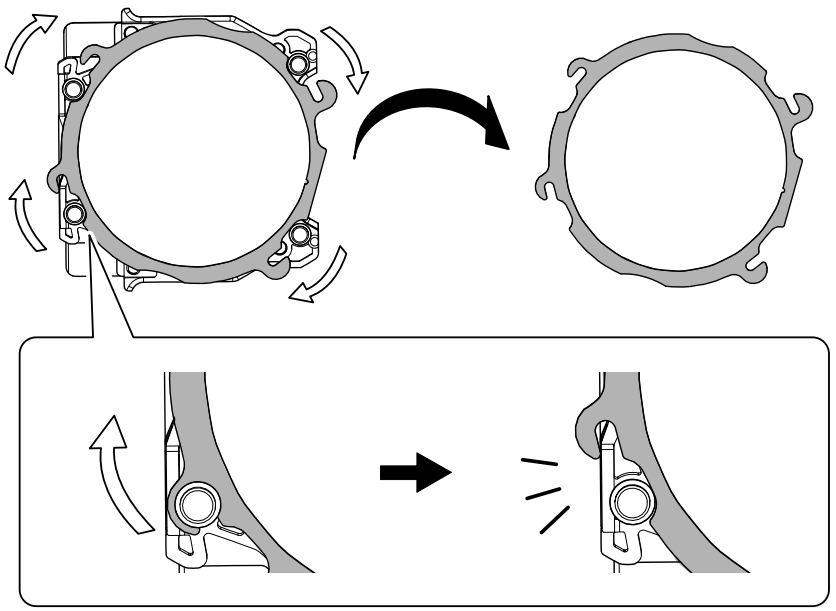
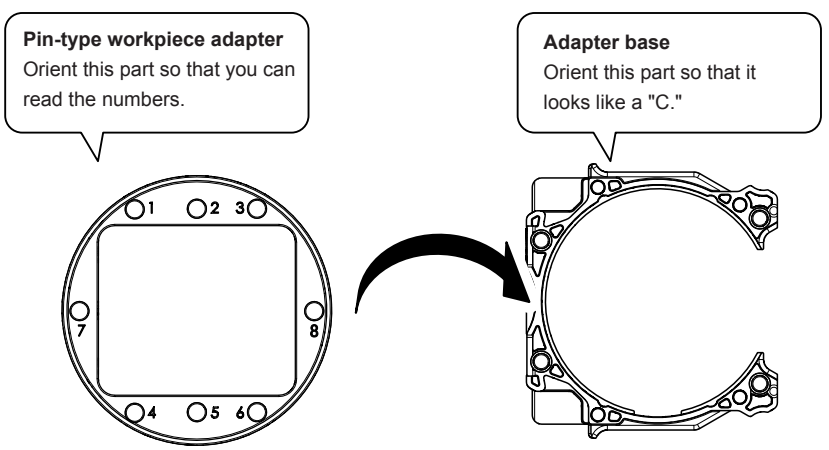
2 **Remove the adapter cap.**

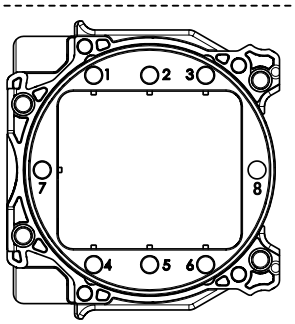
Turn the adapter cap in the direction of the arrows to remove it.



3 **Mount the pin-type workpiece adapter on the adapter base.**

① **Orient the pin-type workpiece adapter as shown in the following figure, and then set it into the adapter base.**





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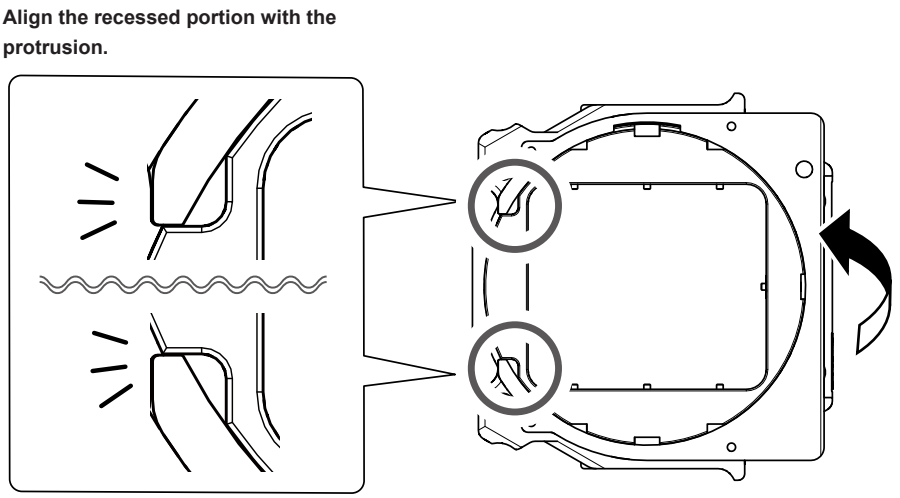
② **Turn over ① and align it with the position shown in the figure.**

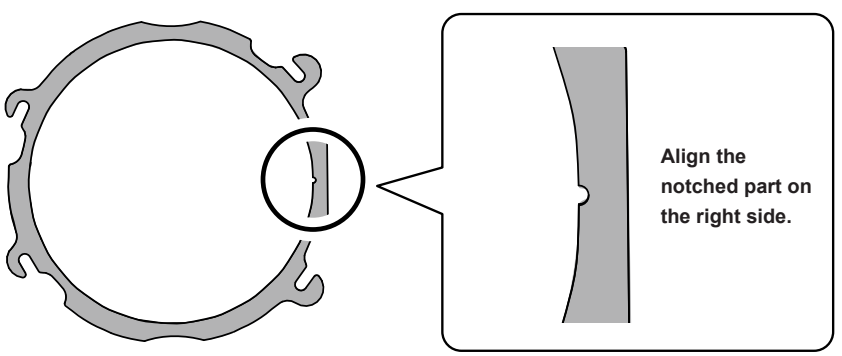


③ **Check that the pin-type workpiece adapter has been mounted on the adapter base without any gaps.**

If the pin-type workpiece adapter wobbles, check the position in step ② again.

4 **Attach the adapter cap.**

① **Orient the adapter cap removed in step 2 as shown in the following figure.**



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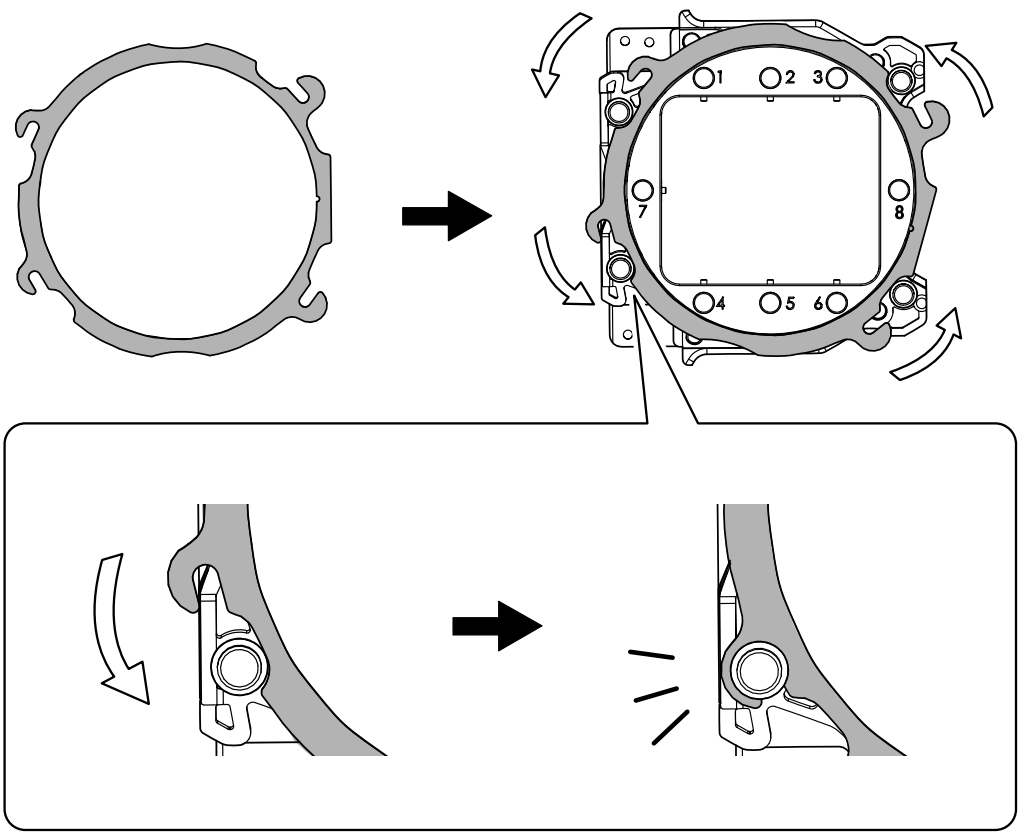
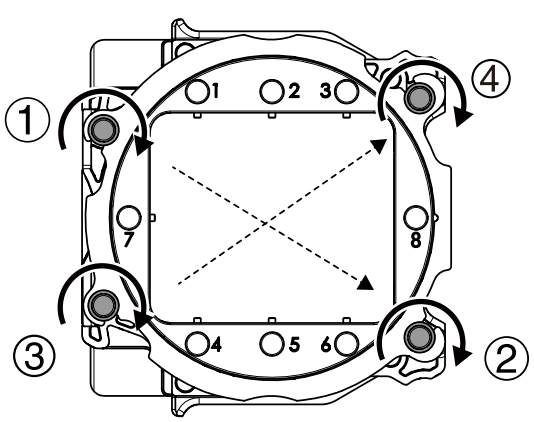
② **Turn the adapter cap in the direction of the arrows to attach it to the screws.**



5 **Use a torque screwdriver to tighten the screws in the locations shown in the figure (4 locations).**

Tighten the screws until they click into place.

Also, to tighten the screws evenly, after you tighten the screw in one location, tighten the screw that is diagonally across from it.



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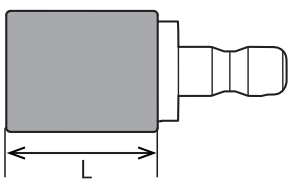
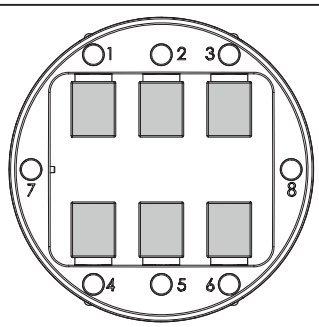
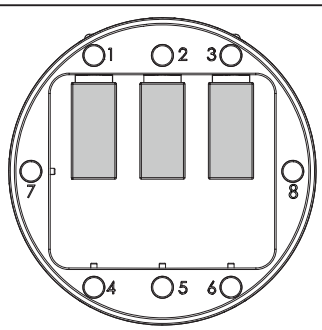
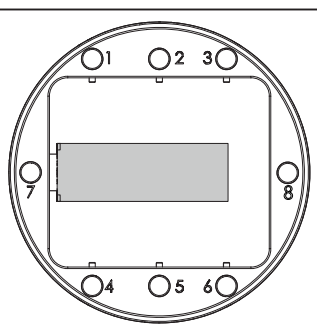
2. Mount the workpiece on the pin-type workpiece adapter.

Mounting layout examples

The figure shows examples of the maximum number of workpieces that can be attached according to size. It also shows the layouts of these workpieces. Workpiece sizes are limited by the number of workpieces mounted in the machine, and the number of mountable workpieces is limited by the size of the workpieces mounted in the machine.



L ≤ 20 mm	
20 mm < L ≤ 50 mm	
50 mm < L	

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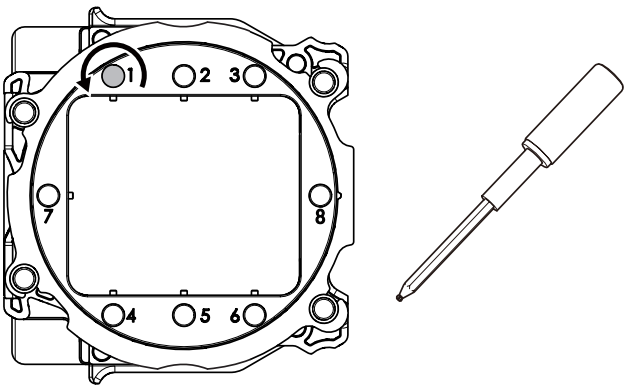
1 **Use a torque screwdriver to loosen the screws holding the pin-type workpiece in position.**

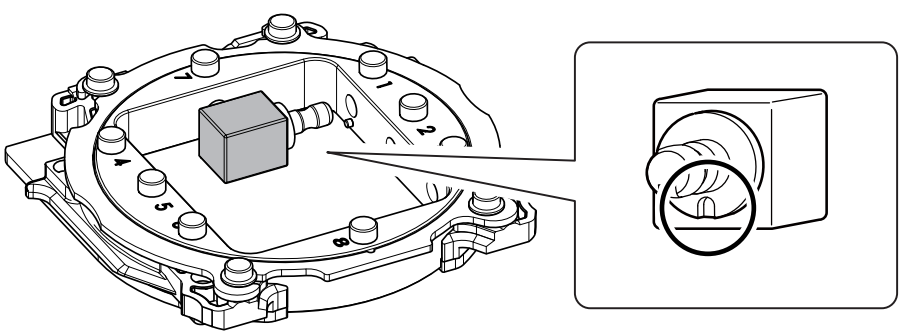
MEMO

Use the included spare screws when a screw is lost or worn.



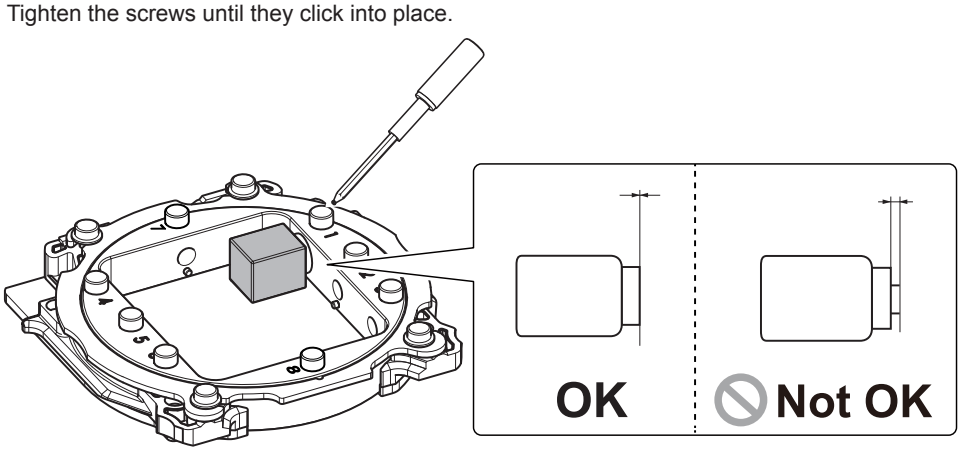
2 **Mount the pin-type workpiece on the pin-type workpiece adapter.**

Make sure the recessed portion of the pin-type workpiece is oriented downward, align the recessed portion with the protrusion of the pin-type workpiece adapter, and then insert the workpiece all the way in.



3 **Tighten the screws using a torque screwdriver.**

Tighten the screws until they click into place.



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Step 2: Attaching the Adapter to the Machine

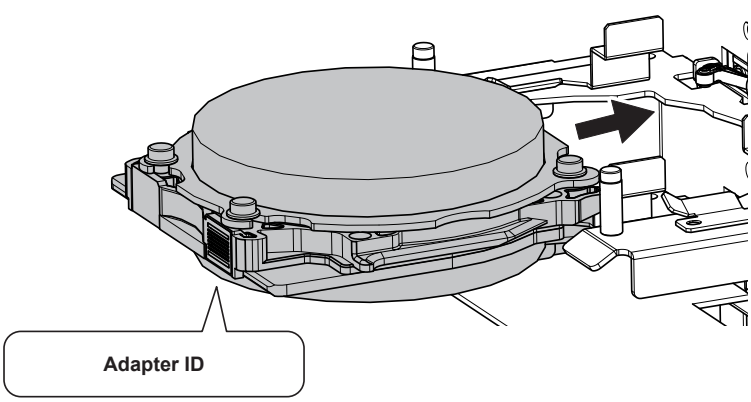
Procedure

1. **Switch on the machine's power switch.**

   ☞ P.27 "Switching the Power On"

2. **After the initial operations are finished, open the magazine cover.**

3. **Orient the adapter as shown in the figure, and then insert the adapter into the adapter stocker.**



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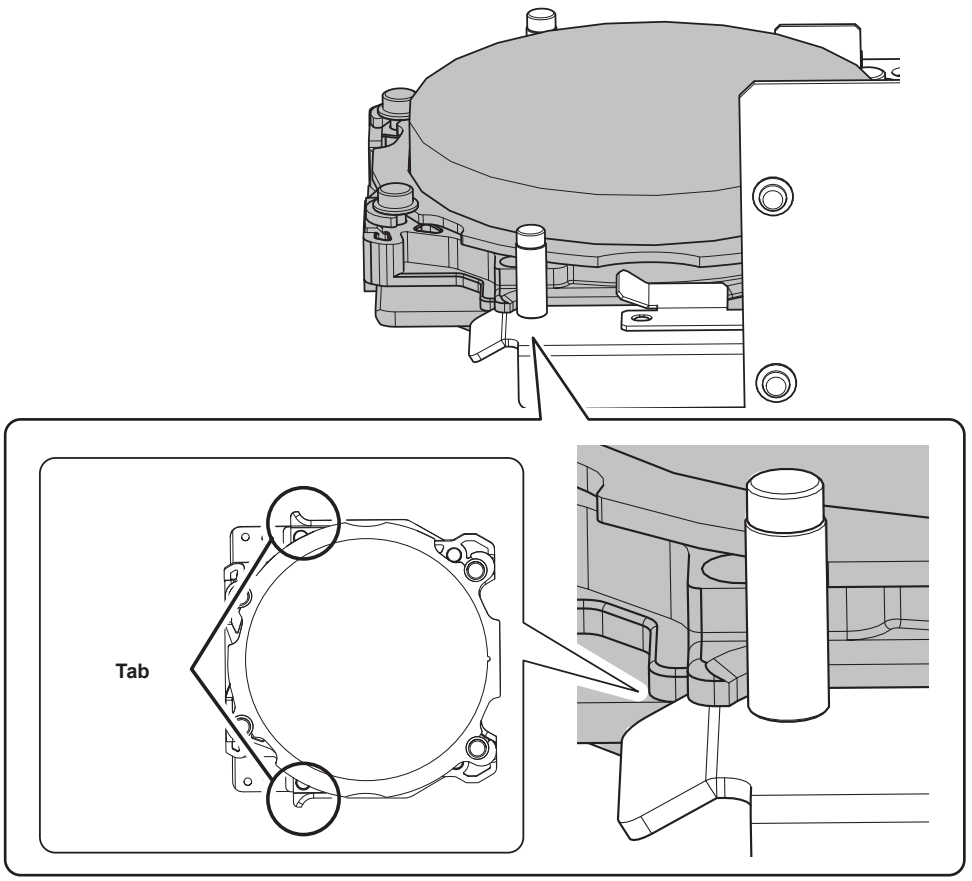
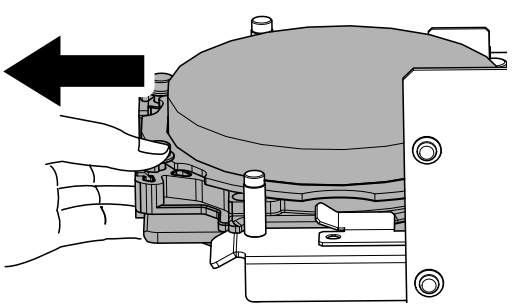
4 **Attach the adapter by aligning its tabs with the positions shown in the figure.**

When the adapter is set in the correct position, it is fixed in place with a magnet.



5 **Lightly tug on the adapter to check that it does not come loose.**



6 **Close the front cover and the magazine cover.**

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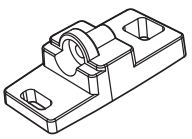
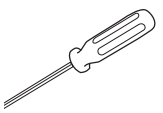
Step 3: Setting the Milling Bur

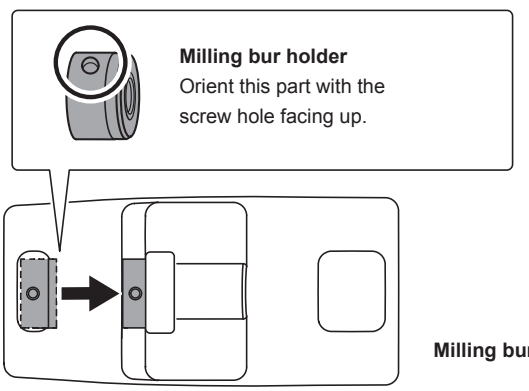
Required Items

Milling bur	 Milling bur positioner	Milling bur holder	Mounting screw	 Hexagonal screwdriver

Procedure

1 Attach the milling bur holder to the milling bur positioner.

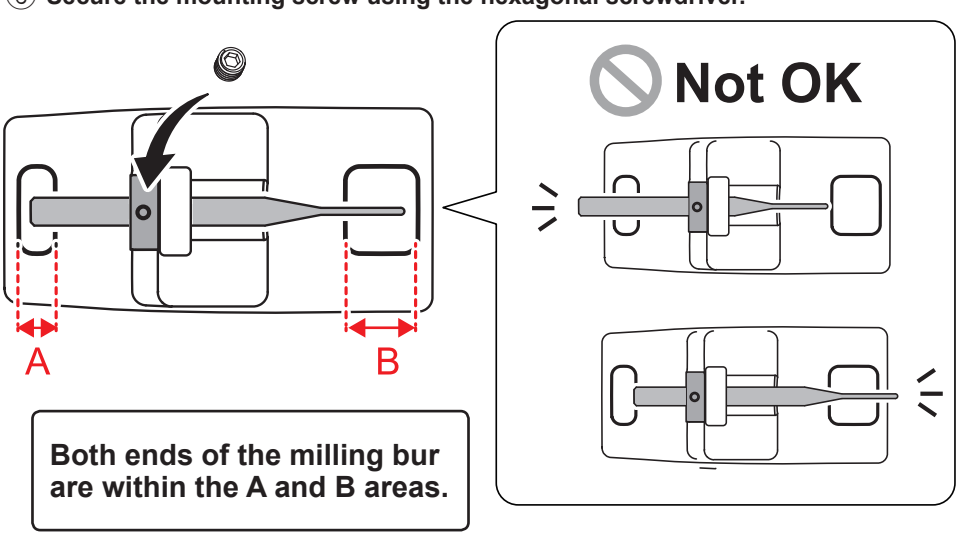
① **Insert the milling bur holder oriented as shown in the figure and attach it so that it reaches the back of the hole.**



② **Slide the milling bur through the milling bur holder and determine the proper position.**

Insert the milling bur as shown in the figure and make sure that both ends are within the areas of the milling bur positioner holes.

③ **Secure the mounting screw using the hexagonal screwdriver.**



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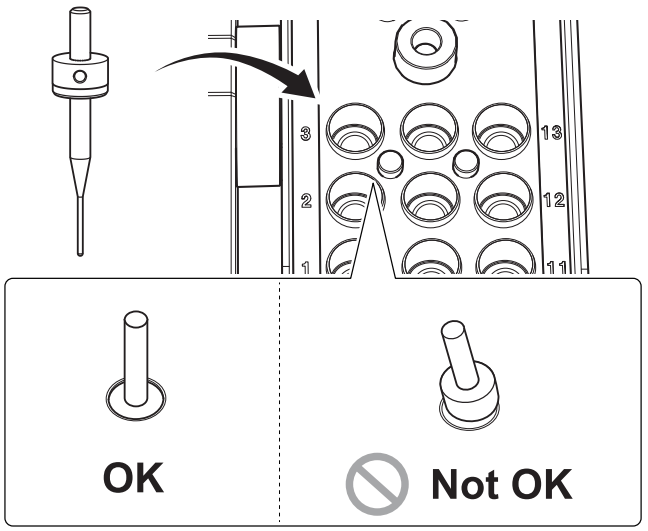
2 Set the milling bur in the ATC magazine.

Firmly insert it as far as possible. Up to 15 milling burs can be set. The milling bur stocker numbers are shown on the surface of the magazine.



CAUTION

The "Cleaning" stocker is dedicated for the cleaning tool. Do not set milling burs in this stocker.

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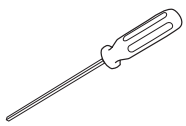
Step 4: Setting the Cleaning Tool

If you are not using the cleaning tool, proceed to the next step.

Materials for Which the Cleaning Tool Is Effective

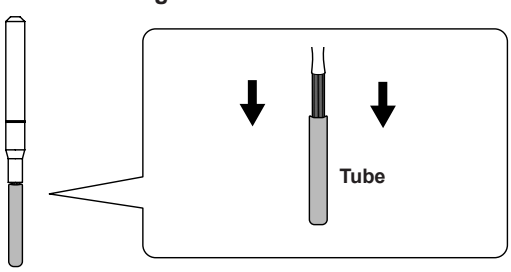
Zirconia, composite resin, and CoCr sintered metal

Required Items

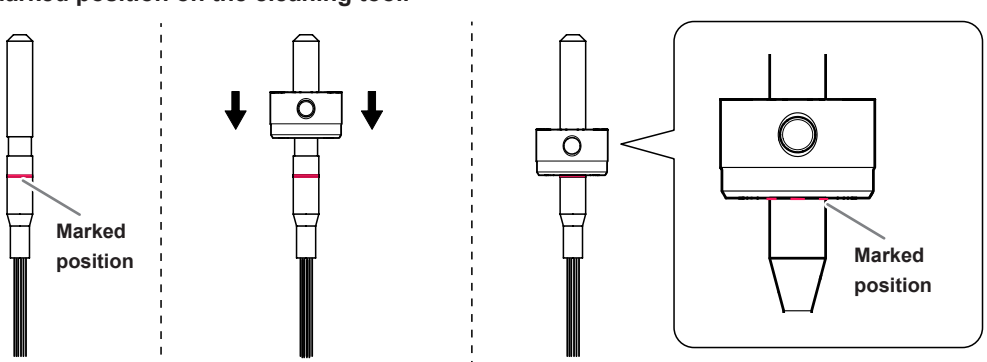
Cleaning tool	Milling bur holder	Mounting screw	 Hexagonal screwdriver

Procedure

1. **Remove the cleaning tool tube.**



2. **Attach the milling bur holder to the cleaning tool, aligning the milling bur holder with the marked position on the cleaning tool.**



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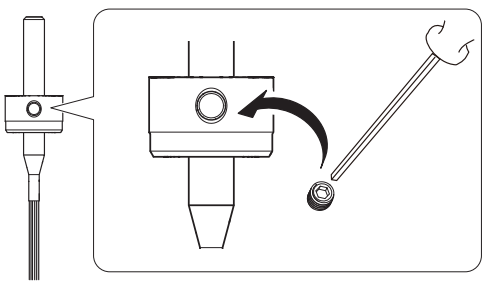
3 **Use the mounting screw to fix the milling bur holder in place.**

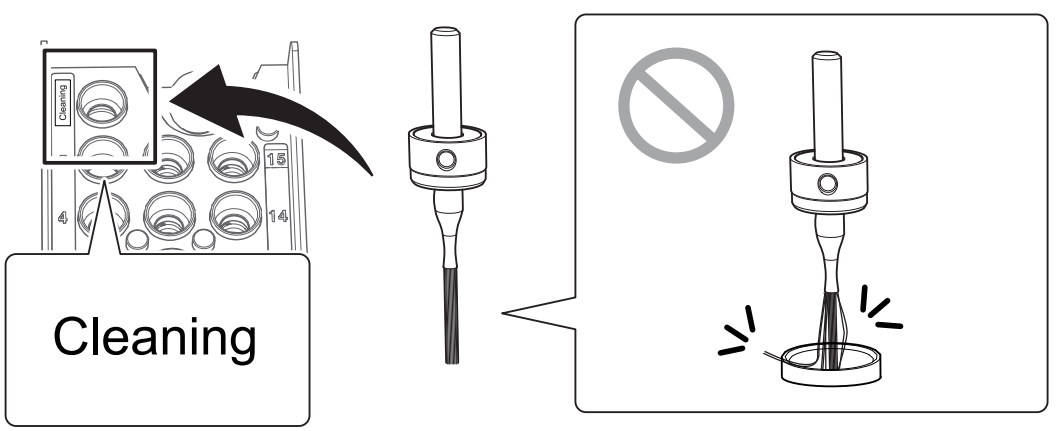


4 **Set the cleaning tool in the "Cleaning" stocker.**

Insert the cleaning tool into the stocker slowly and from directly above the stocker to prevent the bristles from catching on the stocker and spreading out.

CAUTION

Do not needlessly insert or remove the cleaning tool.



Replacing the cleaning tool

If the cleaning tool bristles spread out, the tool's effectiveness at removing milling waste will be reduced. If the bristles have spread out, replace the cleaning tool with a new one.
Contact your authorized DGSHAPE Corporation dealer or visit our website (http://www.dgshape.com/) to purchase items.

☞ P.77 "Replacing the Cleaning Tool"

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Step 5: Checking the Regulator Setting

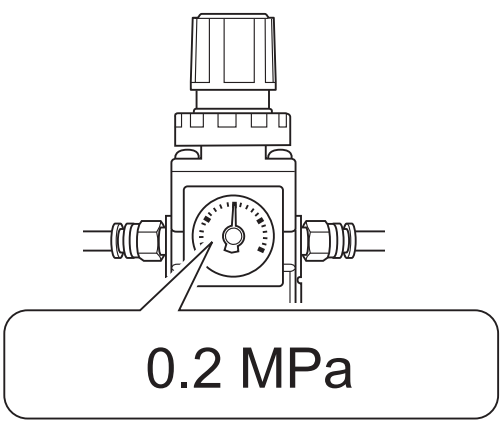
MEMO

When CAM data is sent to the machine, it automatically adjusts the air pressure to match the workpiece to mill.

Procedure

Check that the pressure of the compressed air has been set to 0.2 MPa.
If it has not been set to 0.2 MPa, set the pressure again.

☞ P.32 "Compressed Air (Setting the Regulator)"



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Step 6: Outputting Milling Data and Starting Milling

* You can also use commercial CAM software to output milling data. For information on compatible CAM software, contact your authorized DGSHAPE Corporation dealer.

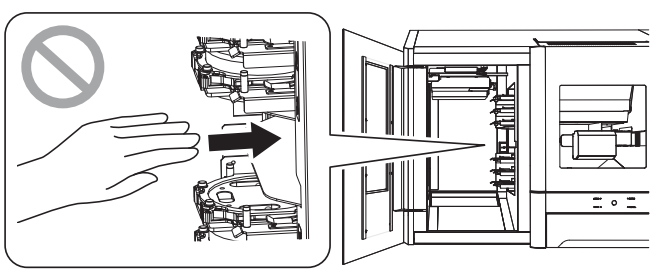
⚠WARNING **Be sure to turn on the dust collector.**
Milling waste and workpieces are flammable and toxic.

⚠WARNING **Never use a vacuum cleaner to clean up milling waste.**
Picking up fine cuttings using an ordinary vacuum cleaner may result in fire or explosion.

⚠WARNING **Securely fasten the milling tool and workpiece in place. After securing in place, make sure no spanners or other articles have been left behind inadvertently.**
Otherwise, such articles may be thrown from the machine with force, posing a risk of injury.

⚠WARNING **Keep open flame away from the work area.**
Milling waste may ignite. Powdered material is extremely flammable, and even metal material may catch fire.

⚠CAUTION **Do not insert your hands or arms into the milling machine from the adapter magazine.**
Doing so may result in injury arising from your hand or arm hitting something.



Procedure

1 **Check the settings of the milling data.**

☞ P.29 "CAM Settings Necessary for Milling"

2 **Open the "Output a file" window.**

① **In the top window of VPanel, select the machine to operate.**

When you have connected multiple machines, you can switch between the machines by clicking ■ under MACHINE STATUS.

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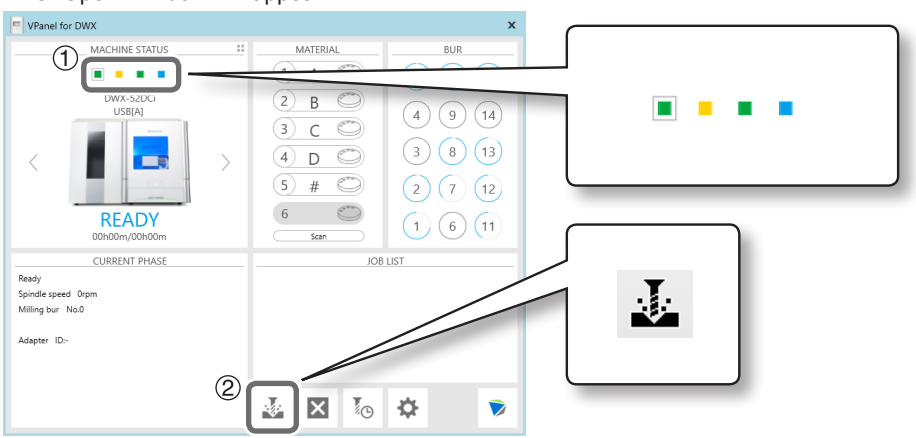
② **Click** .

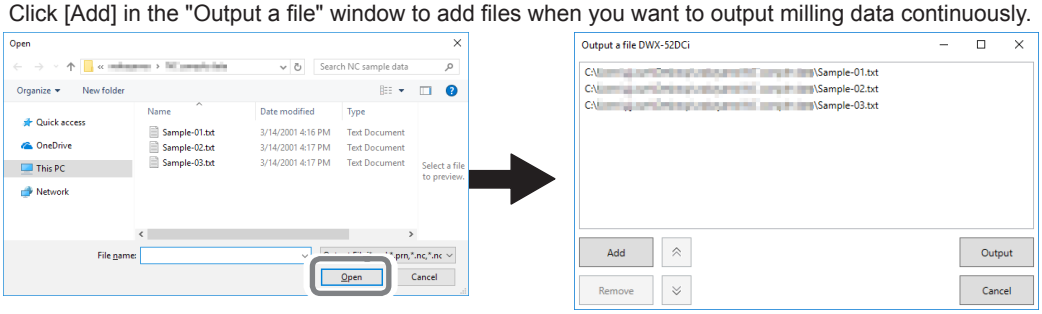
The "Open" window will appear.



3 **Select the milling data, and then click [Open].**

The selected milling data is displayed in the data list of the "Output a file" window.

Click [Add] in the "Output a file" window to add files when you want to output milling data continuously.



4 **Verify that the workpiece and the milling bur are set in the milling machine.**

☞ P.45 "Step 3: Setting the Milling Bur"

5 **Click [Output].**

MEMO

Changing the data list order

You can change the output order by selecting the milling data in the data list and clicking ⌃ or ⌄. (The milling data is output from the top of the data list.)

Removing milling data from the data list

To remove milling data from the output list, select the milling data in the data list and click [Remove].

Adding milling data by dragging and dropping

You can add milling data to the data list by dragging the data to the top window or the "Output a file" window.

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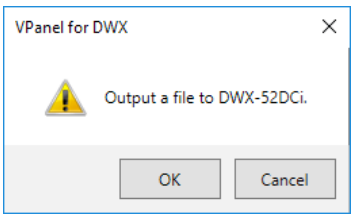
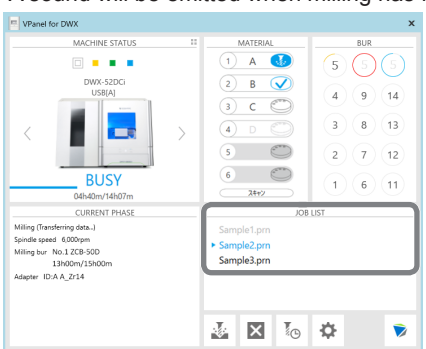
6 **Click [OK].**



The output milling data is displayed in the JOB LIST of the top window, and milling starts.

A sound will be emitted when milling has finished.



CAUTION

Do not open the front cover during milling.

To ensure safety, opening the front cover during milling will cause an emergency stop to occur.

☞ P.94 "Responding to Error Messages"

MEMO

You can save the milling data on the machine to reduce the data transfer time during which the computer is occupied.

☞ P.13 ""Settings" Tab"

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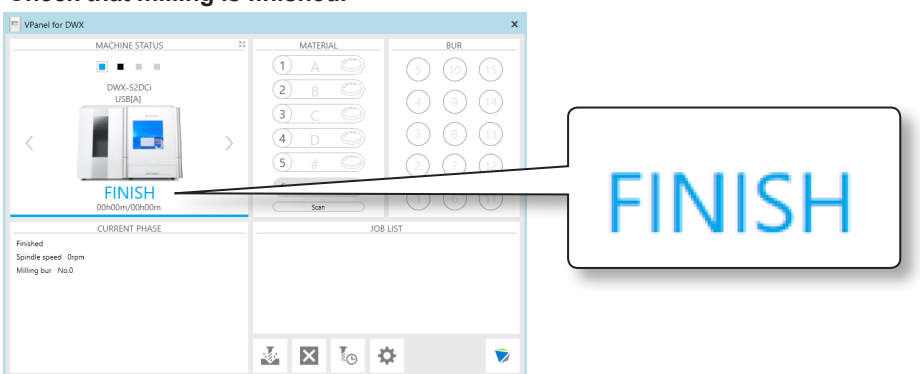
Step 7: Removing the Adapter Cap from the Machine

⚠WARNING **Do not pull the adapter with excessive force when removing it.**
Doing so may result in injury arising from your hand or arm hitting something.

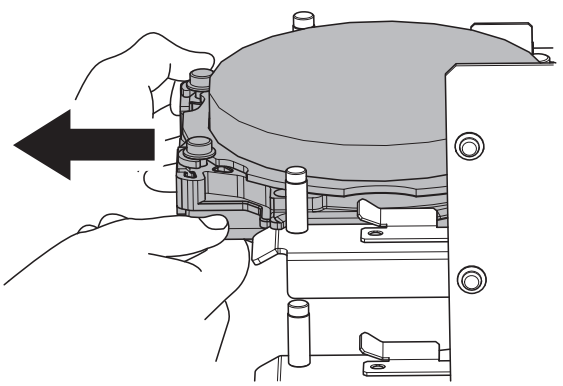
Procedure

1. **Check that milling is finished.**



2. **Open the magazine cover.**

3. **Remove the adapter from the adapter magazine.**
Hold the adapter with both hands and pull it out slowly. Exercise caution to prevent your hands or other body parts from striking the inside of the magazine cover when you pull out the adapter.



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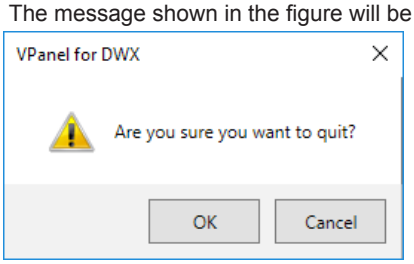
Pausing or Canceling Milling

Aborting Output

Procedure

1. **In the top window of VPanel, select the machine for which output will be aborted.**
2. **Click ⊠.**

   The message shown in the figure will be displayed.



To abort output

Click [OK].

To continue output

Click [Cancel].

Removing Milling Data in Standby from the Output List

Procedure

1. **In the top window of VPanel, select the machine whose output list you want to edit.**
2. **Right-click the milling data to remove from the output list, and then click [Remove].**

   Only milling data in standby can be removed (milling data in the second or following positions from the top of the output list).

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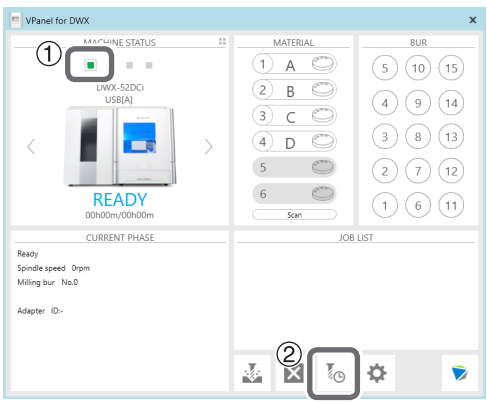
Automatically Switching Out the Worn Milling Bur (Intelligent Tool Control)

During milling, the milling bur wears out and may need to be replaced.
If you want to have the worn milling bur switched out automatically during milling, use Intelligent Tool Control.
Intelligent Tool Control is a function that enables you to continuously use up to three milling burs of the same type. When a milling bur reaches its replacement time, it is automatically switched with a milling bur that has not been used. This makes it possible to perform milling for a long time without any loss in milling quality.

Procedure

1



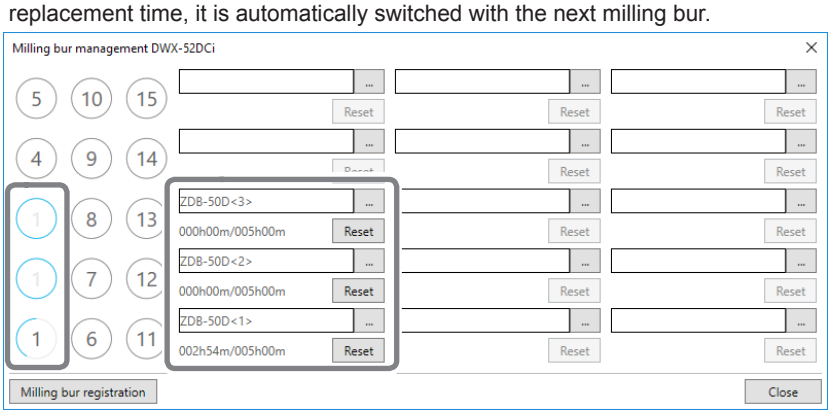
① **In the VPanel top window, select the machine for which you want to set Intelligent Tool Control.**

② **Click** .

The "Milling bur management" window opens.

2 **Set the milling burs that you want to automatically switch between with Intelligent Tool Control into multiple milling bur stockers (two or three locations).**

Milling burs with the same name are specified as a single set. If the milling bur being used reaches its replacement time, it is automatically switched with the next milling bur.



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Milling Bur Replacement Time

When all the milling burs are new

The milling bur with the smaller milling bur stocker number in the combination is used first.
Example: If Intelligent Tool Control is set to the combination of milling bur stocker 1, milling bur stocker 2, and milling bur stocker 3, stocker 1 is used.

When at least one milling bur has been used but has not reached its replacement time

Among the milling burs that have not reached their replacement times, the milling bur with the longer work time is given priority when determining which milling bur to use.

When all the milling burs have reached their replacement times

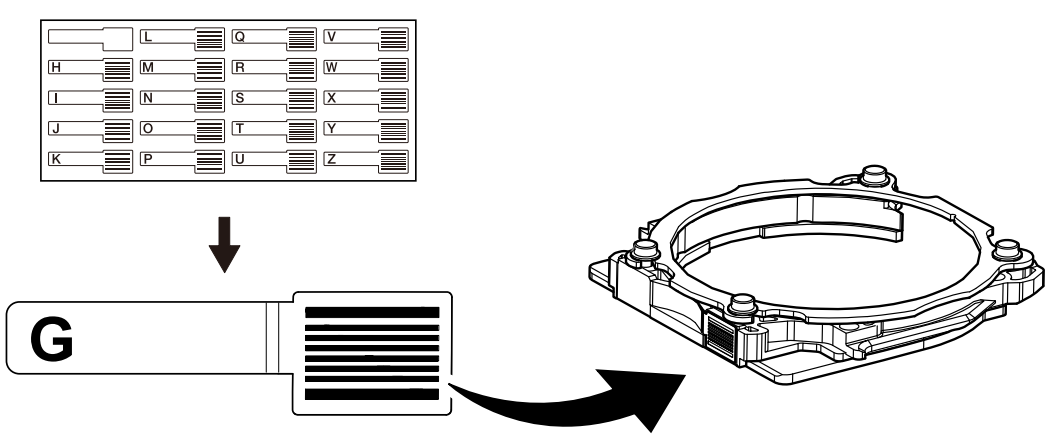
The milling bur with the shorter work time is given priority when determining which milling bur to use.

Purchasing Additional Adapters

Six adapters are included with this machine, and this machine can manage all six adapters at the same time. However, you cannot remove workpieces that are being milled from their adapters because doing so will make it impossible to manage information such as the position information in the CAM data. To use workpieces completely, we recommend that you prepare spare adapters (up to a maximum of 26 adapters [IDs: A to Z]). Contact your authorized DGSHAPE Corporation dealer or visit our website (http://www.dgshape.com/) to purchase items.

Work That Is Required after Purchasing Adapters

Adapter ID labels are not affixed to adapters that are purchased as optional products. Affix the adapter ID labels included as an optional product with this machine to the additional adapters before using them.



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Chapter 3 Maintenance

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Maintenance Precautions

Maintenance Precautions

⚠ WARNING **Never use a pneumatic blower.**
This machine is not compatible with pneumatic blowers. Milling waste may get inside the machine and cause fire or electrical shock.

⚠ WARNING **Never use a solvent such as gasoline, alcohol, or thinner to perform cleaning.**
Doing so may result in fire.

⚠ WARNING **Never use a vacuum cleaner to clean up milling waste.**
Picking up fine cuttings using an ordinary vacuum cleaner may result in fire or explosion.

⚠ WARNING **Do not touch the spindle unit or the surrounding areas immediately after milling has ended.**
Doing so may result in burns.

⚠ CAUTION **Be careful around the milling tool.**
The milling tool is sharp. Broken milling tools are also dangerous. To avoid injury, exercise caution.

- This machine is a precision device. Carry out daily care and maintenance.
- Carefully clean away milling waste. Operating the machine with milling waste present may cause a malfunction.
- Never install this machine in an environment where silicone substances (oil, grease, spray, etc.) are present. Doing so may cause poor switch contact or ionizer damage.
- Never lubricate any location not specified in this manual.

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Cleaning after Milling Finishes

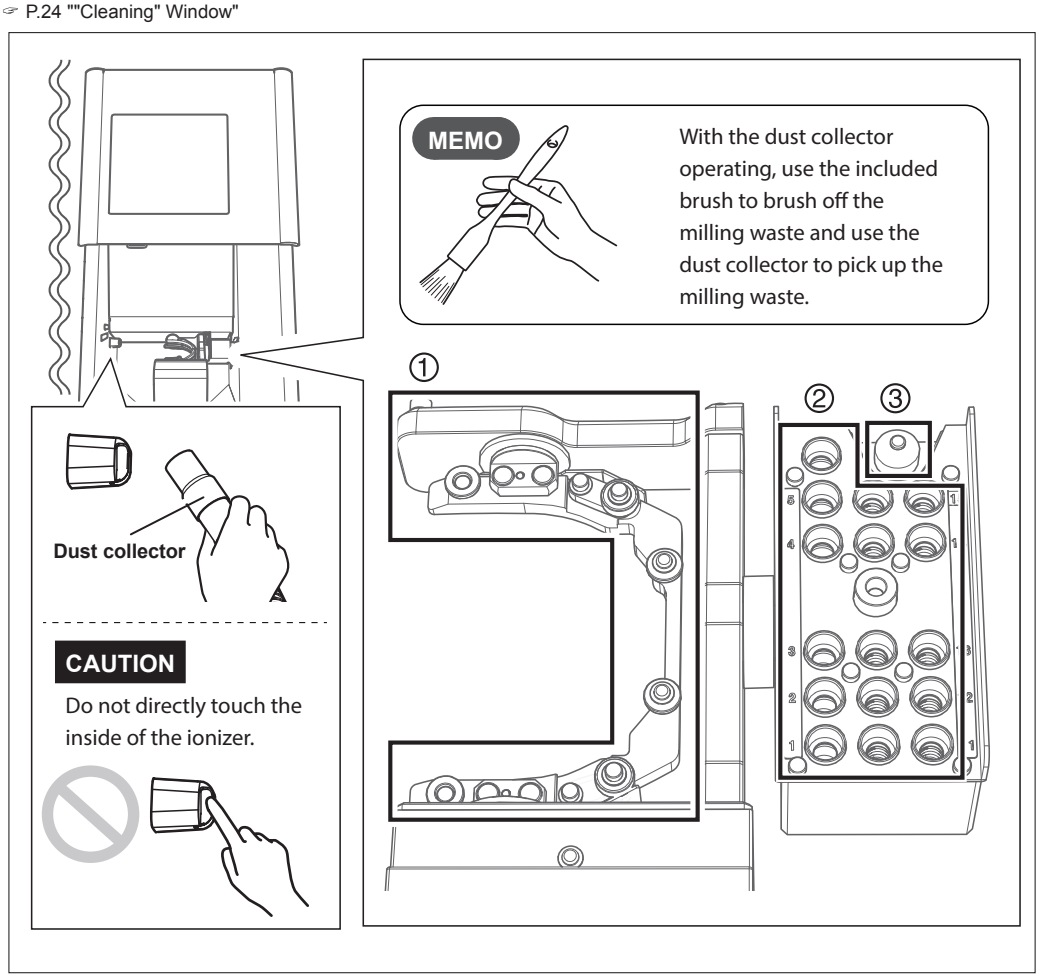
Cleaning Inside the Front Cover

When the machine is in the standby state, opening the front cover and pressing the operation button will turn on the dust collector. (For dust collectors with a linking function and connected to the expansion port with a linking cable.) For details on the dust collector, see the DWX-52DCi "Setup Guide."

Procedure

With the dust collector operating, use the included brush to brush off the milling waste and use the dust collector to pick up the milling waste. Clean off any milling waste around areas ① to ③ in the following figure, as milling waste in these areas may affect the milling results. Use the VPanel "Cleaning" window to clean the rotary axis unit.

☞ P.24 ""Cleaning" Window"



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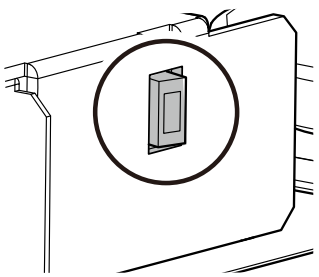
Cleaning Inside the Magazine Cover

Procedure

Use the included brush to brush off the milling waste and use the dust collector to pick up the milling waste. Clean off any milling waste around areas ① to ③ in the following figure, as milling waste in these areas may affect the operations during milling.

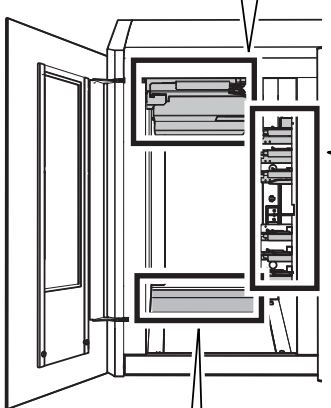
① **Barcode sensor**



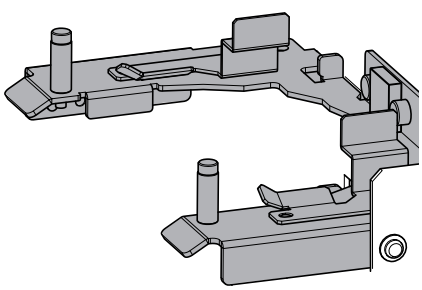
CAUTION

Milling waste affixing to the barcode sensor will prevent it from reading the adapter IDs correctly. Use the cloth for care that is included with the machine to lightly wipe clean the barcode sensor. Use [Barcode sensor] in the VPanel "Cleaning" window.

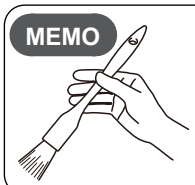
☞ P.24 ""Cleaning" Window"



② **Adapter stocker**



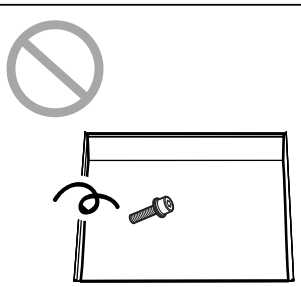
MEMO



With the dust collector operating, use the included brush to brush off the milling waste and use the dust collector to pick up the milling waste.

③ **CAUTION**

Do not insert anything into this space. If this space is clogged with milling waste or if items such as parts fall into this space and are left there, the lift will not be able to lower completely, which may make it impossible to use adapter stocker number 6.



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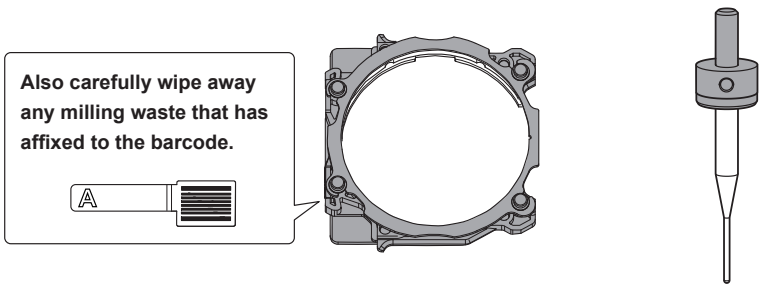
Cleaning the Milling Bur/Adapter

Use the included cloth for care to wipe off any dirt from the portion indicated in the figure.

: • • • **Part to be wiped**

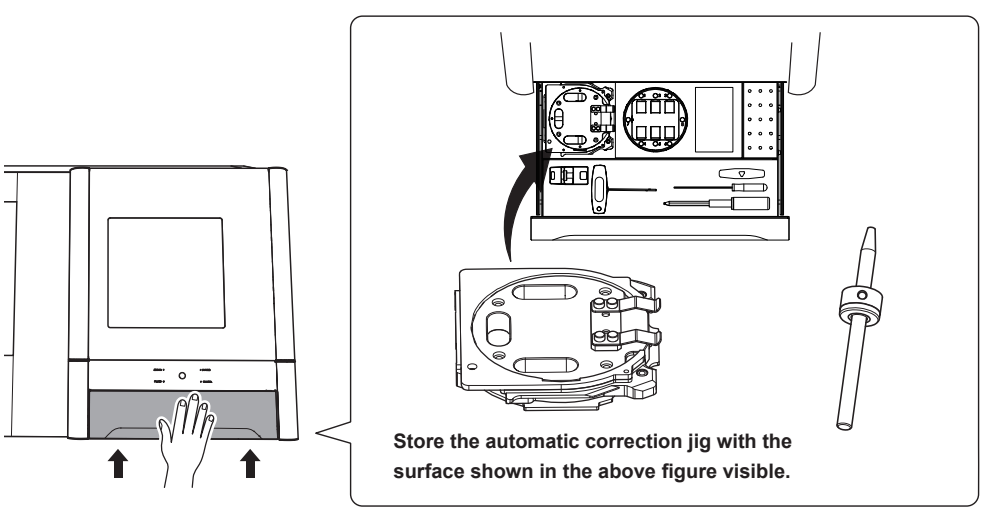


Care and Storage of Detection Pin and Automatic Correction Jig

For automatic correction, use the detection pin and the automatic correction jig. The presence of rust, scratches, or grime on the detection pin or the automatic correction jig makes accurate detection impossible, which in turn may make it impossible to perform milling as intended and may even damage the machine.

Care and Storage

- Before use, wipe these items clean using a dry clean cloth (included with the machine) and check that no dust, rust, or scratches are present.
- Store the detection pin and the automatic correction jig in the storage compartment.



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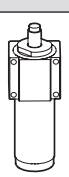
Periodic Maintenance

Situations Requiring Maintenance

When installing the machine **When replacing the spindle unit**	• P.63 "Spindle Run-in (Warm-up)" • P.65 "Correcting the Milling Machine"
When the machine has not been used for a prolonged period **Before milling on days when the ambient temperature is low**	P.63 "Spindle Run-in (Warm-up)"
When moving the machine to a different installation site **When the milling position is misaligned** **When symptoms such as a hole in the Z direction occur**	P.65 "Correcting the Milling Machine"
Once a month **When the working time of the spindle exceeds 200 hours**	P.71 "Retightening the Collet"
When water or dust accumulates on the regulator	• P.74 "Regulator Maintenance (Emptying the Drain)" • P.75 "Regulator Maintenance (Cleaning the Bowl)"
When adapter IDs cannot be read	• P.60 "Cleaning Inside the Magazine Cover" • P.61 "Cleaning the Milling Bur/Adapter"

Situations Requiring Part Replacement

Contact your authorized DGSHAPE Corporation dealer or visit our website (http://www.dgshape.com/) to purchase items.

Part name	Replacement time/Guideline
 **Spindle unit**	**When the working time of the spindle exceeds 2,000 hours (with slight variation depending on the work situation).** You can use VPanel to view the working time of the spindle. For information on how to perform replacement, refer to the replacement instruction manual included with the part. ☞ P.14 ""Maintenance" Tab" * The replacement spindle unit comes with a collet and belt.

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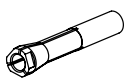
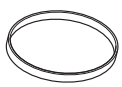
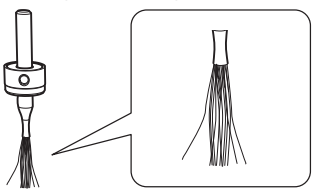
Part name	Replacement time/Guideline
 Collet	**If the collet is deformed.** If an overload error or other error occurs, the collet may be deformed. For information on how to perform replacement, refer to the replacement instruction manual included with the part.
 Spindle belt	**If the spindle belt is worn.** For information on how to perform replacement, refer to the replacement instruction manual included with the part.
Cleaning tool	**If the brush bristles have spread out.** * The milling bur holder is not included with optional products. ☞ P.77 "Replacing the Cleaning Tool" 

Spindle Run-in (Warm-up)

Spindle run-in (warm-up) may be required to stabilize the rotation of the spindle.

Situations Requiring This Work

- When installing the machine
- When replacing the spindle unit
- When the machine has not been used for a prolonged period
- Before use on days when the ambient temperature is low

Procedure

1. **Close the front cover and turn on the power.**
2. **Show VPanel.**

☞ P.7 "Displaying VPanel"

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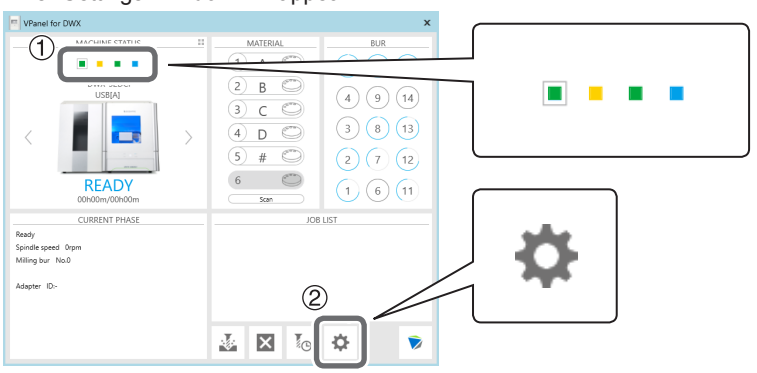
3 **Open the [Settings] window.**

① **In the top window of VPanel, select the machine to operate.**

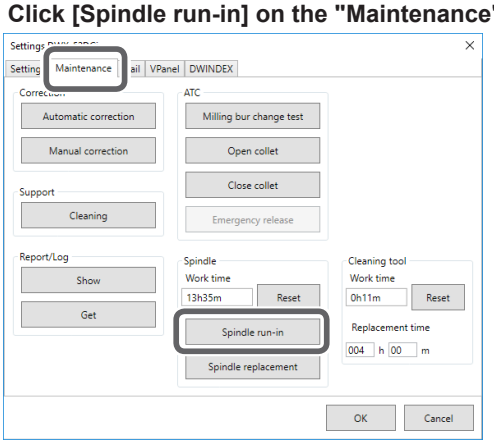
When you have connected multiple machines, you can switch between the machines by clicking ■ under MACHINE STATUS.

② **Click ⚙.**

The "Settings" window will appear.

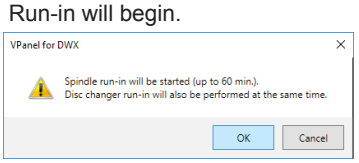


4 **Click [Spindle run-in] on the "Maintenance" tab.**



5 **When the window shown in the following figure appears, click [OK].**

Run-in will begin.



This step is complete once a message indicating that the work is complete appears.

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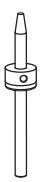
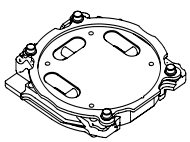
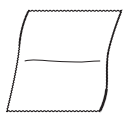
Correcting the Milling Machine

The accuracy of the milling machine may change if it is used for a long period of time or the surrounding environment changes. Performing automatic correction will correct the ATC magazine and rotary axis positions.

Situations Requiring This Work

- When installing the machine
- When replacing the spindle unit
- When the milling position is misaligned
- When symptoms such as a level difference or a hole in the Z direction occur in the milling results

Required Items

		
Detection pin	Automatic correction jig	Cloth for care

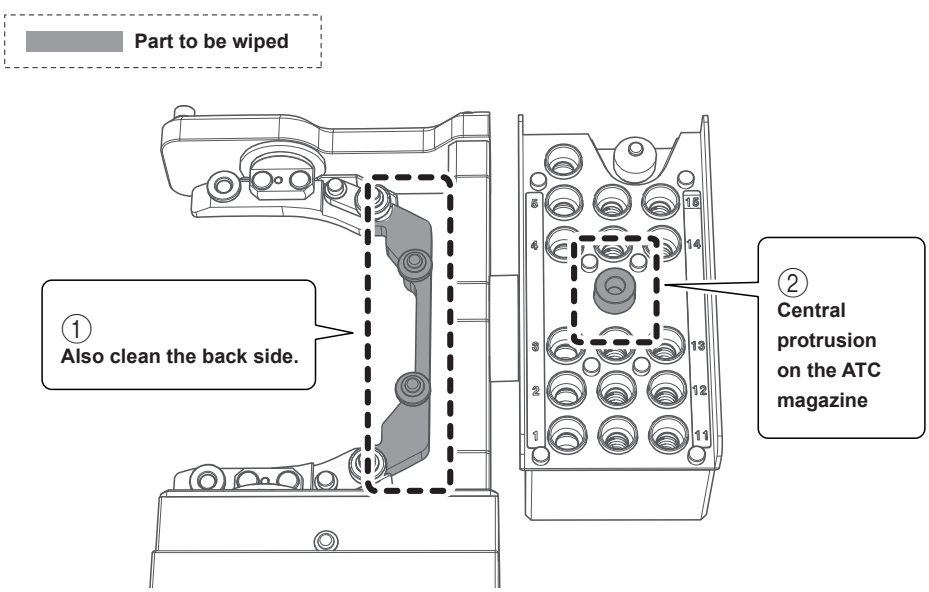
1. Install the detection pin.

1 **Clean off any milling waste around the clamp.**

☞ P.59 "Cleaning after Milling Finishes"

2 **Use the included cloth for care to wipe clean locations ① and ② in the figure shown below.**

If any dirt is present in these locations, it may not be possible to perform the correction properly.



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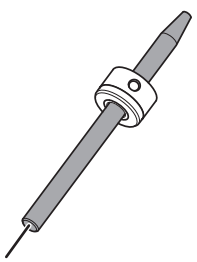
3 **Use the included cloth for care to wipe clean the automatic correction jig and the detection pin.**

If any dirt is present in these locations, it may not be possible to perform the correction properly.

Part to be wiped

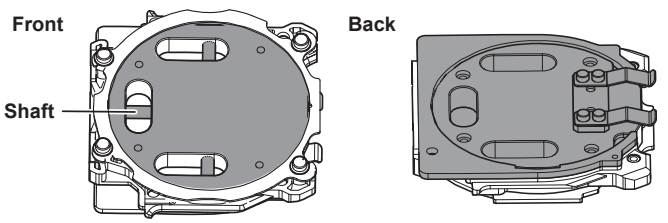
Detection pin



Also clean the tip.

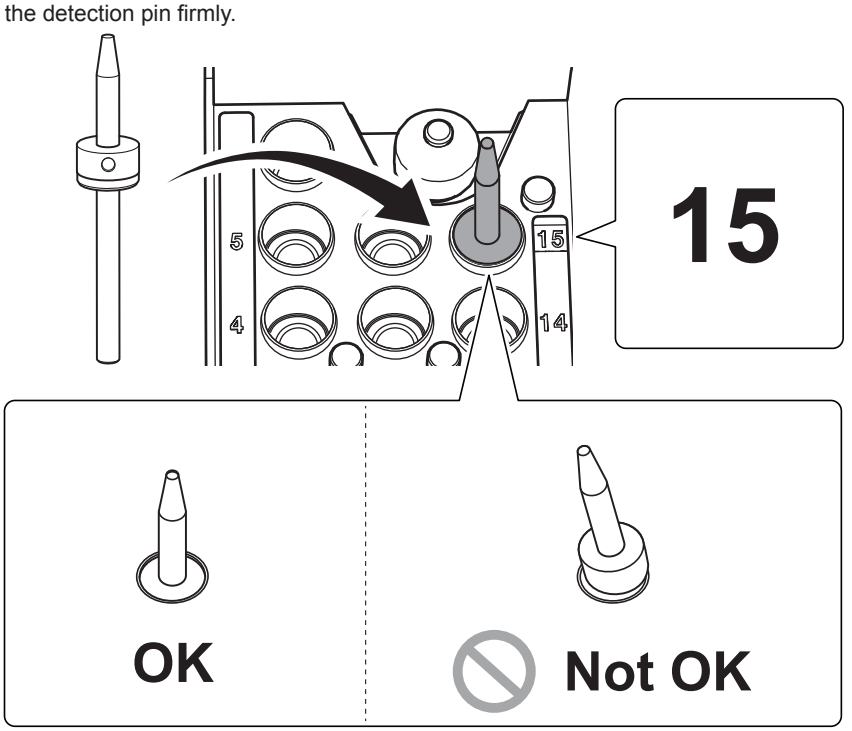
Automatic correction jig

Also clean the back side and the shaft.



4 **Load the detection pin in the ATC magazine's number 15 position.**

Insert the detection pin firmly.



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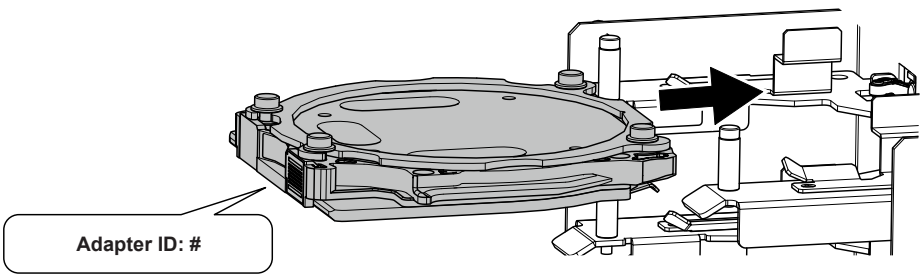
2. Attach the automatic correction jig.

MEMO

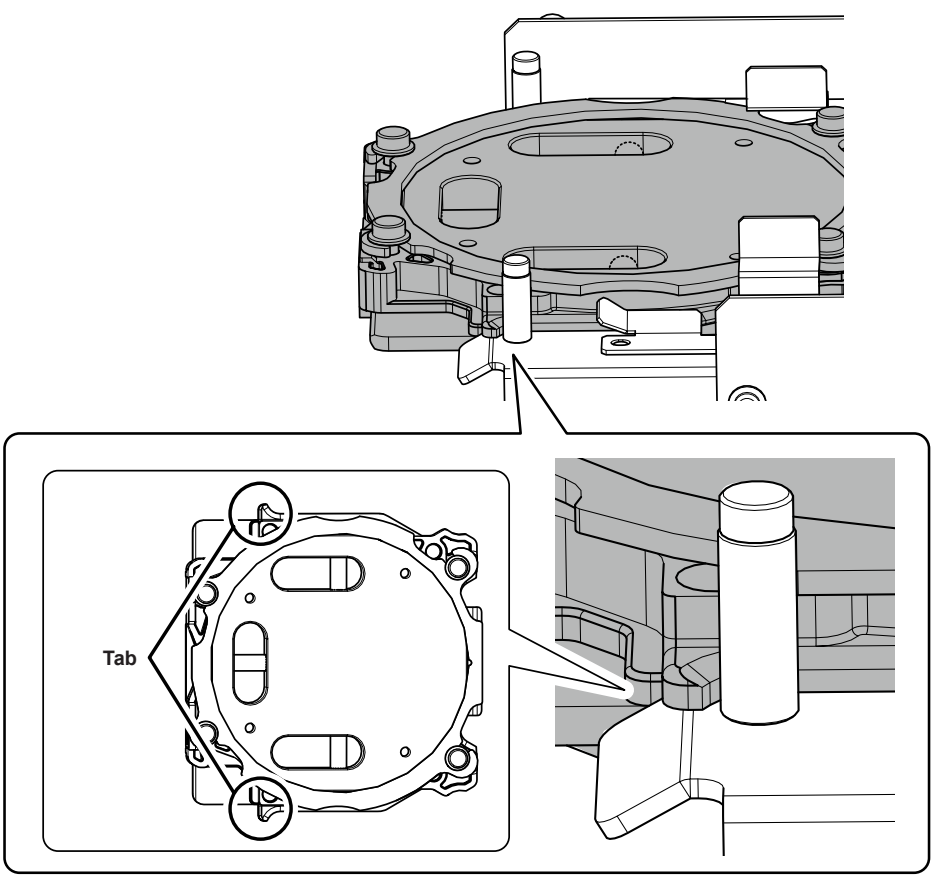
The automatic correction jig can be attached to all adapter stockers.

1 Insert the automatic correction jig into the adapter stocker as shown in the figure.



2 Attach the adapter by aligning its tabs with the positions shown in the figure.

When the adapter is set in the correct position, it is fixed in place with a magnet.



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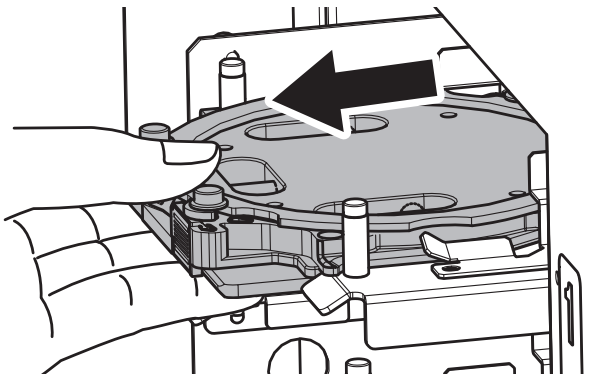
3 **Lightly tug on the adapter to check that it does not come loose.**



4 **Close the front cover and the magazine cover.**

3. Perform automatic correction.

1 **Show VPanel.**

☞ P.7 "Displaying VPanel"

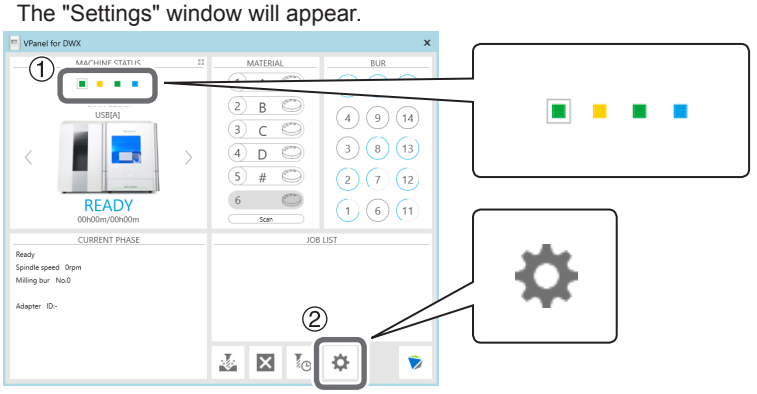
2 **Open the "Settings" window.**

① **In the top window of VPanel, select the machine to operate.**

When you have connected multiple machines, you can switch between the machines by clicking ■ under MACHINE STATUS.

② **Click ⚙.**

The "Settings" window will appear.



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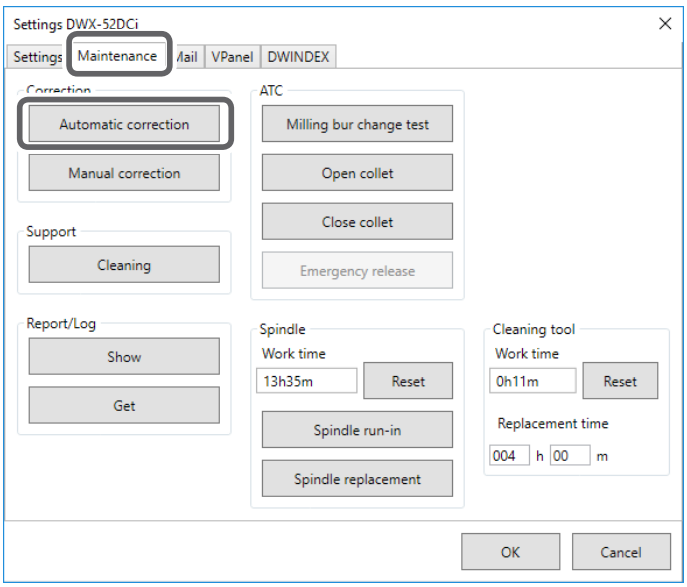
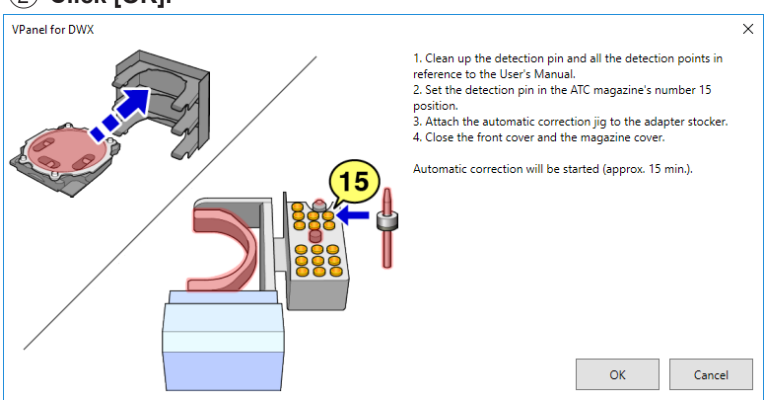
3 **Click [Automatic correction] on the "Maintenance" tab.**



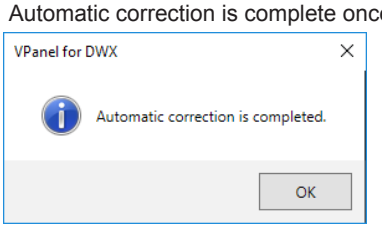
① **Check that the work displayed on the screen is complete.**

② **Click [OK].**



Automatic correction starts.

Automatic correction is complete once the screen in the figure is displayed.



4 **Click [OK].**

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4. Remove the detection pin and the automatic correction jig.

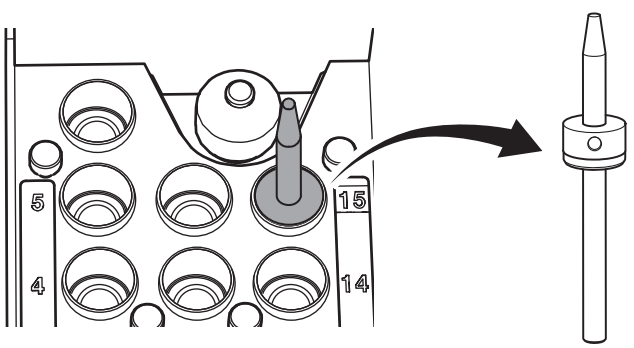
After removing the detection pin and the automatic correction jig, clean them, and then store them in the storage compartment.

☞ P.61 "Care and Storage of Detection Pin and Automatic Correction Jig"

Detection pin

Procedure

Open the front cover and remove the detection pin.



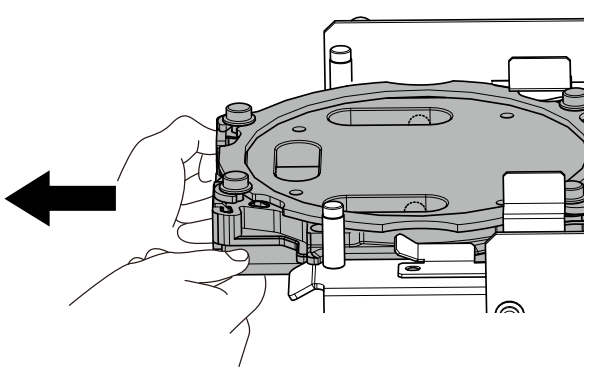
Automatic correction jig

⚠ CAUTION **Do not pull the adapter with excessive force when removing it.**
Doing so may result in injury arising from your hand or arm hitting something.

Procedure

Open the magazine cover, and then remove the automatic correction jig.

Hold the adapter with both hands and pull it out slowly. Exercise caution to prevent your hands or other body parts from striking the inside of the magazine cover when you pull out the adapter.



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Retightening the Collet

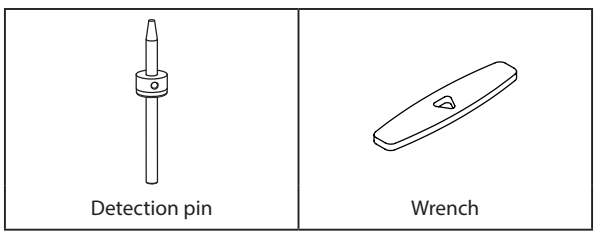
Continuous milling will cause the collet to become loose, making it easy for the milling bur to come off. Periodically retighten the collet.

Recommended Interval for This Work

- Once a month, or when the total work time of the spindle exceeds 200 hours (with slight variation depending on the work situation).

☞ P.14 ""Maintenance" Tab"

Required Items



Procedure

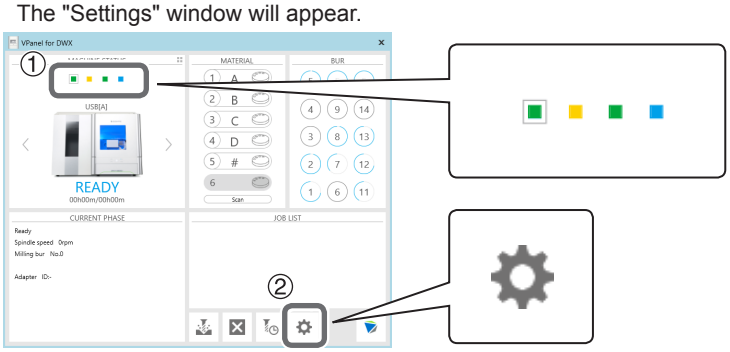
1 Open the "Settings" window.

① **In the top window of VPanel, select the machine to operate.**

When you have connected multiple machines, you can switch between the machines by clicking ■ under MACHINE STATUS.

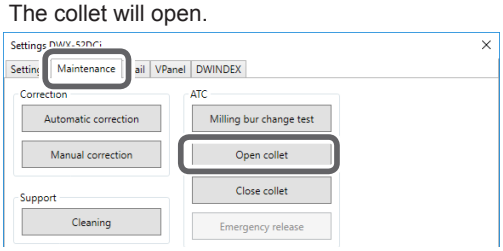
② **Click ⚙.**

The "Settings" window will appear.



2 Click [Open collet] on the "Maintenance" tab.

The collet will open.



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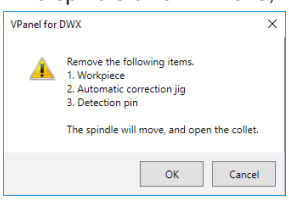
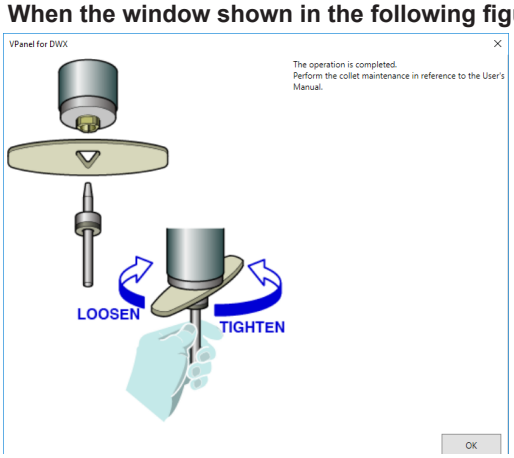
3 **When the window shown in the following figure appears, click [OK].**

The spindle unit will move, which will open the collet.



4 **When the window shown in the following figure appears, click [OK].**

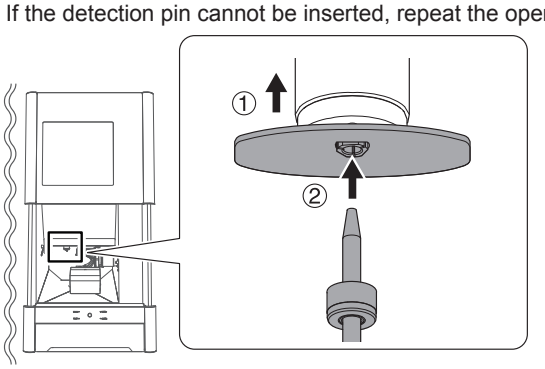


5 **Retighten the collet.**

① **Fit the wrench onto the collet.**

② **Insert the detection pin into the collet.**

If the detection pin cannot be inserted, repeat the operations in steps **2** to **4**.



CAUTION

Use the included wrench and keep the detection pin inserted. If the detection pin is not inserted, the collet may be deformed, resulting in lower milling accuracy.

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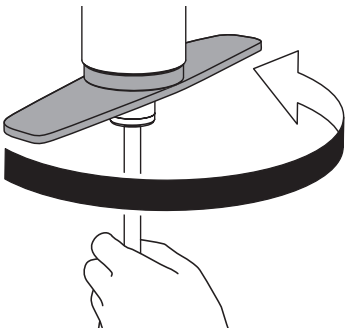
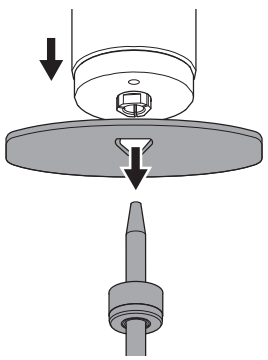
③ **Tighten the collet with the wrench while holding the detection pin with your hand.**



MEMO

Tightening is sufficient once the wrench and the tip of the spindle unit (the shaded portion in the figure on the left) begin to rotate together.

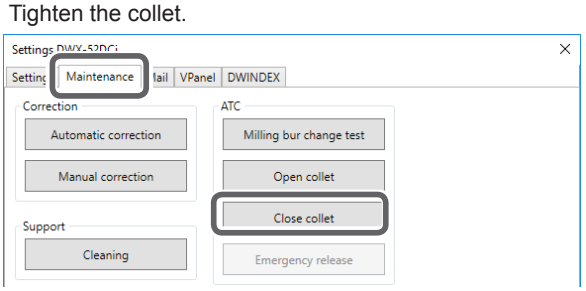
④ **Remove the detection pin and the wrench.**



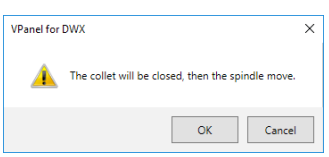
6 **Close the front cover.**

7 **Click [Close collet] on the "Maintenance" tab.**

Tighten the collet.



8 **Click [OK].**



The procedure is complete if the spindle unit moves and "The operation is completed." is displayed.

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Regulator Maintenance (Emptying the Drain)

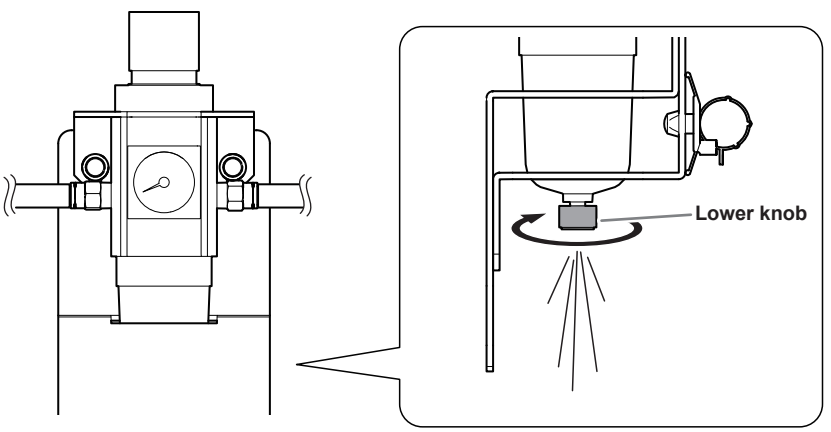
The regulator is equipped with a filter that becomes filled with drainage (moisture and dust) over time. Periodically empty the drain.

Situations Requiring This Work

- When drainage builds up
- When the bowl becomes dirty

Procedure

1. **Loosen the lower knob little by little.**
   Material may spray out of the drain at this time. Use a cloth or the like to catch the spray and keep it from scattering.



2. **After the drain empties, retighten the lower knob.**

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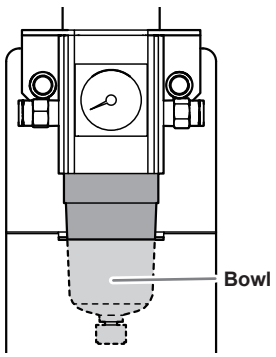
Regulator Maintenance (Cleaning the Bowl)

If the inside of the bowl becomes dirty, remove and wash the bowl.



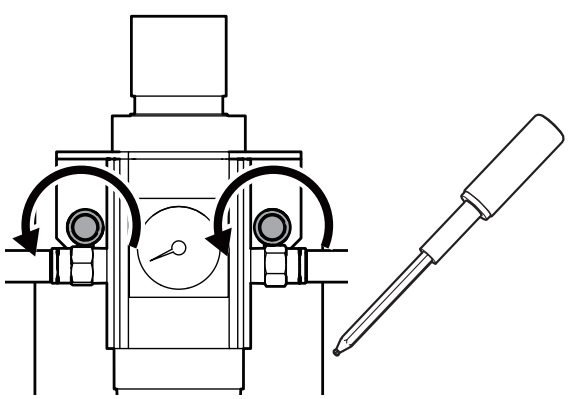
Procedure

⚠ WARNING **Be sure to bleed off the air pressure before removing the regulator bowl.**
Failure to do so may result in a rupture or components flying off.

⚠ WARNING **Before removing or attaching the regulator and before performing maintenance, make sure that the bowl is securely attached.**
If the bowl is not properly attached, it may come flying off when compressed air is supplied.

⚠ WARNING **Clean the regulator bowl using a neutral detergent. Never use solvents such as gasoline, alcohol, or thinner.**
Using solvents may degrade the bowl and may result in a rupture.

1. **Stop the supply of compressed air.**
2. **Use a torque screwdriver to loosen the screws shown in the following figure by about 3 turns (2 locations).**



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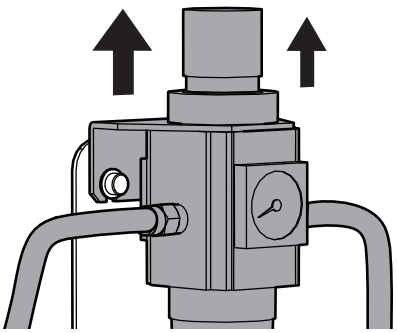
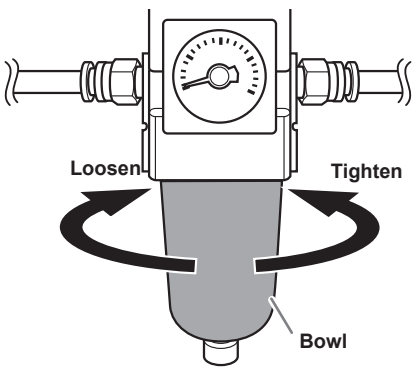
3 **Remove the regulator.**



4 **Remove the bowl from the regulator.**



5 **Wash the bowl using a neutral detergent.**

6 **After making sure that the bowl is completely dry, retighten the bowl.**

7 **Attach the regulator to the machine.**

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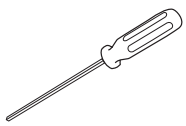
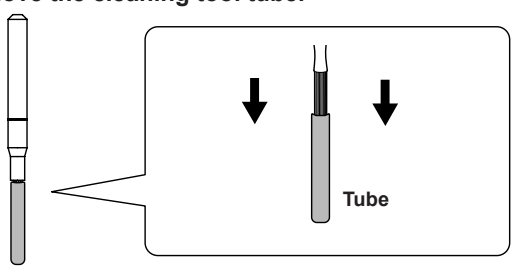
Replacing the Cleaning Tool

Required Items

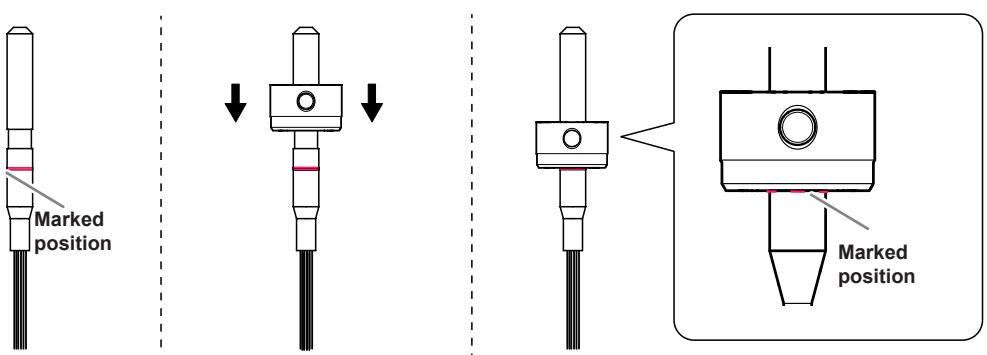
Optional item	Main unit accessories		
Cleaning tool	Milling bur holder	Mounting screw	 Hexagonal screwdriver

Procedure

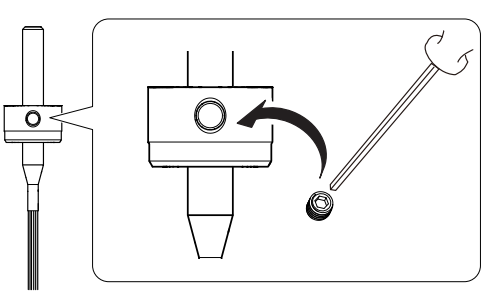
1. **Remove the cleaning tool tube.**



2. **Attach the milling bur holder to the cleaning tool, aligning the milling bur holder with the marked position on the cleaning tool.**



3. **Use the mounting screw to fix the milling bur holder in place.**



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Machine Trouble

Initial Operations Are Not Performed or Fail

Is the front cover or the magazine cover open?	Keep the front cover and the magazine cover closed during startup. For safety, the initial operations are not performed if a cover is open when the machine starts.	—
Is the milling bur caught on anything?	The milling bur attached to the spindle unit may fail to perform the initial operations if it is caught on the workpiece or rotary axis unit. Try to detach the milling bur using the emergency release function in VPanel.	P.15
Is anything caught on the spindle unit or rotary axis unit?	Open the maintenance cover and make sure that no workpiece or milling waste is caught on these units.	—

The Operation Button Does Not Respond

Is the front cover or the magazine cover open?	This machine restricts some operations when the front cover or the magazine cover is open. Close all of the covers.	—
Are you wearing gloves?	The operation button will not respond if you are wearing gloves. Operate the button with a bare hand.	—

VPanel Does Not Recognize the Machine

Is the cable connected?	Make sure that the cables are connected. Refer to the "Setup Guide" ("Connecting the Cable") to perform the work.	Setup Guide
Is the driver installed correctly?	If the connection to the computer is not made according to the procedure described, the driver will not be installed correctly. VPanel will not function normally if the driver is not configured correctly. Check again to ensure that the connection was made using the correct procedure.	P.87
Did you verify the connection procedure when connecting more than one machine?	There is a possibility that the connection procedure was performed incorrectly. Make sure that connections were performed correctly. Refer to the "Setup Guide" ("Connecting Multiple Units") to perform the work.	Setup Guide

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Was the machine ID changed?	If the machine's ID has been changed, restart VPanel.	P.13

Adapter IDs Cannot Be Read

Is part of the barcode on the adapter ID label missing or is this barcode dirty?	Clean the barcode. If part of the barcode is missing or if the barcode is excessively dirty, affix a new label from the sheet of labels included with the machine.	P.61
Has milling waste affixed to the barcode sensor?	Clean the barcode sensor inside the magazine cover, and then read the adapter ID.	P.60

No Data Is Being Output to the Machine, or the Machine Will Not Operate Even Though Data Is Being Output

Is the front cover or the magazine cover open?	If the front cover or the magazine cover is open, the machine will not start milling even if milling data is being received. Close all of the covers and press the operation button to start milling.	—
Does VPanel recognize the machine?	Verify that a message other than "OFFLINE" is shown in VPanel.	—
If multiple machines are connected, is the correct machine selected?	Select the machine to output milling data to on the VPanel screen.	—
Is operation paused?	Operation is paused if the PAUSE LED is lit. When the machine is paused, milling stops and some operations are restricted. Pressing the operation button of the machine will cancel the pausing of operations. Holding down the operation button will abort milling.	P.25
Is initialization or a data cancel in progress?	Milling data received during the initial operations or during a data cancel will be cancelled. Make sure to output milling data after confirming that the machine is in the standby status.	—
Is the milling data correct?	Check the milling data.	—
Has an error occurred?	The ERROR LED will flash if an error occurs. A description of the error is displayed in VPanel.	P.94

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The Computer Shuts Down When Connecting Multiple Machines

Are machines with the same ID connected to the computer at the same time?	Connecting more than one machine with the same ID to a computer at the same time may cause the computer to shut down. If the computer shuts down, turn off the power of all connected machines, and then disconnect the USB cables from the computer. Restart the computer, and then start VPanel. If VPanel will not start, reinstall it. After that, configure the settings so that no machines are assigned the same ID. Refer to the "Setup Guide" ("Connecting Multiple Units") to perform the work.	Setup Guide

The Adapter in Adapter Stocker Number 6 Cannot Be Replaced

Has an unnecessary object fallen into the recessed portion in the bottom of the magazine cover?	Ensure that nothing is present in the recessed portion. If debris, etc. is present in this area, the lift will not be able to lower completely, which will prevent the disk changer from operating.	P.60

The Spindle Does Not Rotate

Is the spindle belt damaged or disconnected?	Check inside the maintenance cover. If the spindle belt is damaged, replace it.	P.63

The Ionizer Is Ineffective (Milling Waste Collects around the Milling Area)

Is the workpiece being milled a PMMA workpiece?	The ionizer (static electricity eliminator) is only effective with PMMA. It has no effect on zirconia and wax workpieces.	—
Is there milling waste around the ionizer?	If milling waste is found, clean the area with a dust collector. The ionizer's effectiveness will decrease if milling waste is present. Do not touch the inside of the ionizer.	P.59
Is the machine grounded?	Ground the unit with the ground wire. The ionizer will not function properly if the machine is not grounded.	—

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Compressed Air Does Not Come Out

Does the operation require compressed air?	Compressed air is only supplied during some operations, such as when the spindle is rotating or when replacing the milling bur.	—
Is the regulator properly connected and are the pressure settings correctly configured?	Check the connection. Check that the pressure has been set to 0.2 MPa. If the set pressure of the regulator is zero, compressed air will not be supplied.	P.32
Is the knob at the bottom of the regulator open?	The compressed air will escape if the knob at the bottom of the regulator is open.	P.74

Automatic Correction Fails

Is the automatic correction jig, detection pin, or ATC magazine dirty?	Clean away any grime on the automatic correction jig, the detection pin, and the ATC magazine. These items being dirty due to a buildup of milling waste or the like may impede correct sensor operation, making detection impossible.	P.65
Is the automatic correction jig properly attached?	Verify that the automatic correction jig is properly attached.	P.67
Is the detection pin properly attached?	Verify that the detection pin is properly attached. Check the position of the milling bur holder on the detection pin. Refer to the "Setup Guide" ("Dimensional Drawings" (Detection Pin Dimensions)).	Setup Guide

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The Cleaning Tool Is Not Effective

Is the cleaning tool effective for the workpiece being milled?	The cleaning tool is effective for the following workpieces. Zirconia, composite resin, and CoCr sintered metal	P.47
Is the milling bur holder installed in the correct position?	The position in which to install the holder to the cleaning tool differs from the position in which to install the milling bur. Install the milling bur holder in the correct position.	P.47
Have the bristles of the cleaning tool spread out?	If the cleaning tool bristles spread out, the tool's effectiveness at removing milling waste will be reduced. If the bristles have spread out, replace the cleaning tool with a new one.	P.63
Is the detection pin properly attached?	The cleaning tool uses the length of the detection pin as a reference. Check the position of the milling bur holder on the detection pin. Refer to the "Setup Guide" ("Dimensional Drawings" (Detection Pin Dimensions)). If the milling bur holder is not installed in the correct position, install the milling bur holder in the correct position, and then perform the automatic correction.	Setup Guide

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Milling Quality Problems

The Milled Surface Is Not Attractive

Is the workpiece firmly secured in place?	Check the mounting condition of the workpiece. If the workpiece is not mounted on the machine correctly, the workpiece may come loose during milling and may become misaligned.	P.33
Is the milling bur worn?	If the same milling bur is used for milling for a long period of time, it will become worn and affect milling results. Try replacing the milling bur with a new one. The work time of the milling bur can also be managed in VPanel.	P.23
Are the milling conditions too strict?	Strict milling conditions may affect milling results. Review the CAM milling conditions.	—

There Is a Line of Level Difference in the Milling Results

Is the machine out of correction?	The origin point may become out of position due to prolonged use or relocating the machine, which can result in a line of level difference. Perform automatic correction. If the expected results cannot be obtained even after performing automatic correction, perform manual correction. With manual correction, changing the Y value in Origin point may improve the situation.	P.20 P.65
Are the CAM milling conditions correct?	Depending on the milling conditions, a line of level difference may occur. Review the CAM milling conditions.	—

Chipping Occurs (Edges of Milling Products Become Chipped)

Is the installation base of the machine secure?	The vibration from milling can shake the installation base. Install the machine in a stable location.	—
Is the workpiece firmly secured in place?	Check the mounting condition of the workpiece. If the workpiece is not mounted on the machine correctly, the workpiece may come loose during milling and may become misaligned.	P.33

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Is the milling bur worn?	If the same milling bur is used for milling for a long period of time, it will become worn and affect milling results. Try replacing the milling bur with a new one. The work time of the milling bur can also be managed in VPanel.	P.21
Are the milling conditions too strict?	Strict milling conditions may affect milling results. Review the CAM milling conditions.	—
Is the thickness specified in the CAD data excessively thin?	If the specified thickness is excessively thin, chipping is likely to occur. Review the shape specified in the CAD data.	—

Recommended CAD data thickness values

Unit: mm

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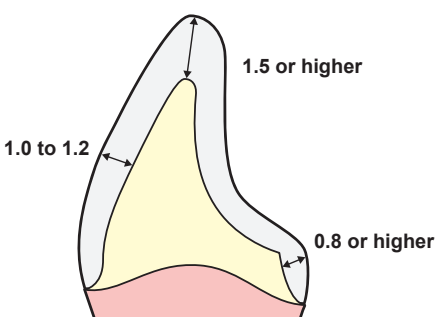
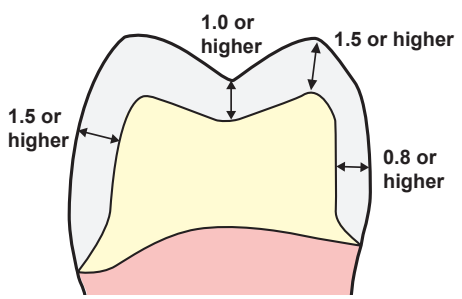
<tr><td> 
</td><td> 
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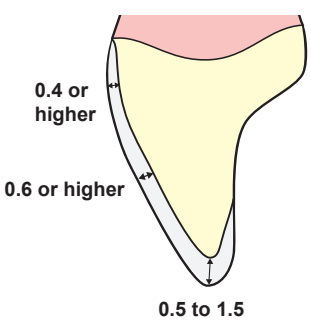
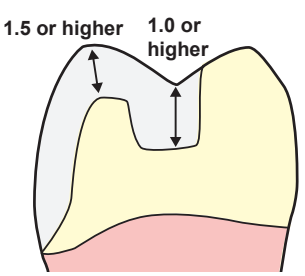
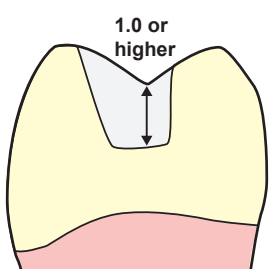
<tr><td> 
</td><td> 
</td><td> 
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A Hole Opens in the Milling Results

Do the milling bur diameter and the milling bur stocker number match the CAM settings?	Check the CAM's milling bur settings.	—
Is the machine out of correction?	The origin point may become out of position due to prolonged use or relocating the machine, which can affect milling results. Perform automatic correction. If the expected results cannot be obtained even after performing automatic correction, perform manual correction. With manual correction, changing the Z value in the + direction in Origin point may improve the situation.	P.20 P.65
Are the milling conditions too strict?	Strict milling conditions may affect milling results. Review the CAM milling conditions.	—

The Dimensions of the Milling Results Do Not Match

Does the milling bur diameter match the CAM settings? Is the CAM shrinkage factor setting appropriate for the workpiece?	Check the CAM settings.	—
Do the settings of the sintering program match the workpiece?	Check the sintering program settings to see if they match the manufacturer's workpiece being used.	—

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Installation Problems

Installing the Driver Separately

With this machine, you can also install the driver, software, and electronic-format manuals all at once. To install them all at once, see the "Setup Guide" ("Installing the Software").

Procedure

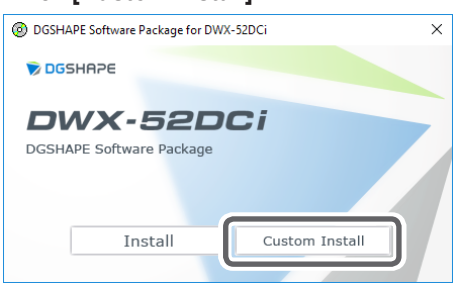
1. **Before installation, confirm that the machine and the computer are not connected with the USB cable.**
2. **Log on to Windows as the computer's administrator (or as an "Administrators" account).**
3. **Insert the DGSHAPE Software Package CD into the CD-ROM drive of the computer.**

   When the automatic playback window appears, click [Run menu.exe]. If a "User Account Control" window appears, click [Allow] or [Yes], and then continue with the installation. The setup menu screen appears automatically.

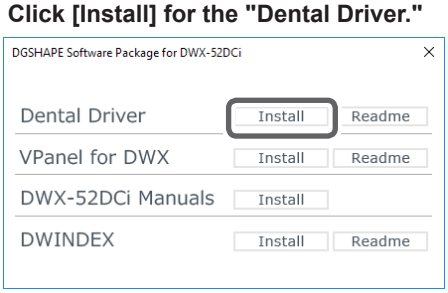
   If the driver is already installed, uninstall it.

   ☞ P.92 "Uninstalling the Driver"

   If the driver is not installed or if it has been uninstalled, go to step 4.
4. **Click [Custom Install].**



5. **Click [Install] for the "Dental Driver."**



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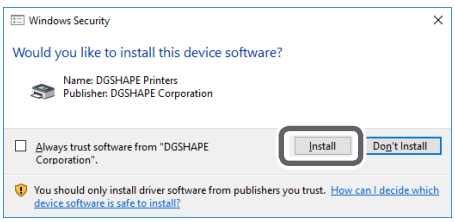
6 **When the window shown in the figure appears, click [Install].**



7 **Follow the on-screen instructions to proceed with the installation.**

8 **When the installation finishes, click ✕ on the setup menu.**

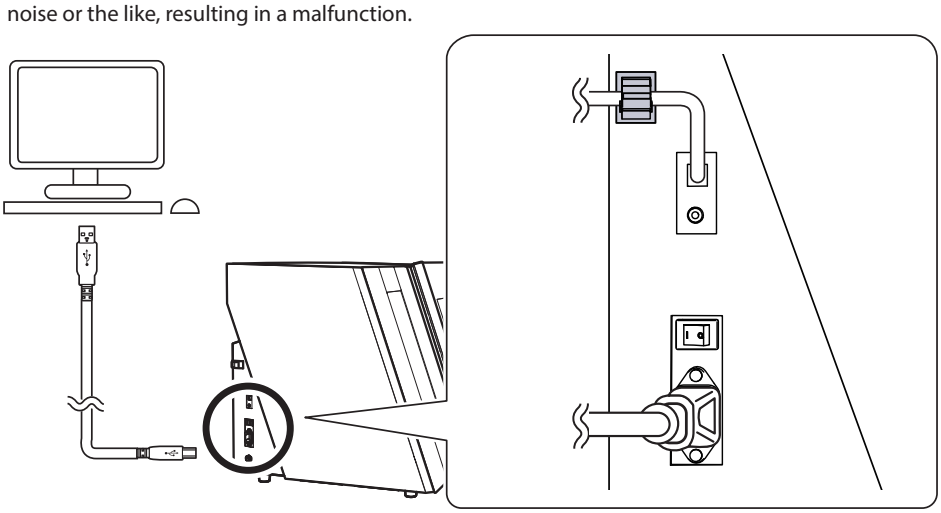
9 **Remove the DGSHAPE Software Package CD.**

10 **Turn on the power to the machine.**

11 **Connect the machine to the computer using the USB cable.**

IMPORTANT!

- If connecting more than one unit of this machine to a single computer, refer to the "Setup Guide" ("Connecting Multiple Units").
- Use the included USB cable.
- Do not use a USB hub. Connection may not be possible.
- Secure the USB cable with a cable clamp.
- Do not bind the power cord with the cable clamp. Binding the USB cable and the power cord may produce noise or the like, resulting in a malfunction.



The driver will be installed automatically.

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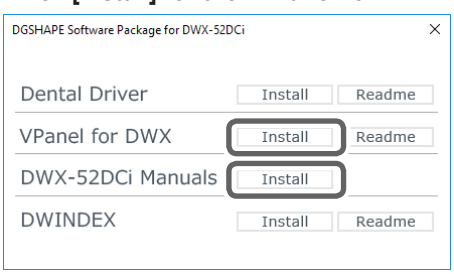
Installing the Software and the Electronic-format Manuals Separately

Procedure

1. **Log on to Windows as the computer's administrator (or as an "Administrators" account).**
2. **Insert the DGSHAPE Software Package CD into the CD-ROM drive of the computer.**
   When the automatic playback window appears, click [Run menu.exe]. If a "User Account Control" window appears, click [Allow] or [Yes], and then continue with the installation. The setup menu screen appears automatically.
3. **Click [Custom Install].**

4. **Click [Install] for the "VPanel for DWX" or the "DWX-52DCi Manuals."**



5. **Follow the on-screen instructions to proceed with the installation.**
6. **When the installation finishes, click × on the setup menu.**
7. **Remove the DGSHAPE Software Package CD.**

> With this machine, you can also install the driver, software, and electronic-format manuals all at once. To install them all at once, see the "Setup Guide" ("Installing the Software").

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Driver Installation Is Impossible

If installation quits partway through or if VPanel does not recognize the machine, the driver may not have been installed correctly. In such cases, perform the following procedures. (If procedure A does not solve your problem, perform procedure B.)

Windows 10 and 8.1 (Procedure A)

1. Connect the machine to the computer with the USB cable and turn on the machine.
2. Click [Desktop].
3. Right-click the [Start] button, and then click [Control Panel].
4. Click [View devices and printers] or [Devices and Printers].
5. Check that the model you are using is displayed under "Unspecified."
6. Right-click the icon of the model you are using, and then click [Remove device].
7. When the message "Are you sure you want to remove this device?" is displayed, click [Yes].
8. Check that the icon for the model you are using is no longer displayed under "Unspecified."
9. Temporarily disconnect the USB cable connecting the machine to the computer, and then reconnect these devices. If the printer icon for the machine you are using is displayed under "Printers," the driver has been successfully installed.

If this does not solve the problem, perform the procedure under "Windows 10 and 8.1 (Procedure B)."

Windows 10 and 8.1 (Procedure B)

1. Connect the machine to the computer with the USB cable and turn on the machine.
2. If the [Found New Hardware] message appears, click [Close] to close it. Disconnect any USB cables for printers or other such equipment other than this machine.
3. Click [Desktop].
4. Right-click the [Start] button, and then click [Device Manager].
5. If the [User Account Control] window appears, click [Continue]. [Device Manager] appears.
6. Click [Show hidden devices] from the [View] menu.
7. In the list, find [Printers] or [Other devices], and then double-click it. Under the selected item, click the name of the model you are using or [Unknown device].
8. Click [Uninstall] from the [Action] menu.
9. In the "Confirm Device Uninstall" window, click [OK]. Close [Device Manager].
10. Detach the USB cable from the computer, and then restart Windows.
11. Uninstall the driver. Carry out the procedure from step 3 on P.92 "Windows 10 and 8.1" (in "Uninstalling the Driver") to uninstall the driver.
12. Reinstall the driver again according to the procedure in the "Setup Guide" ("Installing the Software") or under P.87 "Installing the Driver Separately".

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Windows 7 (Procedure A)

1. Connect the machine to the computer with the USB cable and turn on the machine.
2. From the [Start] menu, click [Devices and Printers].
3. Check that the model you are using is displayed under "Unspecified."
4. Right-click the icon of the model you are using, and then click [Troubleshoot].
5. When a screen is displayed with the message "Install a driver for this device," click [Apply this fix].
6. If a message is displayed asking you to "Set as default printer," click [Skip this fix].
7. When the message "Troubleshooting has completed" is displayed, click [Close the troubleshooter].

If the printer icon for the machine you are using is displayed under "Printers," the driver has been successfully installed.

If this does not solve the problem, perform the procedure under "Windows 7 (Procedure B)."

Windows 7 (Procedure B)

1. If the [Found New Hardware] message appears, click [Close] to close it.
2. From the [Start] menu, right-click [Computer]. Click [Properties].
3. Click [Device Manager]. The [User Account Control] window appears. Click [Continue]. [Device Manager] appears.
4. Click [Show hidden devices] from the [View] menu.
5. In the list, find [Other devices], and then double-click it. Under the selected item, click the name of the model you are using or [Unknown device].
6. Click [Uninstall] from the [Action] menu.
7. In the "Confirm Device Uninstall" window, select [Delete the driver software for this device.], and then click [OK]. Close [Device Manager].
8. Detach the USB cable from the computer, and then restart Windows.
9. Uninstall the driver. Carry out the procedure from step 3 on P.92 "Windows 7" (in "Uninstalling the Driver") to uninstall the driver.
10. Reinstall the driver again according to the procedure in the "Setup Guide" ("Installing the Software") or under P.87 "Installing the Driver Separately".

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Uninstalling the Driver

When uninstalling the driver, perform the following procedure.

Windows 10 and 8.1

* If you uninstall the driver without following the procedure given below, you may not be able to reinstall the driver.
1. Turn off the machine and remove the cable connecting the machine to the computer.
2. Log on to Windows as the computer's administrator.
3. Click [Desktop].
4. Right-click the [Start] button, and then click [Control Panel].
5. Click [Uninstall a program] (or [Programs and Features]).
6. Select the driver of the machine to remove by clicking it, and then click [Uninstall].
If the [User Account Control] window appears, click [Allow].
7. The removal confirmation message will appear. Click [Yes].
8. Click [Start], and then click [Desktop].
9. Open Explorer, and then open the drive and folder containing the driver. (*)
10. Double-click "SETUP64.EXE" (64-bit version) or "SETUP.EXE" (32-bit version).
11. If the [User Account Control] window appears, click [Allow]. The setup program for the driver starts.
12. Click [Uninstall]. Select the machine to remove, and then click [Start].
13. If it is necessary to restart your computer, a window prompting you to restart it will appear. Click [Yes].
14. After the computer has restarted, open Control Panel again, and then click [View devices and printers] or [Devices and Printers].
15. If you can see the icon of the machine to remove, right-click it and click [Remove device].
(*) When using the CD-ROM, specify the folder as shown below. (This is assuming your CD-ROM drive is the D drive.)
D: \Drivers\X64 (64-bit version)
D: \Drivers\X86 (32-bit version)

If you're not using the DGSHAPE Software Package CD, go to the DGSHAPE Corporation website (http://www.dgshape.com/) and download the driver for the machine you want to remove, and then specify the folder where you have extracted the downloaded file.

Windows 7

* If you uninstall the driver without following the procedure given below, you may not be able to reinstall the driver.
1. Before you start uninstalling the driver, unplug the USB cables from your computer.
2. Log on to Windows as the computer's administrator.
3. From the [Start] menu, click [Control Panel]. Click [Uninstall a program] (or [Programs and Features]).
4. Select the driver of the machine to remove by clicking it, and then click [Uninstall].
5. The removal confirmation message will appear. Click [Yes].

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6. From the [Start] menu, select [All Programs], then [Accessories], then [Run], and then click [Browse].
7. Select the name of the drive or folder where the driver is located. (*)
8. Select "SETUP64.EXE" (64-bit version) or "SETUP.EXE" (32-bit version) and click [Open], and then click [OK].
9. The [User Account Control] window will appear. Click [Allow].
10. The setup program for the driver starts.
11. Click [Uninstall] to select this operation. Select the machine to remove and click [Start].
12. If it is necessary to restart your computer, a window prompting you to restart it will appear. Click [Yes].
13. The uninstallation will be finished after the computer restarts.

(*)
When using the CD-ROM, specify the folder as shown below. (This is assuming your CD-ROM drive is the D drive.)
D: \Drivers\X64 (64-bit version)
D: \Drivers\X86 (32-bit version)

If you're not using the DGSHAPE Software Package CD, go to the DGSHAPE Corporation website (http://www.dgshape.com/) and download the driver for the machine you want to remove, and then specify the folder where you have extracted the downloaded file.

Uninstalling VPanel

When uninstalling VPanel, perform the following procedure.

Windows 10 and 8.1

1. Exit VPanel. (Right-click in the task tray and select "Exit.")
2. Right-click the [Start] button, and then click [Control Panel]. Click [Uninstall a program] (or [Programs and Features]).
3. Select "VPanel for DWX," and then click [Uninstall].
4. Follow the on-screen instructions to uninstall the program.

Windows 7

1. Exit VPanel. (Right-click in the task tray and select "Exit.")
2. From the [Start] menu, click [Control Panel], and then click [Uninstall a program] (or [Programs and Features]).
3. Select "VPanel for DWX," and then click [Uninstall].
4. Follow the on-screen instructions to uninstall the program.

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Responding to Error Messages

This section describes the error messages that may appear in VPanel and how to take action to remedy the problem. If the action described here does not correct the problem or if an error message not described here appears, contact your authorized DGSHAPE Corporation dealer. ("%" in these messages indicates information such as axis "X," "Y," "Z," "A," "B," "L,"* or "T"** or a milling bur stocker number from 1 to 15.)

* The vertical movement axis of the lift ** The horizontal movement axis of the traverser

Error number	Message	Action
1000-****	The % limit switch was not found.	P.95
1006-02**	The % axis position has been shifted.	P.95
1017-0000	The front cover was opened.	P.96
1017-0001	The front cover or the magazine cover was opened.	P.96
101C-0000	The milling bur sensor was not found.	P.97
101D-000*	The % milling bur cannot be released.	P.97
101D-0010	The cleaning tool cannot be released.	P.98
101E-****	The % milling bur might be broken.	P.99
101F-****	The % milling bur chucking has slipped out.	P.100
1020/1021-****	The % milling bur is too long./The % milling bur is too short.	P.100
1022-000*	The % milling bur was not found.	P.101
1022-0010	The cleaning tool was not found.	P.101
1023-0000 to 1028-0000	Milling data error.	P.102
1029-0000	The spindle experienced an overload.	P.103
102A-0000	The spindle experienced overcurrent.	P.103
102B-0000	The spindle motor temperature is too high.	P.104
102D-0000	The spindle can not be turned.	P.104
102E-0000	The spindle has collided with the rotary axis unit.	P.104
102E-0001	The changer has collided with the adapter.	P.105
1030-0000	The dust collector is not working.	P.105
103B-0000	The automatic correction is not yet finished.	P.106
103D-0000	Milling data error. The milling bur cannot reach the milling position.	P.106
1047-****	The machine's internal memory cannot be accessed.	P.107
1049-****	The adapter with ID number % cannot be released.	P.107
104A-****	The adapter with ID number % could not be grasped.	P.108
104B-****	The adapter with ID number % was not found.	P.108
104C-****	All stockers are full, so the adapter could not be returned.	P.109
104D-****	An adapter with the same ID was found.	P.109
104E-****	The % limit switch was not found.	P.109
104F-02**	The % axis position has been shifted.	P.110
1050-****	The operation to read a barcode failed.	P.110
******-******	An unknown error occurred.	P.111
	A machine that has the same ID has been connected.	P.111
	The adapter to use during milling has not been set.	P.111

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"1000-****" The % limit switch was not found.

"%" indicates the axis name (X, Y, Z, A, or B or a combination of these axes).

Situation/Error Cause

The operation may be inhibited by milling waste or an obstruction.

Procedure

1. **Turn off the power.**
2. **Remove any objects blocking the operation of the machine and any accumulated milling waste.**
3. **Turn on the power, and then resume operation.**

"1006-02**" The % axis position has been shifted.

"%" indicates the axis name (X, Y, Z, A, or B or a combination of these axes).

Situation/Error Cause 1

The motor position may have been lost.

Procedure

1. **Remove any objects blocking the operation of the machine and any accumulated milling waste.**
2. **Hold down the operation button on the built-in panel.**
   This will clear the error.

Situation/Error Cause 2

The milling conditions may be excessively strict.

Procedure

1. **Hold down the operation button on the built-in panel.**
   This will clear the error.
2. **Review the CAM settings and the shape specified in the CAD data.**

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"1017-0000" The front cover was opened.

Situation/Error Cause

The front cover was opened during spindle rotation. For safety, the machine comes to an emergency stop if the front cover is opened while the spindle is rotating. Do not open the front cover while the spindle is rotating. Doing so may affect the milling results.

Procedure

To continue milling

Press the operation button on the built-in panel.
Milling will resume.

To abort milling

Hold down the operation button on the built-in panel.

"1017-0001" The front cover or the magazine cover was opened.

Situation/Error Cause

The front cover or the magazine cover was opened while the disk changer was operating. For safety, the machine comes to an emergency stop if a cover is opened while the disk changer is operating. Do not open the covers while the disk changer is operating.

Procedure

To continue milling

Press the operation button on the built-in panel.
Milling will resume.

To abort milling

Hold down the operation button on the built-in panel.

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"101C-0000" The milling bur sensor was not found.

Situation/Error Cause

The operation may be inhibited by milling waste or an obstruction.

Procedure

1. **Turn off the power.**
2. **Remove any objects blocking the operation of the machine and any accumulated milling waste.**
3. **Turn on the power, and then resume operation.**

"101D-****" The % milling bur cannot be released.

"%" indicates a milling bur stocker number from 1 to 15.

Situation/Error Cause

The returning of the milling bur failed. The inside of the collet or the ATC magazine might be dirty.

Procedure

1. **Hold down the operation button on the built-in panel.**
   This will clear the error.
2. **Click [Open collet] in VPanel.**
   The collet will open.
   ☞ P.14 ""Maintenance" Tab"
3. **Remove the milling bur.**
4. **Clean the ATC magazine.**
   ☞ P.59 "Cleaning after Milling Finishes"

Situation/Error Cause 2

The collet and milling bur are affixed together and cannot be separated. The inside of the collet might be dirty.

Procedure

Retighten the collet.
☞ P.71 "Retightening the Collet"

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If the Error Occurs Again

The collet may be deformed. In this case, replace the collet.

☞ P.62 "Situations Requiring Part Replacement"

"101D-0010" The cleaning tool cannot be released.

Situation/Error Cause

The returning of the cleaning tool failed. The inside of the collet or the ATC magazine might be dirty.

Procedure

1. **Hold down the operation button on the built-in panel.**
   This will clear the error.
2. **Click [Open collet] in VPanel.**
   The collet will open.
   ☞ P.14 ""Maintenance" Tab"
3. **Remove the cleaning tool.**
4. **Clean the ATC magazine.**
   ☞ P.59 "Cleaning after Milling Finishes"

Situation/Error Cause 2

The collet and cleaning tool are affixed together and cannot be separated. The inside of the collet might be dirty.

Procedure

Retighten the collet.

☞ P.71 "Retightening the Collet"

If the Error Occurs Again

The collet may be deformed. In this case, replace the collet.

☞ P.62 "Situations Requiring Part Replacement"

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"101E-****" The % milling bur might be broken.

"%" indicates a milling bur stocker number from 1 to 15.

Situation/Error Cause

- The milling bur is broken.
- The milling bur holder is out of position.

Procedure

1. **Hold down the operation button on the built-in panel.**
   This will clear the error.
2. **Check the status of the milling bur.**

   When the milling bur is broken
   Replace the milling bur with a new one.

   When the installation position of the milling bur holder is not appropriate
   Install the milling bur holder in the correct position.
   ☞ P.45 "Step 3: Setting the Milling Bur"

Situation/Error Cause 2

The milling conditions may be excessively strict.

Procedure

1. **Hold down the operation button on the built-in panel.**
   This will clear the error.
2. **Review the CAM settings and the shape specified in the CAD data.**

If the Error Occurs Again

The collet may have worn out and its ability to retain the milling bur may have deteriorated. Replace the collet with a new one.
☞ P.62 "Situations Requiring Part Replacement"

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"101F-****" The % milling bur chucking has slipped out.

"%" indicates a milling bur stocker number from 1 to 15.

Situation/Error Cause

The collet may have come loose.

Procedure

1. **Hold down the operation button on the built-in panel.**
   This will clear the error.
2. **Retighten the collet.**
   ☞ P.71 "Retightening the Collet"

Situation/Error Cause 2

The milling conditions may be excessively strict.

Procedure

1. **Hold down the operation button on the built-in panel.**
   This will clear the error.
2. **Review the CAM settings and the shape specified in the CAD data.**

If the Error Occurs Again

The collet may have worn out and its ability to retain the milling bur may have deteriorated. Replace the collet with a new one.

☞ P.62 "Situations Requiring Part Replacement"

"1020/1021-****" The % milling bur is too long./The % milling bur is too short.

"%" indicates a milling bur stocker number from 1 to 15.

Situation/Error Cause

There is a possibility that the position of the milling bur holder is not correct.

Procedure

1. **Check the milling bur.**
   Check that the milling bur length is appropriate (40 to 55 mm).
2. **Check the position of the milling bur holder.**
   ☞ P.45 "Step 3: Setting the Milling Bur"

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"1022-****" The % milling bur was not found.

"%" indicates a milling bur stocker number from 1 to 15.

Situation/Error Cause

The milling bur has not been set or it may have been set on an incorrect stocker number.

Procedure

Set the milling bur in the correct position.

If the error occurred during milling

Press the operation button on the built-in panel.
Milling will resume.

If the error occurred while the machine was on standby

Hold down the operation button on the built-in panel.
This will clear the error.

Situation/Error Cause 2

There is a possibility that the ATC magazine is out of position.

Procedure

Perform automatic correction.

☞ P.65 "Correcting the Milling Machine"

If the Error Occurs Again

The collet may have worn out. Replace the collet. If the error occurs again even after you replace the collet, replace the spindle unit.

☞ P.62 "Situations Requiring Part Replacement"

"1022-0010" The cleaning tool was not found.

Situation/Error Cause

The cleaning tool has not been set or it may have been set on an incorrect stocker number.

Procedure

Set the cleaning tool in the correct position.

☞ P.47 "Step 4: Setting the Cleaning Tool"

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If the error occurred during milling

Press the operation button on the built-in panel.
Milling will resume.

If the error occurred while the machine was on standby

Hold down the operation button on the built-in panel.
This will clear the error.

Situation/Error Cause 2

There is a possibility that the ATC magazine is out of position.

Procedure

Perform automatic correction.

☞ P.65 "Correcting the Milling Machine"

If the Error Occurs Again

The collet may have worn out. Replace the collet. If the error occurs again even after you replace the collet, replace the spindle unit.

☞ P.62 "Situations Requiring Part Replacement"

"1023-0000 to 1028-0000" Milling data error.

- **1023-0000: Milling data error. The number of parameters is incorrect.**
- **1024-0000: Milling data error. The parameter is out of range.**
- **1025-0000: Milling data error. A wrong command is detected.**
- **1026-0000: Milling data error. The address is not defined.**
- **1027-0000: Milling data error. The parameter is not defined.**
- **1028-0000: Milling data error. The operation cannot be executed.**

Situation/Error Cause

There may be a problem with the milling data received from the computer.

Procedure

1. **Hold down the operation button on the built-in panel.**
   This will clear the error.
2. **Review the CAM settings and the shape specified in the CAD data.**

If there are no problems with the milling data
Restart the computer, and then perform milling again.

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Situation/Error Cause 2

When using CAM to select the stocker number, the stocker number set as the second or third milling bur in Intelligent Tool Control has been selected.

Procedure

When using CAM to select the stocker number, do not select the stocker number set as the second or third milling bur in Intelligent Tool Control.

☞ P.55 "Automatically Switching Out the Worn Milling Bur (Intelligent Tool Control)"

"1029-0000" The spindle experienced an overload.

Situation/Error Cause

- The milling bur is worn.
- A workpiece that cannot be milled by the machine is being used.
- The milling conditions are too strict.

Procedure

1. **Turn off the power.**
2. **Check the milling bur, the workpiece, and the CAM settings as well as the shape specified in the milling data.**
3. **Allow the machine to rest for some time before turning on the power.**
   The motor may have overheated.

"102A-0000" The spindle experienced overcurrent.

Situation/Error Cause

- The milling bur is worn.
- A workpiece that cannot be milled by the machine is being used.
- The milling conditions are too strict.

Procedure

1. **Turn off the power.**
2. **Check the milling bur, the workpiece, and the CAM settings as well as the shape specified in the milling data.**

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3. **Allow the machine to rest for some time before turning on the power.**
   The motor may have overheated.

"102B-0000" The spindle motor temperature is too high.

Situation/Error Cause

- The milling bur is worn.
- A workpiece that cannot be milled by the machine is being used.
- The milling conditions are too strict.

Procedure

1. **Turn off the power.**
2. **Check the milling bur, the workpiece, and the CAM settings as well as the shape specified in the milling data.**
3. **Allow the machine to rest for some time before turning on the power.**
   The motor may have overheated.

"102D-0000" The spindle can not be turned.

Situation/Error Cause

The cable may be broken or the spindle unit may be defective.

Procedure

Turn off the power and contact your authorized DGSHAPE Corporation dealer.

"102E-0000" The spindle has collided with the rotary axis unit.

Procedure

1. **Turn off the power.**
2. **Check the milling bur, the workpiece, and the CAM settings as well as the shape specified in the milling data.**
   Remove any pieces of cutting waste and foreign objects that have affixed to the adapter stocker.
3. **Turn on the power.**

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"102E-0001" The changer has collided with the adapter.

Procedure

1. **Firmly press the adapter into the back of the adapter stocker.**
   Remove any pieces of cutting waste and foreign objects that have affixed to the adapter stocker.
   ☞ P.43 "Step 2: Attaching the Adapter to the Machine"
2. **This will clear the error or milling will resume.**

   If the error occurred during milling

   Press the operation button on the built-in panel.
   Milling will resume.

   If the error occurred while the machine was on standby

   Hold down the operation button on the built-in panel.
   This will clear the error.

If the Error Occurs Again

Procedure

1. **Turn off the power.**
2. **Firmly press the adapter into the back of the adapter stocker.**
   Remove any pieces of cutting waste and foreign objects that have affixed to the adapter stocker.
   ☞ P.43 "Step 2: Attaching the Adapter to the Machine"
3. **Turn on the power.**

"1030-0000" The dust collector is not working.

Situation/Error Cause

- The dust collector connection method is not correct.
- The dust collector is not turned on.

Procedure

Turn the dust collector on, and then check the dust collector settings and the filter.

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"103B-0000" The automatic correction is not yet finished.

Situation/Error Cause

- Automatic correction has not been performed.
- Automatic correction was cancelled before it could finish, and the machine was left in this state.
- Automatic correction was not performed after updating the firmware to a version that required automatic correction to be performed again.

Procedure

1. **Hold down the operation button on the built-in panel.**
   This will clear the error.
2. **Perform automatic correction.**
   ☞ P.65 "Correcting the Milling Machine"

Situation/Error Cause 2

The VPanel and machine firmware versions may not match.

Procedure

Download the latest versions of VPanel and the machine's firmware, and then install these versions.
DGSHAPE Corporation website (http://www.dgshape.com/)

"103D-0000" Milling data error. The milling bur cannot reach the milling position.

Situation/Error Cause

The milling bur does not reach the milling position in the Z direction because the milling bur is too short or the angle of the A axis or B axis is too large.

Procedure

1. **Hold down the operation button on the built-in panel.**
   This will clear the error.
2. **Review the milling bur length and the position of the milling bur holder.**
   ☞ P.45 "Step 3: Setting the Milling Bur"
3. **Review the CAM settings and decrease the angles of the A axis and the B axis.**

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"1047-****" The machine's internal memory cannot be accessed.

Situation/Error Cause

It was not possible to write milling data to the internal memory or to read milling data from the internal memory.

Procedure

1. **Hold down the operation button on the built-in panel.**
   This will clear the error.
2. **Send the milling data again.**

CAUTION

Even if this error occurs, the milling data can be sent. However, do not remove the USB cable while milling is in progress.

If the Error Occurs Again

Clear the [Enable data buffering] check box, and then send the milling data again.

☞ P.13 ""Settings" Tab"

"1049-****" The adapter with ID number % cannot be released.

1049-a b ****

a (storage destination)	00	clamp
	01 to 06	Adapter stocker (numbers 1 to 6)
b (adapter ID)	23	Automatic correction jig
	41 to 5A	A to Z

Situation/Error Cause

The returning of the adapter failed.

Procedure

1. **Turn off the power.**
2. **Follow the instructions displayed in VPanel to remove the adapter.**

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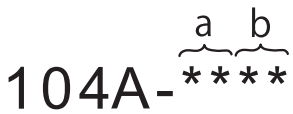
"104A-****" The adapter with ID number % could not be grasped.



a (storage destination)	00	clamp
	01 to 06	Adapter stocker (numbers 1 to 6)
b (adapter ID)	23	Automatic correction jig
	41 to 5A	A to Z

Situation/Error Cause

The acquisition of the adapter failed.

Procedure

1. **Turn off the power.**
2. **Follow the instructions displayed in VPanel to remove the adapter.**

"104B-00**" The adapter with ID number % was not found.

"%" indicates the ID of the adapter (A to Z) or of the automatic correction jig (#).

Situation/Error Cause

The adapter to use has not been installed in the adapter stocker.

Procedure

Install the adapter in the adapter stocker.

Situation/Error Cause 2

The adapter ID label may not have been affixed to the adapter correctly.

Procedure

Check that the adapter ID has been affixed to the adapter correctly.

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"104C-0000" All stockers are full, so the adapter could not be returned.

Procedure

Check the adapters that are not in use and remove them from their adapter stockers.

If the error occurred during milling

Press the operation button on the built-in panel.
Milling will resume.

If the error occurred while the machine was on standby

Hold down the operation button on the built-in panel.
This will clear the error.

"104D-00**" An adapter with the same ID was found.

"%" indicates the ID of the adapter (A to Z) or of the automatic correction jig (#).

Procedure

Attach the adapters again so that there are no duplicate adapter IDs.

"104E-****" The % limit switch was not found.

"%" indicates the axis name (L or T).

Situation/Error Cause

A foreign object may be present along the movement path of the disk changer.

Procedure

1. **Remove any foreign objects that are present along the movement path of the disk changer.**
2. **Restart the machine.**

If the Error Occurs Again

Contact your authorized DGSHAPE Corporation dealer.

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"104F-02**" The % axis position has been shifted.

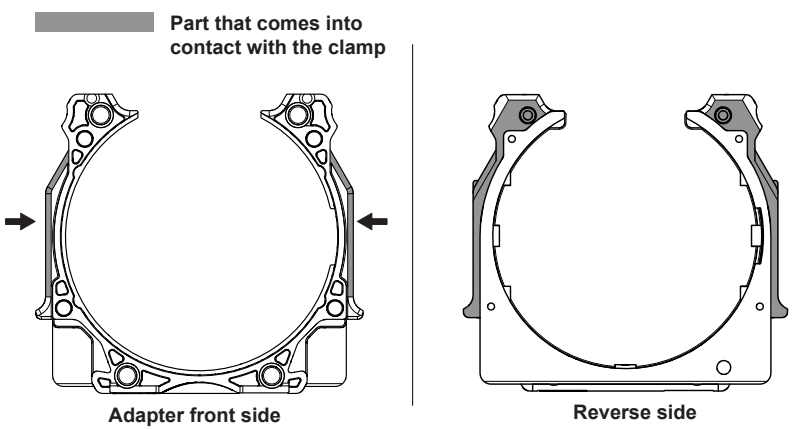
"%" indicates the axis name (L or T).

Situation/Error Cause

The position of the motor on the disk changer side may have been lost.

Procedure

1. **Turn off the power.**
2. **Remove any foreign objects that are present along the movement path of the disk changer.**
3. **Follow the instructions displayed in VPanel to remove the adapter.**
4. **Check the part of the adapter that comes into contact with the clamp. Replace the adapter if it is scratched or deformed.**



"1050-****" The operation to read a barcode failed.

Situation/Error Cause

- The adapter ID has not been affixed to the adapter.
- Dirt has affixed to the adapter ID.
- Dirt has affixed to the barcode sensor.

Procedure

1. **Check the status of the adapter ID.**
   Check that the adapter ID label has been affixed to the adapter. Remove any dirt that has affixed to the barcode of the adapter ID label.

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2 **Clean the barcode sensor.**

☞ P.60 "Cleaning Inside the Magazine Cover"

"****-****" An unknown error occurred.

Procedure

Restart the machine.

If the Error Occurs Again

Contact your authorized DGSHAPE Corporation dealer.

A machine that has the same ID has been connected.

Procedure

1 **Remove all the USB cables that are connected to the computer.**

2 **Delete the unnecessary devices from "Devices and Printers."**

Delete the unnecessary devices according to the procedure under P.90 "Driver Installation Is Impossible".

3 **Connect multiple devices.**

☞ "Setup Guide"

The adapter to use during milling has not been set.

Procedure

1 **Install the adapter to use in the adapter stocker.**

2 **Send the milling data again.**

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